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R/C CAR

ULY 2002 THE RADIO CONTROL CAR MAGAZINE

GIANT TEST ISSUE!



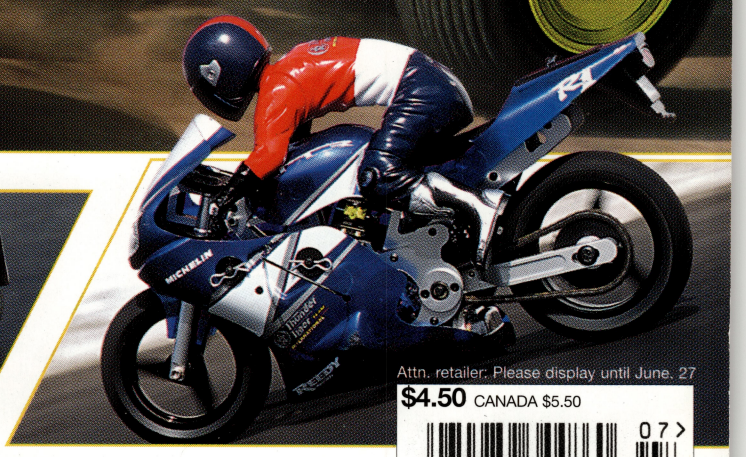
TEAM ATLAS YM-34T



LOSI'S NEW DRAKE EDITION TRIPLE-X NT



TAMIYA F201 FERRARI F2001



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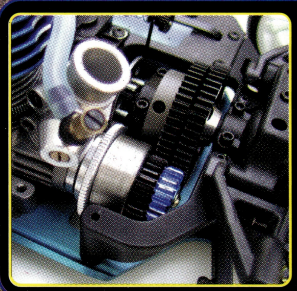
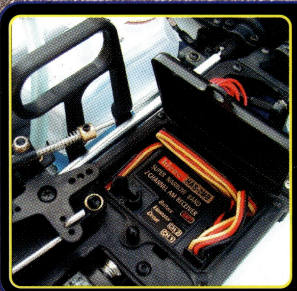
NITRO ae TC3



Pivot-ball type suspension with easily adjustable caster, camber, and toe-in. Interchangeable front and rear hub carriers. Pivot balls feature fine-thread stud for the most precise adjustment. Setup tools included for easy, accurate setup.



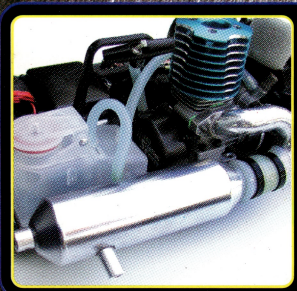
Two-speed shoe-type transmission, externally adjustable. Optional thread-on aluminum pinions (20, 22, 24, or 26 teeth) available. Dual-shoe clutch with easy-to -change clutch springs. Accepts both SG-style and standard short crankshafts.



Enclosed receiver compartment provides protection from spilled fuel and dirt. Easily removeable radio tray detaches for cleaning with just six screws. Fits most popular receivers and servos, and any style receiver battery packs.



Rear-exhaust manifold and pipe featured in non-pull start kit #2031. All kits include complete linkages to fit both rotary and slide-style carburetors.



Side-exhaust manifold and pipe featured in pull-start kit #2030. Reverse-fill fuel tank and convenient carrying handle included in all kits.



Pro-Line V-Rage tires on white "Gumby" wheels

Protective, 2-part rubber-mounted ABS plastic / foam front bumper



Nitro TC3 Team Kit

Pull-Start/ Side Exhaust **#2030**

Non-Pull Rear Exhaust **#2031**

Team Kit #2031, (rear-exhaust) shown with items NOT INCLUDED in kit: Pro-Line Stratus body, nitro engine, radio gear, servos, and receiver battery.

Send for your FREE NITRO TC3 Catalog

- **Fits both side-exhaust, pull start or rear-exhaust engines**
- **Fits both rotary and slide-valve carburetors, both linkages included**
- **Two speed, shoe-type transmission, externally adjustable**
- **Sealed ball bearings • Threaded blue aluminum shocks**
- **Tuned Pipe and manifold included**



BONUS!

Free Setup tool included for easy, accurate setup of camber, track width, ride height, and rear toe-in

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Ad#1084

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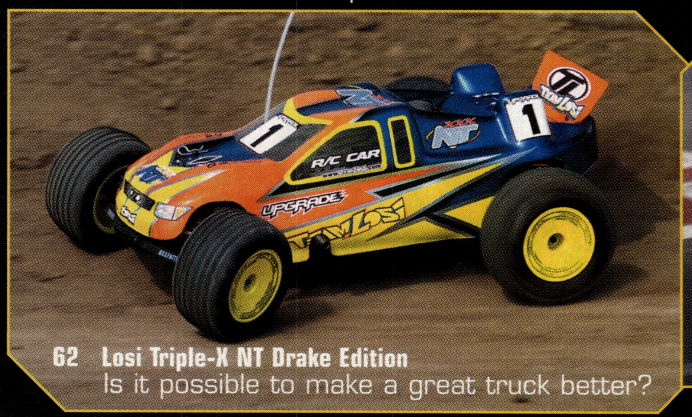
Cool realism in a pocket racer

44 Atlas YM34T
A close look at a competitive sedan



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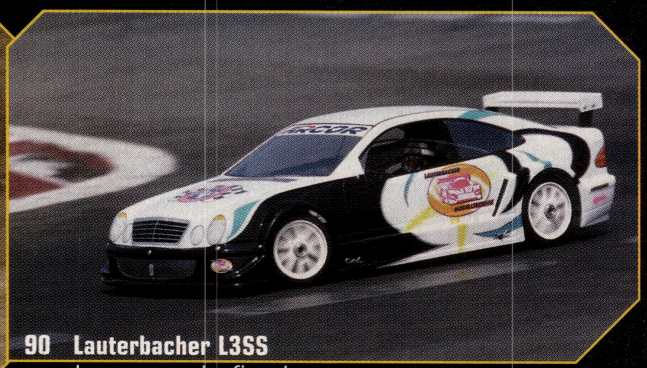
Is it possible to make a great truck better?



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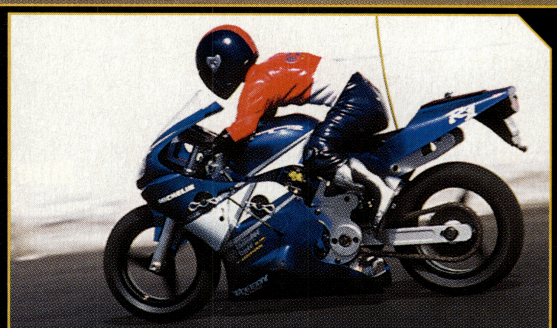

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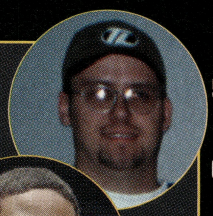



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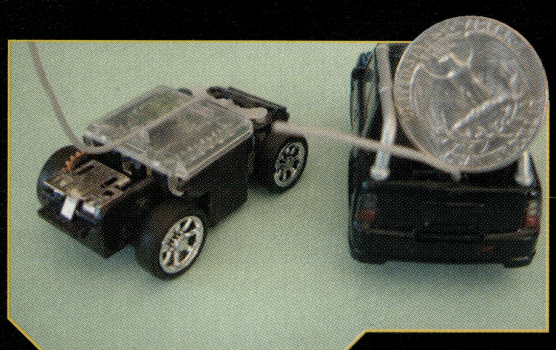

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On the cover: Team Losi's new Triple-X NT Adam Drake Edition (photo by Adam Campbell)

Glue-some twosome



NEW
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THE RADIO CONTROL CAR MAGAZINE

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HOT BODIES TEAM ORION

RACING TIRES

Designed, developed, and tested by Atsushi Hara and Oscar Jansen featuring:

- Innovative tire sidewall design for maximum traction while entering and exiting corners
- Lightweight belt reinforcement for increased acceleration and stability as well as higher cornering speeds
- New, wider temperature tire compounds
- Reduced sensitivity to temperature variations
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- New molding process for maximum traction from the first use - no cutting or grinding is necessary!

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75001	B type 24 mm 0°C - 45°C (32°F - 113°F)
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SUPER VALUE 4 PIECES PER BAG

JB Foam



arpet Racing Insert

601	Yellow - Soft
602	Blue - Medium
603	Black - Hard

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sphalt Racing Insert

001	Yellow - Soft
002	Blue - Medium
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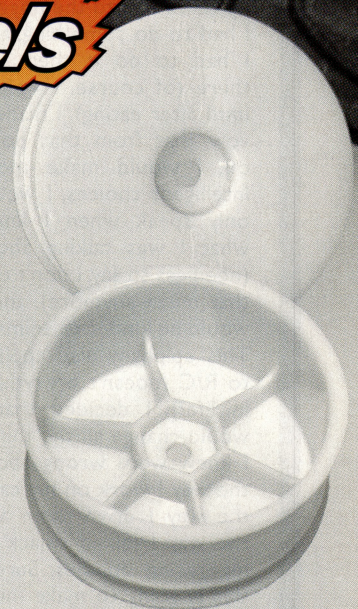
SUPER VALUE 4 PIECES PER BAG

eam Orion / JB Foam inserts feature:

- Lightweight design for increased acceleration
- High density for consistent traction
- Color coded for easy identification
- Resistance to high temperatures
- Development and testing by World Champions

JB Wheels



Team Orion / JB Wheels all new computer designed and simulated aerodynamic dish wheel features:

- Hex centering tabs to insure perfect balance and fitment on all hex drives
- Pre-molded air holes for better balance and optimum tire contact patch
- Rounded edges to prevent dirt from sticking and ensure proper aerodynamics
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- Soft, hard, and extra hard densities to maximize traction and handling in all conditions

73000	24 mm White - Soft
73001	24 mm White - Hard
73002	24 mm White - Extra Hard
73100	26 mm White - Soft
73101	26 mm White - Hard
73102	26 mm White - Extra hard

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[Drivers' Stand]

BY FRANK MASI

Dumb is a treatable malady

I realized today that I've been doing a lot of dumb things lately. While on my way to meet Doogie and Jason for a photo shoot, I pulled in to a Mickey-D's to order a healthful dose of "burgerfriescoke," only to be informed by the barely intelligible voice from the speaker that if I wanted that order, I should pull into McDonalds, not El Pollo Loco.

The scariest part was that I live in the same town as these fine establishments, so I couldn't even count on the old "lost tourist" routine to hide my utter embarrassment. Nothing says "clueless geek" more than exiting one drive-thru and pulling a 180 to enter another (OK, this could also say "Rosie O'Donnell").

This, my friends, served as a reality check, a wake-up call, a slap to the noggin. I had to do something, and I had to do it then and there (of course, I waited until after eating). I made a vow that from that point on, I would make more intelligent choices, I would only speak when I knew what I was talking about (needless to say, I don't talk that much anymore), and I would be kinder to animals. This epiphany also applied to R/C (doesn't everything in life?). I decided that I would change all the things I knew were wrong about the way I work on my cars, the way I drive them and the way I talked smack to my racing buddies. Surely, this is going to make me a better person. At the very least, I'm pretty sure that when I order a Big Mac, I won't get a Fiesta Chicken Bowl.

So here's my list of things that I'll be doing differently from now on:

Whenever I work on my cars, I'm going to be wearing latex gloves. Call me a pansy, but let me school you: everything you get on your skin can enter your bloodstream. Maybe Superman's skin is impervious to acid, but your skin soaks up stuff like nitro fuel and motor spray like a sponge.



Stuff like this is nasty, and it can cause long-term health issues such as nerve damage and cancer. Still think I'm a wuss?

I'm going to buy a 4-40 tap. Maybe you'll build one or two Losi and Associated kits in your lifetime. Me? I build about 20 per year. And you know what? I'm tired of getting arm pump from threading all those 4-40 screws into that composite. If I just tapped each hole before building, the screws would go in like butter, and there will be much less chance of one of them snapping.

I spend hours testing to get my cars and trucks dialed-in. But then, something amazing happens. When it's time to rebuild, or a friend asks me for my setup, I haven't a clue as to what shock oil or tire inserts I used. I am going to start writing all this stuff down. Even if I don't have a proper setup sheet, I'm going to start carrying a little notebook in my toolbox for just such occasions.

You know how we're always telling you to use threadlock on all metal-to-metal fasteners on your gas cars and trucks? Guess what: the screw that holds the servo arm to a metal-gear servo is, ta-da, a metal-to-metal connection. I've had these fall out even on electric cars.

I can't tell you how many times I've showed up to races and photo shoots with the wrong transmitter! Don't laugh, I've seen some of your garages, and you guys might have more R/C stuff than we do! What do you do when it's not practical to drive back home for the right radio? One improvises. I've run a $2,000 gas car with a $45 AM radio that didn't even have dual-rate (that's like your Aunt Betty driving a Ferrari). Conversely, I've run $80 cars using a $300 PCM computer radio (and that would be like Michael Schumacher driving a Hyundai Elantra). Go figure.

Now I can't say that I'll be able to adhere to all of these resolutions, but I'm sure going to try. But I'm a little worried; as I sit at my desk and write this I just remembered that the truck I'm supposed to shoot for the cover tomorrow is with Doogie. Unfortunately, right now Doogie is flying over the Pacific on his way to Japan.

TOUGH TRUCKS NEED TOUGH STUFF



SUPER ROOSTER

This virtually indestructible speed control is the optimal choice to power your monster truck. Built tough for reliability, this Rooster has more than earned its Super reputation.

- Ideal for dual motors (down to 15 turns)
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- No motor limit*
- 320A forward/160A brake
- Smart Braking Circuitry
- Heavy-duty, 3-amp (continuous) BEC

*No motor limit for single motors



XXTRA

The rumors are true: no more crystals to hassle with. Changing frequencies is now just a twist of the dial away – bringing new meaning to getting "dialed in."

- Synthesized FM receiver (no receiver crystals required!)
- Low-voltage operation
- 5-channel operation, with ultra narrow band channel spacing
- Outstanding range
- Compatible with all popular radio systems
- External battery slot and DSC connection



XXL

Don't let its small size fool you—this tiny receiver is loaded with sophisticated technology that will help your truck perform its best. Available on all legal bands in AM or FM, the XXL is known for its glitch-free reception.

- Low-voltage operation
- Solid State Reverse Voltage Protected
- Small size and light weight – great for tight spaces
- Ultra narrow band channel spacing
- Compatible with all popular radio systems
- External battery slot and DSC connection



MILLENNIUM PRO

Battery technology has progressed—so should your charger's technology. While peak detection was once fine for NiCd's, NiMH's require the finesse and accuracy that only Novak's new Ni-MH2 mode provides.

- 3 charge modes: Novak Ni-MH2, Ni-Cd Linear, & Ni-Cd Reverse Pulse
- Battery analysis and conditioning
- 12-15 VDC input voltage only
- Helps prevent false peaking and overcharging
- Fully protected with fuse protection on input
- Built-in Pit Wizard software



IONIC

The convenient Ionic AC/DC charger is affordable, reliable, user-friendly, and most importantly, equipped with Novak's exclusive Ni-MH2 charge mode, which is ideal for charging NiMH cells.

- Dual mode: Novak Ni-MH2 and Ni-Cd Linear
- Universal 100-240V AC input voltage, or 12-15 DC input voltage
- Dual inputs for internal or external power supply
- Battery analysis and conditioning
- Thermal and Output protected
- User-replaceable output wires

Ni-MH2 MODE

The MILLENNIUM PRO and the IONIC chargers are equipped with Novak's exclusive Ni-MH2 mode: the most effective way to charge your NiMH cells. This exclusive mode utilizes a highly accurate charge algorithm that helps prevent false peaking and dangerous overheating, giving you a fully charged battery each and every time without the possibility of overcharging.

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You're looking at one of the most-raced radios on the planet.

Why? Simply because it's got what racers need.

For starters, the XR3's FM modulation and sensitive, highly selective receiver put you in control and keep you there. And once you've experienced using its digital trims, you'll never consider settling for anything less.

Next, factor in 3-model memory, 3 channels, race-adjustable brake and steering rates, adjustable endpoints plus subtrim, and there's no doubt why it's a winner.

Finally, just to sweeten the deal, you can now get your XR3 in a new, race-oriented configuration—with a single, high torque, high-precision steering servo. All for around 170 bucks.*

So speed on down to your local shop or racetrack today and see what you've been missing!

* At participating dealers.



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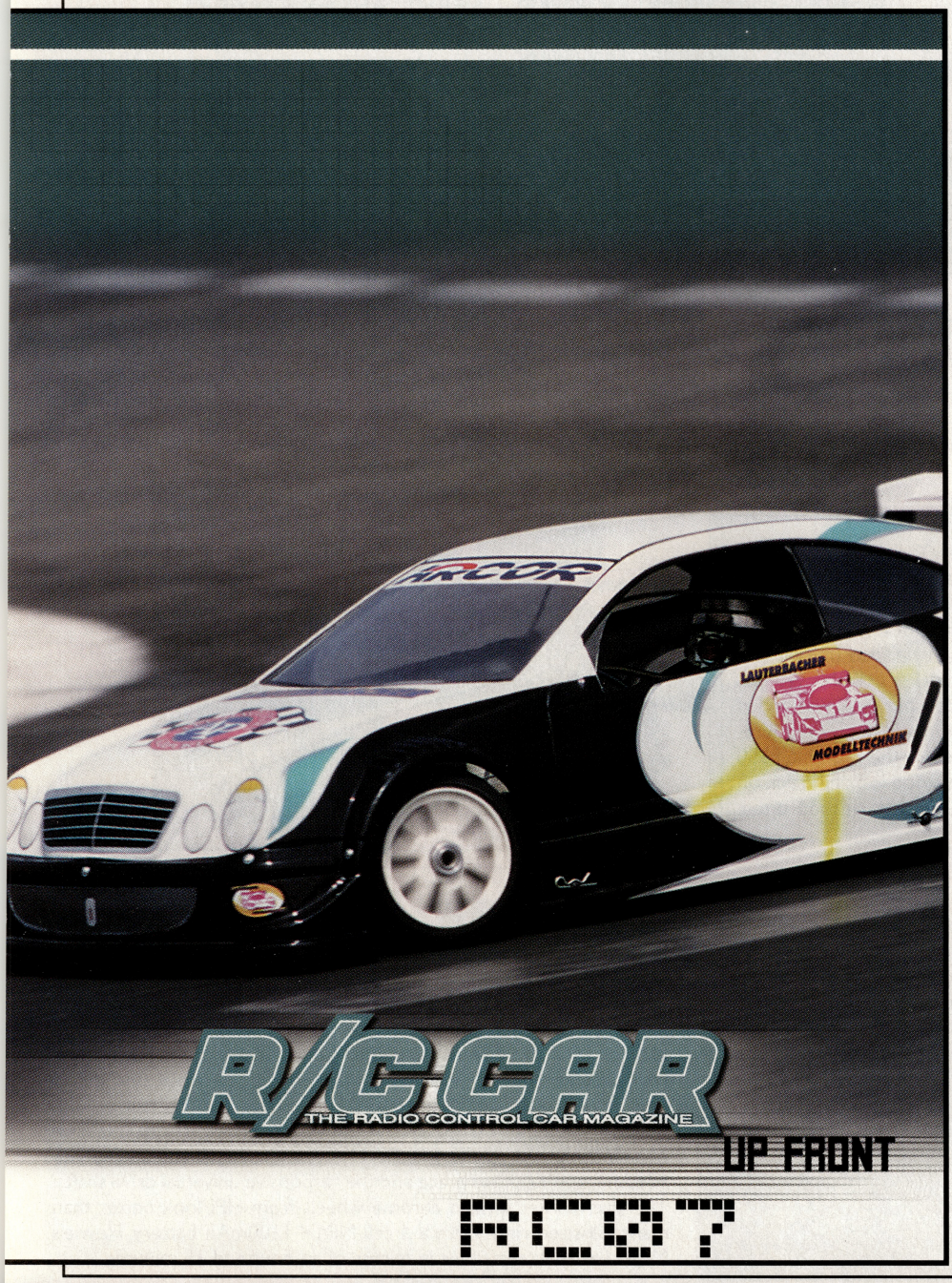
UP FRONT





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THE RADIO CONTROL CAR MAGAZINE

UP FRONT

RC07



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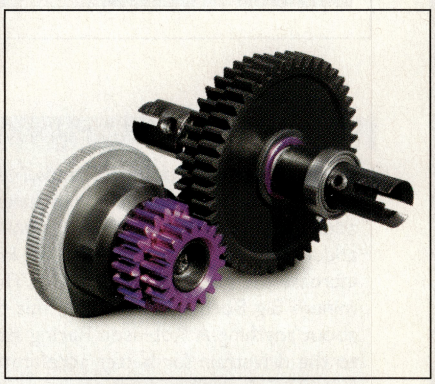


NEWS [PAGE 14]



TRUCK COLUMN [PAGE 20]

[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!

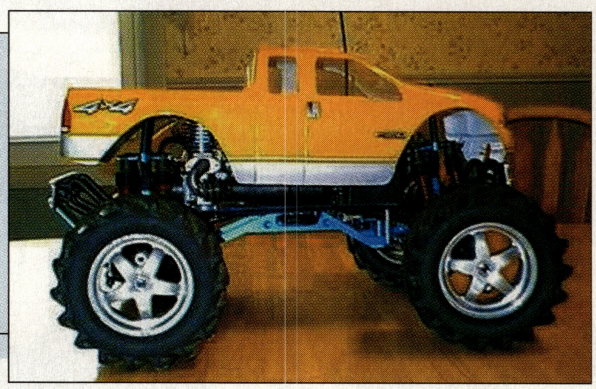


RESTLESS RUSTLER

This Traxxas Rustler is driven in Ocala, Florida, by Anthony Hutton. Anthony says this truck's purpose is to tear up the track. With that said, let's find out what he's got under the hood. The power is laid down by a Paradox rebuildable stock motor. Traction up front is provided by Pro-Line Edge tires which increase the truck's steering capabilities. In the rear, Pro-Line Dirt Hawgs rip up the terrain and transfer the motor's meaty horsepower to the ground. Both sets of tires are mounted to the popular RPM chrome Talonz rims. The stylish truck is then outfitted with a Ford F-150 body which is also from Pro-Line. A Traxxas TQ radio provides the controls and completes the package. Thanks, Anthony, for a peek at your truck.

TOUGH-AS-NAILS T-MAXX

Martin Hubbard of Horseheads, New York, decided to trick out his T-Maxx and send a few pictures our way. He started by adding GPM front and rear aluminum skid-plates. Then Martin added a GPM ball bearing steering kit with a Hitec servo to increase the Maxx's turning power. The upgraded Traxxas aluminum Big Bore shocks enable this truck to climb over just about anything. A Robinson Racing steel spur gear was added to the drivetrain for better acceleration and improved durability. The nice paint scheme was applied to the Pro-Line F350 body by Martin himself. He has a really good looking truck on hishands, and it appears that the truck gets cleaned often. Keep up the good work, Martin.





MIGHTY MICRO

Howie Cummings of Cohoes, New York, says he loves our magazine. Although compliments are well received at R/C CAR, it is Howie's car, not his praise, that earns him a spot in this month's Reader's Projects. The intricate lightning bolts and stylish scheme on Howie's Micro RS4 were painted by a good friend of his. The chassis, rear plate and upper plate are all from Ratzas. The stock rear differential was tossed and replaced with HPI's super smooth rear ball differential. He then installed a Associated micro shock to keep his one-of-a-kind planted to the ground. Dynamite supplied the sturdy aluminum front bulkhead brace and the responsive universal drive shafts. The aftermarket spoked chrome wheels from HPI look better than many full-sized rims. With a 4 cell NiMH 1100mAh battery, Howie's Micro has seen run times in excess of an hour and 15 minutes.



ELECTRIFYING E-MAXX

This E-Maxx has been customized by owner Mike Mart. Mike used an Extreme Racing chassis with Pro-Line performance suspension arms in his quest to change both the look and feel of his truck. RPM front and rear bumpers and bulkhead braces replace the stockers. Associated shocks are dressed with RC Raven dual-stage shock springs and RPM dual-stage shock pistons. The suspension keeps this truck on all fours, preventing the dialed body from receiving any scratches. Take a look at this obviously time-consuming paint scheme that left us very impressed. Like many readers, Mike has plans to continue to change his project truck. In time, Novak will release their brushless motor, and as soon as they do, Mike plans to install the system in his truck.

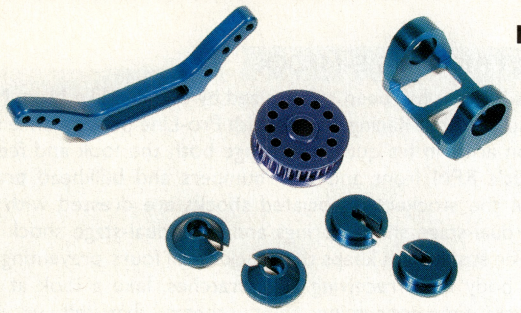




PURPLE PEOPLE EATER

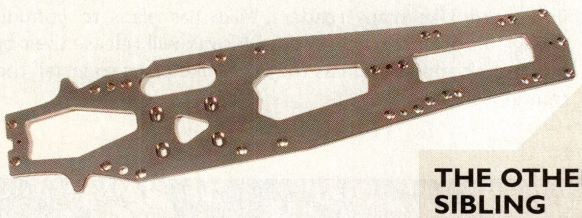
Eric Depenning of Newton, Iowa, has sunk over $3,000 into his prized purple T-Maxx. This truck is completely hopped-up, with no stock parts! The anodized chassis, chassis braces, shock towers, servo mounts, steering blocks, bumpers, front and rear skid plates, and gearboxes are just some of the Megatech parts strapped to this beautiful beast. An M16 engine spins the 18 tooth clutch bell and Robinson Racing Products steel spur gear with authority. MIP CVDs, RPM A-arms, Traxxas titanium hinge pins and turnbuckles were also installed to increase performance. Hot Bodies' anodized purple threaded shocks replace the plastic stock ones. A powerful Airtronics 200 in/oz. servo is used for steering, and a Hitec 625 metal-gear servo runs the throttle linkages. Eric's T-Maxx also features a radio-operated tilting body, with cool working lights that can be turned on or off. The tricked-out truck has a complete set of Boca bearings, which improve the drivetrain's efficiency. Since this ride needs more than two channels to operate, a Multiplex Profi Car 707 radio with a 7 channel receiver is used. Many hours and dollars have been invested into this Maxx, and this is why it does not get much run time. According to Eric, not quite a half gallon of fuel has been run through the engine, and second gear has only been reached six or seven times. Wouldn't you keep a truck of this quality in pristine condition? Thanks Eric, for a good look at your great truck.





MAKE YOUR V-ONE R HOTTER

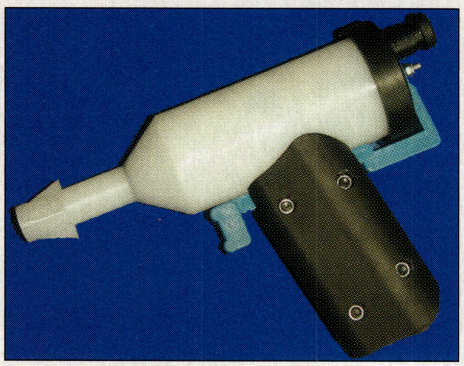
The folks at Hot Bodies have more up their sleeves than just Lexan. Take for example their new line of hop-ups designed to make the hot Kyosho V-One R nitro sedan even more potent. Hot Bodies offers a beautifully finished 3mm 7075 aluminum chassis (part no. 60002), a set of blue-anodized aluminum center bulkheads (no. 60012 - not shown), a blue-aluminum center-shaft support (no. 60001) and a set of machined aluminum belt-pulleys (no. 60007—27T; 60006—19T; and 60006—18T). Also shown is Hot Bodies' cool set of aluminum spring retainers for the V-One R (no. 60005). Contact Hot Bodies at (562) 468-1121.





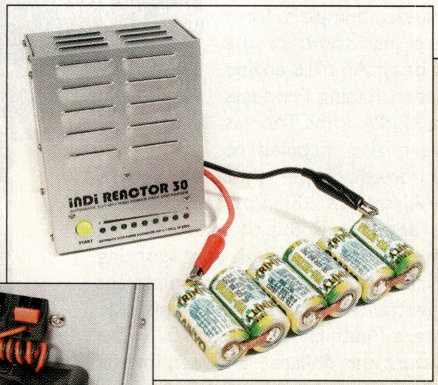
THE OTHER SIBLING

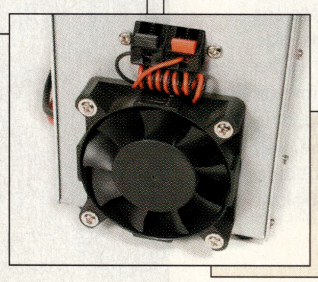
Pro-Line was out at the recently held Cactus Classic testing a pair of new off-road tires. Called the Evil Twins because they are offshoots of existing Pro-Line tread designs, the new tires should be the hot ticket on hard-pack. The buggy tire is similar to a Square Fuzzie, but has a larger center bar section. The truck version is based on the Holeshot, but like its buggy counterpart, its center bars are also larger. Sources tell us that the truck tire will come with exterior sidewall ribs, not the smooth sidewall shown on this prototype. For more information, contact Pro-Line at (909) 849-9781.



NITRO SIX SHOOTER

Our buddy Garen Hagobian from GS recently showed us this prototype of a new fast-fill fuel gun from General Silicones. The gun is designed to completely fill a tank in seconds - without adding unwanted air bubbles or overfilling the tank. The tapered rubber filler tip is also designed to work with filler lids of various diameters, from 1/10-scale to 1/8-scale. Contact General Silicones for more information at (626) 338-3815.





OVER-REACTIVE

If you want the highest voltage from your batteries, then you should "train" them to discharge at a higher current (just like the battery matchers do). INDI Electronics now offers its popular Reactor discharger in this new 30-amp model. To discharge your battery after a run, simply hook the Reactor 30's polarized leads to your pack and press the start button. The Reactor 30 will automatically drain your cells at an approximate 30A rate, while an automatic voltage cutoff ensures against cell reversal. The Reactor 30 comes with a large, built-in cooling fan, and sells for $45.99. Contact Integy at (909) 444-2766 for additional information.

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One the Fastest Ready-To-Run® Nitro Trucks Ever Made!

RTR READY TO RUN

Fast, Fully Assembled and Ready-To-Run® with a Hot Six Color Painted Body!

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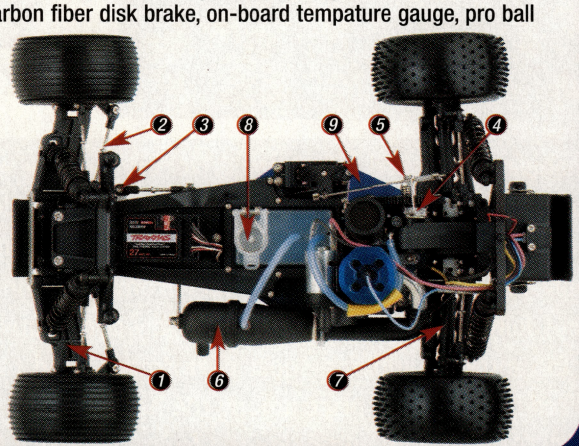
TRAXXAS®

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
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- Oil groove piston
- Dual O-ring carb seals
- Sealed ball bearings
- High power output
- 2-year warranty
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PLANETARY DIFF

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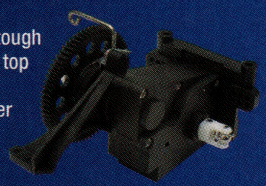
MAGNUM 281 TRANNY

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.



THE SUPPORT EDGE

Traxxas is there with service and support you simply won't find anywhere else. Everything is covered by the same warranty, service, and parts support from ONE manufacturer. Whether it's a question about an engine, a radio, or performance upgrades, 1-888-TRAXXAS is your toll-free link to fast, friendly solutions.

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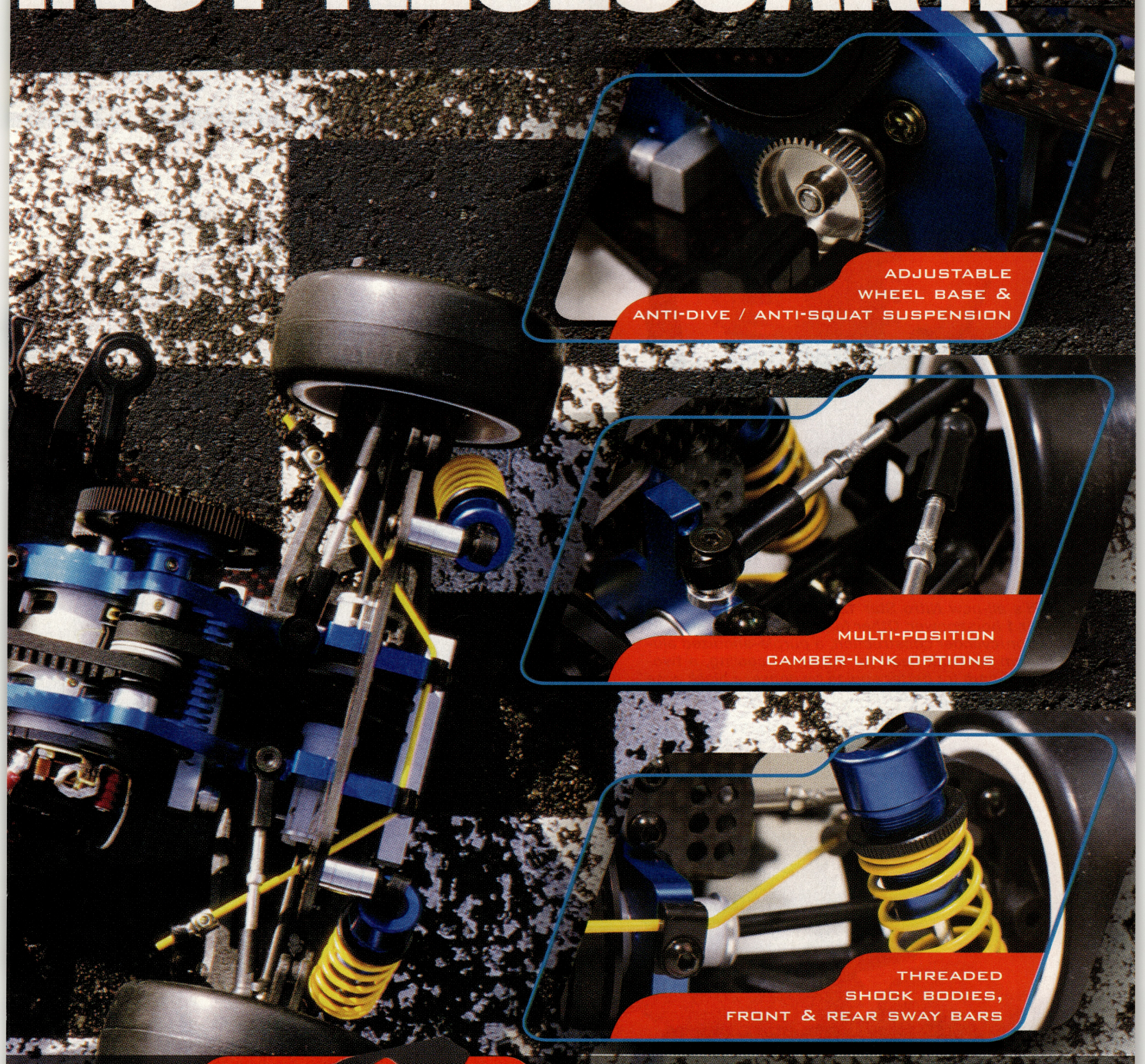
WIN AT ANY COST



The legend goes like this, a certain manufacture asked a few key drivers what they wanted and *needed* to win under no uncertain terms. They told that manufacture and ... it was done! So suddenly a select group of speed freaks were running around with this trick chassis that was engineered to win at any cost. The legend *is* fact and Tamiya was the one that delivered. Now you to can prosper from this winning endeavor. Tamiya's new TRF 414M II is available and comes fully loaded, race-ready and highly competitive, all at a great price. Equipped with adjustable roll center for anti-dive and anti-squat performance and tons of anodized parts among other features, this machine is ready to take it's place among the heavy hitters. So get to your hobby shop or for more info try WWW.TAMIYAUSA.COM and enjoy the fruits of victory knowing that winning at any cost did not cost you a bundle.

.NOT NECESSARY.



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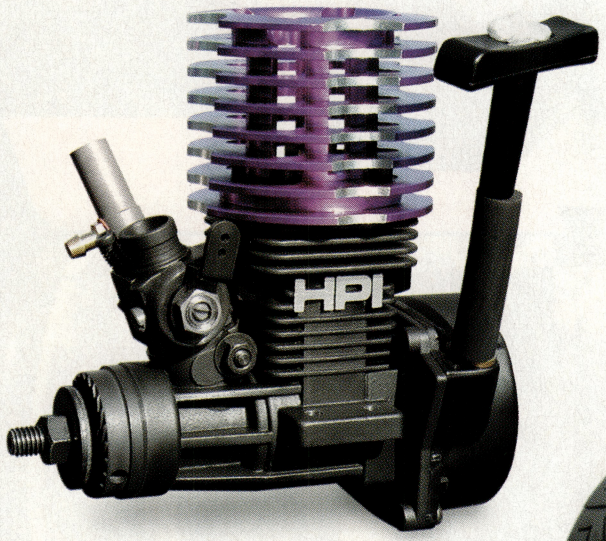
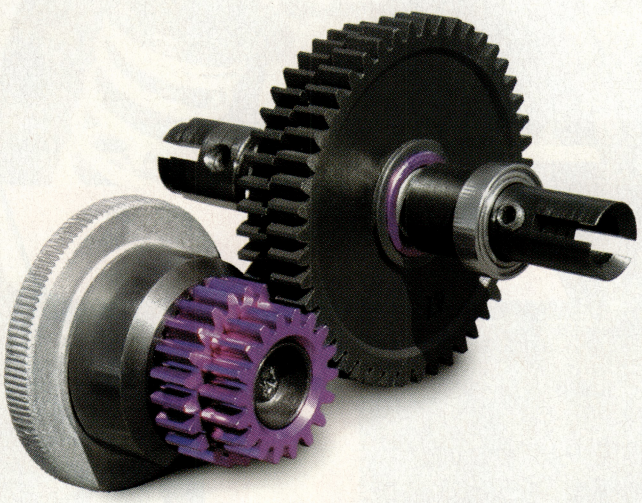


HPI's all-new Nitro Star 12R SS engine cranks out over 1 horsepower. Other features include true ABC piston/cylinder construction, a purple-anodized aluminum heatsink head for improved cooling, a two-needle carb for better engine response, a black case and a handy pull-starter.

SUPER SPORT SHAFT

We were wrong. We have to now admit that when we reviewed HPI's all-new Nitro RS4 RTR 3 in last month's issue, we erroneously stated that the shaft-driven RTR 3 would not be replacing the triple-belt Nitro RS4 2 in HPI's lineup. Based on press release information, HPI is touting its new Nitro RS4 3 Type SS as the "successor to the Nitro RS4 2." If you recall from the RTR 3 review, HPI decided to ditch the belts in favor of a more reliable shaft-driven 4WD system that would be less likely





Shiftin' gears. Also included with the Type SS is an automatic-shifting 2-speed transmission. This will certainly wring the most performance from the new Nitro Star 12R SS engine, as it maximizes gearing for both improved acceleration and higher top-speed.

to suffer from damage caused by stones, and this feature carries over to the new Type SS. But where the RTR 3 is targeted at the novice nitro-head, the Type SS looks to be more in line with what racers want. Here's a rundown on the new car's features.

First, the Type SS will be available only as an unassembled kit. This allows you freedom to pick your favorite radio gear, so you can install a stronger steering servo to improve the car's response. Also of importance is the inclusion of HPI's brand new Nitro Star 12R SS pull-start engine, which, according to HPI, puts out over 1 horsepower! And if all this weren't enough, HPI throws in a 2-speed transmission to sweeten the pot! The Type SS shares the RTR's 2.5mm purple-anodized aluminum chassis (with countersunk screw holes, of course),



Gone are the belts of the previous Nitro RS4 2. Instead, HPI has chosen to utilize a shaft-driven 4WD system similar to that of its off-road Nitro MT truck. Although similar in appearance to the new RTR 3 (reviewed last month), the new Type SS is definitely targeted at a more experienced hobbyist, as it comes with several racing features.

HARA WINS PRE-WORLDS

Team Orion factory driver and current World Champion Atsushi Hara dominated the On-Road World Championship warm-up event in Krugersdorp, South Africa. After setting a blistering pace and taking home top qualifying honors, Hara won all three A-mains to secure the championship and make him the early favorite to wrap up his second consecutive On-Road World Championship title. Hara used an HPI RS4 Pro 3, powered by an Orion Core Touring 8-turn double, which was fine-tuned by Oscar Jansen using Orion's Sprint Serrated full-face brushes and 180-degree Pro Springs. Hara also used a set of Team Orion/JB Wheels hoops (in the extra-hard compound), along with Team Orion/HB tires.

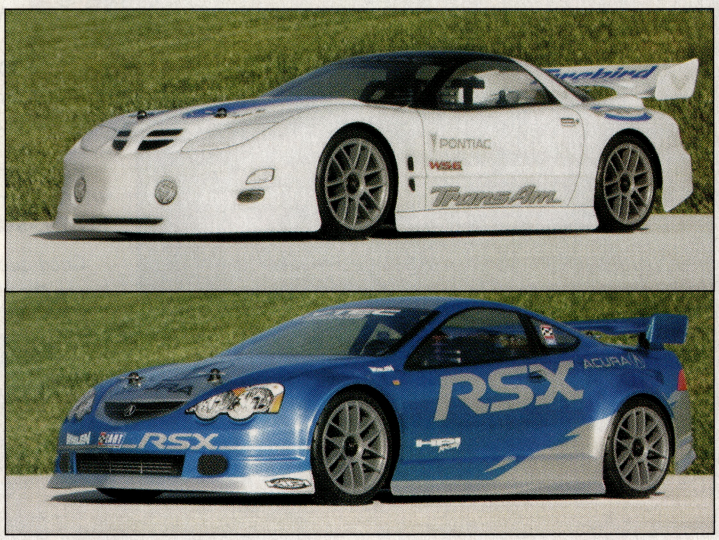
Results:

Driver/country	car	motor
1. Hara/Japan	HPI	Team Orion
2. Surikarn/Thailand	Tamiya	Reedy
3. Hirosaka/Japan	Yokomo	Reedy
4. Adachi/Japan	Yokomo	Reedy
5. Tossolini/USA	Yokomo	Fantom
6. Groskamp/Holland	Xray	Peak
7. Kitazawa/Japan	Yokomo	Reedy
8. Kauppinen/Finland	Xray	LRP
9. Spashett/UK	Losi	Trinity
10. Jansen/Holland	HPI	Team Orion

as well as that car's basic drivetrain arrangement (although the Type SS comes with a tuned front diff).

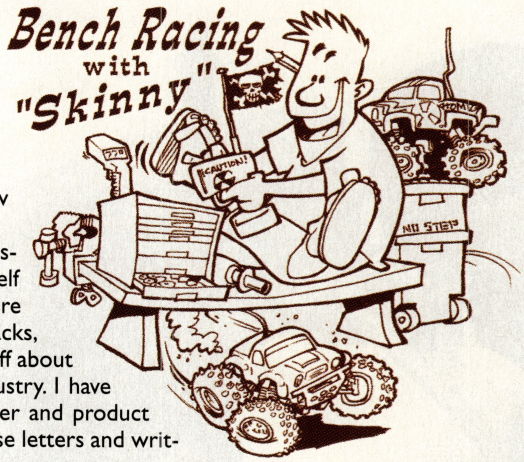
The Type SS comes with a new free-flowing tubular exhaust header (connected to a dual-chamber tuned muffler), as well as a full set of 18 rubber-sealed ball-bearings. At each corner, you'll find HPI's high-grip D-compound X-pattern radial tires (with one-piece foam inserts - no more bunching of strip-type inserts!) mounted to Split-6 nylon wheels. And if that weren't enough, HPI also includes a full set of steel turnbuckle tie-rods for easy suspension adjustments (the RTR 3 has fixed-length rods), and a pre-cut foam bumper for added crash protection.

For additional information, call HPI Racing at (949) 753-1099.



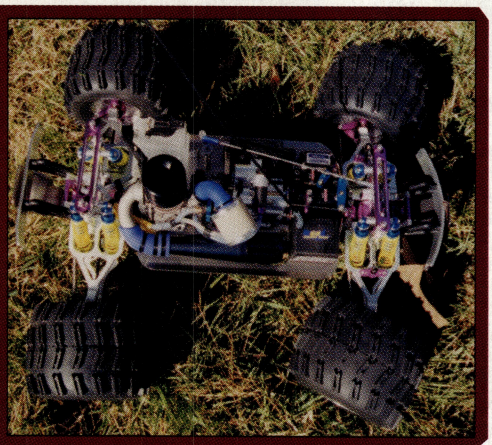
There are two Type SS kits available. The first is the Acura RSX (part no. 443), and the second is the Pontiac Firebird (no. 442). Both kits come unassembled and without radio gear. The bodies arrive clear, but include pre-cut window masking and a large array of premium vinyl decals.

Hello there! How are my fellow R/C nuts doing? Me? I'm doing fine. It seems that I'm taking on a new position in life; I'm becoming the "Pied Piper" of R/C trucks, extolling the wonders of R/C cars and trucks across the land! In last month's issue, you read about the Monster Jams I got to do with that crazy guy Alkibo and his cronies, the O.C.T.M.C. Now that was fun! So now check this out: I got suckered into a deal to do big air jump-offs at the major mountain bike events that NORBA puts on between March and September. I will be going to world- and national-class events where anywhere between 40,000 to 50,000 people attend. Read below about my first adventure at the Sea Otter Classic!



On that note, what do you think? Is it a good idea for us R/C people to cross-promote? Do we want to expand the number of people in this sport? I myself think it's good; we can all benefit from a larger crowd of people. I think more people means more cool stuff from manufacturers, lower prices, more tracks, more places to run. And by the way, if you're wondering why there's all this stuff about the mountain-bike world; well, I'm sort of a major haunch in the MTB industry. I have been in the bike biz for 20 years now. I use to be a pro mountain-bike racer and product developer, and I still do testing and development. Anyhow, keep sending in those letters and writing those e-mails. See you at the races!

READERS' TRUCKS



Larry Prince wants his truck in the magazine. Okay, Larry, here you go! (Do we oblige or what?). As you can see, Larry went all out on his truck! He has just about every aftermarket part you can think of on there. As all rad trucks go, his started out stock, but he wanted more. His letter says he spent a lot of time on the 'net researching and asking questions to get his truck to the point it's at now. Eric from Debbie's Hobbies in Virginia helped out a lot, even though Larry lives in Illinois. Did I mention that Larry is 45? He has 39 other R/Cs, and has been at it for 24 years. Wow! Way to go, Larry! Even though the truck comes in at a hefty 13.9 pounds, I still give it two thumbs up! I would list all the parts he used, but he's got way too many to mention! I will quote his opening line in the letter, though: "As I opened the box from Hardcore Racing, I could almost smell the burn of nitro in the air!" Man, that says it all! That's how we feel when we get all our stuff! Thanks Larry. And the rest of you, keep the stuff coming in—I need lots of things to write about!

READER WRITES

I have received a few questions on how to find air leaks around the carb, or how to see if the carb seal is leaking.

My answer to this problem is to take a cleaning solvent such as Trinity motor cleaner, and while the engine is running, spray the cleaner around the seal area (it's best to use the red straw that comes with the can). This makes it a little easier for you to see where the leak is. This also works to find all air leaks around the motor!

David asks: Dude! My stock bulkhead is stripped where the chassis bolts to it. What can I do to fix it? I can't afford the six bucks it costs to replace them!

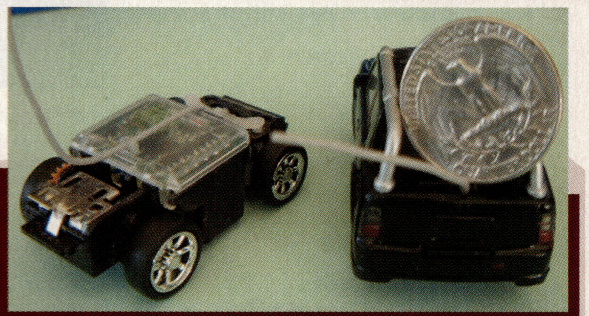
Dude! Don't worry! If you can first find a few course-threaded screws that's are a little longer than the stock ones, and then use some tire glue, you're RTR again!

From the 'net: Someone asks... Sometimes my motor loads up when I am starting it and the motor hydro-locks! What can I do? My EZ-Start motor will start smoking if I try to turn it over!

Good question! I myself have run into this a couple of times. What I did was loosen the glow plug a bit and then turn the engine over with the EZ-Start! Once the engine is running, re-tighten the plug and off you go! BTW, this works well for new engines also! Some engines are tight when new, and will stick at TDC (top-dead center)! Loosening the plug will let you turn over the engine and not burn up the EZ-Start.







WHAT THE HECK ARE YOU DOING HERE?!

While I was at the Sea Otter (remember, this is a bicycle event), I spotted a guy named Tomo. In his booth, among all these neat bicycles, was this little car! The car is made by Tomy in Japan, and it's not sold here yet! Tomo is thinking of bringing them into the states, and if he does—man, that will be fun! I got one for myself so that I could include it in this month's column, and after playing with it, it's a blast! These cars are fully R/C and they even have hop-up motors for them. The stock motor makes the car run at walking speed, but wait! Drop the hop-up motor in it, and the thing has a blazing...well...fast walking speed! The car is the best office equipment a guy could have. It's all self-contained—the charger is on the end of the controller; just snap the car on, and in 45 seconds, you get two minutes of run time. I can see a whole new craze starting now! Anyone for mini-micro racing? Oh! Tomo tells me they have an even smaller version and that he will bring some over soon. Hmmm, can they make it any smaller?



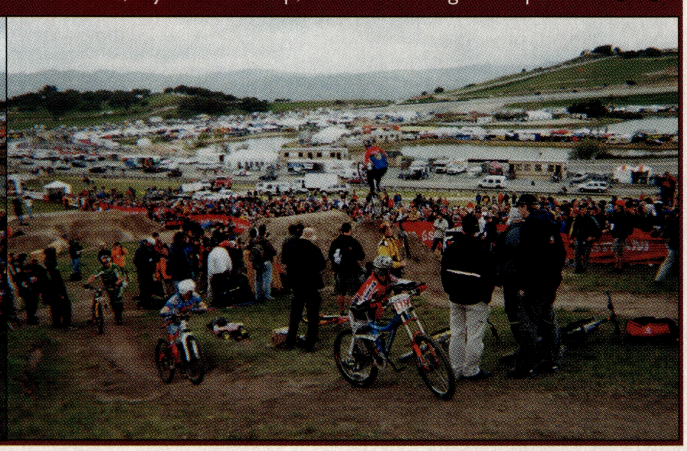
WAS THAT A SEA OTTER ON THE TRACK?

I did an interesting thing this weekend: I did some big air jumps with my buddy Greg Herbold at the Sea Otter Classic at the Laguna Seca Raceway in Monterey, California. This is a mountain bike/road bike event that is the largest cycling event of the year in the U.S.! On Saturday, they had a dual-slalom event (using the same format as skiing), and a "big air" jump contest, where guys were doing back-flips and other really crazy stuff!

In between events there was a break, so to fill time, Greg and I got to bust out our R/C trucks! At first I was worried—I did not know if bike riders would go for these little trucks, but I soon discovered that I had nothing to worry about. The instant we fired them up, people were yelling "Big air! Big air!" When Greg and I hit the jump, they were screaming! We only got to do a few jumps, but afterwards, the powers that be came to me and said they liked what we did and that the "door was open" for us to do more events. Did I tell you there were like 1500 people seeing us grab some nice air? Well, there were!

Now, God bless them, Hardcore Racing has once again seen the potential for exposing our hobby (and their products) to even more potential newbies. They have made it possible for Greg Herbold and I to attend most of the major MTB events and keep doing these expositions to a whole new crowd of people. Is that cool or what? So thank them for us, will you guys? To close, I want to send a shout out to other companies: guys, let's get going. There is a whole world of peeps out there just waiting to hear about R/C; if you need help, call me I'll be glad to pitch in!

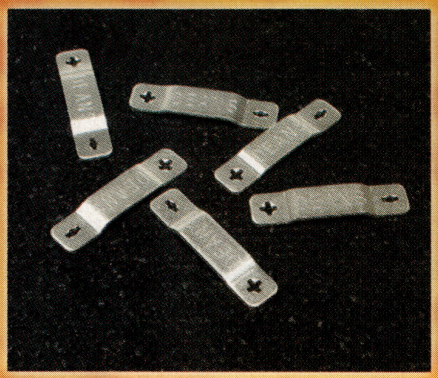




EASYWIRING 101

All Deans products are designed and manufactured to exacting tolerances, to give you unmatched quality and performance. From the legendary Ultra Plug, to the innovative Speed Jig, and now the ProBar 3, each product was created with one goal in mind... TO BE THE BEST!

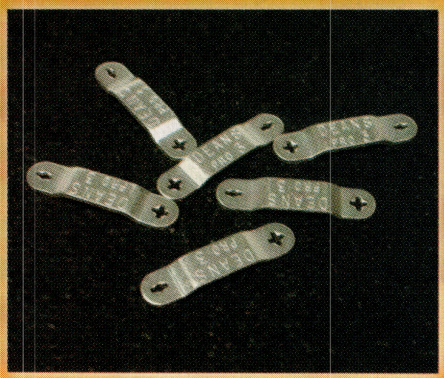
PROBAR 2™



Plated to military specs., the ProBar 2.0 is designed for RC1700, RC2000, RC2400 and similar cells.

#1600 .....6pcs
#1601 .....25pcs
#1602 .....100pcs

PROBAR 3™



Plated to military specifications. The ProBar 3.0 is designed for RC3000H cells.

#1610 .....6pcs
#1611 .....25pcs
#1612 .....100pcs

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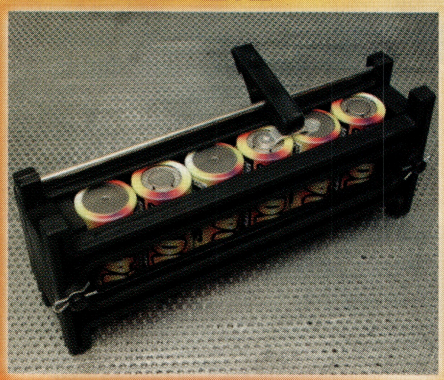

"Ten Must Have Tools" - R/C Car Action
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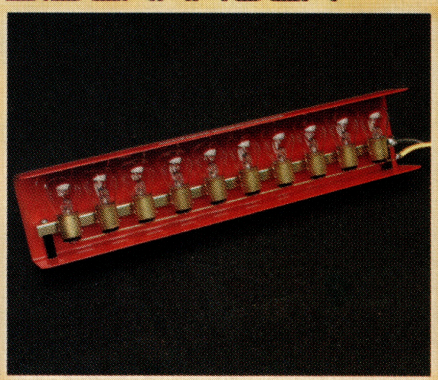
#2040

DISCHARGER



Car stand and discharger in one

#2030 .....kit
#2031 .....assembled

RACING SOLDER



Silver alloy and ProFlux™ a Deans exclusive - the highest quality electronic solder available

#2020 .....1oz

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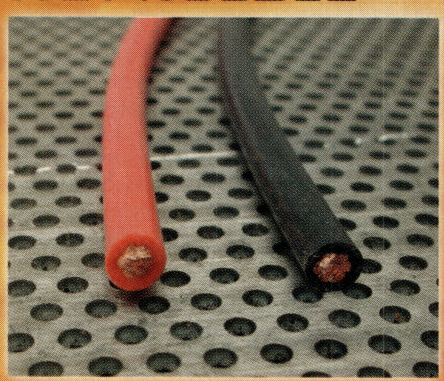

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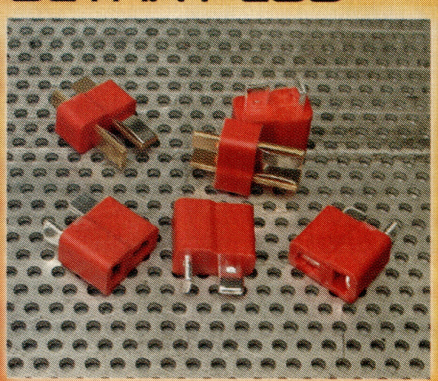

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ASTUTE READER

Sometimes, you read things you just have to reply to! In the Feedback column under the heading "Misquoted Again," you guys have a good answer for James Matty on the Storm. However, he's obviously never raced or run a Storm—I do! While the RTR did have some diff problems, they were "easily" corrected by removing one of the two gaskets between the bevel gear and the case to increase gear mesh depth—problem solved. I ran all last summer this way and the gears are still in good shape! Handling can be improved by changing shock-oil weight, drilling the piston holes out and by installing different springs—although I ran stock and did okay. It wasn't the car but the driver (me!) most of the time! The stock three-port GS engine really "comes to life" if you put a REX 86 one-piece pipe on it (throw the stock pipe away!). In return, you get more power, cooler running and better fuel economy. I can out-drag and outrun many "much" more expensive multi-port engines with this setup. Interestingly, the new "hot" OS RZ is only a three-port engine too (I'm going to this engine this year)!

In the same issue in "Feedback" column under Roadgoing Chopper, I would like to take your answer to task! The question is about the engine in a Thunder Tiger EK-4—the .70 heli engine. You advised "anonymous" to use car fuel in this setup.

A friend of mine has one of these and while talking to TT about other issues, I asked them what fuel they specifically recommend for this unit. Their reply was "30-percent heli fuel, such as Cool Power—which has 22-percent oil content." Part of the reason for this is that the engine is not an ABC setup like most car engines, but is a ringed engine which requires more oil content. Also, this engine is supposed to be run fairly rich (even in a heli, which I also fly!) and the 30 percent will give great power even when running rich. Enjoy reading your magazine! Just a couple things that caught my eye while reading this last issue.

Don Austin
via e-mail

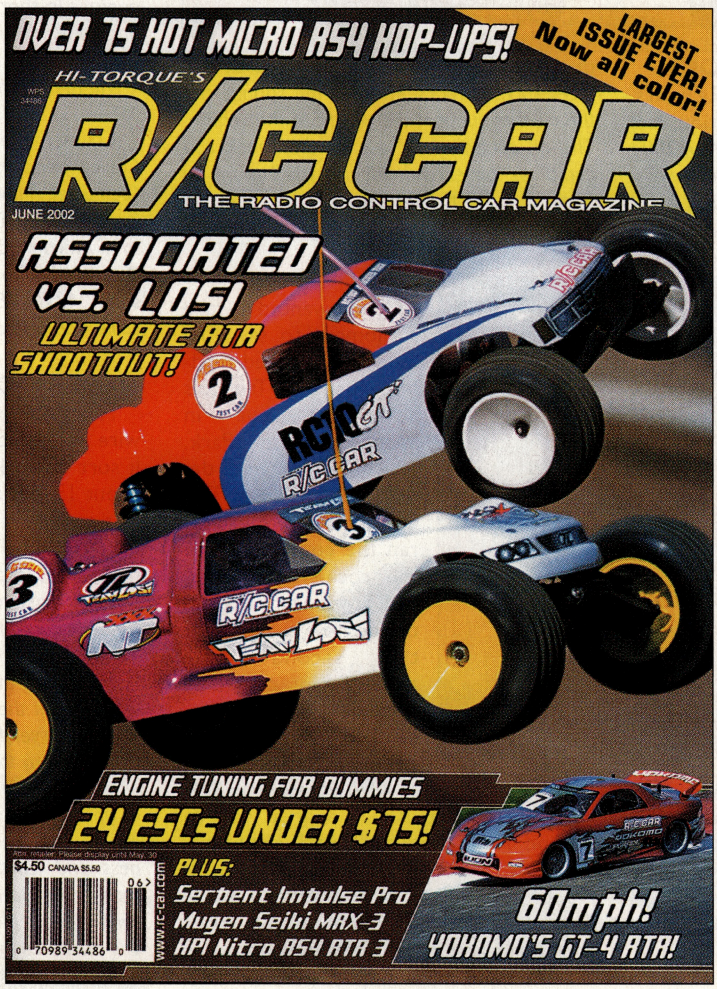
Don, thanks for the comments and yes, you caught us, and our inexperience with heli engines. Based on talking with several EK-4 owners—all of whom run high-quality car fuel—we applied the basic theory that car fuel was in fact the best choice for the TT .70. Since we hadn't actually had the chance to test the monstrous EK-4 yet, we responded to the letter in question based on the information at hand. We confirmed with TT about the fuel question, and they do in fact recommend heli fuel, although they also state that a good-quality car fuel will also work well as long as the engine is set rich enough.

RUSTLER RANT

I love the mag and the website! I have some questions, though. I bought a new T-Maxx in late January and I just purchased a Nitro Rustler last week. I am trying to find the cheapest source for a header and pipe for the Rustler. I've narrowed the choices down to the CVEC or MIP's Stinger 360 kit. Could you shed some light on where to find these online? Also, I want a little more suspension for the Rustler (more travel and stronger damping/preload). Would Traxxas' Big Bore T-Maxx kit be a possibility? Thanks!

Name withheld
via *rc-car.com*

The CVEC can be used with the stock Traxxas header, while the MIP Stinger kit replaces everything from the exhaust port onward. Both are good; however, the CVEC has the advantage of its clever variable back-pressure valve that serves to minimize the expulsion of unburned air/fuel charge at lower rpm, while allowing for high-rpm running with less restriction. We've used the Stinger kit, and we have found that it substantially increases low-speed throttle response over stock. Both CVEC and MIP have websites (www.innoventive.com and www.miponline.com, respectively). As far as your Rustler's suspension, there's not much you can do to increase travel (without causing driveshaft and bump-steer problems), but the addition of the Big Bore shocks and perhaps some thicker oil and stiffer springs will bring it up to snuff.



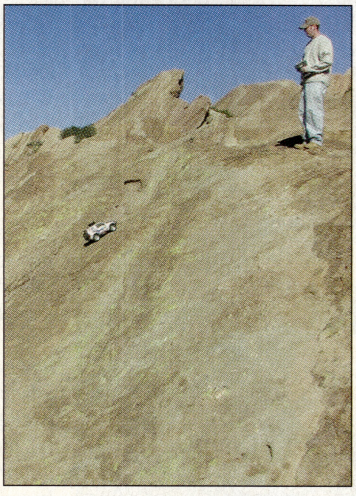


MORE MONSTERS OF ROCK

Great mag! I saw yours (and Richard's, so if you can't answer my question, feel free to pass it on to Richard) May 2002 issue and saw the article on rock crawlers. Totally cool! I got so involved that I am currently trying to build some kind of rock crawler out of an old Radio Shack truck. So far, I have cut unnecessary parts from the chassis and other sections with a rotary tool. I also found out how to mount a 540 motor in it instead of the old (and tiny) 380 motor. I'm fine with all the parts, but I am stuck with designing the 4 link suspension. I am hoping to buy aftermarket T-maxx shocks and use them for damping needs. All I need to know is what type of shock oil should I use. All the weight that will be on the suspension would be the chassis (this item is very light), body (also very light), battery, ESC, and the receiver. The motor and servo are mounted on the axles. I need a shock oil that can hold up the truck, but allow good suspension articulation. Thanks a lot for all your help.

Devon T
via e-mail

Devon, a typical rock-crawler, as its name would imply, crawls! In other words, these vehicles are designed to have lots of torque, not speed. So the damping should be light enough to allow for the suspension to fully articulate as the vehicle works its way over uneven surfaces such as rocks. And it is the springs, not the oil, that support the weight of the vehicle. The oil controls how quickly the shock can compress or extend. Ideally, you'll want to select a spring that is soft enough to soak up imperfections, yet strong enough to push the wheels back down to earth.



Hello. I wanted to take a moment to say how much I've enjoyed reading Richard Trujillo's adventures out in Vasquez State Park, which initially ran in the April 2001 issue. The current issue (May '02) ran the continuation of the rock-crawler saga, and I was very excited to see how things went the second time around! Not only is it refreshing to see another side of R/C, aside from racing, but it reminds many of us why we got into R/C in the first place. R/C is a great way to unwind from a hard day's work. I've adapted many of Richard's obstacles into an indoor rock crawling course, and every Thursday night, my colleagues from work and I build large rock obstacles using props in our shop window display (we work at a bike shop). It helps relieve stress from a hard day on your feet, and gives me a focal point other than work. We get to test what our trucks will really do, and I always leave at night saying "Wow, how did I get over that one?". Anyway, kudos to Richard and his awesome Bruisers and Mountaineers, and kudos to R/C Car magazine for putting out some great stories for guys like us to enjoy! Now, where did I put those rocks again?

Brian Olowiany
Newark, Delaware

LOOKING TO SPEND SOME BIG COIN

I'm trying to find the name of the guy who builds the R/C cars with actual V8 engines in them. Do you know were I can find him?

Chuck
via *rc-car.com*

Chuck, the fellow's name is Gary Conley of Conley Precision Engines, 825 Duane Street, Glen Ellyn, Illinois 60137. You can reach Gary by phoning (630) 858-3160 or by logging on to www.conleyprecision.com. You'll also find that in addition to producing a working 1/4-scale "427" V8, Conley also produces 1/4-scale Cobra and '23 T-Bucket car kits.

NEVER DO THAT!

Hey guys! I recently put a new receiver wire in my Novak AM XXL receiver, and it sort of works. I can usually get the car about 15 feet away from me, and then all of a sudden, it goes full throttle and cuts to the right. I'm tired of smashing into mailboxes, so please help!

Mike Maslana
via *rc-car.com*

Mike, the thing about receiver antenna wires is that they are tuned to the frequency of the receiver. How are they tuned? By their length and by the thickness of the wire. That's why it's never a good idea to trim the length of an antenna, and if the wire needs replacing, the wire needs to be of the same thickness and length of the original. Send the receiver to Novak for repair, or see if they'll send you a replacement wire for your receiver's particular band.

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

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TC3 Nitro Chassis - Titan.
HCR-02501 (blue) • HCR-02502 (green)
HCR-02503 (purple) • HCR-02504 (silver)

TC3 Nitro Upper Deck - Titan.
HCR-02511 (blue) • HCR-02512 (green)
HCR-02513 (purple) • HCR-02514 (silver)

NEW! Nitro TC3 Upper Deck

Machined from unique one piece, ultra light titanium, the upper deck eliminates the need for the front and rear right side diff braces. Super light! Lighter than stock and twice as rigid. Lower profile by design. Comes with all necessary hardware as well as machined aluminum standoffs.



Brake Block Input Cup - Alum.
HCR-02521 (blue) • HCR-02522 (green)
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NEW! NITRO TC3 Brake Block Input Cup

Solid billet, 6061T6 aluminum construction for increased rigidity. Ultra light design. Features solid tool-steel pins.



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HCR-02543 (purple) • HCR-02544 (silver)

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Brand new drive shaft for the Nitro TC3 features a larger diameter for increased rotational rigidity. Each shaft is perfectly balanced for high rpm's. Hardened tool-steel drive pins cap each end for optimum strength.

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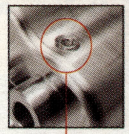
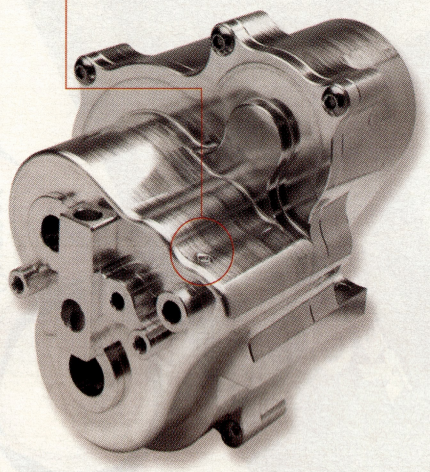
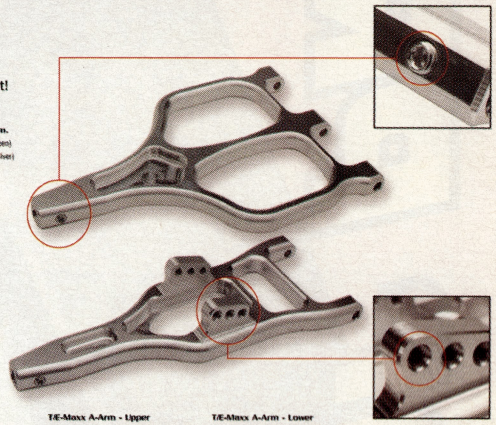
The baddest tranny case on the planet! Features a reverse lock down set screw. No need ever to buy an additional reverse lock-out! No modifications needed. Machined from solid billet, 6061T6 aluminum.



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





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

T/E-Maxx A-Arm - Lower
HCR-03351 (blue) • HCR-03352 (green)
HCR-03353 (purple) • HCR-03354 (silver)

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Features:

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- A pillow ball lock down set screw is an original design by HCR!
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- An original redesign by Hardcore Racing.

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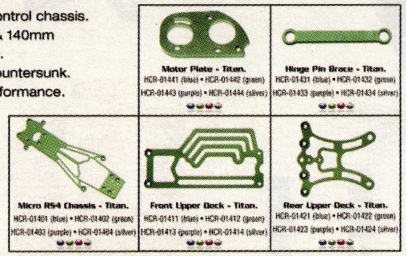


Motor Plate - Titan.
HCR-01441 (blue) • HCR-01442 (green)
HCR-01443 (purple) • HCR-01444 (silver)

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

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

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

Rear Upper Deck - Titan.
HCR-01421 (blue) • HCR-01422 (green)
HCR-01423 (purple) • HCR-01424 (silver)

NEW! MICRO RS4 Aluminum Wheels

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





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

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

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

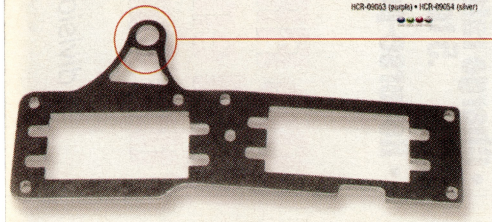
"Futura" (Viper Offset) - Alum.
HCR-01531 (blue) • HCR-01532 (green)
HCR-01533 (purple) • HCR-01534 (silver)

"Chaos" (Viper Offset) - Alum.
HCR-01521 (blue) • HCR-01522 (green)
HCR-01523 (purple) • HCR-01524 (silver)

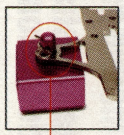
"Nova" (Viper Offset) - Alum.
HCR-01551 (blue) • HCR-01552 (green)
HCR-01553 (purple) • HCR-01554 (silver)

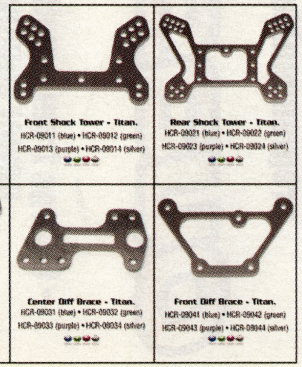
NEW! GS STORM Shock Towers and Differential Braces

Smash the competition with a complete overhaul of your GS Storm! 6AL4V titanium components provide increased rigidity and strength. Shock towers feature all the stock shock mounting positions plus some extra for a totally custom setup. The servo deck features a custom transponder mounting arm. All parts require no modifications.



Servo/Trans. Deck - Titan.
HCR-09051 (blue) • HCR-09052 (green)
HCR-09053 (purple) • HCR-09054 (silver)





Front Shock Tower - Titan.
HCR-09011 (blue) • HCR-09012 (green)
HCR-09013 (purple) • HCR-09014 (silver)

Rear Shock Tower - Titan.
HCR-09021 (blue) • HCR-09022 (green)
HCR-09023 (purple) • HCR-09024 (silver)

Steering Link Brace - Titan.
HCR-09061 (blue) • HCR-09062 (green)
HCR-09063 (purple) • HCR-09064 (silver)

Center Diff Brace - Titan.
HCR-09031 (blue) • HCR-09032 (green)
HCR-09033 (purple) • HCR-09034 (silver)

Front Diff Brace - Titan.
HCR-09041 (blue) • HCR-09042 (green)
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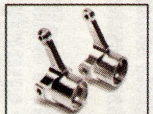
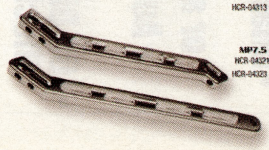


MP7.5 Knuckles - Alum.
HCR-04331 (blue) • HCR-04332 (green)
HCR-04333 (purple) • HCR-04334 (silver)

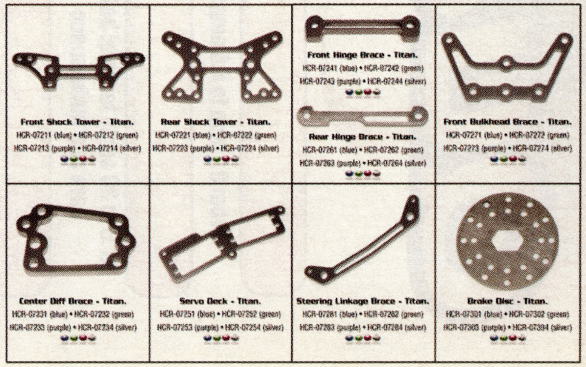
MP7.5 Front Brace - Alum.
HCR-04311 (blue) • HCR-04312 (green)
HCR-04313 (purple) • HCR-04314 (silver)

MP7.5 Rear Brace - Alum.
HCR-04321 (blue) • HCR-04322 (green)
HCR-04323 (purple) • HCR-04324 (silver)



NEW! OFNA MONSTER PIRATE Titanium Upgrade Components

One of latest editions to the Hardcore catalog. Super strong 6AL4V titanium component upgrades for your Ofna Monster Pirate. Parts bolt right into the factory mounting positions. The rear shock tower features extra holes for increased shock position options!



Front Shock Tower - Titan.
HCR-07211 (blue) • HCR-07212 (green)
HCR-07213 (purple) • HCR-07214 (silver)

Rear Shock Tower - Titan.
HCR-07221 (blue) • HCR-07222 (green)
HCR-07223 (purple) • HCR-07224 (silver)

Front Hinge Brace - Titan.
HCR-07241 (blue) • HCR-07242 (green)
HCR-07243 (purple) • HCR-07244 (silver)

Rear Hinge Brace - Titan.
HCR-07261 (blue) • HCR-07262 (green)
HCR-07263 (purple) • HCR-07264 (silver)

Front Bulkhead Brace - Titan.
HCR-07271 (blue) • HCR-07272 (green)
HCR-07273 (purple) • HCR-07274 (silver)

Center Diff Brace - Titan.
HCR-07231 (blue) • HCR-07232 (green)
HCR-07233 (purple) • HCR-07234 (silver)

Servo Deck - Titan.
HCR-07251 (blue) • HCR-07252 (green)
HCR-07253 (purple) • HCR-07254 (silver)

Steering Linkage Brace - Titan.
HCR-07281 (blue) • HCR-07282 (green)
HCR-07283 (purple) • HCR-07284 (silver)

Brake Disc - Titan.
HCR-07301 (blue) • HCR-07302 (green)
HCR-07303 (purple) • HCR-07304 (silver)

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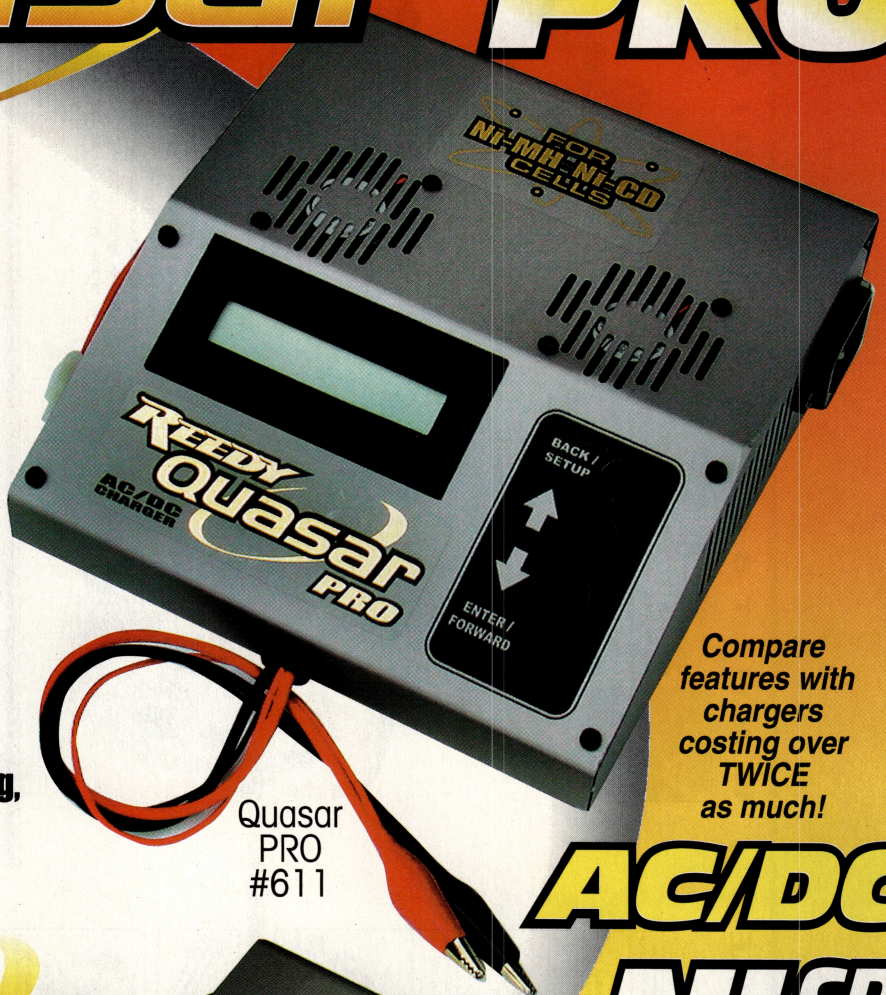

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- 2002 Silver State Winner

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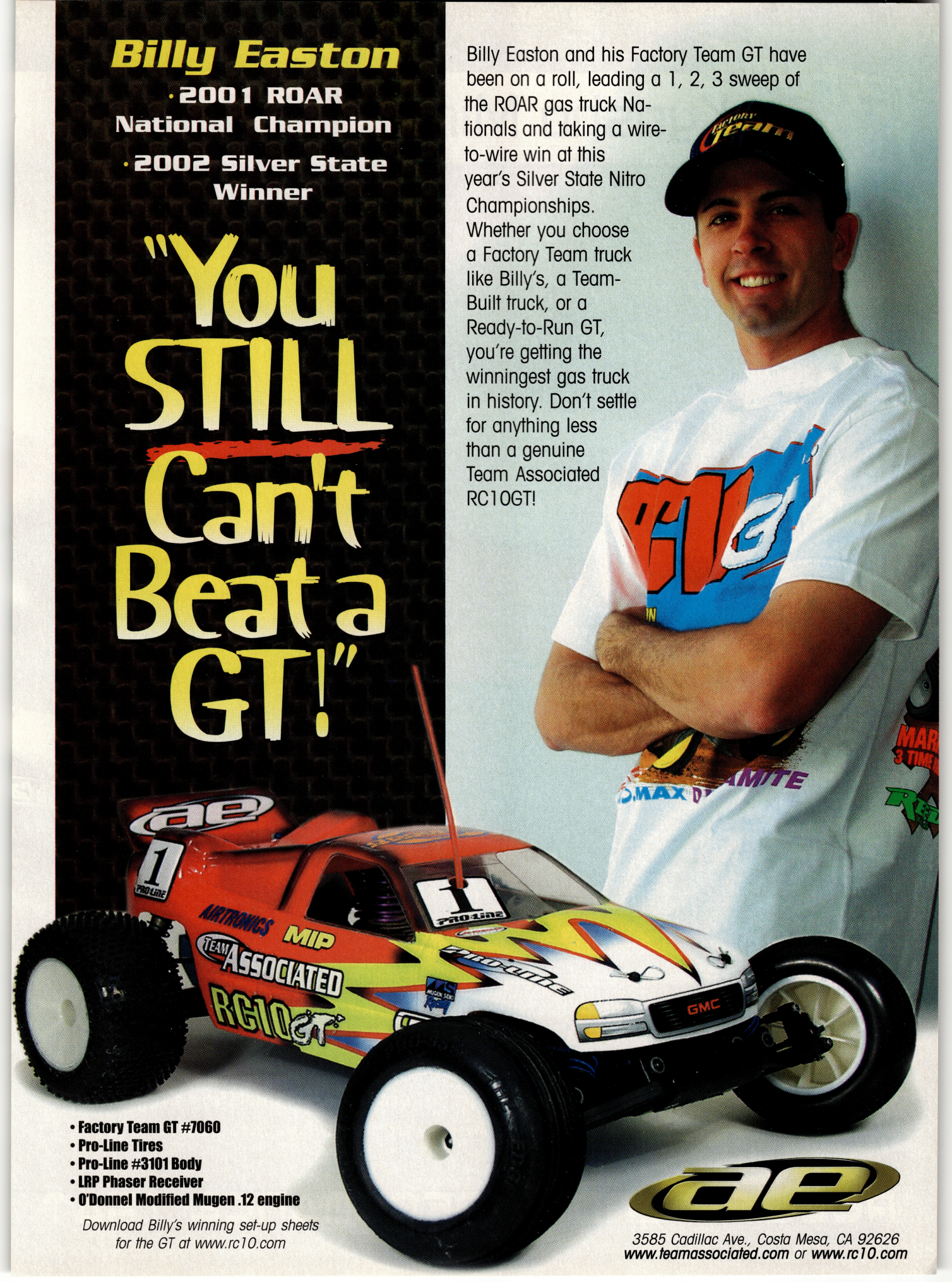

- Factory Team GT #7060
- Pro-Line Tires
- Pro-Line #3101 Body
- LRP Phaser Receiver
- O'Donnel Modified Mugen .12 engine

Download Billy's winning set-up sheets for the GT at www.rc10.com

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TEST-DRIVE



Kyosho Mini-Z F-1 Series



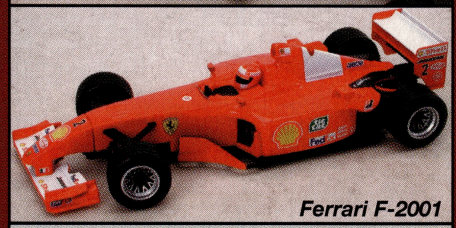
Until Kyosho released its Mini-Z series of micro R/C cars, all small-scale vehicles had been considered little more than a passing fancy or oddities. But with unmatched realism and a chassis capable of performance beyond its Lilliputian size, the Mini-Z has catapulted micro-R/C into the hobby's limelight. And just as the Mini-Z revolutionized the concept of racing in limited spaces, the new Mini-Z F1 breaks the size barrier once again by being the most realistic-looking form of R/C models available today. Each of these four cars is virtually indistinguishable from a scale model—in fact, most people are quite shocked to learn that they are actually high-performance R/C racers.

REALISM AND PERFORMANCE THAT



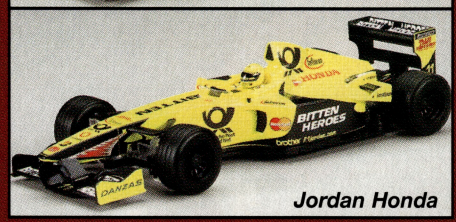


Williams FW-23


Ferrari F-2001



McLaren MP4/16



Jordan Honda

PICK YOUR FAVORITE DRIVER

Currently, there are four Mini-Z F1s available: there is the McLaren Mercedes MP4/16 and Jordan Honda, as well as the brand-new Williams F1 BMW FW-23 and Ferrari F-2001. Each car can be had in either driver; for example, you can buy either the #1 Ferrari of Michael Schumacher or the #2 car of Rubens Barichello. And the detail is stunning. Every wing, every curve of the body is faithfully reproduced in the car's injection-molded plastic body.

NOT YOUR AVERAGE MINI-Z

These aren't just F1 bodies dropped atop standard Mini-Z chassis. Kyosho has taken great efforts to preserve the scale dimensions of these F1s, and in doing so, has created a chassis that's larger than that of other Mini-Z racers. Although they're not much wider, the F1 chassis is substantially longer than that of the regular Mini-Z, and its wheels are also larger.

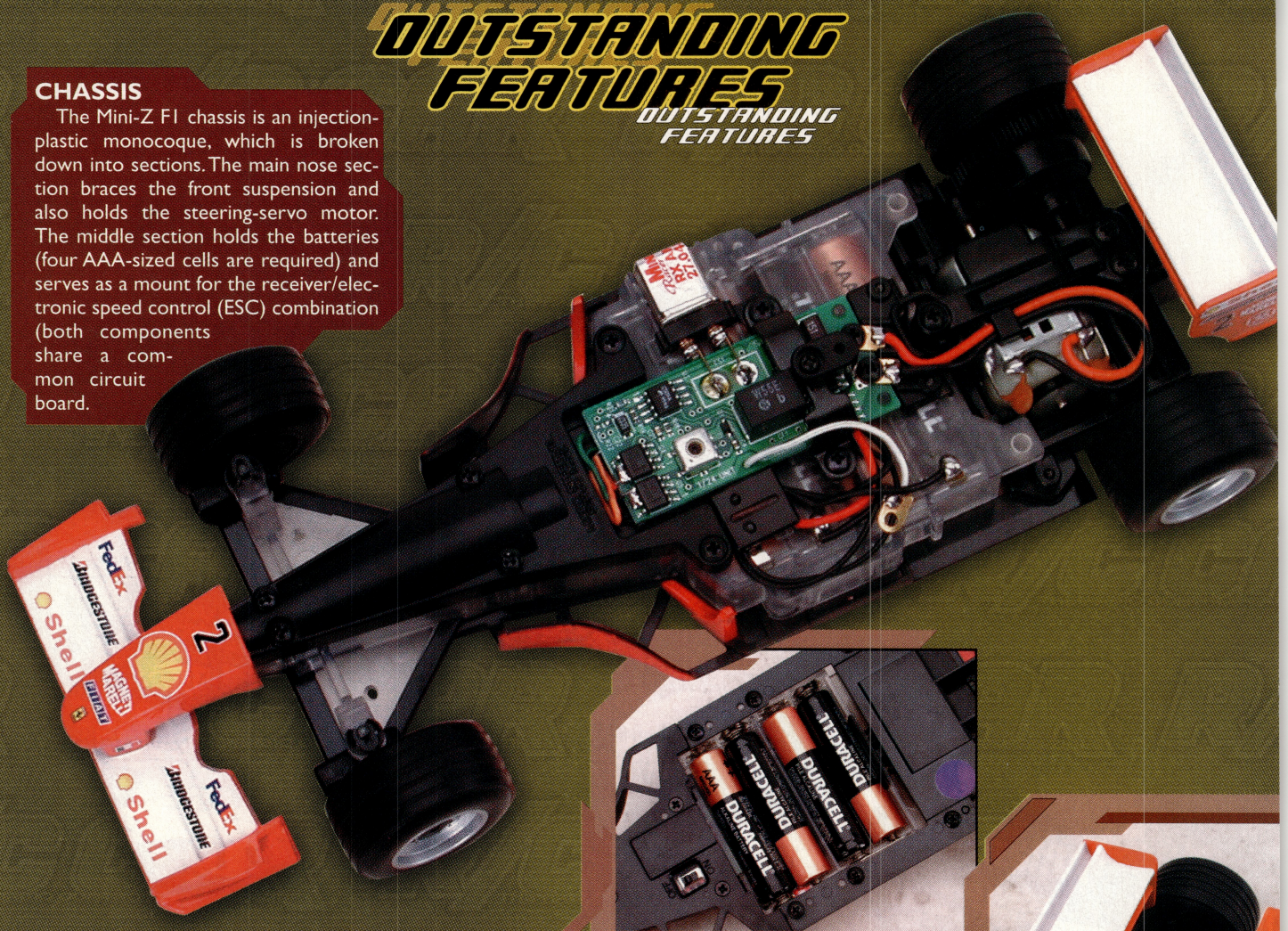
FIT IN THE PALM OF YOUR HAND

OUTSTANDING FEATURES

OUTSTANDING FEATURES

CHASSIS

The Mini-Z F1 chassis is an injection-plastic monocoque, which is broken down into sections. The main nose section braces the front suspension and also holds the steering-servo motor. The middle section holds the batteries (four AAA-sized cells are required) and serves as a mount for the receiver/electronic speed control (ESC) combination (both components share a common circuit board.

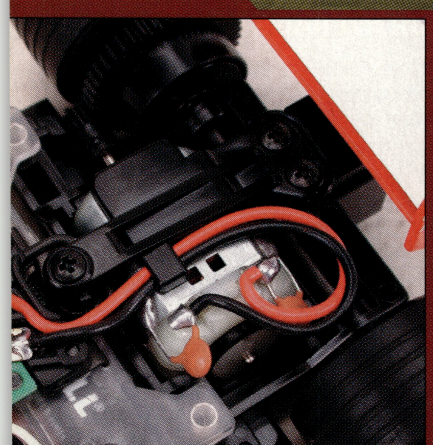








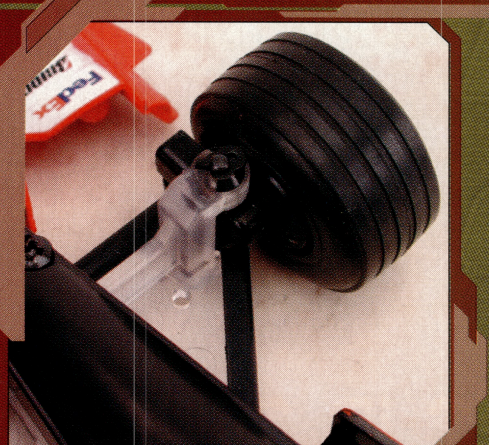




SUPPLE SUSPENSION

Like the standard Mini-Zs, the F1s utilize a coil-spring suspension up front, with a floating steering spindle that slides on a vertical kingpin. Kyosho's design genius is evident here, as they have created the appearance of a real F1 car's double-wishbone suspension through the use of clear-plastic for the "wishbones."

The rear suspension has a trailing motor-pod like that of the standard Mini-Z; however, instead of a flexible T-plate, the F1s have a pair of flexible plastic trailing bars, each located at the outside of the chassis. A pair of outboard coil springs are responsible for roll-control.



Kyosho Mini-Z F-1 Series

REPORT CARD

Test location: The palatial R/C Car offices

Test conditions: thin-pile "industrial gray" carpeting

Completeness: A

What else do you need? Batteries. Eight AA cells for the radio and four AAA cells for the car itself. Do yourself a favor and get some rechargeable NiMh AAA cells—you'll save money in the long run, and the car will be faster and run longer.

Speed & acceleration: B

Because they're larger, the F1s are a little less snappy than the standard Mini-Zs, but Kyosho includes four different-sized pinion gears, so you can tune the F1s to hang with their smaller brethren—at least on smaller tracks. Of course, hopping-up your Mini-Z is part of the fun (and most mods are cheap). Unfortunately, most of the aftermarket Mini-Z parts aren't compatible with the F1s. However, we suspect that a bevy of F1-only hop-ups will be available soon.

Steering & overall handling: A

Overall, the larger F1s are more stable than the regular Mini-Zs, and they carry more speed through the turns. We think that the F1's suspension is also more effective (in stock trim). The car squares up better when exiting turns, and there's much less "hop" from the rear pod under acceleration and when performing wild "Duke boys" maneuvers in reverse.

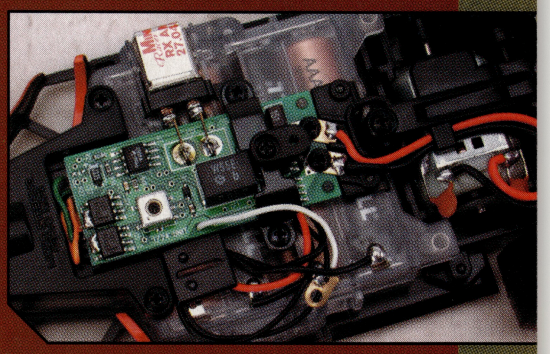
Run time: A+

What other electric R/C cars can run for more than an hour on a charge? Of course, this can get expensive if you are using alkaline cells, but as mentioned previously, a set of AAA NiMh cells will provide even longer run time and save you some dough over the long haul.



EXOTIC ELECTRONICS

Unlike most previous micro R/Cs, the Mini-Zs come with a full-sized, fully proportional R/C system. Kyosho's Perfex pistol-type transmitter is included, as is a unique one-piece receiver/ESC unit. Not only is the Mini-Z's steering proportional (meaning that the car's wheels turn in proportion to how far you turn the radio's wheel), so is its speed (in both forward and reverse). Kyosho also allows you to change receiver and transmitter crystals—just like with larger R/Cs—so you can race up to 12 of these Mini-Z F1s at a time!



SPECS

Price:	$149.99
Length:	8 in./203mm
Width:	3.2 in./82mm
Wheelbase:	6.1in/152mm
Track (f/r):	2.7 in/68mm; 2.6in/6mm
Weight:	190g
Chassis:	injection-molded plastic
Drivetrain:	gear-driven RWD
Diff:	plastic bevel-gear
Bearings:	plastic bushings
Suspension:	sliding kingpin (f); flexible plastic plates (r)
Damping:	coil-spring
Tires:	grooved rubber slicks
Wheels:	scale F1 (vary with car type)



Final Score

Highs: Beautifully detailed F1 bodies. The paint and detail on these miniature marvels is truly stunning. The amount of control is likewise impressive. Nothing has been lost in the miniaturization process; you still get proportional speed and steering, plus Kyosho has thrown in reverse as a bonus! Completeness: these are true RTRs in every sense of the word. Despite their scale-model appearance, the F1s have proven to be pretty durable—a clever clear-plastic bumper is included to protect the front wing area.

Lows: Everybody wants to steal them—even NASCAR fans!

The verdict: Whether you're a die-hard F1 fan or merely a casual admirer of the world's best drivers, Kyosho's Mini-Z F1 cars are a blast. Not only do they look great on display, but you and your friends can have some serious basement or garage Grand Prix of your own. And what's most surprising is that Kyosho charges very little for all of this technology.

SOURCE

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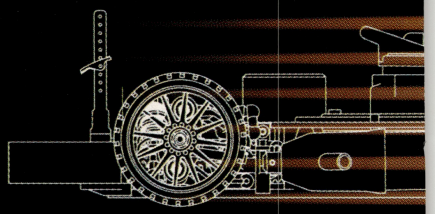

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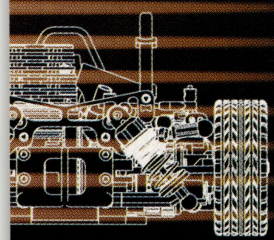

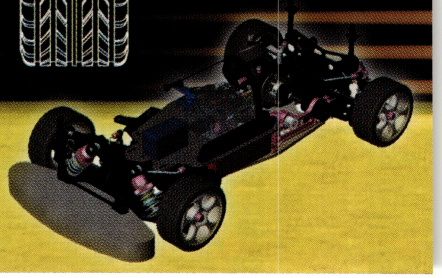

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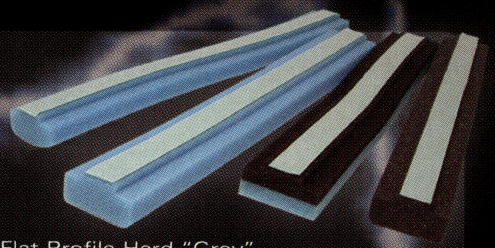
Mounted.....$19.99
Unmounted.....$12.49

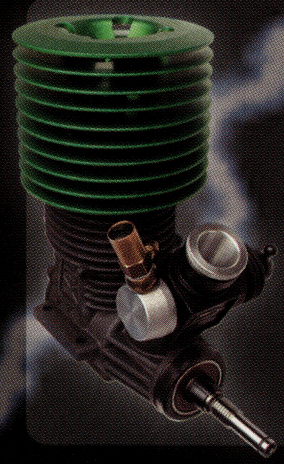


1/8-scale Off-Road Buggy Tire Inserts



44900 .....Flat Profile Hard "Grey"
41340 .....Medium Profile Double Density
41330 .....Medium Profile "Blue"
41320 .....Round Profile "Pink"





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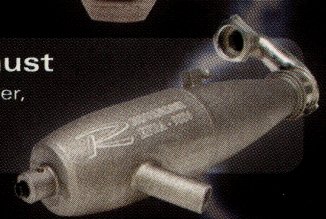

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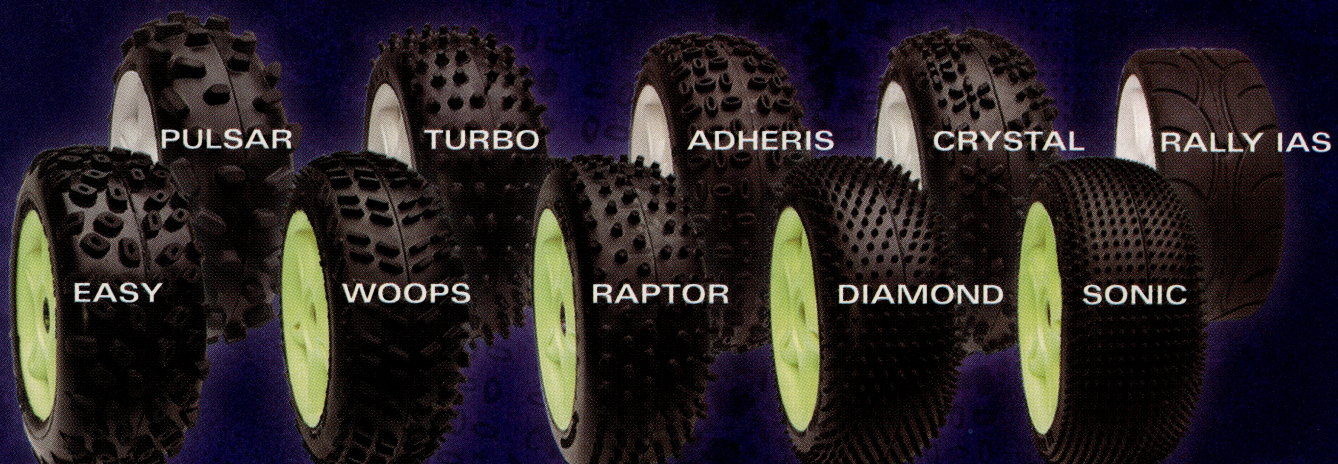

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PROJECT SLEDGEHAMMER

Jason Jaeckel's at it again!

Yes, our resident mad-trucker, Jason Jaeckel, has been up to his old tricks again of making more wild monsters! This one, however, is a little different than what we're used to seeing from Jason. As you can see, Jason's main goal with this new creation was to get away from the mega-monsters he's been building lately. This time he's taken an old-school Traxxas Sledgehammer and built more of a "daily-driver" monster truck—at least it's a daily driver according to him. But why on earth did he decide to pick a truck that is over a decade old? We'll let Jason tell you.





TWO TRUCKS BECOME ONE

To begin the project, Jason procured two Sledgehammers. The goal was to take the rear gearbox and drivetrain out of one and use it in the other kit to create a 4WD system. To do this, Jason planned on flipping the front tranny assembly backwards, so that it would face the rear tranny.

As mentioned previously, another of Jason's goals was to have a four-wheel steering system as well. However, when he started measuring things, he realized that the stock chassis wasn't going to be able to accommodate the 4WS arrangement, so he began scratch-building his own chassis. For material, Jason used a combination of 1/4-inch steel tubing (for the main chassis) and 3/16-inch steel tubing (for all the cross members). Once the chassis was completed, Jason coated it with several layers of yellow enamel paint for a flashier look.

PUTTING THE HAMMER DOWN!

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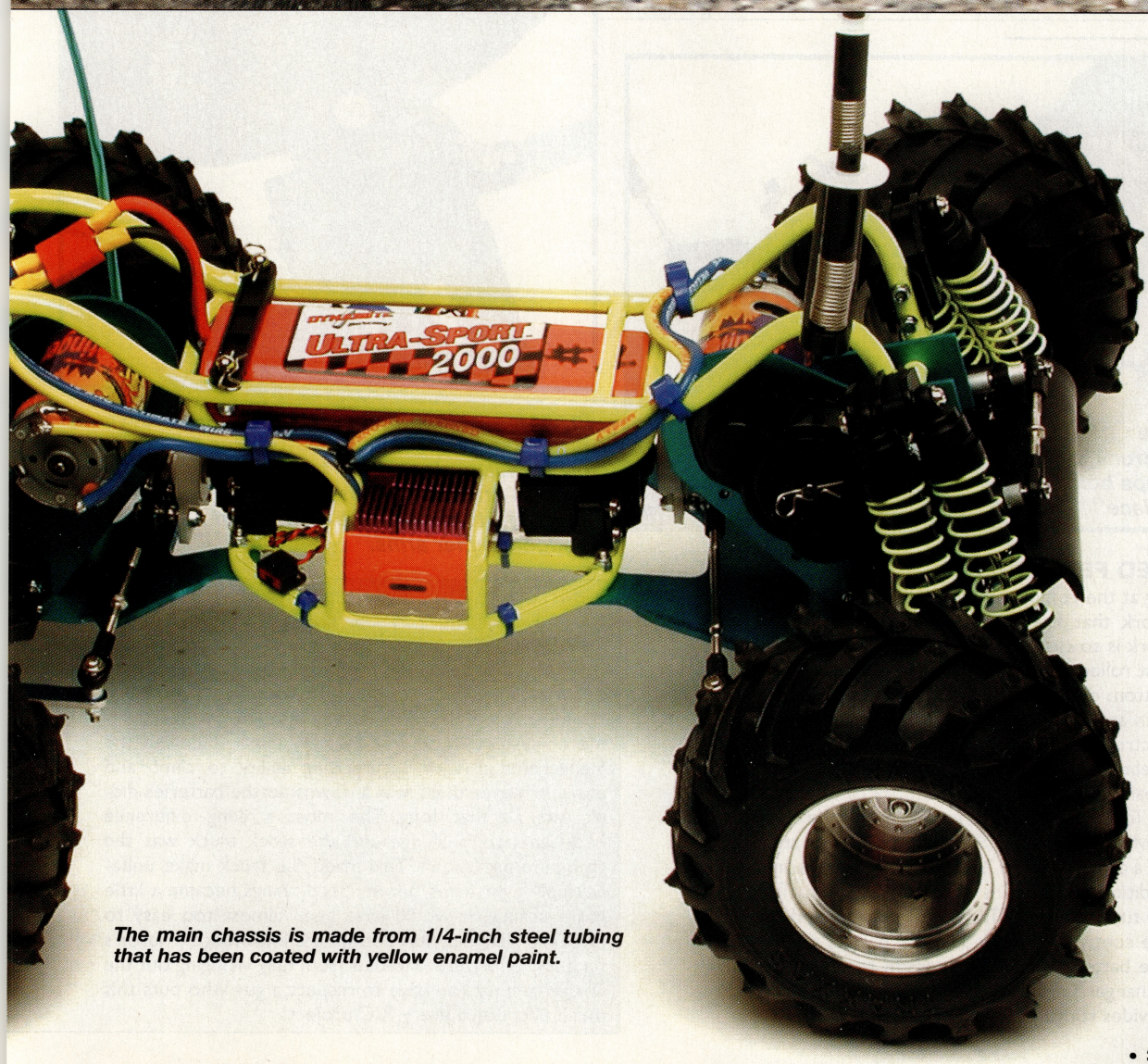


The main chassis is made from 1/4-inch steel tubing that has been coated with yellow enamel paint.

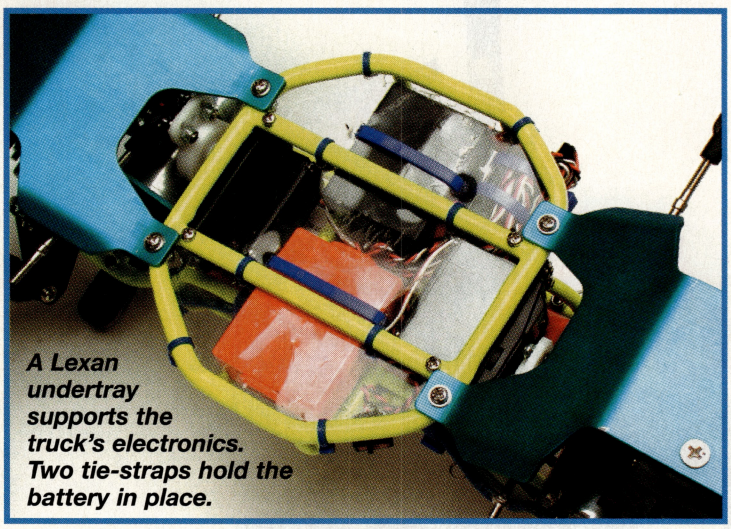
PROJECT SLEDGEHAMMER



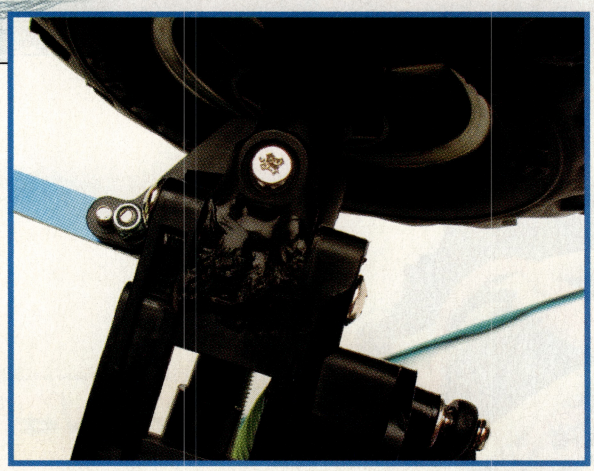
STARTING FROM SCRATCH

"I've always felt that the Traxxas Sledgehammer has had an awesome look to it," says Jason. "It might not perform on the level of today's more modern monster trucks, but it's just a really cool-looking truck!" For those of you who may have forgotten, or simply never knew, the Traxxas Sledgehammer was a 2WD monster truck with two shocks per wheel (a-la the T-Maxx), and had a traditional steering arrangement (front-wheel steering only). Jason's plan for his project was to turn a stock Sledgehammer into a 4WD, four-wheel-steering monster. Not a very easy task if you are familiar with the rather simple design of the original truck.

"I started the project, and before long, it began to get a little frustrating trying to figure out how to make everything fit and work properly," recalls Jason. "Eventually, after the project sat in a box on my workbench for a month, I got the urge to try and finish it. I stuck with it, and soon I started figuring out the problems," he adds. Here's how he eventually got the truck up and running.



A Lexan undertray supports the truck's electronics. Two tie-straps hold the battery in place.



To incorporate the four-wheel steering system, Jason used a set of modified Traxxas 4-TEC steering spindles along with the ends of 4-TEC suspension arms. The ends of the 4-TEC arms were then grafted to the ends of the stock Sledgehammer arms.

FINISHED FEATURES

Looking at the completed truck, it's hard to imagine all of the work that has gone into the transformation—Jason's work is so clean that his projects usually look as if they've just rolled off an assembly line.

The bottom deck of the chassis has all the electronics on it, which are supported by a sheet of thick Lexan. The Lexan electronics tray also acts as a shield which helps prevent debris from the tires from shooting up into the frame. Speaking of electronics, Jason primarily wanted to stick with Traxxas electronics for his project (except for the ESC, which is a Novak Super Rooster). For steering, Jason uses a pair of Traxxas 2055 high-torque steering servos. In addition, his truck is equipped with two Traxxas Stinger 20-turn motors. A Traxxas TQ3 radio and receiver package control the truck. The top part of the chassis houses the battery which allows Jason easier access for fast pack changes. For power, Jason uses a sport 2000 pack which provides roughly five minutes of run time.

Wow! Driving Jason's project Sledgehammer brought back a lot of memories. This was just how we remembered our old trucks such as the Blackfoot and Lunchbox. The suspension was stiff, so the tires seemed to form the basis for most of the damping as the truck ran over obstacles and uneven ground. Jason's twin-motor system worked really well, and it endowed the Sledgehammer with a surprising ability to climb and crawl, however there was a downside: the batteries didn't last all that long. The most striking difference between Jason's Sledge and the stock truck was the crab-steering feature. This made the truck make unbelieveably tight turns, but at speed, things became a little more shakey! It would have been almost too easy to pitch the Sledge on its roof, but the knowledge of Jason's time and effort prevented us from fully wringing out the Sledgehammer. You have to respect a guy who puts this much effort into every R/C project!

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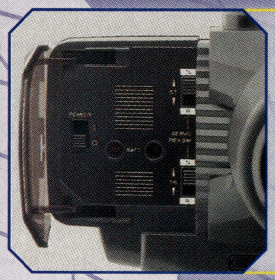

The smoked plastic panel over the servo reversing switches and battery LED offer instant access, but full-time protection against unwanted changes.

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2PHKA "extras" include a Dual-Rate Steering dial for banishing under-/oversteer, plus EPA (End Point Adjustment) dials that tailor steering, throttle and brake action to your "touch." Add NiCds and a charger, and the 2PHKA's built-in jack makes it easy to recharge one with the other without removing them.

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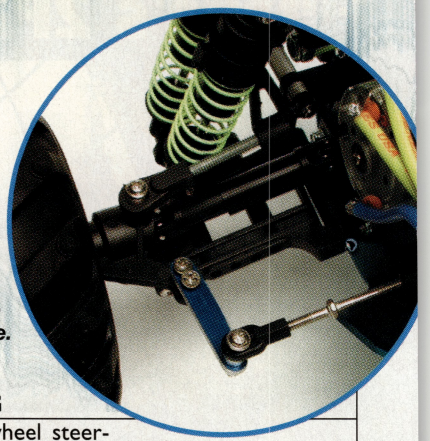
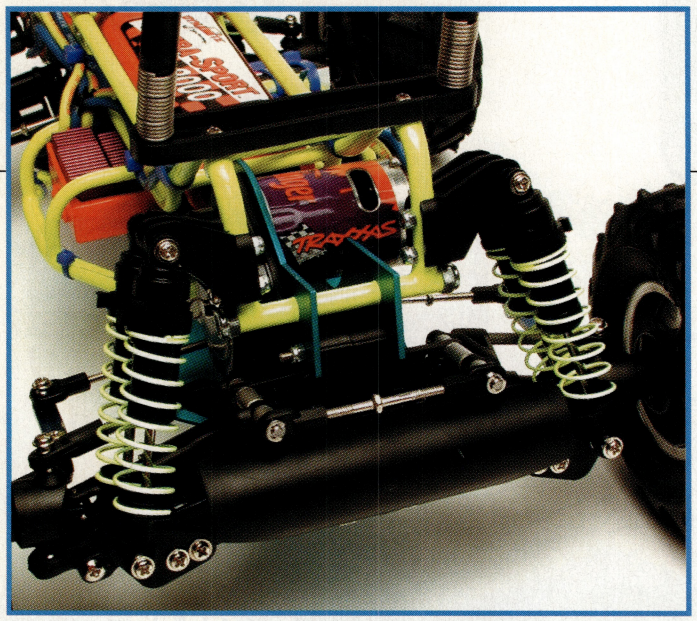
Futaba®

PROJECT SLEDGEHAMMER



Jason made some elongated spindle-braces to help straighten out the steering linkage.



The truck still uses the twin-shock per wheel arrangement. Jason replaced the stock springs with Team Losi yellow springs (cut to fit), and the shock bodies are filled with 15 wt silicone oil.

CRAB STEERING

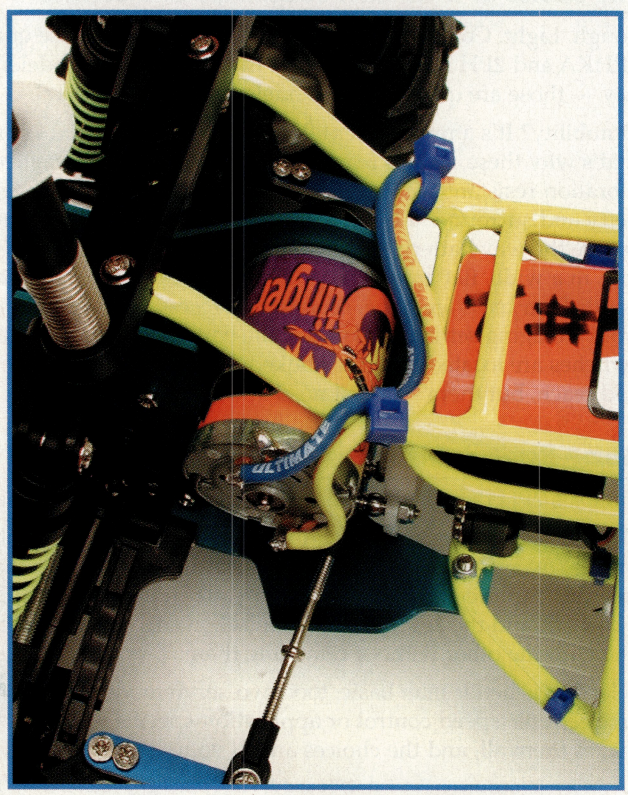
To make the four-wheel steering system work, Jason used two pairs of Traxxas 4-TEC steering spindles (one pair for the front and one pair for the rear), as well as the ends of some 4-TEC suspension arms. The ends of the 4-TEC arms have been modified to fit onto the ends of the stock Sledgehammer arms. Originally, Jason discovered some unwanted flex, which he eventually traced to the upper part of the steering spindles. To fix the problem, he connected the two upper control-rods together (these mount to the bulkhead and steering spindle) and this helped reduce most of the flex.

To get the twin steering servos to work in unison, Jason had to use a Y-harness to connect the two servo leads—allowing both to be connected to a single receiver port. When Jason started working on the steering system, he realized that one of the servos would be steering in the opposite direction than he needed it to, so to counter this, the Y-harness he used incorporates an adjustable end-point potentiometer that allows him to center one of the servos independently from the radio setting.

SUSPENSION BITS

By nature, the Sledgehammer has a lot of bump steer, and Jason's was no different. To help correct that problem, Jason bent the front of the chassis to create a 15-degree angle of kick-up, which reduces the bump-steer and allows the truck to track better through bumps. In addition, Jason also made some spindle braces out of some 1-1/2 inch long by 3/8-inch wide aluminum. He used these to position the spindles for improved geometry, greater strength and a further reduction of bump-steer.

Otherwise, Jason kept the stock suspension configuration, with its dual shocks at each corner. To help improve handling, he used Team Losi yellow buggy springs (with two or three coils cut off), three-hole pistons, and 15wt silicone oil. To mount the stock front bumper, Jason had to fabricate a new mount to allow the bumper to fit the new front gearbox (remember, the Sledgehammer was originally a 2WD truck). In the end, the truck ended up being 1-1/2 inches longer, and roughly one inch wider when compared with a stock Sledge.



Jason wanted to use mostly Traxxas running gear, so he opted to use two Stinger 20-turn mod motors.

SOURCES

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

Team Losi, Inc., 13848 Magnolia Ave., Chino, CA 91710 • (909) 465-9400; fax (909) 590-1496

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Anodized and fully countersunk "Smart Chassis"
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99%Preassembled



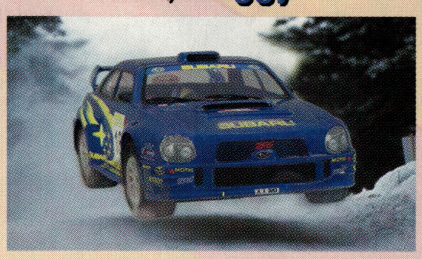






TOTALLY CONVERTIBLE
Rally, Monster Truck, Stadium Truck, Buggy













PROJECT XXX-S

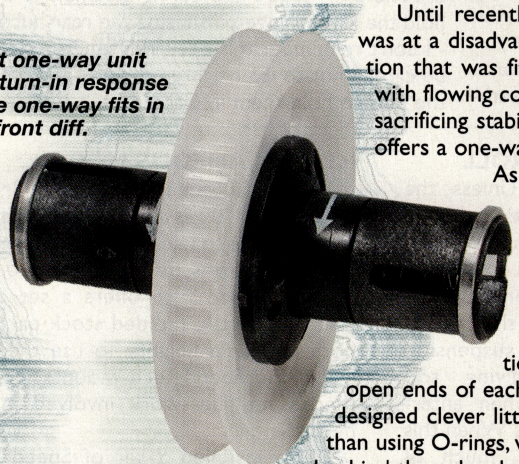
You don't mess with perfection, you just lighten it!

Since its release last Summer, Team Losi's XXX-S touring car has made a huge splash in the world of electric sedan racing. With its elegantly molded chassis to its revolutionary single-belt 4WD system, the XXX-S is like nothing else available. As more and more of these cutting-edge Losi sedans get into the hands of racers, the demand for hop-ups and tuning options increases. So as there are now many accessories available, we decided to give our XXX-S a makeover, as it were, using a selection of parts that we felt would squeeze out even better performance - if such a thing is possible.



A good thing just got better: Losi's XXX-S is great out-of-the-box, but after a diet of lightweight graphite parts and rugged aluminum, it gets even better.

ONE-WAY STREET



Losi's optional front one-way unit provides improved turn-in response on most tracks. The one-way fits in place of the stock front diff.

Until recently, there were certain conditions under which the XXX-S was at a disadvantage to some of its competition - specifically, its competition that was fitted with front one-ways. On very tight tracks and tracks with flowing corners, a one-way allows a car to steer much better without sacrificing stability or losing its high-speed cornering ability. But now, Losi offers a one-way unit for the XXX-S that replaces the front diff.

As expected, the one-way unit was anything but run-of-the-mill. The diffs in the XXX-S are among with lightest of any touring car, so it would stand to reason that a one-way designed by the same people would follow suit. The Losi one-way uses the stock ball-diff pulleys (both sizes), and features molded outdrives and the smallest one-way bearings we've seen for a 1/10-scale car. For additional protection against breakage, small aluminum rings are slid over the open ends of each outdrive. And to keep the outdrives from falling out, Losi designed clever little springs that fit inside each outdrive. This is much better than using O-rings, which can still allow for movement of the outdrives, yet can also bind the axles during extreme steering angles.

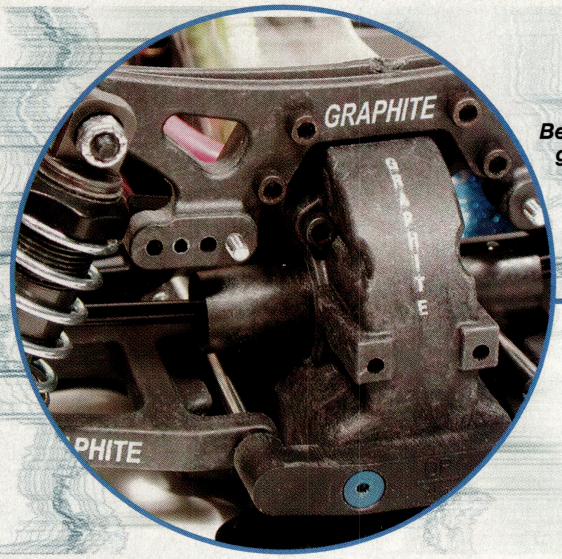


Compare the length of the stock shock (left) to that of the new short shock (right).

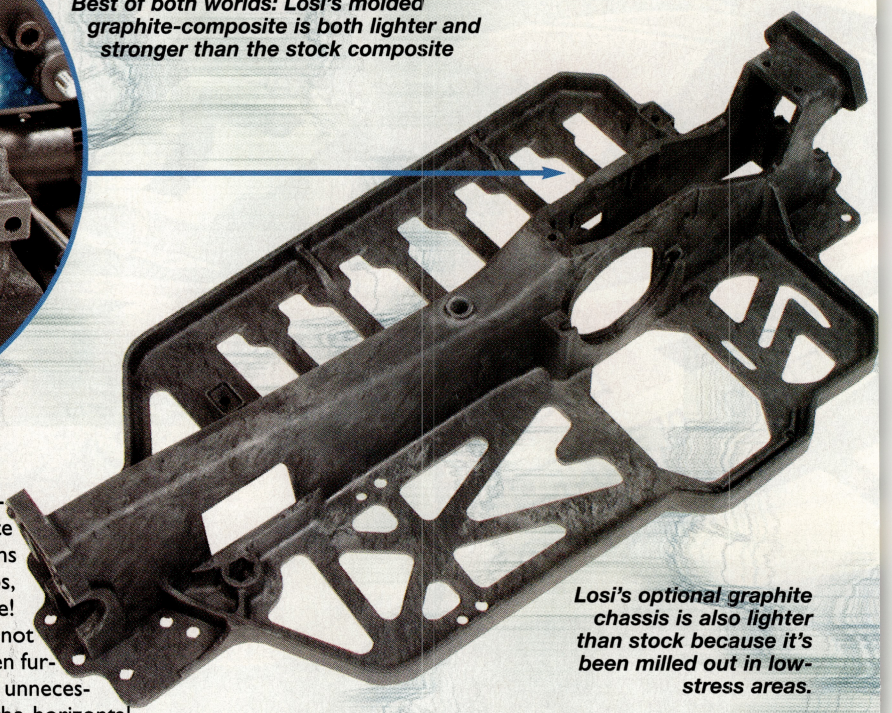
GET SHORTY

Another significant new part for the XXX-S is Losi's 0,28in short threaded shock kit. The stock car has 0.36in shocks both front and rear, but these longer shocks don't permit the front suspension much up-travel. The new short shock allow the chassis to bottom before the suspension, preventing the car from being deflected off-course on bumpy tracks. Another benefit with the shorter shocks is that the piston is less likely to rise high enough to encounter the aerated shock fluid that exists at the top of the shock body, so damping will be more consistent.

Losi sells the short shocks with both standard and threaded bodies, and with or without their titanium-nitride-coated shafts. If you just want to buy the short bodies and shafts so you can use your existing parts, Losi also sells each part individually.



Best of both worlds: Losi's molded graphite-composite is both lighter and stronger than the stock composite



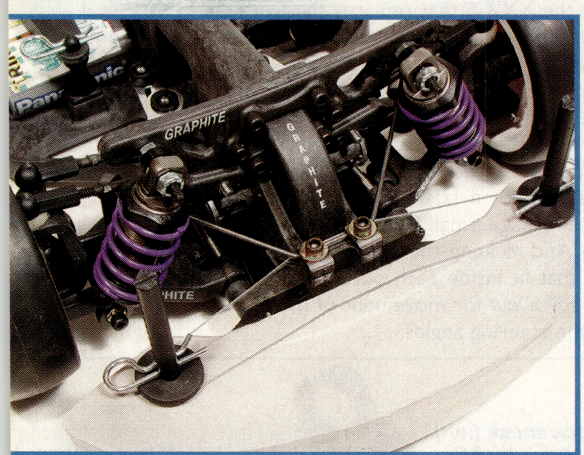
Losi's optional graphite chassis is also lighter than stock because it's been milled out in low-stress areas.

GOIN' GRAPHITE

Team Losi sells a graphite conversion kit that contains virtually every molded chassis and suspension piece made from lighter and stiffer graphite composite. This includes the chassis, suspension arms and mounts, front uprights and spindles, rear hubs, shocks towers - there's even a graphite droop gauge!

The chassis is the most impressive of the lot. It's not only molded from a more rigid material, but it's been further lightened thanks to the extensive removal of unnecessary material in certain low-stress areas such as the horizontal sections beneath the servo, receiver and ESC. Even with a lot less overall material, when compared with the stock chassis, the graphite replacement is still stiffer, and it's much lighter.

The graphite replacement parts are created from the same tooling as the originals, so everything fits perfectly during assembly. The only issue I had during assembly is that the setscrews that hold the lower hinge-pins inside the rear hubs are very easy to strip - I don't remember this occurring when building the original kit. Just be careful not to over-tighten them - they only need to snug against the pins to hold them in place.



ON A ROLL

Unless the track has no high-speed sections at all, I will usually will run a front sway bar to keep the outside front suspension from diving too much when entering turns. When this happens, much of the weight is lifted from the rear-inside tire, and this is why a lot of cars will spin out at corner entrances. Some people try to counteract this by using stiffer front springs, but I have found that this makes the car a little "dead" feeling during low-speed turns.

Losi has just released a front sway-bar kit for the XXX-S, and it contains a set of four bars (each a different thickness) and all the hardware needed for installation. I started off with the thinnest bar, but eventually settled with the third largest, as it allowed me to run Losi's new green (17.5lb) front springs, which are a little softer than the purple (20lb) stock springs. I liked this setup better, as it gave the car a bit more turn-in off the main straightaway.

I also installed Losi's new front body-mount brace, which is basically a thick sheet of Lexan that ties the front body-mount posts together and to the front diff cover. This provides some needed support to the body mounts, which can bend pretty easily if you hit something hard enough. The sway-bar mounts will still fit with the brace installed - just mount them on top of the Lexan piece.

MISCELLANEOUS MODS

If you read our inside look at Brian Kinwald's XXX-S (in the May '02 issue), you will remember that he said that in order to use the lower hinge-pin positions for the suspension arms, he had to grind 0.150in from the inner mounts. Speed Tech offers a set of two-piece mounts that replace the molded stock parts, and they allow for both hinge-pin heights. To use the lower positions, you install the Speed Tech mounts without their spacers - there's no guesswork involved in achieving the right height.

I also installed a set of Speed Tech's machined-aluminum steering bellcranks (which fit either the stock molded bushings or Losi's optional ball-bearings), along with a "counterfeit" cell spacer from Dragon R/C. This replaces the foam block that's normally used to take up the extra "seventh cell" position in the battery compartment, and it prevents the cells from moving during hard crashes (which can happen even with the foam block in place).

RUNNING GEAR

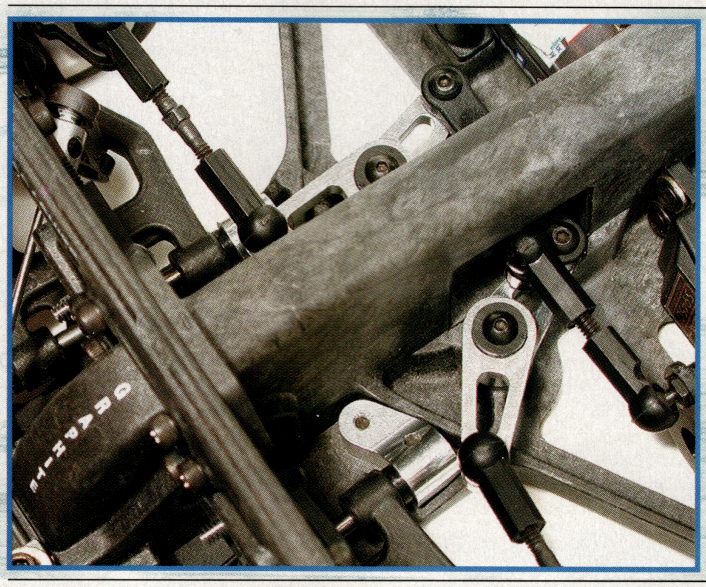
For this project, I chose to use a Futaba S9450 digital high-speed/high-torque servo, a Novak XXtra synthesized receiver (on 27mHz) and the new KO Propo VFS-2000 ESC (see a review of this speedo elsewhere in this issue). The Futaba servo has served this car well for nearly a year, and is actually "overkill" in a car this size, but it's nice to have this kind of turning power. Likewise, the Novak receiver has been with my XXX-S since the beginning, and has never glitched once. I really like being able to change channels by using a small screwdriver instead of having to change crystals.

Project XXX-S

TRACK TESTING

Hot Rod Hobbies has just put in its new permanent asphalt roadcourse, and I decided that Rod's Thursday night race program would be the perfect way to test our Project XXX-S. This would also prove to be a big learning experience, as I struggled to match tires with a rapidly declining track temperature.

Surprisingly, I haven't really messed with our XXX-S's stock setup since our original test back in the November '01 issue. The biggest changes I made - aside from the addition of the aftermarket graphite and aluminum parts - were the additions of the front one-way and the front sway-bar kit.



I arrived in time to get in one round of practice before qualifying began. The track was still quite warm (about 75 degrees), so I used a set of Yokomo ZR-139G tires and medium inserts mounted to their Inch-Up wheels. I couldn't believe how great the car felt; the steering was beyond my expectations. The car slingshot around the tight 180-degree turns without losing much speed at all, and its ability to turn-in off the decreasing-radius sweeper was impressive. I kept turning down the dual-rate on my radio in order to minimize speed-sapping tire scrub, and I ended up with perhaps 1/2 of the car's normal amount of throw. On-power steering showed no signs of oversteer or understeer - the car went where I pointed it.

As this was the first time I had raced this car in stock, I wasn't sure how to gear it. I was using an older Integy Matrix TQx motor (a variation of the original P2K Pro), so I began with a 22/88 ratio. This worked well, but at the recommendation of other XXX-S racers, I geared up to a 23/88, which better utilized the motor on the long back straight. And just a note for everyone who thinks that they have to have the very latest cells to run stock - I had no problems making the time with my 3-year-old Sanyo 2000s, and their voltage is still good (see, it pays to take care of those old batteries!).

Qualifying would be a different matter. As the track's temperature dropped (getting down into the low-60s), the Yokomo tires no longer hooked up. In both qualifiers, I fought with chronic oversteer for the first two minutes until the tires warmed and their traction had returned. But I was definitely out of the hunt by that time. Tire warmers, such as those sold by Trinity and Integy, would have helped out a lot! I ended up qualifying next-to-last for the A-main, but I knew that with the right cold-weather tires, my XXX-S was capable of much better.

For the main, a sympathetic friend loaned me a set of Team Sorex tires - 24Rs for the front and 20Rs for the rear. Both sets had HPI's Red medium inserts. I also wiped the rear tires with WD-40, which by the way, makes an excellent traction additive - just rub it on and let it soak into the rubber. At the start of the 5-minute race, I was able to drive around a first-turn pileup and into second place behind local hot-shot and Team Losi driver Jimmy Babcock (who was also driving - you guessed it - a XXX-S). Although I could only keep Jimmy in sight for a few laps, I managed to finish comfortably in second. The tires made the car feel better than it had all day. In fact, this was one of, if not the best feeling sedans I've ever driven. I was able to put it wherever I wanted and get on the throttle anytime without fear of oversteer. After this run, I can't imagine driving this car without the one-way, unless of course the track was ultra-slick and no tires would hook up.

SHOPPING LIST	
Team Losi	
A-9650 Graphite conversion kit	$119.95
A-3245 Front one-way assembly	$60.00
A-4245 Front body-mount brace w/hardware	$5.00
A-5053 0.36in Threaded shock-body set	$19.95
A-5081 0.28in Threaded shock set	$32.00
A-4250 Front sway-bar set	$9.00
Dragon R/C	
DR-720 Counterfeit cell spacer	$9.99
HPI	
4630 Pro molded inner foam (24mm)	$5.00 pr
Speed Tech R/C	
PID ST1540 Precision aluminum steering bellcranks	$25.99
PID ST1230-59 Aluminum front inner-pivot mounts	$19.99
PID ST2230-91 Aluminum rear inner mounts	$19.99
Team Sorex	
CO-20R 24mm belted slicks	$15.00 pr
CO-24R 24mm belted slicks	$15.00 pr
TSSW102 Dish wheel (24mm)	$8.00 pr

SOURCES

Dragon R/C, distributed by MHOR R/C Raceway, 15540 E. Batavia Dr., Aurora, CO 80011 • phone (303) 343-0151; fax (303) 343-7966

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

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

Speed Tech R/C, 20199 E. Valley Blvd., unit C, Walnut, CA 91789 • phone (909) 869-9443; fax (909) 869-7539

Team Losi, Inc., 13848 Magnolia Ave., Chino, CA 91710 • (909) 465-9400; fax (909) 590-1496

Team Sorex USA • phone (916) 783-8864; fax (916) 772-5426

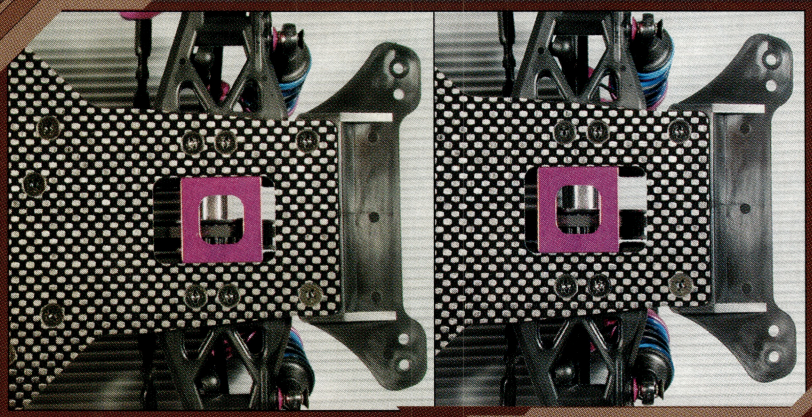


Team Atlas YM-34T

Even if you have been racing on-road cars for years, there is a good chance that you have never seen or heard of Team Atlas touring cars. Although not as popular as many other touring sedans, the Atlas YM-34T kit should easily be recognized with all of its purple-anodized parts. The shiny alloy catches your eye and suggests that the owner spent his life's savings on hop-up parts. Intended for serious racers who want something different, the Atlas sedan offers unlimited adjustability. If you are in the market for a 4WD touring car, than take a close look at what we discovered. The YM-34T should spark your interest—that is, if owning a real unique racer that is of competition quality is your style.



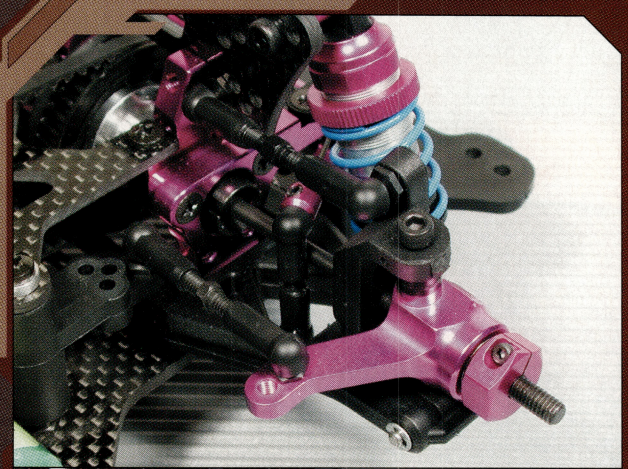
ELSE'S FACE!

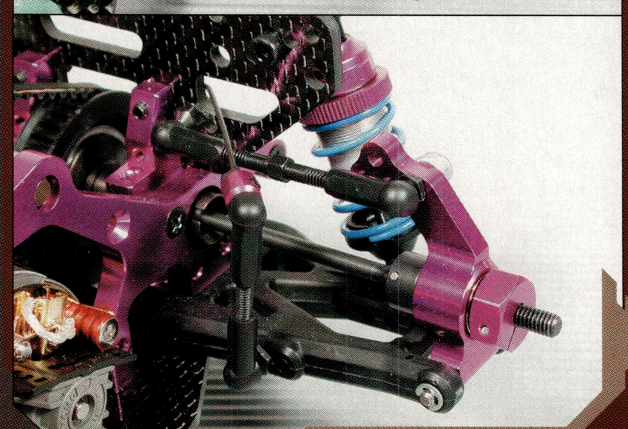


■ Many chassis today are flimsy and do not provide the type of performance serious racers are after. Fortunately, the Atlas chassis is very rigid and literally has no flex. The aerospace grade graphite material used is both durable and strong. Both shock towers and the upper deck are made from the same lightweight graphite. The chassis has been cut out wherever possible to decrease weight and allow increased motor cooling. A new straight-pack battery design has been incorporated, unlike the saddle pack layout in Atlas' previous sedan, the YM-34. By removing four screws in the front and rear suspension mounts, the wheelbase of the car can be easily changed for different track conditions. The underside is countersunk to allow screws to seat flush with the bottom of the chassis.

■ There is no need to spend a single penny on hop-ups for the YM-34T. The kit comes with a plethora of anodized parts that not only look great, but increase performance and durability. Both the front and rear alloy bulkhead pieces are anodized purple to give the car that desired factory finish. The threaded shock bodies are capped off with the same anodized material, and also feature purple spring tensioners to make quick, last-minute suspension adjustments. Since the car has a purple anodized theme, Atlas did not want to forget anodizing the front and rear hubs.







■ Atlas increased the strength of its molded plastic suspension arms. Not only is the material a little thicker, but it is designed to take more abuse. The rear arms provide a wide variety of adjustments with four suspension anchoring holes. The front arms have two anchoring holes for fine tuning steering. Both the front and rear arms are attached to sway bars (anti roll bars) to limit the amount of chassis roll. The sway bars are dressed with anodized ball ends to complete the tricked-out look.

■ The molded-plastic wheels that are included with the kit come in a five-spoke design. Firm sponge-type inserts surround the white factory trued wheels. Medium-compound radial tires are mounted to ensure that a solid contact patch is applied to the road. Handsome black wheel locknuts secure the wheels to the axles. Not only are the wheels light, but they flex just a little to give added traction. The supplied rims have zero offset and are secured directly to purple-anodized, clamping-type aluminum hex-hubs. If you're tired of your plastic hubs coming off with the wheels, these babies will fix the problem.

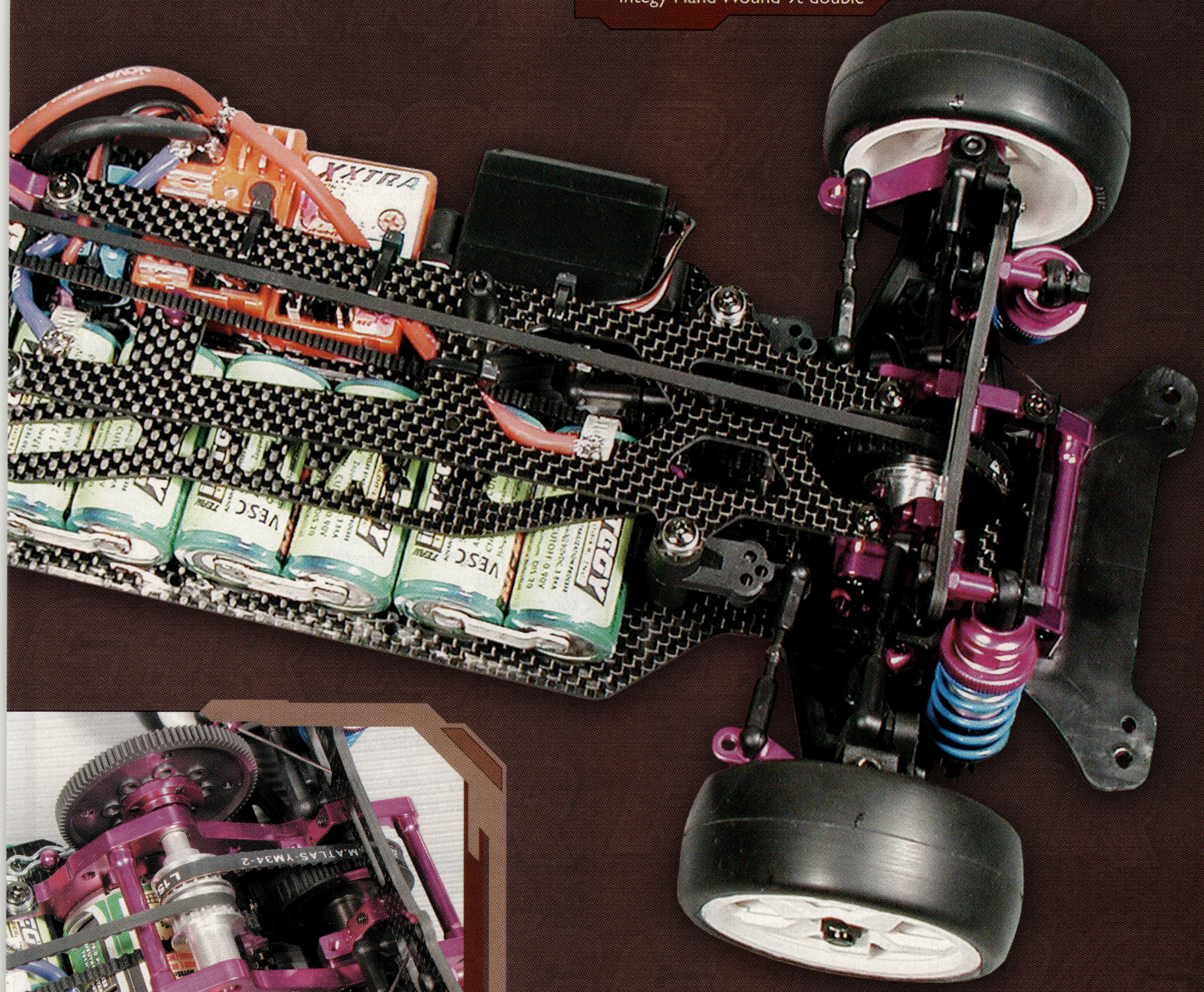
■ As mentioned, the previous Atlas sedan, the YM-34, had a saddle-pack configuration, and the cells had to taped in place. Changing batteries in the new YM-34T is much easier. The six-cell in-line configuration allows easy access for quick changes. Since the new design requires all of the electronics to be on the left side of the car, the balance of the weight is remarkably good. A strong graphite battery brace secures the cells without any chance of the pack moving (and it's milled-out to spell Atlas—how trick is that?). The six cut-out slots need to be filed at about a 45 degree angle to allow the batteries to seat flush with the chassis, and to prevent the sharp edges of the chassis from cutting the cell-shrink. Unfortunately, the six slots do not allow for any adjustment of the battery location.

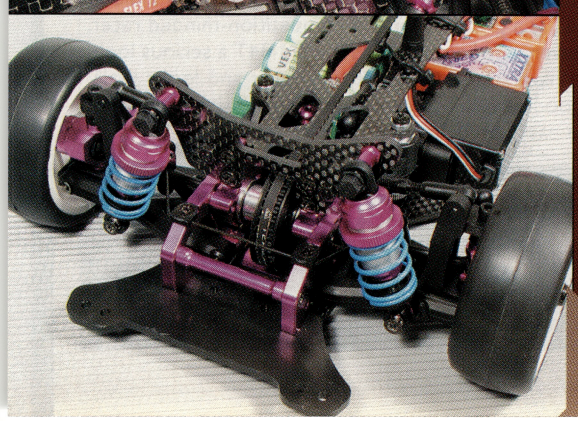
Team Atlas YM-34T

OUTSTANDING FEATURES

Items used that are required but not provided:

- Hitec Lynx 3D Radio System
- Novak TC2 ESC
- Novak Xxtra Receiver
- KO Propo Hi Speed 30022 Steering Servo
- Integy 3000 Matched Battery Packs
- Integy Hand Wound 9t double





■ Atlas obviously did their homework when they decided to put a front one-way differential in their new 4WD touring sedan. Serious racers know that a one-way improves cornering speed and increases acceleration. However, the added performance comes with a price; when you try braking with a one-way, you'll quickly learn that rear-wheel-only braking almost always causes the rear of the car to try and pass the front.

■ The one-way is part of a two-belt drivetrain, which is very responsive and quiet. The longer front belt is thinner to decrease drag and reduce load on the motor. The belts, along with a rear ball differential, provide ultra smooth throttle response. A 48-pitch, 90-tooth spur gear and a 29-tooth pinion are included, so you will not have to guess where to begin initial gearing. The provided gears are a good starting point for stock motors but would be too tall for modified motors.

Team Atlas YM-34T



SPECS

Price	$299 street
Length	15.3in/390mm
Width	7.8in/198mm
Wheelbase	10.16in/258mm
Track	6.8in/172mm
Weight	3lbs. 4oz.
Chassis	graphite
Drivetrain	Belt-driven 4WD
Diffs	one-way (f); ball diff (r)
Bearings	Metal-shielded ball bearings
Suspension	Independent A-arms
Damping	oil-filled shocks/coil springs
Tires	Eagle medium compound
Wheels	5-spoke molded plastic

Accessories you'll need:

CA glue for tires, paint for body, 190mm clear sedan body, 2-channel radio, speed control, receiver, motor, shock oil, and diff grease.

REPORT CARD

Test location: Hot Rod Hobbies Raceway, Saugus, California

Track conditions: Medium-sized asphalt roadcourse. Untreated pavement with good traction.

Low-speed steering: A

The YM-34T was able to turn on a dime. The slower sections of our test track were no problem for the nimble Atlas car. The front one-way allowed the car to dive aggressively into tight turns and accelerate hard exiting them. This sedan is probably as good as any top-dollar racing kit in tight twisties.

High-speed steering: B-

Although the YM-34T received high marks for its low-speed abilities, it was not quite as good on the faster areas of the track. The rear end came loose a couple of times while trying to maintain its line in the high-speed turns. Some of these tendencies could be a direct result of the cold weather we tested in (well, cold for SoCal—about 65-degrees), or because we ran the setup suggested in the kit's instructions. Laying the rear shocks down a bit seemed to correct the looseness.

Acceleration: C

If the YM-34T came with a belt tensioner, it would have received a better grade. The car's long front belt skipped profusely when the power from the nine-turn modified motor was applied harshly. With a stocker, this is less of a problem, but the skinny front belt—which seemed a bit on the loose side straight from the box—needs a tensioner if the car is to handle modified racing.

Durability: A

Nothing broke, which is a very good thing. Fortunately for us, we only tangled a few times with other drivers but never smacked the wall because of poor driving. Although the toughness of the car was never tested, the way the car is built indicates that it would endure some good punishment.

Straight line tracking: A

Competition kits should receive high marks in all areas. After all, the manufacturers are competing for the racers' dollar. If the Atlas car did not track well, then that would have been a design flaw. Fortunately, the straight line tracking was excellent and needed no steering corrections.

Stock tires: B

The stock tires were good, but not great. As mentioned before, the weather was cold and seemed to affect not only our test car but the cars of the other racers as well. A softer compound would have helped, but I believe Atlas was trying to include tires that were a happy medium. These tires would have probably given great traction had it been hot, but unfortunately, it was not. We could only assume different results given warmer weather.

Adjustability: A

You can change the length of the wheelbase, roll center is easily modified, the shocks can be mounted in a wide variety of ways, the kit comes with sway bars, and the rear ball differential can be adjusted.

BUILDING TIPS

In step one, tighten the rear ball-differential carefully. If it is over-tightened, the plastic diff nut will easily be stripped.

- In step five, the top pulley-shaft required two thin shims to take out most of the play between it and the rear bulkheads.
- In steps six and 15, make sure you use the correct sway bars. The two bars look similar, but have slightly different bends. Compare the stabilizer bars with the pictures in the instructions to ensure that they are properly used.
- Pay close attention to all of the steps that require using ball studs. The kit comes with three different sizes and lengths, which play a crucial role in the suspension geometry.
- You will have to go to the hobby store and pick up some 40wt shock oil, as well as some diff grease and a front foam bumper. The kit does not provide these items.

Final Score

Highs: Atlas has designed a really good car that, if marketed correctly, could tap into the growing market of touring sedans. The car is extremely good for stock racing and is competitive right out of the box. The front one-way is a great addition and enables the YM-34T to carve turns and accelerate like a top fuel dragster (with a stock motor).

Lows: Some people will not mind buying shock oil or diff grease. We think every kit should include them; the manufacture needs to spend only a few pennies to supply these items with their kits. A belt tensioner should come as standard equipment; what do you do when the belt stretches out, as our test car's did?

The verdict: The Atlas YM-34T is a great kit for the competition-minded racer. If you are after something not everyone has, then give the YM-34T a serious look. It works as well as any kit we have tested with a stock motor and looks really nice with all of the anodized goodies. Replacement parts may not be avialable at your local hobby shop but can easily be order via the internet.

SOURCES

Integy Technologies, Inc., 1140 Centre Dr. #E, City of Industry, CA 91789 • phone (909) 444-2766; fax (909) 627-4132

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

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

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Speed	Torque	Holding Power	Size	Weight
0.12	76oz/in	228oz/in	1.27"x0.8"x1.2"	1.09oz

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Top-notch performance without the high cost, these digital programmable servos really deliver. Featuring unbreakable metal gears, these servos offer the awesome reliability, accuracy, and holding power that are synonymous with all Hitec digital products.

Model	Speed	Torque	Holding Power	Size	Weight
5625MG	0.14	130oz/in	390oz/in	1.6"x0.8"x1.5"	2.1oz
5645MG	0.18	168oz/in	504oz/in	1.6"x0.8"x1.5"	2.1oz

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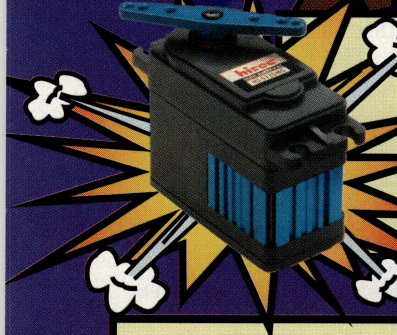
A high-grade coreless motor, programmable features, unbreakable metal gears, and seven O-rings on the case add up to Hitec's best "Super Servos!" Combine that with unmatched precision, centering, and holding power; these are simply the best servos that money can buy.

Model	Speed	Torque	Holding Power	Size	Weight
5925MG	0.08	127oz/in	381oz/in	1.55"x0.8"x1.5"	2oz
5945MG	0.13	180oz/in	540oz/in	1.55"x0.8"x1.5"	2oz



HS-5735MG THE ENFORCER

With 264 in/oz of control rod bending power, the HS-5735MG digital programmable servo is the undisputed heavy weight champ. With its cool blue motor heat sink for improved heat dissipation, unbreakable metal gears, incredible resolution, centering, and holding power, this "Super Servo" is the ultimate choice for your 1/5th scale cars.

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Team Losi XXX-NT Sport

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Lose the Glitches and Gain Efficiency

The dos and don'ts of R/C electronics



Tyree Phillips has been racing R/C cars since the late '70s, competing at the national level for many years. He is also very knowledgeable about many of the different scales of R/C race cars, having raced 1/5, 1/8, and 1/12 scales at major sanctioned events. Tyree now serves as one of Novak's main men, and works closely with their engineers to develop new products. If you have seen him drive an on-road car, or have seen some of the recent national results, than you know he is still fast. With a long list of credentials, we decided to ask Mr. Phillips to share some of his thoughts regarding electronic equipment. After all, he does work for one of the world's leading manufacturers of high-tech R/C electronics.

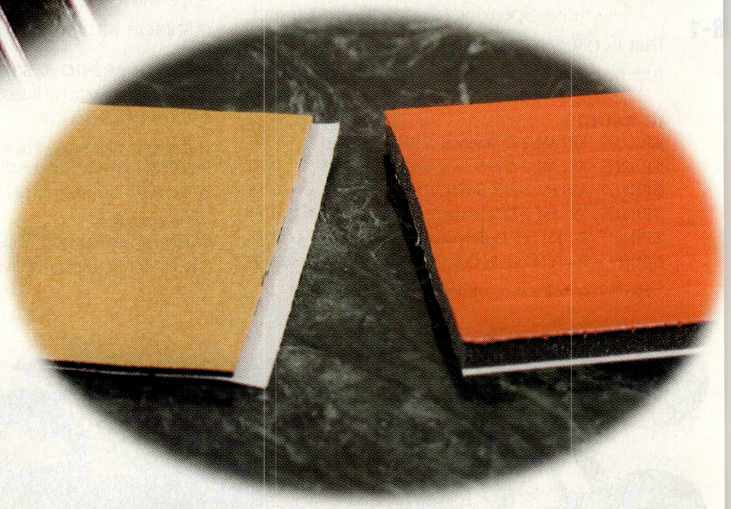
PREVENT GLITCHES BEFORE THEY BEGIN

At times, we have all had our share of glitches, whether someone turns on our frequency, or the car loses control and smacks into the wall for no apparent reason. Although we can't prevent someone from turning on our radio frequency, we can prevent annoying glitches that result from a multitude of often-overlooked causes.

• Use the right capacitors. "Running capacitors on all of your motors will decrease motor noise," says Tyree. The noise generated from the motor can cause interference with the receiver and increase the chances of radio interference. Using capacitors with a resistance value of 0.1 micro farad (which have the number "104" on the side) will reduce the possibility of glitching, and decrease the amount of motor noise that is transferred back to the receiver.

• Isolate the receiver from vibration. "You should also never mount a receiver on top of a servo," adds Tyree, "the noise and vibration from the servo is transferred directly to the receiver, and will cause unwanted problems."

Many racers—regardless of skill level—are often unaware of the fact that servo tape plays a vital role in a receiver's performance. "Use thick foam servo-tape which will allow the receiver to float and reduce vibration," recommends Tyree. "Cheaper servo tape is not as 'spongy,' and does not allow enough movement to allow the receiver to shift. For nitro-powered cars, it is especially important to use the proper tape."



Thick servo tape (right) isolates the receiver from vibration.

• Stay away from graphite. According to Tyree, another consideration when one is striving to eliminate frequent radio problems, is to keep the receiver's antenna wire away from any graphite chassis parts. Many of today's popular kits are made from graphite, which can wreak havoc if the antenna wire comes in contact with it. In many of these cars—such examples would be the Losi XXX and Associated T3—the antenna must pass through a small portion of graphite to reach the antenna tube. Instead of running the antenna wire under the graphite section, do this: drill a small hole about 1/4-inch up the antenna tube and run the wire through the new hole to eliminate any contact with the graphite.

ADDITIONAL TIPS

In addition to those listed above, Tyree provided us with a few tricks he's picked up over the years.

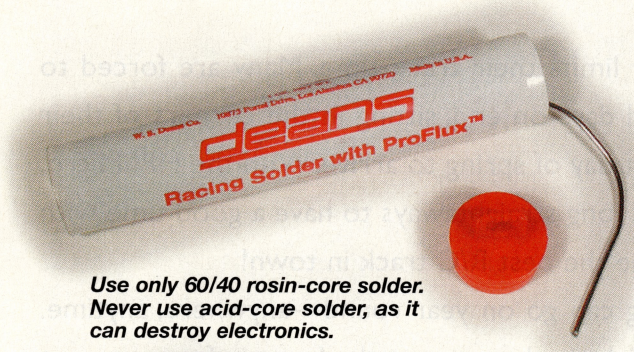
• To prevent noise from the motor traveling back to the speed control, twist the red and blue motor wires together.

• The motor is the greatest source of radio noise. Inspect its condition frequently. Old purple brushes create a lot of noise and excessive friction against the commutator. Also, the comm's surface should be free of burn spots and pits. Oil the bearings and bushings frequently to help the motor run smoothly.

• Keep the wires as short as possible. The shorter the wires, the less distance the current has to travel, and the efficiency of the entire electrical system will be improved.



A piece of fuel tubing keeps this antenna wire from touching the graphite chassis.



Use only 60/40 rosin-core solder. Never use acid-core solder, as it can destroy electronics.



BETTER SOLDERING EQUALS GREATER EFFICIENCY

Now let's learn the basics of how to make our electronics, motors and batteries as efficient as possible.

• Use the right solder. "Using good solder is an important factor when working on batteries and motors," says Tyree. "You should use 60/40 rosin-core solder because it is easy to work with," he adds, "other types of solder, such as 60/37, are extremely hard to work with once they have had the chance to set, and they'll require more heat than with 60/40." Tyree also cautions against the use of any type of acid-core solders, as they will cause damage to your electronics.

• Make an efficient solder joint. "Sloppy solder joints are inefficient," informs Tyree, "so we must use the proper techniques and tools to accomplish our goal." He then adds, "A 5mm iron tip will provide a larger surface area to allow the solder to heat up faster. To prevent batteries and speed controllers from encountering any damage while soldering, you should use a hot iron and work very fast. An iron that takes a long time to heat up solder will transfer unwanted heat to the electronics.

"Tinning wires and speed control posts should be done prior to the two being soldered together," says Tyree. "This will provide a solid connection and eliminate the possibility of the wire coming loose." Good, strong solder joints also help decrease the noise from the motor and reduce the likelihood of interference.

THINGS TO REMEMBER

Keep the antenna wire from contacting graphite.

• Avoid participating in demolition derbies with your friends; the ceramic filter in the receiver will get damaged and cause frequent glitching problems.

• To eliminate interference and increase radio range, the receiver can be mounted vertically with the antenna facing up.

• Make clean solder joints—they look better and are more effective.

• Don't ever allow your electronics to get wet! Moisture will cause damage to all electronic components, so keep them dry.



A clean solder joint is an efficient solder joint.

Getting the most out of

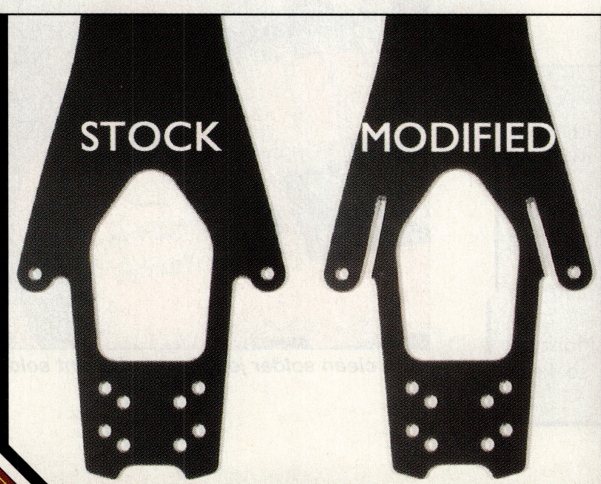
From serious fun to serious performance

With roughly six months under its belt, HPI's little Micro has evolved from what some believed to be another R/C gimmick into the forefather of a whole new class of racing. For drivers lucky to be centered in warmer climates, the importance of this little car to the R/C community may not be as readily apparent as to those who live where winter is more of an issue. For example, we SoCal residents have access to outdoor tracks almost 365 days a year. Let's face it, winter for us means bundling up in our heavy "winter" shorts to stay warm when the wind-chill factor hits 72 degrees.

For the rest of the R/C community, winter usually limits their track time. Many are forced to shelve their cars until the spring thaw. Drivers spend days on end, sitting in the corners of their basements rocking back and forth, waiting for the first day of spring to arrive. With the HPI Micro, that has all changed. No longer do you need 150-foot long straightaways to have a good time with your R/C car. An unfinished basement has now become the best R/C track in town!

Thanks to this diminutive car, the business of racing can go on year round—anywhere, anytime. But as with every form of racing, there are tips and tricks on how to get the best performance out of your car. Now, it's time to get serious. In many ways, the Micro is like the Traxxas T-Maxx. You can put a .21 motor in it and jump a house! Just kidding. With the T-Maxx came companies that survived, and survived well, solely off of aftermarket parts for the revolutionary truck. In a little over six months, we are beginning to see history repeat itself with the Micro.

With that knowledge and some help from two Micro aficionados, we're going to show you how to turn the stock kit into a true contender. We took a little time to talk with Thad Garner, HPI's Micro Guru, about some of the tricks he used to develop the handling on his own car.



A NOTCH ABOVE THE COMPETITION

The Micro's handling out of the box is very good, but according to Thad, it could be better. With a little experimentation, Thad found the extra traction he was looking for. Armed with a Dremel and a cutting wheel, he elongated the two cutouts at the rear of the chassis by 3 to 4mm. These cuts unlocked more rear traction by softening the rear suspension and allowing it to flex more. Be careful not to make the cuts too deep or make area too thin, as this can weaken the chassis.

your HPI Micro RS4





BECAUSE I'VE GOT TO BE FREE

Imperfections can be the difference between winning and losing. Thad doesn't accept flaws in his racecars, and neither should you. As with any competitive R/C car, the less resistance you have in the suspension and drivetrain, the faster it will go. Never is this more important than in the Micro. Why should you worry about this when there's not enough movement between parts to be concerned with freeing them up? Don't overlook the details!

Let's take a look at the suspension. Okay, so the Micro doesn't have a ton of shock travel, we'll give you that. But it does need what little travel it has. The slightest bind or the smallest differentiation in shock travel from the left side to the right side can drastically affect the Micro's performance. When you're building the kit, take the time to carefully inspect the suspension components. Though the production qualities of today's kits are by far better than they used to be, they are still mass-produced by imperfect machines. On a car this small, imperfections can create huge performance issues. Are there burrs or imperfections on your hinge pins? To get the most out of the Micro suspension, these babies need to be smooth. With some polishing compound and a towel, or a Dremel with a polishing wheel, you can make the hinge-pins shine like a mirror. Smooth pins allow the arms to move freely. Free is fast.

While we had the compound out, we also inspected the ball ends on the shock shafts. On our Micro, we noticed that one of them grabbed a little as it rotated around its full range of motion. When we removed it from the cup, we noticed a tiny burr left over from production. Holding the shaft carefully with pliers (wrapped in tape or a small towel to avoid scratching the shock shaft) we carefully polished the ball end, then turned it around and polished the shock shaft. The results? Silky smooth shock travel.

For those of you using a rear ball diff, now's the time to really make it smooth. Remove the two D-rings, and with the same techniques used on the suspension components, polish the rings until they're smooth as glass. When you rebuild the diff, use light silicone diff grease and it'll be as smooth as Fabio in a singles' bar.

KEEP IT ON THE LOWDOWN

Bottom line, weight is your enemy. Although some of it cannot be avoided, you can use what weight you have to your advantage.

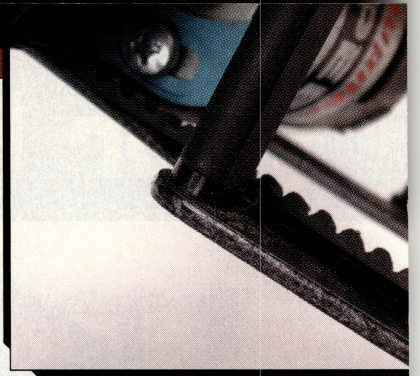
HPI Micro RS4

For the next batch of performance tricks, we caught up with Steve Courtney from Canadian-based IPD Racing (remember, Canada plus cold weather equals lots of time inventing tricks in the basement).

From its inception, the Micro has suffered from a high center of gravity (CG), meaning that some of the heaviest components are high up on the car, mounted on the top plate. As with any car, the higher the CG, the more the chassis rolls during cornering, which produces a loss of cornering grip. That's why racecars are built low to the ground instead of tall like a Mack truck.

The heaviest parts on the Micro are the batteries. The guys at IPD came up with a great way to lower the batteries in the chassis while being able to shift the weight from the front to the back to tune the handling of the car. The first step in the process is building a new battery plate that will mount to the lower chassis with two HPI M3x8mm flat-head machine screws (part #Z526). To clear the belt, the new plate must be no less that 3mm thick. We chose to use a piece of 3mm sheet styrene, but if the budget allows for it, you can use a sheet of carbon fiber or aluminum. Heck, you can use Beryllium or Unobtainium if you can afford it.

Cut the plate to a width of 30mm and a length of 48mm. Find the centerline of the plate at 15mm (half of the 30mm width) and pencil a line. From the edge, mark your first hole at the 8mm mark, the second hole at 25mm, and the third hole at 38mm. Using a drill bit that is slightly smaller in diameter than your M3x8mm screws, drill the three holes in the plate. The holes need to be smaller in diameter so the screws can thread into the plate to secure it. If you use the carbon or aluminum, you will need to tap the holes so the screws will be able to thread into the plate.



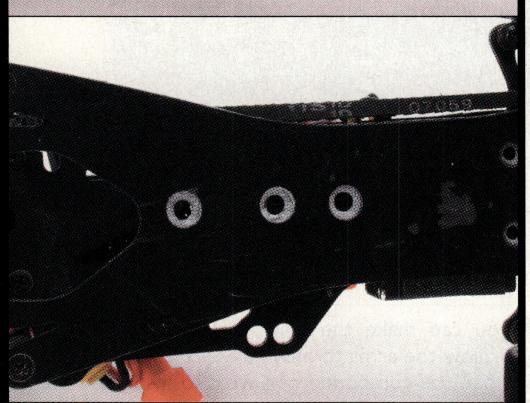
Now find the centerline in your Micro chassis. From the front edge of the opening in the rear of the chassis, mark your three corresponding holes on the bottom of the chassis. The first at 8mm, second at 25mm and the third at 38mm. Using a counter-sinking drill bit roughly the same diameter as the screws, drill from the bottom of the chassis. Make sure the countersink is only deep enough so that the screw heads are flush with the bottom of the chassis. Be careful not to drill too deep into the chassis.

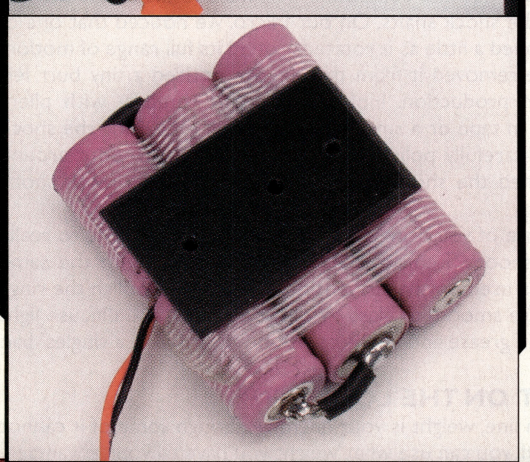
Using six 900 to 1100mAh NiMh cells, build a saddle-style pack. If you are unfamiliar with the proper way to build a battery pack, talk to your local hobby shop; they should be more than happy to help. Mount the saddle pack on the plate using Shoo-Goo or a good reinforced tape. By altering the screw positions you can not only lower the CG of your Micro, but you can now tune the weight distribution for better performance.





To lower the CG even more, you can lower the top deck and the lower chassis. To do this, IPD suggests using nine small washers from 0.5mm to 2mm thick. There are nine screws that mount the components to the lower chassis. By placing a washer between the chassis and the components at each of the nine points, you can lower the chassis and the overall CG. How low can you go? That depends on your track surface. All we can say is experiment, experiment, experiment. You can also lower the top plate using the same technique. Remember, the lower the better. The weight you add in washers will be greatly compensated by the lower CG, and after the next step, it really won't matter.





MORE POWER...OH, AAAAH!

Let's face it; unless you're our kid brother, the fun of the stock motor wore out after the first battery pack. We need more power! With all of the mod motors coming out, which should you choose? Well, that depends on what you want to do. For our project, we wanted to shoehorn the biggest motor we could find. Enter the Graupner Speed 300. Usually used in electric aircraft, this puppy spins to almost 30,000 rpm! At over twice the size of the HPI Mod Motor, however, the Speed 300 needs a little finessing to get it into the chassis. Lesser enthusiasts would cringe in fear, but not us; oh no, my friends, we're long on our way towards building a faster beast. Why stop now?

First, we need to prep the motor. We pirated the capacitors and motor wire from the stocker and re-attached them to the Speed 300. With that out of the way, you will need to remove the rear-axle pod, the rear axle and rear diff from the chassis. With all of that removed you should be holding a rear housing with the motor plate still attached. With a quick test fit, you'll see our major hurdle. The mounting bolt pattern is way different.

We have heard that the Speed 300 comes in two different bolt-pattern configurations, one narrow and one wide. With the narrow pattern, you could modify the stock motor plate as shown in the photo, and you should be able to bolt it right up. We say "should" because in all of our searching, we were only able to find the wide pattern. So now, we will hand forge a plate from raw molten elements. Or, we can just pick up one of Team Orion's Big Block Motor plates. Heck, why reinvent the wheel when Thunder and his buddies did it for us?

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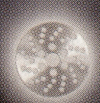
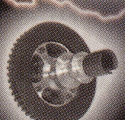
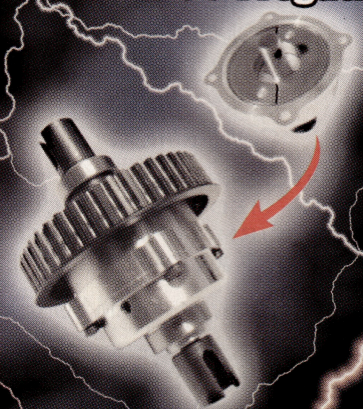

VoneR, MTX2
K-710
Vented Brake Rotor


VoneR K-419
Brake Top Plate

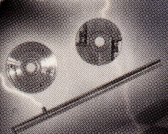

VoneR K-435
MTX2 K-805
Solid Rear Axle



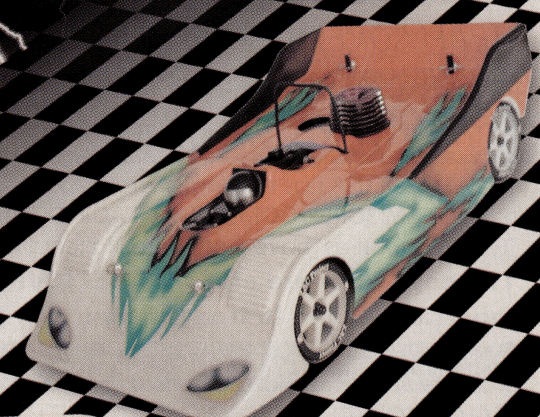

VoneR K-426
Carbon Shock Tower

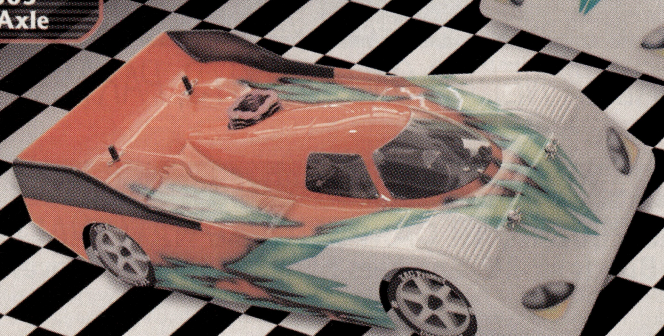

MTX2 K-717
Mid BB Block


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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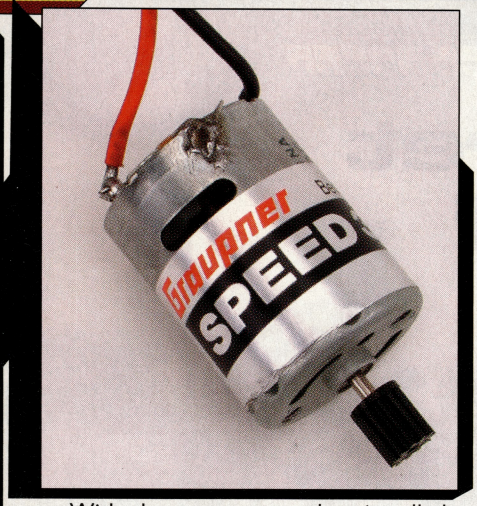
HPI Micro RS4



With the new motor plate installed, the Speed 300 will bolt right on. However, if you want to use a full range of pinions, we're going to need to do a little magic with the Dremel and a grinding wheel. With another quick test fit, you'll see that the motor can hits the rear pod where the top screw mounts to the plate. Orion's plate fits so well we really don't need the top screw. One at the bottom is more than enough to secure the plate, so get rid of it! Grind down the top mount and flatten the length of the shaft housing. This will allow the motor to be moved to fit a wide range of pinions.

Since were running on our local 1/10-scale track, we opted for an HPI 12-tooth metal pinion. With the motor mounted to the chassis and the axle reinstalled, you'll notice quickly that the rear shock no longer clears the motor. Not a problem—use the same technique we used earlier to lower the chassis and raise the rear deck by using the black spacers included in Orion's motor plate kit. Have these guys thought of everything or what?

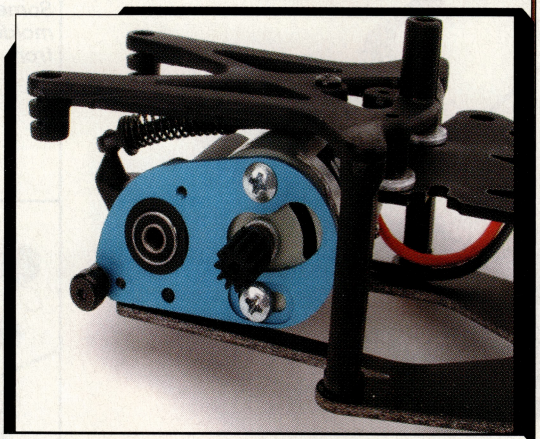
BABY NEEDS A NEW PAIR OF SHOES!

With all of this power on hand, we need to find a way to harness it effectively. HPI soft tires are an absolute must. These tires are night and day compared to the kit meats. However, by combining the different compounds, you can fine-tune the handling of your car. If the car pushes with the new gummy tires on all four corners, try combining the hard tires in the rear with the soft tires in front. When the car has too much steering, it will tend to spin a lot—use the harder stock tires in front and the soft compound in the rear.

NEVER UNDERESTIMATE THE POWER OF A BODY

Believe it or not, even with a car as small as the Micro, your body choice will make a difference with how the car handles. There are two wheelbase configurations available for the Micro. It's as simple as moving the rear pod and changing a belt. The longer wheelbase (150mm) is better suited for larger tracks, as it will tend to have slower, more stable steering traits and will be very stable at speed down the fast straights. The shorter wheelbase (140mm) setup is better for tight, twisty tracks. Steering response is quicker, but the car will be less stable on the longer straights. The downside with the larger motors like the Speed 300 is that you will be limited to a choice between 150mm, and uh, 150mm. Currently, the 140mm wheelbase setting is too short to accommodate the bigger motors (Steve Courtney at IPD Racing told us that their new carbon fiber 140mm chassis will mount a Speed 300 with ease). Oh boy!

With a wide variety of bodies, and more on the way, you'll have to experiment and figure out which one suits your driving style best. We found that from the available



150mm bodies, the Corvette C5R performed best for our setup. Because of its low, wide profile, the C5R uses the widest wheel setting available. This makes for a very potent performing package. It's very good in the corners, yet very stable in the long straights. Of the 140mm bodies, as usual, the Stratus seems to be the best all-around performer.

...AND I WILL STRIKE VENGEANCE UPON THEE

With the project done, it's time to have fun with the big kids. In its current configuration, our Project Micro had no trouble keeping up with the stock 1/10th touring cars at our local track. The best part is hearing the comments and seeing the looks of utter humiliation as we put the wood to some of the big kids. Look out, Goliath—David has arrived!

TEAM LOSI TECH-TALK

Tech Tips #12

We often get asked, "why hard anodizing?" This has become an even bigger question with the release of the Adam Drake XXX-NT nitro racing truck. The answer is really quite simple: performance! Nitro trucks run extended races that often approach an hour in duration as opposed to the common five-minute electric race. The quantity of parts and the potential for wear is dramatically greater. This is evident in full size racecars where hard anodizing is used just about anywhere you find an aluminum part. Hard anodizing is not quite as "pretty" as the less expensive and more common color anodizing, but once again the question is about performance, not being pretty. Unlike color anodizing, which is a surface dying process, hard anodizing is actually a treating process that changes the molecular structure of the surface and adjacent subsurface creating drastically improved qualities. Most of you have experience with aluminum and understand how it compares with other materials like steel. Although significantly lighter than steel, it wears very fast and will bend much easier. Did you know that hard anodizing can increase wear resistance ten times that of ordinary aluminum? Did you know that surface hardness can be obtained to within 30-35 points of the hardness of a diamond? Did you know that this coating is desired in aerospace over hard chrome for its superior durability due to its being part of the material instead of a surface coating that is subject to flaking and loss of adhesion? If you have ever used a color anodized shock body then switched to a hard anodized unit, you have seen the difference. Nitro trucks benefit from the added advantage of the slick surface that is created in the process. This makes it very easy to clean and keep clean in spite of the fuel and dirt that it is exposed to. If there is the potential of wear from scuffing on the dirt to anything rubbing or coming in contact with it, hard anodizing is the overwhelming answer. Color anodizing is cool for looks where performance is not an issue. It's your choice.

While on this subject, look for the new one-piece aluminum topshaft and gear (A-9931) that, like those used in the XXX electric transmission, is hard anodized. These reduce rotating weight and offer excellent wear resistance and a slick surface for reduced friction.

XXX-S swaybars have been a source of numerous questions. The commonly asked question "when should I run a swaybar?" This is extremely difficult since swaybars have different effects on different chassis setups. In general, a swaybar will reduce the chassis roll and slow down the weight transfer from side to side as you enter a corner. This will tend to give a quicker initial reaction. Additionally, a swaybar will typically allow you to run a softer spring without the unwanted chassis roll that is usually associated with this type of setup. This might be handy when racing on a rough track where softer springs are desirable. High traction or high-speed situations are also a candidate. The bottom line is that you just have to try them and see what how they effect the feel of the car. The A-4250 (front) and A-4251 (rear) swaybar sets are easy to install and quick to connect/disconnect while practicing. If you watch closely, you'll notice many of the pros doing this. The trick is to try it and learn the conditions where you find it helpful as well as not. Remember, though, this will change as you alter the camber rise, roll center, or similar chassis geometry. ❑

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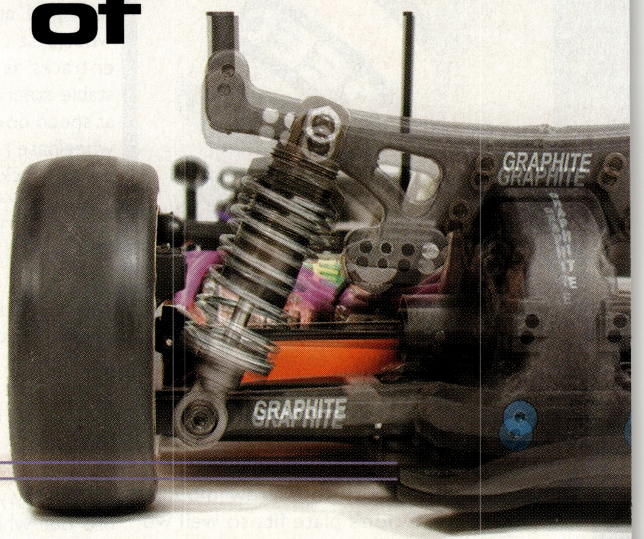
todd hodge

The Secret World of Droop

Not pants, but suspension arms!

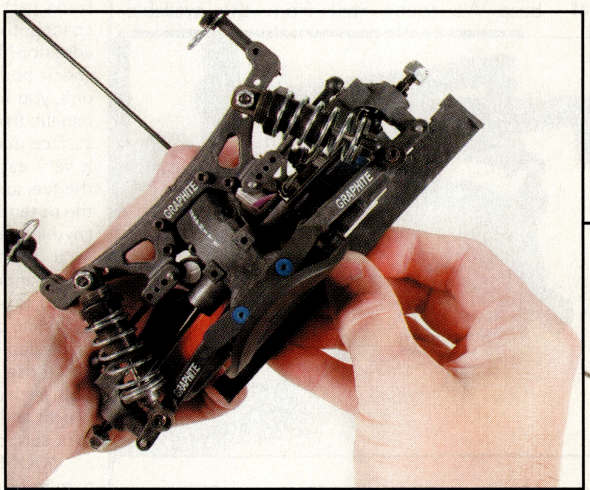


What is droop? How does it affect handling? These and other questions regarding droop are answered by pro driver and current Team Losi employee Todd Hodge. Todd was gracious enough to share some of his thoughts on the subject, so we listened.

What is droop? It's the distance between the car's ride-height and the full extension of its shocks.

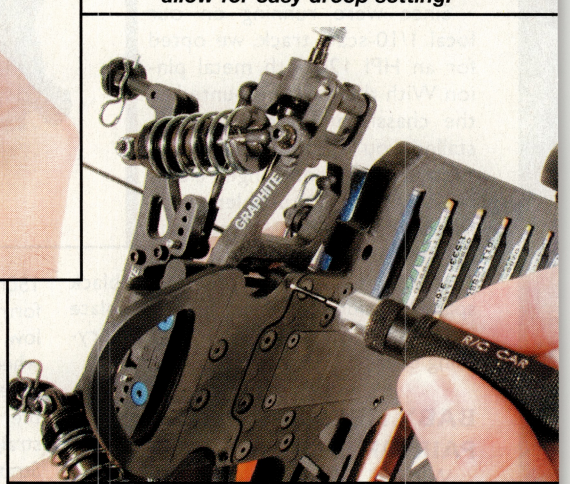
WHAT IS DROOP IN THE FIRST PLACE?

Droop defined: Droop is the distance the shocks are able to extend past the car or truck's ride height. It is measured in a few ways, but this is how we check droop. First, set the car on a flat, level surface. Then, raise one end of the car (whichever end you're checking) to the point where the tires are just about to leave the ground. Using a ride height gauge, check the distance between the surface and the bottom of the chassis. This measurement is the amount of droop your car has. Team Losi driver Brian Kinwald uses a Kimbrough spur gear, which is exactly 5mm thick, to set his ride height. He'll then use two gears glued together (10mm) to set his droop. For our purposes, this distance will be the starting point we can change, once we have learned a few a things about droop and its influence on handling.



Some companies supply simple molded droop gauges. This one is from Team Losi.

Some cars have setscrews that allow for easy droop setting.



HOW TO ADJUST DROOP

There are two ways to adjust droop. Some cars come equipped with small setcrews in their lower suspension arms. These setscrews pass through the arm and extend to where they touch the chassis. By turning-in or backing-out these setscrews, you can easily change the amount of droop. If you have this type of car, consider yourself lucky, as the second method is much less convenient.

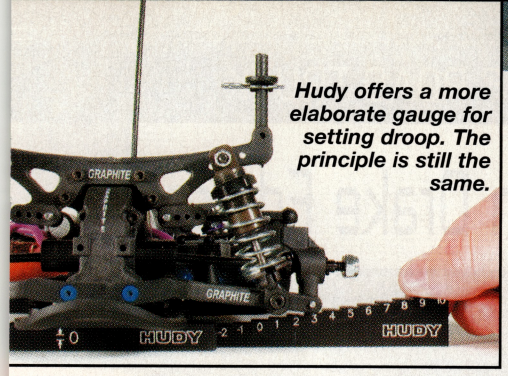
If your car lacks droop setscrews, the only way you can adjust the droop is to disassemble the shocks and place travel-limiting washers or spacers behind the shock pistons. Obviously, this method is not only time-consuming, but this trial-and-error method can make you pull your hair out!

DROOP FOR LOW-BITE TRACKS

Surfaces that offer little traction are sometimes frustrating and a little confusing. With knowledge of droop, your car's setup will be less hassle and it will become easier to drive.

"For low-bite tracks, I will run more droop around the entire car. This will increase chassis roll, enabling the car to gain additional, needed traction" says Hodge. Adding droop to any car should increase traction but should only be done in small increments. "Too much droop can cause a car to traction roll, or reduce its corner speed because of the excess amount of chassis lean" adds Hodge. "On many occasions, droop is the first and only adjustment we'll [Losi's race team] make when racing at different tracks" says Todd.

Adjusting droop can change handling characteristics much in the same way as tires, battery location and shock oil do. "For example,



Hudy offers a more elaborate gauge for setting droop. The principle is still the same.

if my car needs more initial steering," says Hodge, "I will decrease the amount of front droop. This will increase the car's ability to dive into the corners, but depending on the track's surface, less front droop may also reduce the car's ability to exit turns" says Todd.

If exiting turns is a problem, then consider increasing droop by about 1 or 2mm. Doing this will increase the on-power steering ability and works well when steering goes away because of cold weather. If rear traction is a problem, increasing the amount of rear droop will increase stability and side bite. But as with any chassis and suspension adjustment, the correct setting is always a compromise. In this case, the additional rear droop added to increase stability will take away a little steering.

DROOP FOR HIGH-BITE TRACKS

Maintaining corner speed should be of primary concern when racing on high-bite tracks. Since traction is good, we must look for other ways to make our car go fast. "Generally, high-bite tracks will allow you to get away with running very little droop" says Hodge. Little or no droop will not only increase corner speed, but it will also reduce the amount of chassis roll. Reducing chassis movement will significantly decrease the possibility of a traction rolling.

"For conditions that supply great rear traction, but cause the front end to feel 'tight,' I will take away some of the rear droop. Doing this will increase the initial steering, giving the car a better overall feel," says Hodge. Just the opposite can be done to fix a car that might be a little loose in the rear. Removing some of the front droop should usually result in a noticeable increase in rear traction. "Be careful, because cars with very little or no droop may seem dialed, but will lose traction violently and without any warning," adds Hodge. Lastly, a car that may feel sluggish and seem slow probably has excessive droop. Make small changes and see if cornering speed can be improved.

FINAL THOUGHTS

Although this article is primarily centered around touring cars, every condition and description of droop and its effects on handling also apply to other vehicles, including off-roaders. Droop may at first seem like a paltry and insignificant adjustment, but after you experiment with some of the theories explained by Todd Hodge, you'll find droop to be an invaluable tuning tool.

TIPS FOR SETTING DROOP

Weather plays a role in how much droop is needed. Hotter weather will generally allow a car to be set up with less droop. Colder weather will require just the opposite.

- Generally, adding droop to the rear of the car will increase rear traction.
- Decreasing front droop will generally speed-up steering response.
- Too much droop will cause a car to feel lazy and potentially cause it to traction roll.
- Use droop settings to dial-in a car before any drastic setup changes are made.
- Experiment with droop and get to know how each adjustment makes the car handle.

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Team Losi Triple-X NT Adam Drake Edition

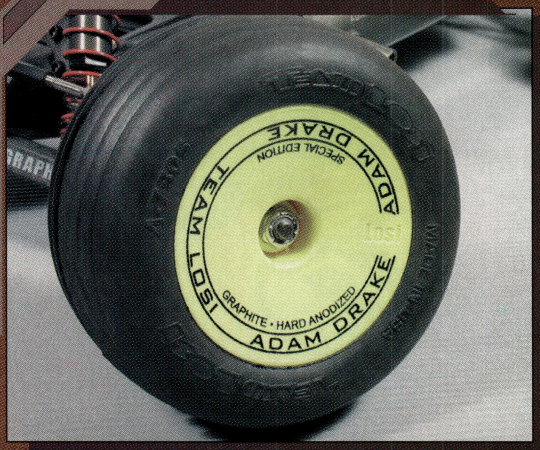
When you're serious about racing, here's what usually happens: You buy a race-level kit, build it, race it, then you start adding hop-ups as your skills improve. If you stick with it, eventually your kit will become virtually indistinguishable from that of a factory-backed racer. In the interim, however, you've probably spent nearly double the price of the original kit. Team Losi has for several years offered many of its race kits pre-packaged with virtually every factory go-fast item in its extensive catalogue. This trend began with the original Double-X Kinwald Edition, and has expanded to include a "Jukka Steenari" Worlds Edition XX-4, a Kinwald

GRAPHITE AND ALL THAT



Edition of the newer Triple-X buggy, and a Matt Francis Edition version of the Triple-XT electric truck. And each of these factory racer kits represent a substantial cost savings when compared to the old method of buying the kit and hop-ups separately.

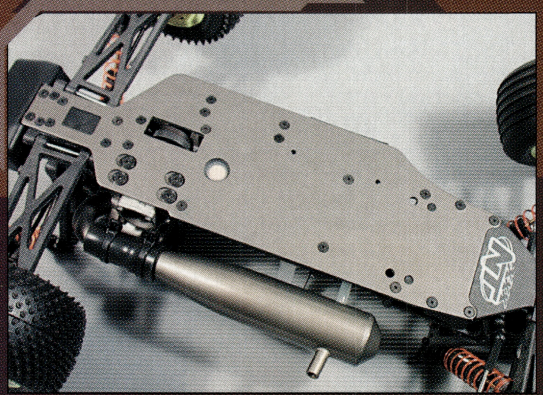
The latest kit to receive this "namesake" treatment is the popular Triple-X NT gas truck. This new kit, named the Adam Drake Edition after Losi's top gas-truck guru, includes everything a serious racer could ever want or need in a gas truck. Not only does Losi package the kit with most of its existing accessories, but it has also created several new pieces that compliment the package perfectly. Adam has won the 2001 NORRCA nationals, the Nitro Truck World Cup and the 2002 Indoor Gas Championships with his Losi NT, but will you acheive similar results if you buy one? We'll let you know.



NOT YOUR PAPPY'S PLYMOUTH

Along with all of the performance-enhancing hop-ups included in the kit, the Drake Edition also receives a freshening up in the looks department. Each of the truck's fluorescent yellow dish-wheels is printed with the Adam Drake Edition logo (enjoy them while their new, as the logos wear off after a few rubs). And on top of the whole package is a gas truck version of the awesome-looking Fury body that we first saw on the Matt Francis Edition of the Triple-XT electric truck. The body comes with window masks and all-new Drake Edition decals (which are all pre-cut, making it easier than ever to finish the body).

And finally, we come to the tires. Losi could have skimped here, and we would not have complained, as the entire kit comes in at such a bargain price for what you get. However, we are treated to "A list" rubber here: up front are Losi's popular Directional ribs in super-sticky red compound. In back are Step Pins, also molded in red compound. All four tires are packed with firm foam inserts.

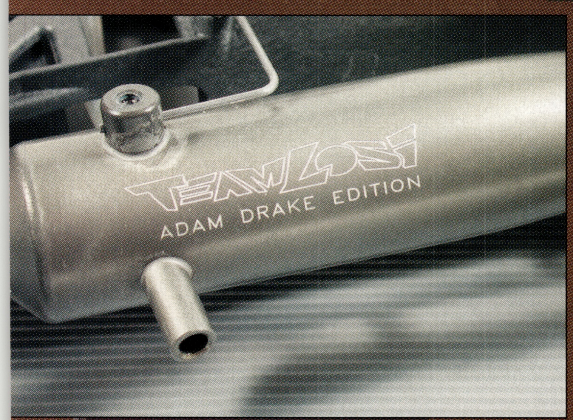


OUTSTANDING FEATURES

OUTSTANDING FEATURES

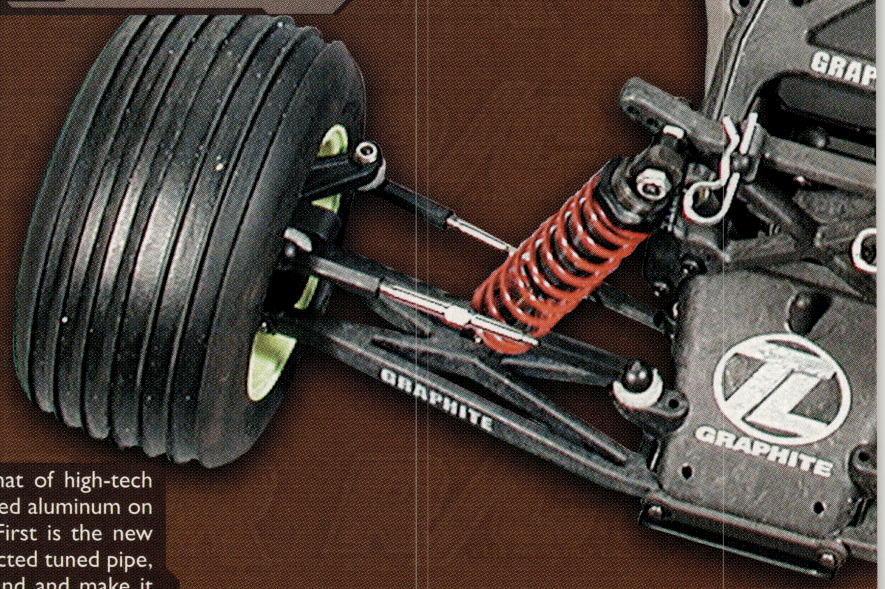
THINGS LOOK GRAY

The most standout new item in the Drake kit is the chassis, which has been hard-anodized to improve both its resistance to scratching as well as its overall stiffness. Like that of the stock NT, the new chassis is made from 3mm-thick aluminum that's been T6 heat-treated for strength. All of the holes in the underside have been fully countersunk, and the engine-mount holes are counter bored (recessed) to prevent the screws from packing with dirt or becoming worn out.



OTHER EXOTIC ALLOY

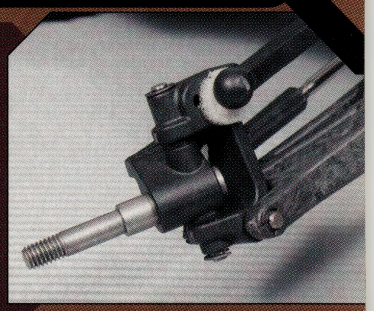
The theme of the Drake Edition is definitely that of high-tech materials. To that end, there is a host of hard-anodized aluminum on board in addition to the aforementioned chassis. First is the new exhaust system, which features a beautifully constructed tuned pipe, which is designed to broaden the truck's powerband and make it even more easy to drive. The pipe is engraved with the words "Adam Drake Edition" (in case you forget what you're driving), and connects to the engine via a new low-slung aluminum manifold (hard-anodized, of course). Among the other hard-anodized alloy bits are a front hinge-pin brace, engine mounts and transmission brace.



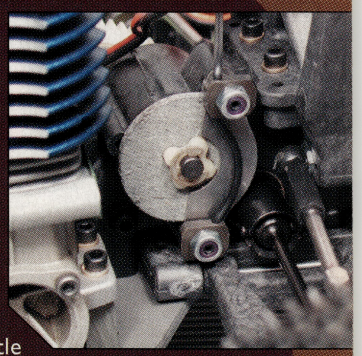
Adam Drake Edition

THE RIGHT DIRECTION

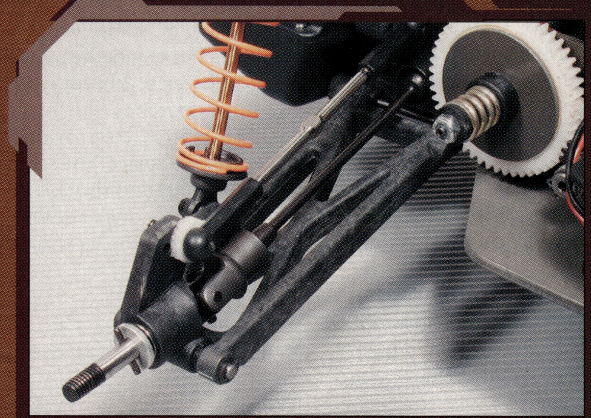
The front wheels also benefit from the upgrade treatment. Beginning at the steering bellcranks, which get not only a graphite upper brace, but also a set of four ball-bearings to provide smoother operation with less slop. Out at the ends of the steering tie-rods (which are Lunsford titanium turnbuckles - the entire truck gets them), you'll find Losi's new steel-alloy front axles, which are stronger than the standard truck's aluminum axles.



BRAKING FORCE

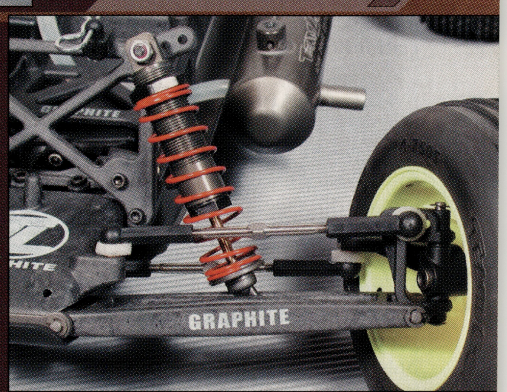


Some of the most significant new parts on the Drake Edition are also the smallest. Take for example (but not for granted) the new hard-anodized aluminum brake clips. The what? You know, those little pieces that fit over the ends of the brake pad screws. On the stock kit, these are molded from plastic, but heat and wear can take their toll on the stock clips and reduce braking effectiveness. The new aluminum clips will fare much better during long A-mains, and will last much longer.



GONE GRAPHITE

Next to the chassis, the most substantial mod to the NT is the inclusion of a bevy of graphite-composite molded parts. To be more specific, virtually every molded part on the Drake Edition is made from this high-tech composite. This makes the truck both stiffer as well as lighter. Included in the graphite package are the upper deck/tank mount, the suspension arms (including uprights, spindles and new 1-degree rear hubs), shock towers, and the front bulkhead.



SLICK NEW THREADS

Losi's standard Hard Body aluminum shocks are certainly nothing to sniff at, but they really can't compare with the Drake Edition's shocks. Featuring threaded bodies that are matched for size (to ensure consistent damping from left to right), the hard-anodized shocks also come standard with shock shafts that have been finely polished and coated with a titanium-nitride finish for smoother action and superior durability.

The included "standard" setup also differs from that of the stock NT. In the kit are red springs and no. 55 pistons for the front shocks, and orange springs and no. 56 pistons for the back. A bottle of 40 wt. shock fluid is supplied, as are a pair of "A" spacers for limiting the down-travel of the front shocks.



IN-HOUSE HOTSHOT

As the latest proud recipient of his very own Team Losi signature kit, Adam Drake has plenty to be proud of, not the least of which is his growing list of racing accomplishments as well as his rising career in the Losi R&D department, where he is privileged to work with one of the best minds in the business, Gil Losi Jr. We had a chance to ask Adam about his new truck. Here's what he said.

R/C Car: Tell us how it feels to have your own truck!

Adam Drake: Well to be honest, it is still quite a shock. I knew that we would have a graphite version of the Triple-X NT, but I never thought it would have my name attached to it. A few of us here were deciding what stickers to include with the kit when I was told that this was going to be my truck. It feels really good when a company you work for shows appreciation for what you have accomplished.

How long have you been racing?

I have been racing for about 9 years. Seven-and-a-half of those years have been with Team Losi as a factory driver.

How long have you been working for Team Losi?

I will have worked about two years at Losi when this article is published. So far both Gil Senior and Junior have been very generous. They have made my childhood dream a reality. Not only do I get the opportunity to race and test cars that I love driving, but I get paid for it.

What's your job there?

I work extensively with the research and development department at Team Losi. We spend a great deal of time testing new setups on all of the off-road vehicles. When new products are being designed, I usually give my input to help keep Losi at the forefront of R/C technology. Since I know a thing or two about gas trucks, they usually ask me for advice regarding those, too.

Tell us about the new truck. What are the main differences between the Drake Edition and the standard Triple-X NT?

The truck is essentially the same as the Triple-X NT, but the materials used are significantly different. The shock towers, front and rear A-arms, front bulkhead and tank mount (upper chassis) are all lightweight graphite. The chassis is hard anodized, 3mm-thick T6 aluminum. The hard anodizing penetrates the aluminum so it won't wear off as easily, and it's much stronger. The engine header supplied is also hard-anodized, and it's also lower to accept only racing non-pull-start engines. The new pipe matches the rest of the aluminum pieces, but has been developed to provide optimum performance. Aluminum brake clips replace the standard issue molded plastic ones. Matching threaded shock bodies are added to the kit instead of the clamp style ones seen in the Triple-X NT. Other than ball-bearing steering bellcranks, the truck is just a race version of the proven NT.

Please describe the standard Drake Edition setup. What does it do for the handling?

The setup that comes with my kit is what I generally use to start out with at each and every track. I have found that 40 wt. oil in both the front and rear shocks works well in most situations. At many of the tracks I race at, I use Losi red springs up front and orange springs in the rear. These springs are a good starting point that I will rarely change, and this is why they are included with the truck. The rear Step Pin tires are great for 1/8-scale-sized tracks that are rutted and require a larger pin. These tires were chosen because they will provide good traction on most surfaces.

Are there any more setup tips you can pass along to our readers?

I have found that many nitro racers over-tighten their slippers. This will put unwanted stress on the rear differential causing it to heat up and prevent long-term use. When adjusting the slipper, make sure it engages before the diff has a chance to slip. The last thing you want is a diff that goes out in a 45-minute main event. Use my setup as guide, but do some experimenting yourself to see what works best at your local track.

Adam Drake Edition



REPORT CARD

Test location: Hot Rod Hobbies, Santa Clarita, CA

Test conditions: Medium-bite clay, lots of technical jumps, long straights

Low-speed steering: A

The new layout at Hot Rod's is very challenging because it is like three tracks in one: there are quite a few technical doubles, triples, and if you're brave, quads. There is also a large section of the bordering dirt oval, so speed is paramount to quick lap times. And there are a few very tight turns. The Drake Editions is a corner-carver. In fact, it was seldom necessary to even use the brakes to negotiate the slower, tighter sections. The truck doesn't so much square the turns as is does drive nice, fluid arcs through them. Corner speed is excellent.

High-speed turns: B+

The Drake Edition steers with a superb feeling of balance, as if the center of mass is located perfectly in the middle of the chassis. Neither end wants to overpower the other, so the result is a predictable drift through the really fast turns. It can often feel as if the truck is understeering, but it's really telling you to slow down a bit to hug a tighter line.

Acceleration and braking: A

The NT's low-ratio transmission and effective rear suspension geometry provide phenomenal acceleration. This, combined with the aforementioned cornering speed, makes the NT great at clearing tough obstacles with little or no run at them. Tackling those technical doubles that immediately follow that tight turn is no problem. This truck has snap. Equally impressive are the brakes, which performed fade-free throughout our test. The feel of the brakes is also very easy to modulate, although we'd prefer some type of adjustment nut on the linkage rather than the supplied metal collar.

Kit setup and tires: A

Losi has come up with a box-stock setup that we feel will work well in nearly all track conditions. The overall combination of damping and roll-centers makes the Drake Edition very neutral, and the supplied tires should hook-up nearly everywhere except very dry and hard-packed dirt. Our test track was slightly damp hard-packed clay with some loose dirt in the turns. We know from experience that the Losi red Step Pins are the hot tire for this condition.

SPECS

Price	available at $319.99
Length	16.5in/420mm
Width	12.7in/324mm
Wheelbase	11.25in/286mm
Track (F/R)	10.63in/270mm
Weight	68 oz
Chassis	hard-anodized aluminum plate
Drivetrain	sealed gearbox; RWD
Diff	adjustable ball diff
Bearings	sealed ball-bearings
Suspension	ind. lower H-arms, adjustable upper links
Damping	hard-anodized oil-filled shocks; coil-over springs
Tires	Team Losi red Directional (F); red Step Pin (R)
Wheels	one-piece molded dish (yellow)

Accessories included:

Hard-anodized aluminum tuned-pipe and header

Accessories you'll need:

Two-channel surface radio w/two servos, AA cells or 5-cell NiCd or NiMH receiver pack, .12 non-pull-start glow engine, fuel, fuel bottle, paint, CA cement for tires.

Final Score

Highs: Like the other special edition Losi kits, the Drake Edition represents a substantial value when compared to purchasing all of the parts separately. The quality and finish of the kit is also first-rate, as is the standard setup. We also must rave about the instruction manual, which features very clear CAD illustrations, descriptive text and a useful tuning-tips section.

Lows: The molded receiver cover makes it a little more time consuming to change crystals. To fix this, cut a rectangular hole in the cover (in-line with the receiver's crystal) and cover it with the rubber access plug from a XX-4 or XXX-S sedan.

The verdict: If you're a Losi man, you now have an all-in-one-kit gas truck that is ready for national-level competition out of the box (Associated guys already have the Factory Team GT). We especially like that Losi not only added its line of existing hop-ups, but went to the trouble of designing a few special items just for this truck. One thing's for sure: the gas truck class will be really hot this summer!

SOURCES

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

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

O'Donnell Manufacturing, Santa Fe Springs, CA 90670 • phone (562) 944-9671

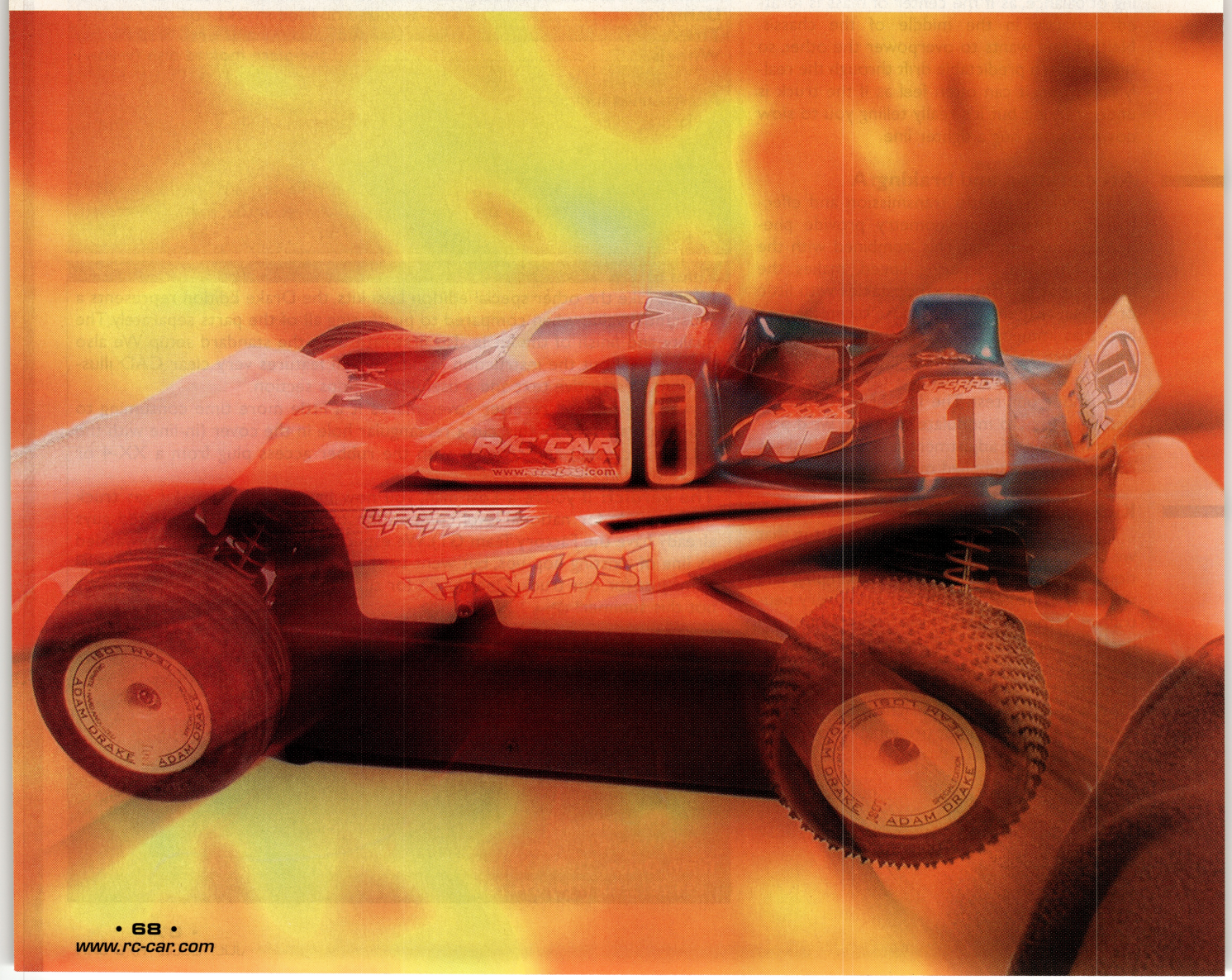
Team Losi, Inc., 13848 Magnolia Ave., Chino, CA 91710 • (909) 465-9400; fax (909) 590-1496

Team Orion, 22601 LaPalma Ave., Suite 103, Yorba Linda, CA 92887 • (714) 694-2812; fax (714) 694-2815

Starter Box Buyer's

When a pull-starter just won't do!

Nitro-powered cars are becoming more and more popular. With technology increasing both the power and reliability of the engines, many first-time hobbyists have a tough decision to make between gas and electric—but a lot of them are going nitro! The logical place for the nitro neophyte to start is with an RTR or a sport-level kit. Most of the time, these vehicles are equipped with pull-start engines, or with on-board electric starters. However, once the person's driving level increases, he may wish to venture into the world of the high-performance nitro machine—and with this, his first experience with a non-pull-start racing engine. At this time, the new racer must purchase a starter box—the most ideal method of cranking a race engine. But what's out there? How much do starter boxes cost? Well, in anticipation of these and other questions, we've compiled this guide, which includes every available box known to man and editor.





OFNA

1/10-Scale Ready Start

The Ready Start box comes 75-percent complete from OFNA. The only installation involves mounting a battery inside the durable black case. The supplied alignment pegs are secured to the top panel, but need to be adjusted to work for your particular car. Like its big brother, the Ready Start with Power Panel, this box comes with two 12-volt power output leads and an on/off switch to prevent the motor from spinning during transport. Strong dual-540 motors generate the power that drives the oversized starter wheel. As with all other OFNA starter boxes, this starter is universal and can start both in-line and opposed engines.

Part no.: 10256
Retail price: $79.95



OFNA

1/10-Scale Ready Start with Power Panel

If you only race 1/10-scale cars, then this may be the starter box for you. The box arrives 90 percent completed right from the manufacturer. The strong, dual 540 motors give power that comes from the included 12-volt gel cell. This feature-packed box has a useful power panel with three indicator lights that let you know the condition of the battery, so you'll never get caught at the track with a dead box. There are two plug-in outlets on the power panel for the supplied glow igniter harness (another great feature). There are also 12-volt power output leads as well as a handy on/off switch mounted on the side panel.

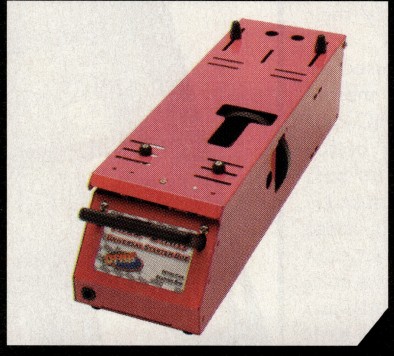
Part no.: 10257
Retail price: $139.95

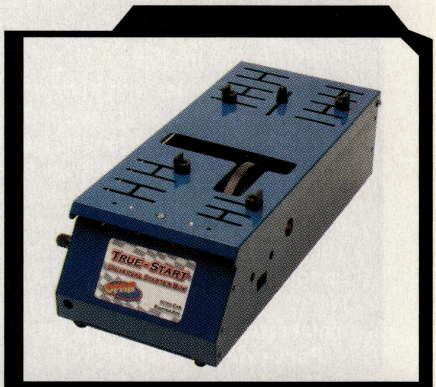
OFNA

1/10- & 1/8-Scale Narrow Starter Box

To accommodate both 1/8- and 1/10-scale racers, OFNA designed this long narrow box. This starter box is equipped with a powerful 12-volt motor that has more than enough grunt to spin even the most stubborn big-block. Its universal design lends itself to starting both in-line engines and opposed engines. With the motor perpendicular to the box, for starting in-line engines, a 12-volt gel cell fits easily to supply the power. Like other boxes equipped with 12-volt motors, this OFNA box gets the job done with out any problems.

Part no.: 10258
Retail price: $110.95





OFNA

1/8-Scale Box

This OFNA starter box is one of the beefiest we have seen. It uses a large 12-volt motor that has tremendous torque. Since it is on the larger side of starter boxes, it is capable of housing a 12-volt gel cell battery. Two power output leads and an on/off switch come with the giant 1/8-scale box. The adjustability of the motor allows the box to be configured either for in-line motors or for opposed engines. This is a great starter box for those who want reliability in a big package.

Part no.: 10250
Retail price: $99.95

Starter Box Buyer's Guide



DuraTrax

1/10-Scale Universal Starter Box

The DuraTrax Universal box provides a solid platform for starting both cars and trucks. The dual 550-sized motors are responsible for turning the grippy rubber starter wheel. Both motors are attached to sealed bearings that give the box ultra smooth operation. To change the wheel from the conventional in-line location to handle opposed engines, both dual motors need to be rotated so they are parallel to the length of the box. The handsome blue box is pre-assembled and has internal wiring to accommodate both twin six-cell packs as well as 12-volt gel cell batteries. Operation of this universal box is initiated through the on/off switch.

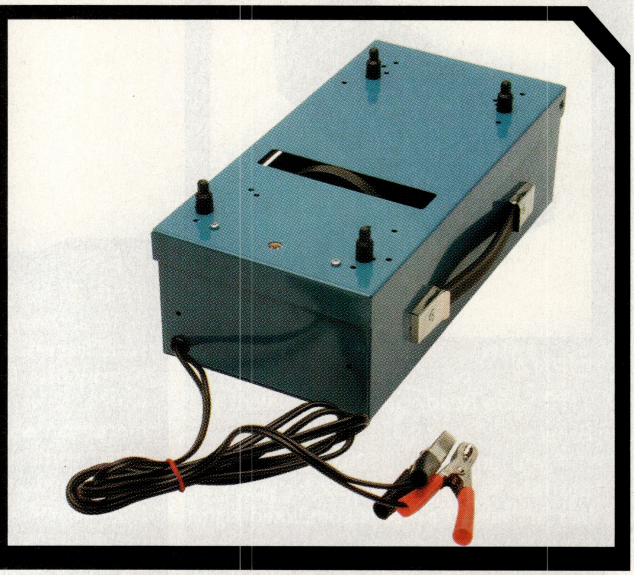
Part no.: DTXP5700
Retail price: $79.95

DuraTrax

1/8-Scale Starter Box

This brute comes with a powerful 12-volt motor to spin its huge starter wheel. It is designed specifically to start 1/8-scale off-road buggies. Tall durable alignment pegs can be adjusted to suit different brands of cars. Without any hassles, the largest of engines can easily be started. Unfortunately the large motor takes up most of the space, requiring the use of separate 12-volt power source. There isn't an on/off switch, so this box is always live when hooked up to a battery. The motor will only begin spinning when the spring loaded panel is depressed, exposing the wheel. The extra thick metal case will endure many seasons of all-out competition.

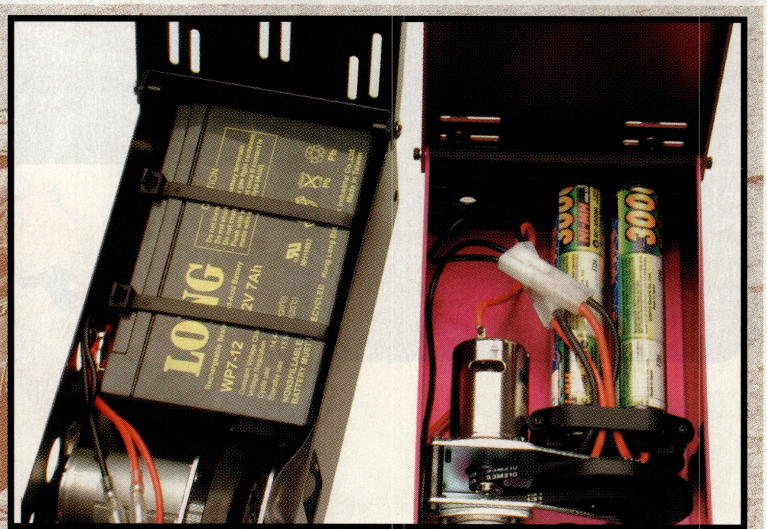
Part no.: DTXP5000
Retail price: $89.99



WHICH BATTERY TYPE IS BEST?

In old days, starter boxes were usually accompanied by large, 12-volt power sources such as automotive batteries. But thanks to modern technology (and Serpent), most of today's starter boxes carry their own power within their cases.

There are basically two types of batteries used for starter boxes: the 12-volt gel-cell (basically a motorcycle-type battery) and the common six-cell NiCad or NiMh pack. Although it usually takes a pair of the aforementioned six-cell packs to power a starter box, we still prefer this method over all others because (1) even though they contain two battery packs, these types of box are still lighter and more compact than the gel-cell boxes, (2) everyone has a few old stick pack lying around, and (3) when the packs go dead, any conventional fast-charger will bring them quickly back to life—gel-cells like to be slow-charged.



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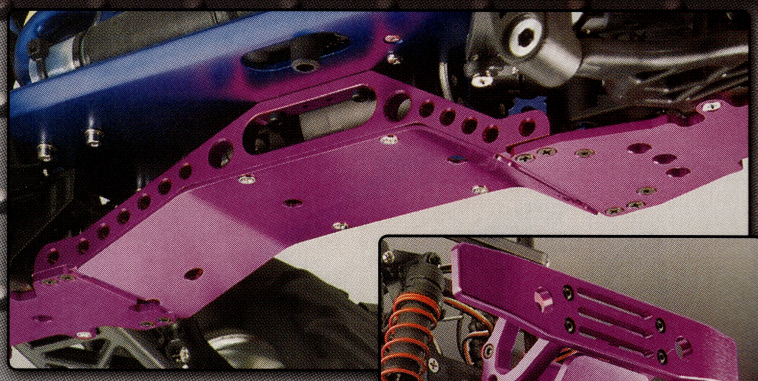

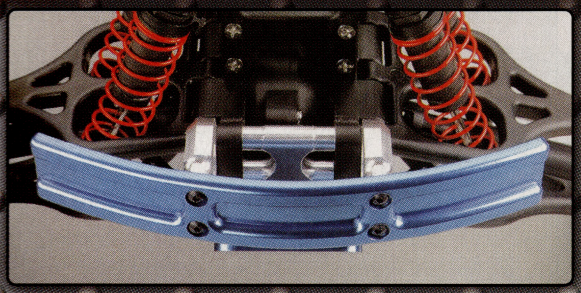

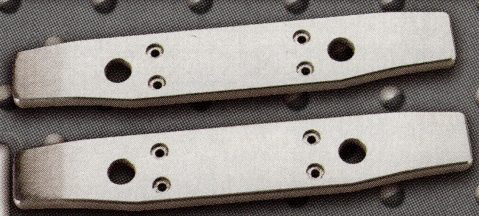

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For complete details and a list of dealers near you, visit **www.duratrax.com** on the web. Or, you can obtain a brochure by calling 1-800-682-8948 and mentioning code number 2946N.

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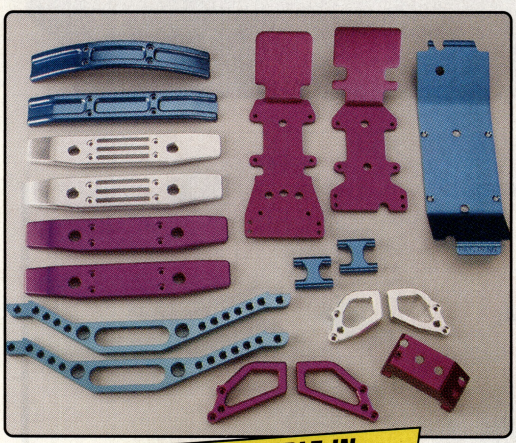

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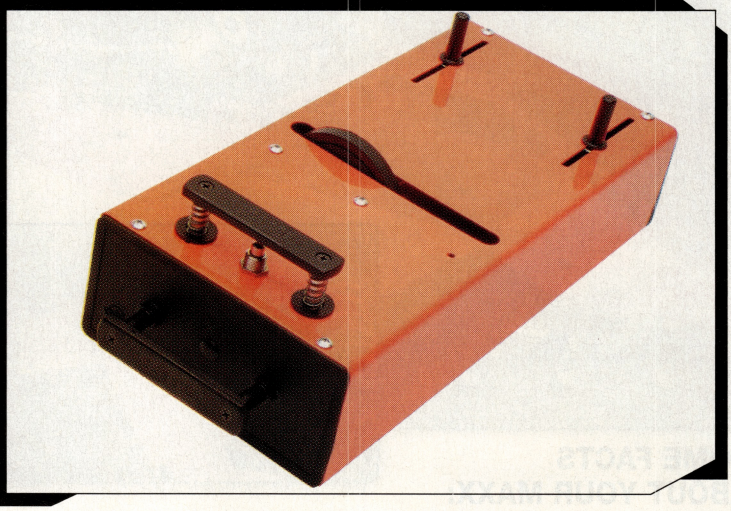
Starter Box Buyer's Guide

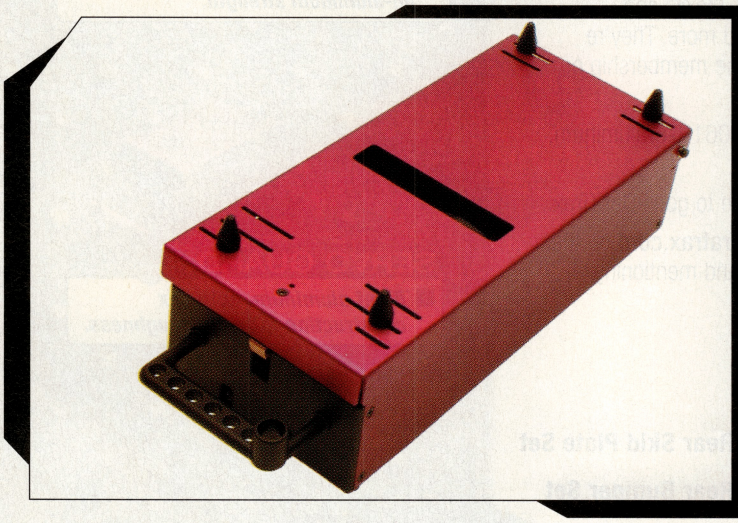
DuraTrax

Universal II Starter Box

This heavy-duty box relies upon a single 770 sized motor to engage your engine's flywheel. The large motor is claimed to have more torque than conventional dual 540 motor designs. Bearings are attached to the flywheel for increased efficiency and improved power delivery. The motor can be moved to handle cars with either left- or right-side engine locations. External wiring is used because a 12-volt gel won't fit in the case. The spring-loaded starting mechanism is extra thick and very sturdy. The giant alignment pegs are easily moved to fit every 1/8-scale car. Like the DuraTrax 1/8 scale starter, the Universal II does not feature an on/off switch.

Part no.: DTXP5600
Retail price: $89.99





Mugen Seiki

Pro Starter RII (on-road)

Mugen's Pro Starter RII is specifically designed to handle on-road cars. The twin-540 motors supply sufficient power to the rubber starter wheel to handle any sized engine. The RII requires assembly, and that will take the good part of an hour. The 540 motors require two six-cell packs to complete the building process. The top panel acts as the power button when the car is placed on it, and this design makes it especially easy to get engines aligned and running. The case is anodized purple and is cut to receive in-line engines. This would be a solid selection for the on-road enthusiast.

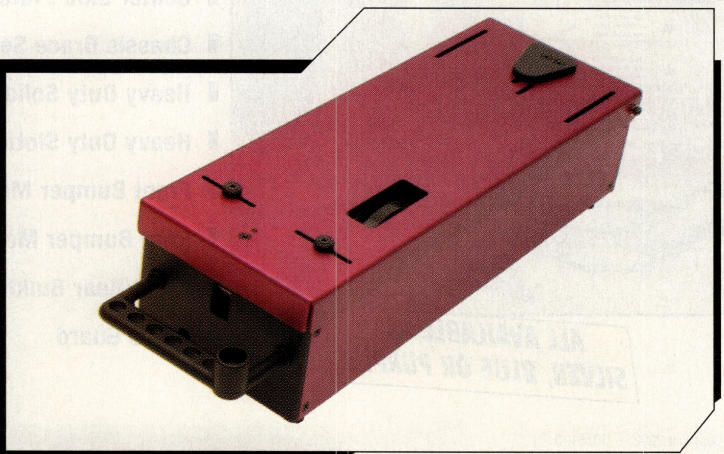
Part no.: B0220
Retail price: $131.99

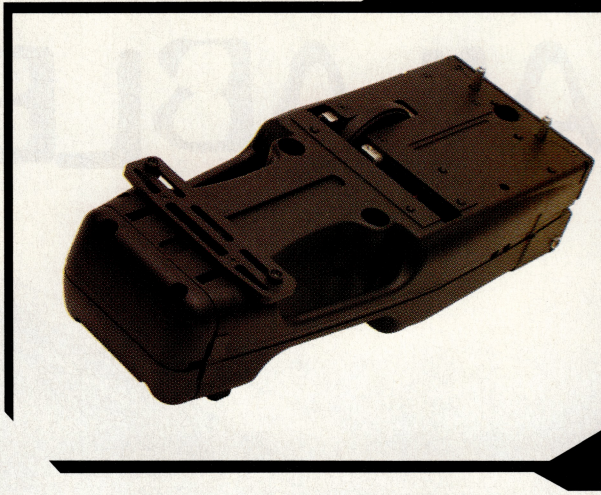
Mugen Seiki

Pro Starter BII (off-road)

Like the RII, the BII features power from dual 540 motors. This makes for more than enough power to start big off-road cars. The similar case is anodized purple, but designed to start engines that are parallel to their chassis. By pressing down on the top plate, the two motors are activated and the starter wheel is exposed. Fast starts are made easy because of the top plate configuration. This box requires two six-cell packs and a good amount of time to complete, as it comes unassembled. It is as nice a box, as we've seen, and works really well.

Part no.: B0230
Retail price: $131.99



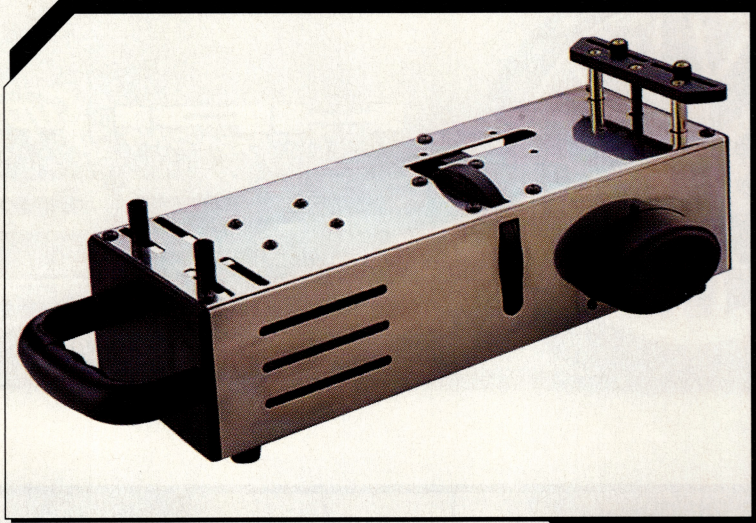


Integy/Eagle

Hippo

With its rather odd design, the Hippo definitely sets itself apart from the rest. The compact and lightweight Hippo gets its cranking power from the use of two 550-size motors. The case features a neat carrying handle on both sides. Both in-line and opposed engines can be started using the versatile Hippo. The end of the box features a cap that will allow access to the battery tray, which holds a pair of six-cell packs. Fortunately, this box comes 90 percent assembled and only requires a few minutes to get running. Larger cars that have .21 size engines can be started on this box, but aligning the starter wheel to the flywheel is a bit tricky. The small size of the Hippo makes it better suited for 1/10-scale on- and off-road cars and trucks.

Part no.: 1478
Retail price: $69.99



Thunder Tiger

Starter Box

The folks at Thunder Tiger know that many people run both on-road as well as off-road gas cars, and that having to purchase two starter boxes is a real hassle. That's why TT's Starter Box is among the most versatile boxes around. Switching the box from off-road (opposing engine) to on-road (in-line) engine is simply a matter of a few screws—no need for disassembly. The box itself is made from stainless steel, and is powered by a large 12-volt motor (included) and a pair of six-cell packs (not included). There's even a built-in fan to keep the motor cool after multiple starts. In addition, TT has thoughtfully included adjustable alignment posts and a convenient carrying handle.

Part no.: TTR2404
Price: $69.99 (available at)

SHOULD YOU BUY A STARTER BOX?

Are you ready for a non-pull-start engine? True, all high-end race engines require starter boxes, but do you really need more power than you already have? There are pros and cons to each type of starting system.

• Pull starters are vastly underrated. They're cheap, reliable, and they don't really add too much weight. The downsides are parasitic drag (caused by the starter's one-way bearing), another hole in the crankcase (which could potentially cause an air leak), and of course, all that wrist action.

• Electric on-board starters have made nitro as user-friendly as electric. With the connection of an external battery and the push of a button, a tiny electric motor cranks the engine while a permanently connected glow-plug igniter lights the plug. The downsides are increased weight (a separate gearbox and electric motor are needed) and extra cost (you'll need a six-cell battery pack and a charger).

• A starter box is the best way to crank your engine; it doesn't add weight, and there's no manual labor involved. Of course, you're looking at a more significant investment when compared to the above mentioned starting methods. There's the cost of the box; then you'll need a 12-volt gel cell or a pair of six-cell packs; and of course, those batteries will need to be charged.

Which is best for you? If you don't plan on racing, keep your pull-starter. If you eventually want to upgrade to a racing engine, you'll then need a starter box. If your truck has an on-board starter, enjoy it! If racing is your bag, then a starter box is really the only way to go—that is, if you want to be competitive.

The truth is that most pull-starters don't add that much weight, and the issue of their parasitic drag (caused by the starter's one-way bearing) on the engine is negligible compared to the cost of a starter box. And if you own a truck that has an on-board electric starter—well, starting doesn't get more convenient than that; however, there is a significant weight penalty.

SUPER NITRO RS4

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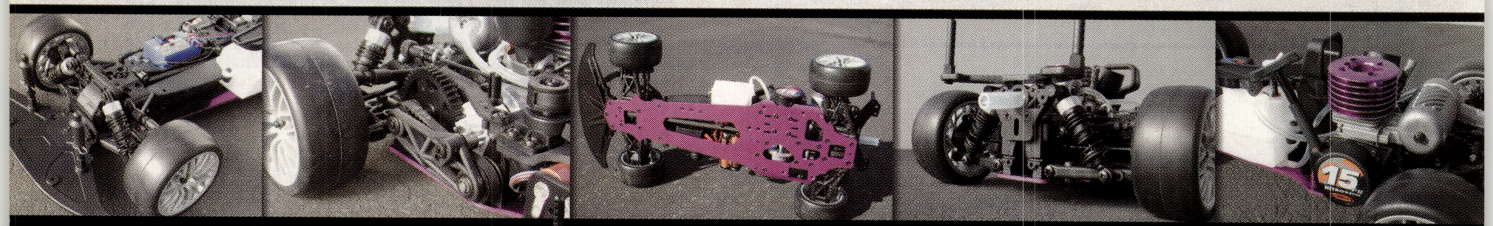

SPECS

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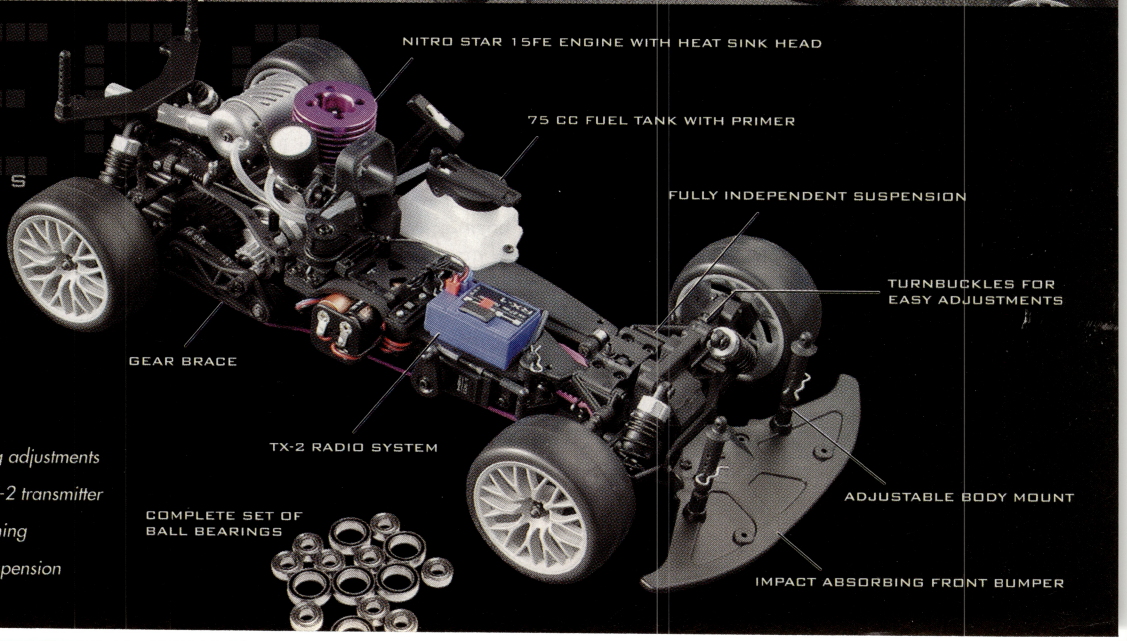
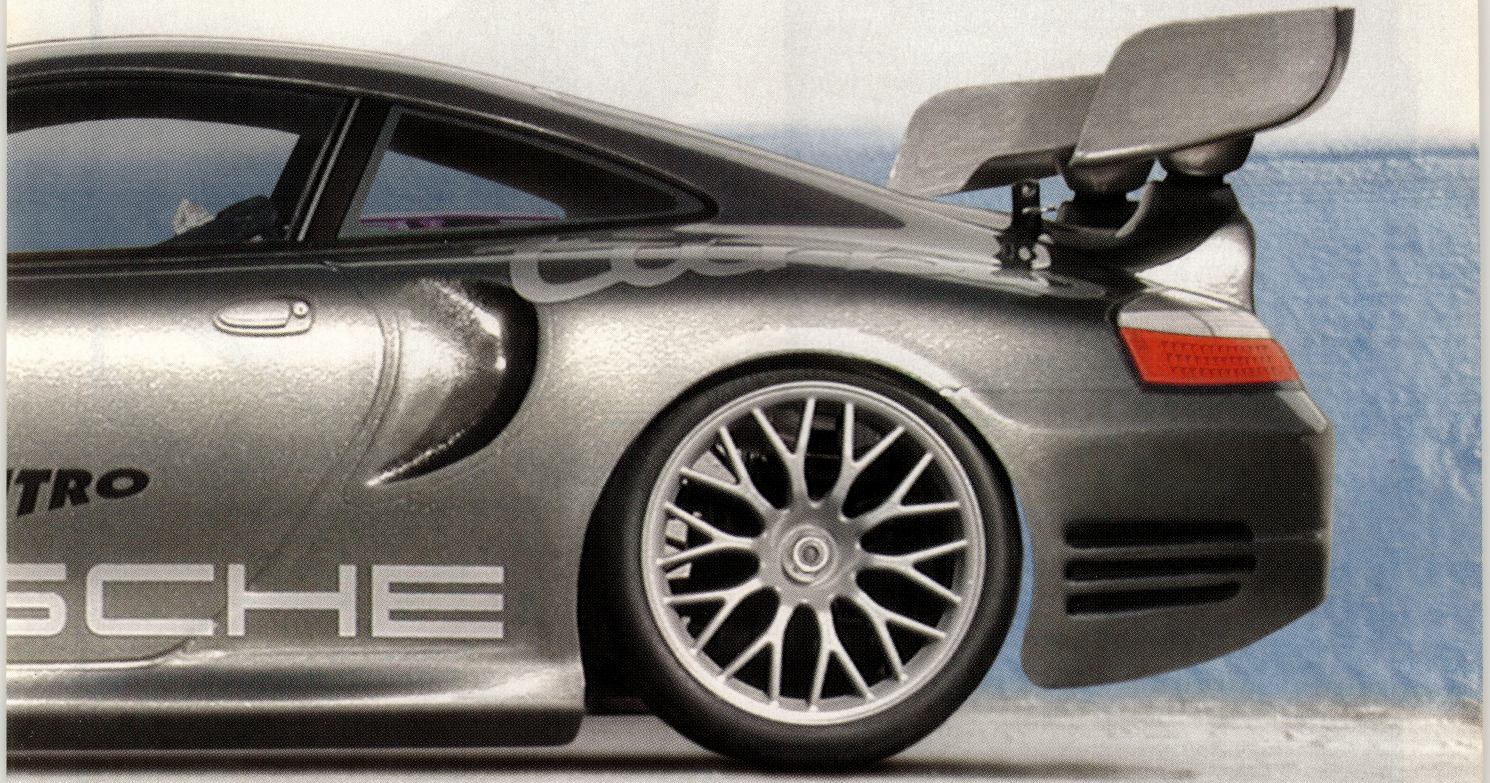


READY-TO-RUN



Super NITRO RS4 Ready To Run! RTR



Your choice:
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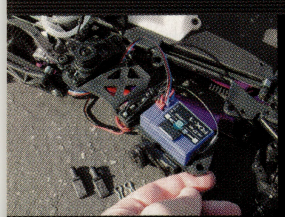
#592 RTR Super Nitro with Porsche 911 Turbo
#593 RTR Super Nitro with Dodge Viper GTS-R



REMOVABLE RADIO TRAY!

Now, getting a Super Nitro RS4 on the street is easier than ever. Our new Ready-to-Run version is pre-assembled by experts so you get a car that's right from the start. If you're not sure you can get the construction right, or you just don't have the time to spare, a Ready-to-Run Super Nitro car is a great way to get started. The famous Nitro Star 15FE engine makes starting and tuning as easy as possible, and it now includes a purple anodized aluminum heat sink head for extra cooling. The Super Nitro RS4 is big (20% larger stance than 1/10th scale touring cars) so the handling is very stable, even on bumpy parking lot surfaces. An efficient 4WD system provides smooth power to all four wheels on any paved surface. Our excellent TX-2 radio system is included, super narrowband AM reception, dual-rate steering, fast and strong servos, and replaceable frequency crystals. ***It's never been easier to step-up to "Super Size"!***

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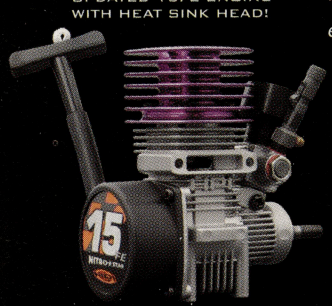

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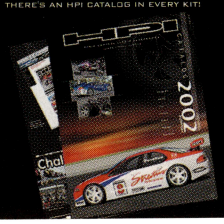

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Starter Box Buyer's Guide

Dynamite
ULTRA START

This is Dynamite's compact starter box for use with opposed (transverse) engines, such as those found in gas racing trucks and belt-driven 4WD nitro sedans. The Ultra Start comes as an unassembled kit, and building takes the better part of an hour. Inside the Ultra Start are two powerful 540 electric motors powered by a pair of 7.2-volt rechargeable battery packs (these aren't included). Dynamite supplies two pair of molded alignment plates, which are designed to fit the Associated GT and the Losi GTX. Unfortunately, both of these trucks have gone through some changes during the years since the Ultra Start's release; the GT has been lengthened, and the GTX, well, it's just plain gone! Somebody should tell Dynamite. If you have one of these older trucks, this is your box. If not, you can probably use the Ultra Start after performing a little Dremel work.

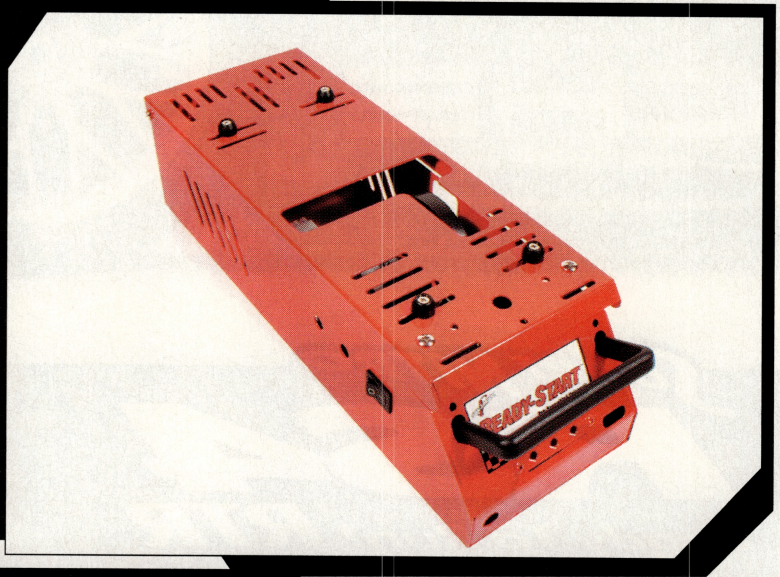
Part no.: DYN5700
Retail price: $119.95



Dynamite
Ready Start

Dynamite's bright red starter box catches your eye. The case seems to have received quite a few coats of paint—good for longevity. The preassembled box can either be run on two six-cell packs or by a 12-volt gel cell. Like many other starters, the Ready Start includes two 540 motors that spin the large rubber starting wheel. A molded handle is useful not only for carrying the box, but for holding your glow-igniter, body-clips and spare glow-plugs. An on/off switch is mounted on the side panel, giving the operator the choice of turning off power for safety's sake. Small universal alignment pegs are included, but you may have trouble holding the larger, heavier 1/8-scale cars.

Part no.: DYN5610
Retail price: $79.99



Dynamite
ULTRA START FOR IN-LINE

Very similar to the regular Ultra Start, but this one's been designed to work with gas vehicles with in-line engines, such as shaft-driven 4WD nitro touring cars and off-road trucks. The Ultra Start In-Line is powered by dual 540 electric motors, which draw their juice from a pair of 6-cell battery packs (which are sold separately). This makes for a powerful starter box, and you should have no trouble even with big-block .21 engines. Like the Ultra Start, the In-Line version comes in kit form, and there is some soldering involved. Otherwise, this is a great little box that's as powerful as some of the big boys, but at nearly half the weight.

Part no.: DYN5900
Retail price: $119.95

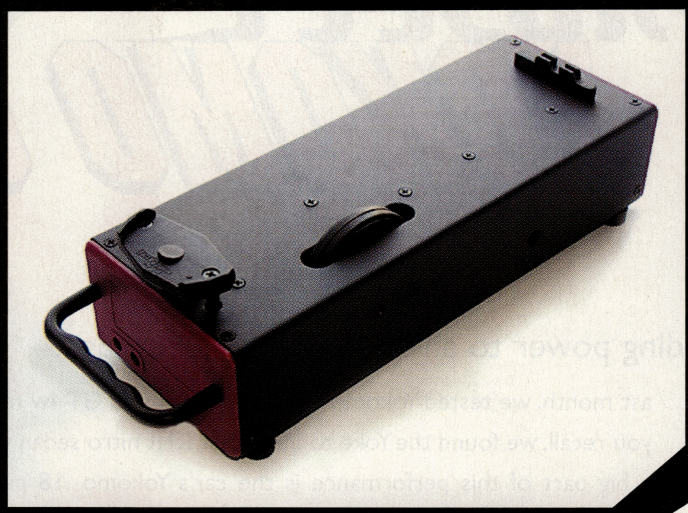


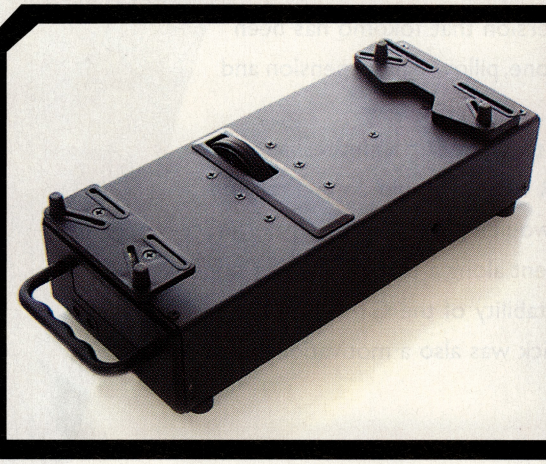
Serpent

Power Start 90

Serpent's original Power Start was designed specifically to work with Serpent's line of nitro on-road cars—all of which have in-line engines. Now, Serpent has modified its Power Start so that it works with cars and trucks that have opposed engines, such as the Nitro TC3 and all 1/8-scale off-road buggies. Like the original, the Power Start 90 (named for the 90-degree rotation of the starter wheel) is powered by a pair of 540 electric motors and a pair of six-cell packs (the batteries aren't included, but the motors are). A unique activation switch allows the vehicle to be lowered against the fixed-position starter wheel. And like the original, the Power Start 90 requires assembly.

Part no.: 1500
Retail price: $109.99



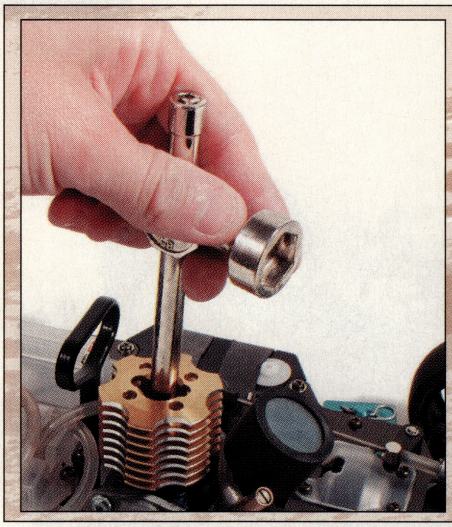


Serpent

Power Start

According to our sources, Serpent was the first company to incorporate the dual 540 motor design into a compact starter box. A pair of 4mm-wide belts are used to join both of the powerful motors. The position of the wheel is only able to start in-line engines. Engines sizes from .12s up to .21s can be expected to start from this box. The top of the box is stationary providing a solid surface on which to rest the car. The starter wheel is in a set position. By pressing down on the heavy duty, spring-actuated switch, the wheel starts spinning rapidly. Unfortunately, the Power Start is unassembled and requires about an hour to get running.

Part no.: 1400
Retail price: $109.99



DON'T COOK THAT BOX!

When talking about starter boxes, you'll inevitably hear some disparaging comments about the frailty of the 540-type boxes. Don't listen. The truth is that most motor "burn-outs" are not caused by the inability of the starter box to spin the engine, but are more likely caused by hydraulic lock in the engine's combustion chamber. Unburned fuel allowed to reach the combustion chamber without being, well, combusted, can "lock" the crankshaft and the flywheel that's attached to it in place, and can overload the starter box's motors. This is especially common with new engines or engines that are set too rich. If your starter box is straining, remove the glow plug, tip the vehicle upside-down and allow the excess fuel to drain from the plug hole. Reinstall the plug and we'll bet you a new cylinder liner that the engine will crank much more easily—and your starter box will thank you!

SOURCES

DuraTrax, distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021 • (217) 398-6300; fax (217) 398-0008
Dynamite, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • (217) 355-9511
Integy Technologies, Inc., 1140 Centre Dr. #E, City of Industry, CA 91789 • (909) 444-2766; fax (909) 627-4132
Mugen Seiki Racing Ltd., 20914 Bake Pkwy., Suite 106, Lake Forest, CA 92630 • (949) 707-5607; fax (949) 707-5614
OFNA Racing, 22600 Lambert St., Ste. D-1009, Lake Forest, CA 92630 • (949) 586-2910
Serpent USA, 2830 NW 79 Ave., Miami, FL 33122 • (305) 639-9665; fax (305) 639-9658
Thunder Tiger, distributed by Ace Hobby Distributors, Inc., 116 W. 19th St., Higginsville, MO 64037 • (660) 584-7121; fax (660) 584-7766

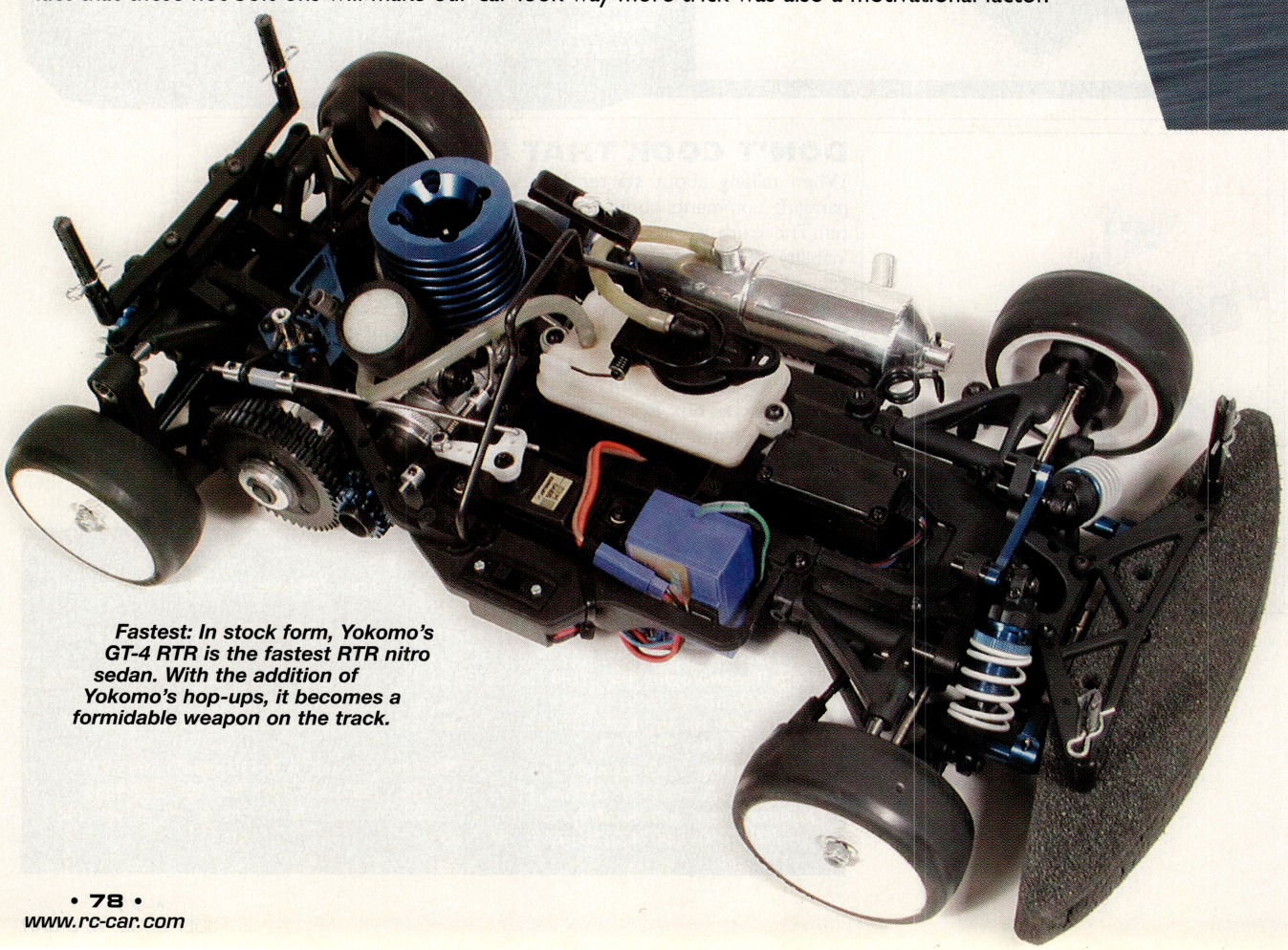
PROJECT YOKOMO GT-4 RTR

YOKOMO GT-4 RTR

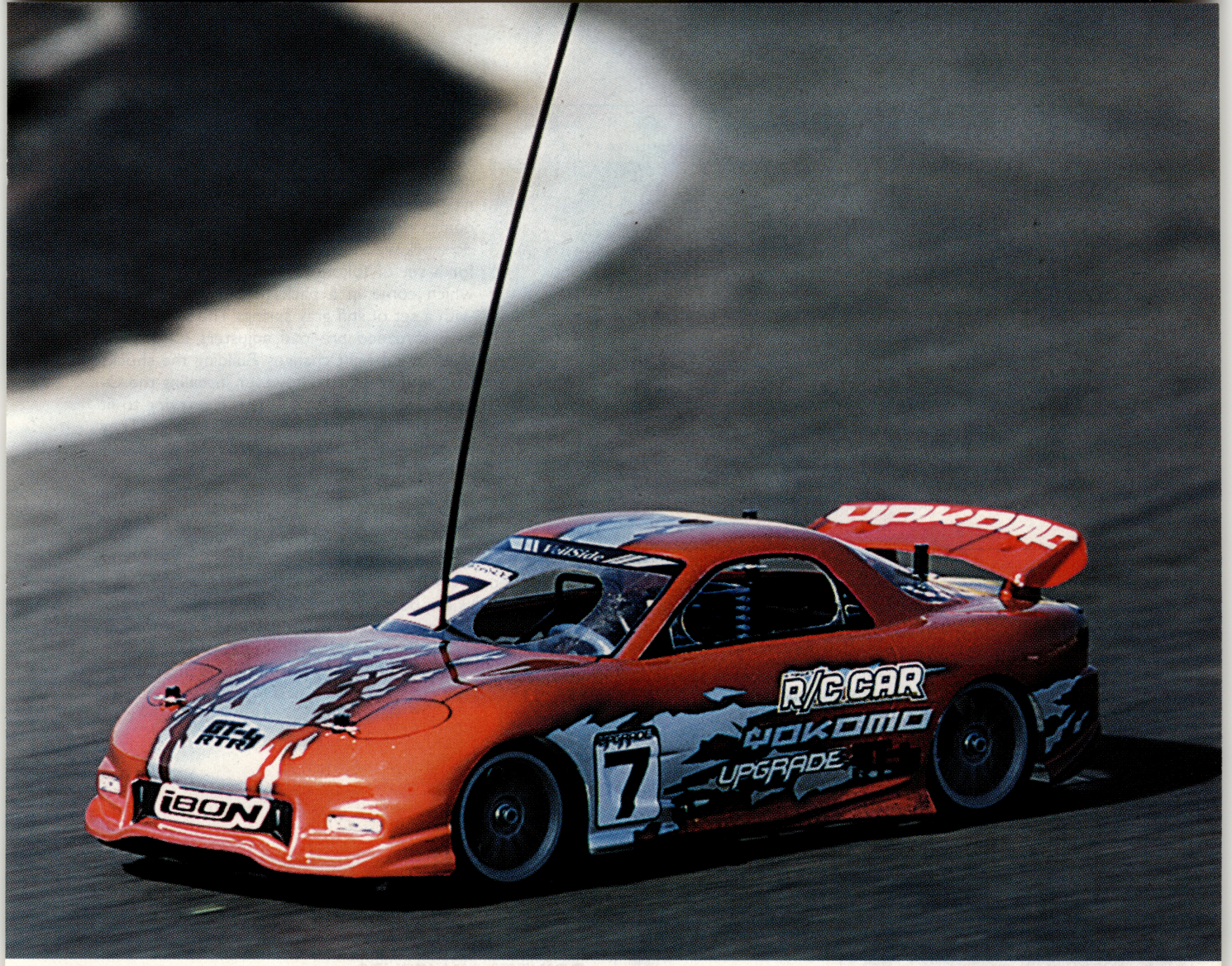
Adding power to an already potent package!

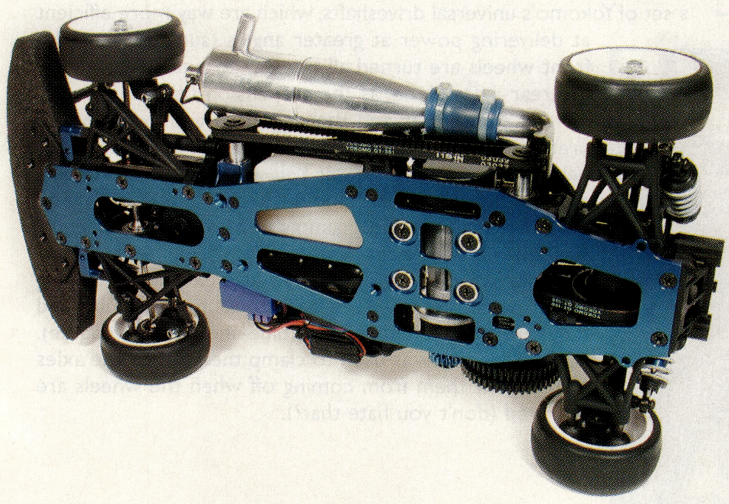
Last month, we tested Yokomo's RTR version of its GT-4w nitro touring sedan. If you recall, we found the Yoke to be fastest RTR nitro sedan we've ever seen. Sure, a big part of this performance is the car's Yokomo .18 pull-start engine, and of course its standard 2-speed transmission. But there's more to performance than sheer speed (which the Yoke has in droves); a chassis capable of handling the power is also essential. Fortunately, the RTR version is nearly identical to the full-race version that Yokomo has been selling as the GT-4w, and this includes its wonderful double-wishbone, pillow-ball suspension and its efficient triple-belt 4WD drivetrain.

To be honest, our Test Drive of the RTR GT-4 served mostly to whet our appetites; after the first few test runs, we were already wondering how well the RTR version would do in a racing situation. Shoot, it's so close to the full-race GT-4w that it certainly wouldn't take much to make a race-worthy expert-level machine. In answer to our wishes, Yokomo sent along a care-package of hop-ups designed to enhance both the performance, durability and adjustability of the GT-4 RTR. Oh yes: the fact that these hot bolt-ons will make our car look way more trick was also a motivational factor.



***Fastest:** In stock form, Yokomo's GT-4 RTR is the fastest RTR nitro sedan. With the addition of Yokomo's hop-ups, it becomes a formidable weapon on the track.*

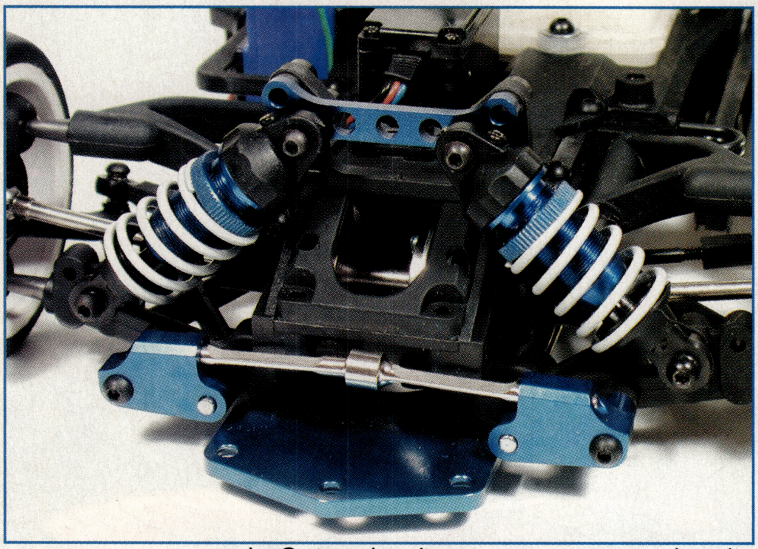




BACK BRACE

You've heard the whole spiel about how it's vital for a race car's chassis to be stiff enough so that the suspension is isolated from any chassis flex. Well, it's true. One can never be too rich or too thin, and a chassis can never be too stiff. And although the RTR's stock chassis was certainly adequate in this respect, Yokomo's optional machined aluminum chassis is better. The stock chassis is stamped from 2.5mm-thick aluminum, while the optional chassis is machined from billet aluminum. It's thicker (3.2mm) and stiffer than stock, and less likely to bend or tweak during a crash.

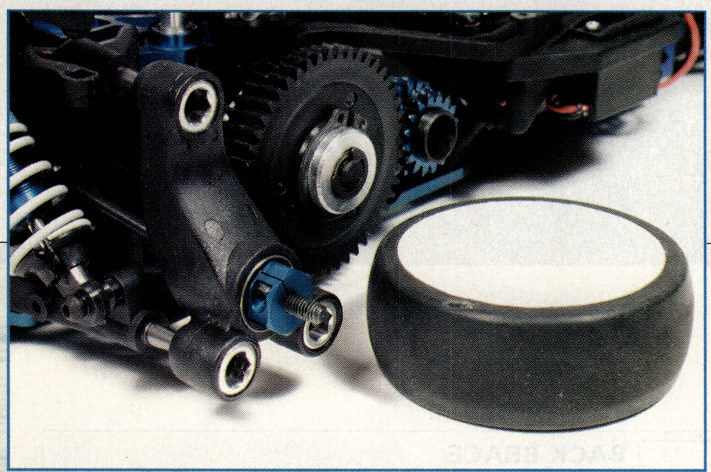
While we were beefing up the general structure of the GT-4 RTR, we decided to eliminate some annoying flex we had noticed in the shock tower area. To fix this, we installed Yokomo's blue-anodized aluminum shock-tower braces both front and rear. Like the optional chassis, the braces are machined from 7075 T6 aluminum, and they work by tying the molded upper shock-mounts together. Again, this modification serves to isolate the forces exerted on the suspension from the chassis.



SUSPENDED ANIMATION

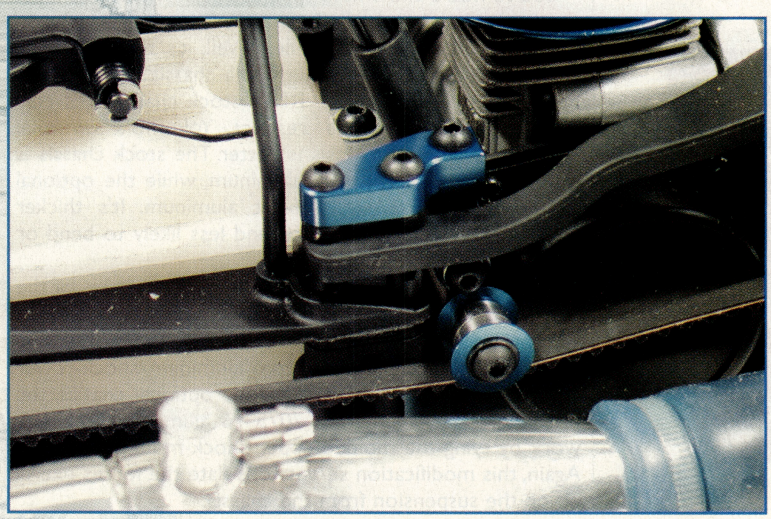
The suspension of the GT-4 RTR is exactly the same double-wishbone setup as used on all of Yokomo's nitro sedans. In other words, it doesn't require much help. However, the RTR comes with molded-composite shocks—which do work well. But we wanted more. We opted for a set of Yokomo's aluminum long shocks, which come in a package of four, complete with a set of stiff gray springs. The shocks also have threaded pre-load adjusters for making quick ride-height changes. Building the shocks isn't all that difficult, however, installing the O-rings into the pre-load nuts is like trying to fit 10 pounds of ham into a 5-pound bag! "They do fit!" These words uttered by Yokomo's Robert Itoh resounded in our heads as we wrangled the little O-rings into place. Take your time (it took us about 10-minutes per O-ring) to install them. If you get fed up and leave out the O-rings, the adjusters can move too easily, and might stray during a race.

While we had the front suspension apart, we decided to try Yokomo's front anti-roll bar kit. This is a blade-style of sway bar, and many feel that this design works the best and provides the greatest range of adjustment. The bar is a two-piece ball-and-socket type, and its main segments are flat. If you position the flats horizontal, the sway bar's effect will be minimal. Rotating the flats to the vertical position creates the highest anti-roll effect. And of course, you can fine-tune the effect of the bar by positioning it anywhere in between the extremes.



DRIVETRAIN ISSUES

There were a couple of changes we could have made to the RTR's drivetrain, such as replacing the rigid front axle with a standard diff, or installing a rigid axle in the rear, but we elected to remain with the stock configuration, as we found it made the car very easy to drive. However, we did make a couple of enhancements. Up front, we replace the separate dogbones and axles with a set of Yokomo's universal driveshafts, which are way more efficient at delivering power at greater angles (such as when the front wheels are turned all the way to one side). We left the rear axles alone, as the suspension travel is minimal on this type of car, and the dogbones and axles remain pretty much in-line. We also installed Yokomo's adjustable belt-tensioner to the center belt to keep it from rubbing against the upper deck should it begin to stretch. The blue-aluminum tensioner simply bolts to the upper deck, right above the left-rear chassis brace.



Finally, we added a set of Yokomo's excellent clamping wheel hubs. these replace the stock molded hubs, and they're made from aluminum (blue-anodized, of course). A small cap-screw is used to clamp the hubs to the axles and prevent them from coming off when the wheels are removed (don't you hate that?).

PROJECT YOKOMO GT-4 RTR

POWER ISSUES

Where does a 400lb gorilla sit? Anywhere he wants! In the case of the GT-4w, the aforementioned simian is a .18 pull-start engine. As we wrote last month, this is an immensely powerful mill, and even though it lacks the added adjustment of a separate low-speed needle, it still has enough sheer grunt to pull the Yoke up to speed in little time. Despite this, we still desired a snappier bottom-end from the "big" small-block, so we installed Yokomo's polished racing muffler in place of stock plastic pipe. The new pipe adds response throughout the powerband, so not only does it make the car shoot out of the turns faster, but is also lets the engine cycle through the combustion process with greater efficiency and less back-pressure at high rpm. The result? Even more speed from what is already the fastest RTR sedan on the planet.

TRACK TESTING

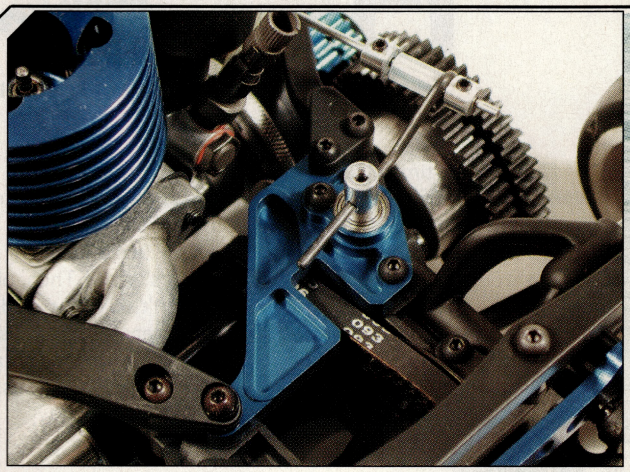
Our goal with this project was to be able to get all that power from the GT-4 RTR's engine down to the ground as effectively as possible. In stock form, the car is wicked fast, but it's not intended for serious competition. With our changes, we were confident that we could do well even in the expert gas sedan class at our local track.

We decided to pit the RTR against such cars as Serpents, Nitro TC3s and even another GT-4w at Hot Rod Hobbies' Sunday sedan race. In addition to the chassis mods, we also installed a set of Yokomo ZR-139GS belted tires on their Inch-Up nylon dish wheels. As you may recall, we positively despised the stock treaded tires, but even we were surprised at how different the car felt once a set of "good" tires were installed.

During practice the first qualifier, the car felt very stable, but there was a significant amount of push (understeer) in the tighter turns. We attributed this to the solid front axle, which makes the car easy to drive by—surprise, surprise—taking away steering response. The loose rear gear diff also didn't help in the steering department, as it actually provided too much rear bite when entering turns. The car couldn't get a good "drift" going. But aside from the push, the car was fast everywhere else, and the .18 had enough spank to hang with all but the quickest Italian .12 on the main straight.

For the second qualifier and the main, we decided to dial-in more steering. First, we reduced the amount of suspension droop to make the car more responsive. How did we do this? We'll let you in on a secret: the RTR's suspension arms have holes for both up- and down-travel stops—it's just that they don't give you the little setscrews that go in them! Find some 3x10 or 3x12mm setscrews and you're in business. How much droop did we leave in? About 4mm at both ends. We also changed tires. Off went the rubber slicks an on went a set of Treadz pre-mounted foams (42 shore in front, 37 in the back).

With this setup, we no longer lost time to the other cars in the tight sections. Without question, even the best rubber slick can't compare to the traction afforded by foam. The RTR had much better turn-in steering, yet it was still as stable as ever. Between the first and second rounds of qualifying, we managed to drop our best lap times by nearly a full second. And in the main, we finished in a respectable third place, beating four other full-race nitro sedans. Who knows; with a little more setup time, the GT-4 RTR might have ended up in the winners' circle!



BRAKING NEWS

Power is nothing without control (remember, you read it here first!), and the GT-4 RTR has a good mix of both. But with the RTR's .18 engine, we would say that the scales might be tipped a bit in favor of the "power" side of things. Specifically, we wanted to maximize the efficiency of the brakes. But the RTR already has great brakes; with a large steel rotor and fiber-lined steel pads. So what could we do? How about eliminating the rear bulkhead-flex that happens when the brakes are activated? To do this, we installed Yokomo's rear bulkhead brace. This blue-anodized aluminum plate replaces the rather flexible stock piece, and it pretty much removes any movement of the molded rear bulkheads during braking (and acceleration, for that matter). What's more, the brace also comes with a ball-bearing to support the brake-actuation shaft, thus eliminating any play in the brake mechanism.

SHOPPING LIST

Yokomo	
ZE-002SB Machined aluminum chassis	$83.50
YS-1SS Long shock set	$55.00
ZE-300RSAB Rear bulkhead brace	$17.75
ZE-011CB2 Aluminum clamping wheel hubs	$21.00
ZE-017FSAB Front shock tower brace	$17.50
ZE-017RSAB Rear shock tower brace	$20.50
ZE-BTSB Aluminum belt tensioner	$23.25
ZE-412FB Front anti-roll bar	$45.00
ZE-010FS Front universal driveshafts	$26.25
ZE-651A Racing muffler	$49.75
ZR-139GS Belted rubber tires	$14.95 pr.
Treadz	
26mm pre-mounted foam tires (37 and 42 shore)	

SOURCES

Yokomo USA, 17951 Skypark Circle, Suite K, Irvine, CA 92614 • phone (949) 252-8663; fax (949) 252-8657

Treadz, distributed by HRP, 2535 S. Decker Ln., West Valley, UT 84119 • phone 1-800 622-7223

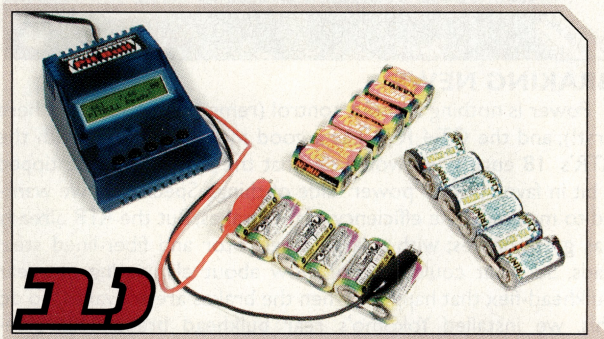
10 Tips for Race Day Preparation

All battles are won before they are fought

By Jason Sams

How many times has this happened to you? You arrive late at the track on race day. Nothing is charged, you still need to glue your tires—and you haven't even signed up yet! Forget about practice. The announcer is calling your heat, and you have two minutes to get to the line. You barely make it, huffing and puffing from running a sprint through the pits and up to the drivers' stand. Then, of course, you realize that you've got the wrong numbers on your car! Isn't this supposed to be a relaxing hobby?

The only way to avoid this stress is to be prepared, and this means that you need to spend some quality time with your R/C cars and trucks before race day. Here are ten easy steps you can take to ensure that when the starter's flag drops, you're ready and able.



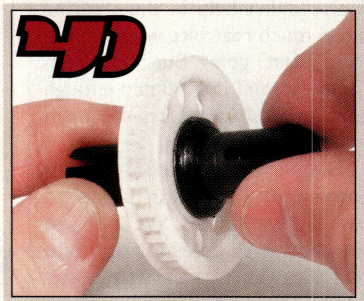
Charge battery packs the night before

I always like a lot of track time before I race. I usually charge a few practice packs the night before, so I can get ample time on the track. Unfortunately the old cliché "practice makes perfect" should receive some attention. Even the pros know the value of practice. Go to a big race and you'll see the top factory drivers running pack after pack. Charging packs at the track makes me feel like I am in a rush, when I should be concentrating on my setup and putting in practice laps. Of course, it helps to have your weaker batteries designated for practice, while you save your best packs for the actual race (and these should be charged at the track for optimum voltage).



Give traction some consideration

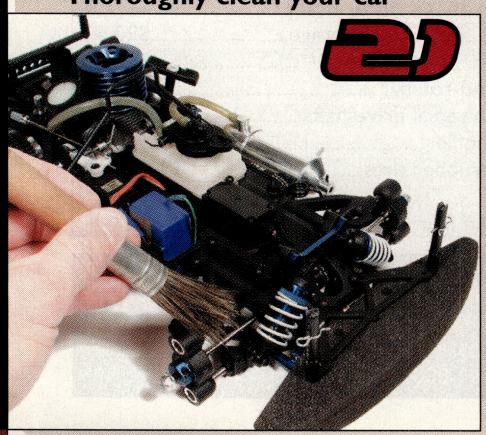
Unfortunately, I have literally driven the wheels off my cars before. That's right! My right rear tire came unglued during a race and left me stranded. Not only was I embarrassed, but the tire should have received my attention the night before. Older tires that provide good traction should be looked at after every run; if there are any gaps between the tire and the wheel, re-glue them! Oh yes, and check those wheel nuts before every run—don't ask!



Check the differential

The differential plays a major role in the car's ability to deliver power to the ground. A loose diff will slip and waste usable power—not to mention that it will fry itself in the process. Make sure the diff on your race machine is smooth and is not too tight. If your differential is too tight it will not work properly and will put an extra amount of load on the motor. Take time to rebuild a diff that feels gritty; you will be surprised how much quieter the car is and how smooth the drivetrain will feel.

Thoroughly clean your car



Yes, even though it's going to get dirty all over again. Some drivers run dirty rigs. Sorry, dirt does not look cool nor does it increase speed on race machines. Dirt on bearings or other moving parts causes friction which decreases the car's efficiency. If you want to go fast, take time the night before and thoroughly clean every nook and cranny on your ride.



Tighten everything

E-clips should be replaced if they are missing or worn. Hinge pins have a tendency to wander if they are not properly secured. After you have checked the E-clips, re-tighten the screws on the underside of the chassis to ensure that none of them fall out and that everything is secure. Once you have checked the chassis screws, move on to the top side of the car and check all of its remaining screws. Ball studs should not be overlooked; they will at times back out or bend because of the stress they endure during racing.



Take care of your horsepower

Since our goal is to go fast and have as much of an advantage as possible, we must take care of our motor. Remove the motor from the car, then check the brushes for normal wear and tear. If the brushes look good, then just clean them. Use a comm stick-style cleaner to sand away the worn inside part of the brush. If the brushes are really short or are dark purple in color, throw them out. Ask the hobby shop what type of brushes you should run for the type of motor you own. While the brushes are away from the hood of the motor, spray the endbell and magnets with a liberal amount of motor spray. This will clean away any dirt that has managed to cling to the inside of the motor. With the motor clean, the efficiency increases as well as the overall performance. A clean motor is quieter and reduces the possibility of glitching.

If you run nitro, make sure that the engine is clean and free from caked-up dirt and oil. Also, you should always start the day with a clean air filter; the engine can't make power if it can't breathe!

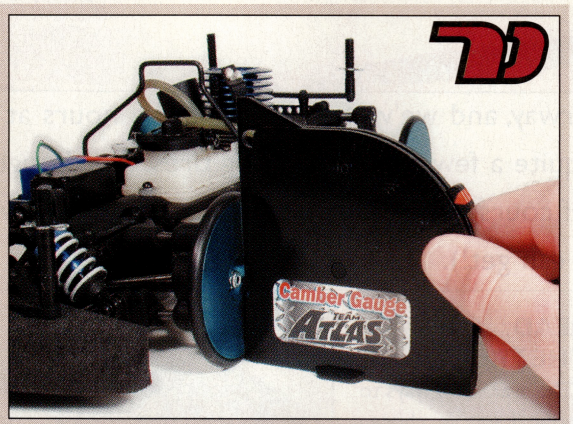


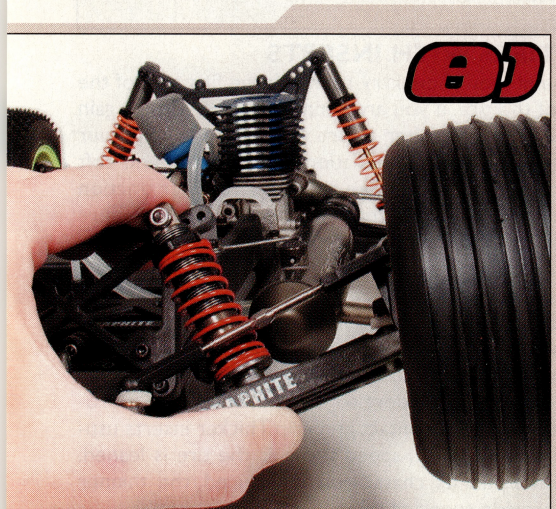
Spend a little time with your radio

Turn the radio on and see if the batteries are still good. I would rather go to the store for AA batteries the night before than scramble at the track when I realize the radio is nearly dead. If you are fortunate to have rechargeable batteries, then charge them if they are low. With the radio on, look to see if any of the settings need to be changed. The radio settings can be worked on at the track, but our goal is to show up as prepared as possible. Lastly, gather and organize all of your crystals; you might have to change frequencies to accommodate other racers.

Check all of your race settings

It is important to make sure that all of your settings are the way they should be. If you have any type of setup sheet, this is a good time to refer to it. Check to see if your ride height has changed. Sometimes threaded shock bodies or old style clamp collars can move slightly and alter the ride height. Camber and toe should be looked at and measured to ensure that nothing has changed from the previous time out at the track. While looking at the car's linkage, give the ball cups a once-over; look for excessive wear, cracked ball cups and ones that might be stripped. Although it might be a little time consuming, replacing the old ball cups will be well worth the work. Some of the smallest crashes can cause a worn-out ball cup to pop off, preventing you from finishing the race.





Work on your suspension.

If the shocks squeak or are really springy, they probably need oil. Generally, squeaking noises are caused by a low amount of oil in the shocks. Try and remember what type of springs, pistons and oil were used the last time you went racing. If the temperature has changed since the last time you raced, then consider using a different oil viscosity. If it is hotter, then you could probably use thicker oil. Pistons with smaller holes can also be used to obtain the same result. If the weather is colder, then just the opposite should be done. Rebuilding shocks does not take that much time and should be done every few races.

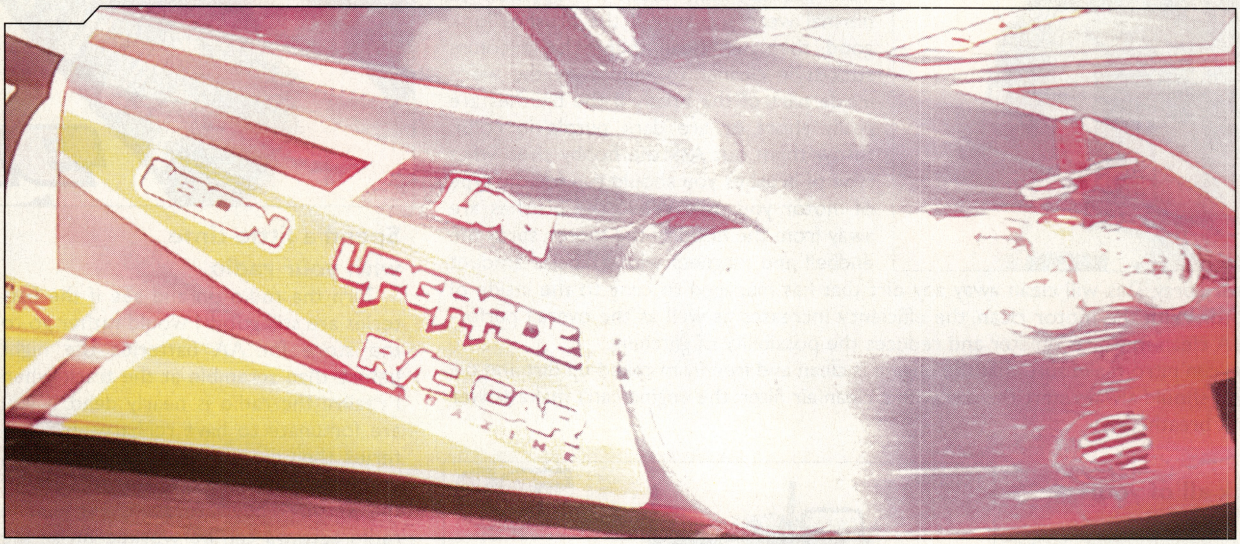


One final look

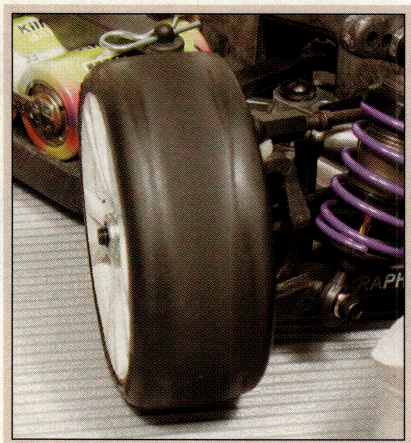
Before you are ready to call it a night, give the car a final once-over. Check to see if the suspension feels good. Make sure that none of the moving parts are binding. Are there any E-clips missing? All of the screws should be tight and secure. Look at the gear mesh and make sure it is how you like it. Remember the differential; it works better when it is smooth. Finally, when you think the car has been wrenched on enough, call it quits and start reminiscing about your last win!

Touring Car Tire Tech

A few tips for better grip

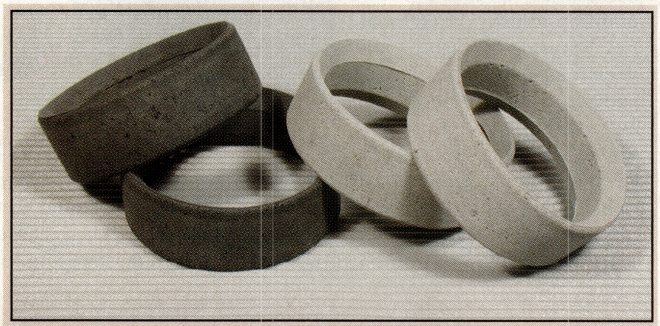


Touring car season is underway, and we've been logging the hours at the track. In the process, we've picked up quite a few tips on touring tires. We thought that we would pass a few of them on to you. Of course, the really top secret ones, these we'll keep to ourselves (we need all the help we can get!).



READ THE TREAD

There are two ways to know if you've chosen the right tires, and if they're working correctly. The first is the car's performance on-track. Does it have good traction? Is the traction consistent? Are your lap times up to par? The second method - and this is equally important - is to learn to "read" the tire after each run. Observing the condition of the tire will tell you several key things. Ideally, the majority of the wear should be in the center of the tire. This indicates that the tire is offering a large contact patch. If the wear is off to one side, you may want to adjust the car's camber. For example: if the wear is to the outer edge of the tire, increasing the amount of negative camber (by leaning the top of the wheel inward) should increase the tire's contact patch. Paying attention to wear can also give you a pretty good idea if you've chosen the right compound for your track's grip and temperature. Generally, a tire that's too soft for a hotter track will begin to shred where it meets the ground. If you see this, you might want to consider using a harder tire or insert.



MATCHING TIRES WITH INSERTS

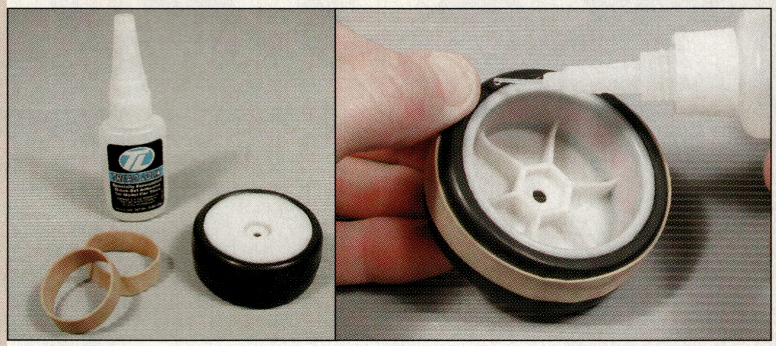
As a rule of thumb, you should try to match the firmness of the insert with that of the tire. If you are running a softer tire to gain traction on a slick track, a softer insert will generally help your cause. On high-grip tracks, a combination of a soft tire and soft insert will likely provide too much bite and make your car traction roll. The soft insert is also less able to control the shape of the tire under high cornering forces. This might make your car feel inconsistent, as the tire's shape is constantly squirming and distorting.

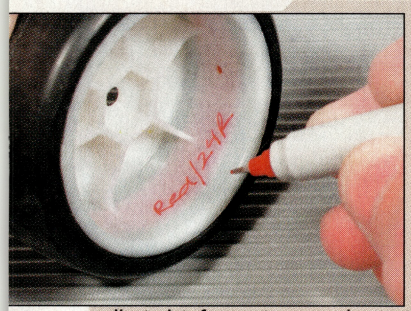
And what about the size and shape of the insert? You've probably seen or heard about various "thick" and "thin" tire inserts. Basically, a thinner insert allows the tire to "spread" where it meets the ground, increasing the total area of contact. A thicker inserts provides more even support to the tire, but may not provide the optimum amount of contact and grip. Thicker inserts usually give better grip during high-speed turns as the tire is leaned. Once the car slows and its chassis-roll is reduced, the thinner insert will often provide superior grip.

GLUING HINTS

The best tires, wheels and inserts won't mean much if the tire comes unglued! And while there are as many different gluing techniques as there are tires, we have found one method that works particularly well. For the strongest bond between wheel and tire, the glue joint itself should be as thin as possible. This means that you should eliminate any and all gaps before you glue. A firm rubber band stretched around the tire should do the trick. And which type of glue is best? It's a matter of personal preference, however, we like thicker glue such as Team Losi's Tread Lock. Use the little tube that comes with the bottle to dole out just enough glue to make the bond without getting excess CA all over the sidewall, your bench and your hands.

Tip: To keep the application tube from clogging up, use the lead from a motor capacitor as a snake and remove any dried glue.





WRITE IT DOWN

With so many variations of tire and insert, it would be impossible to remember which combinations you have in your tire collection. To ensure that you bolt-on the right set of tires before your next run, make a habit of writing all vital information on the inside of the wheel. Using a permanent-ink marker, write down the tire's compound (and brand if it's not evident on the outside of the tire), the brand and type of insert and any other information you might need later.



BAG 'EM AND TAG 'EM

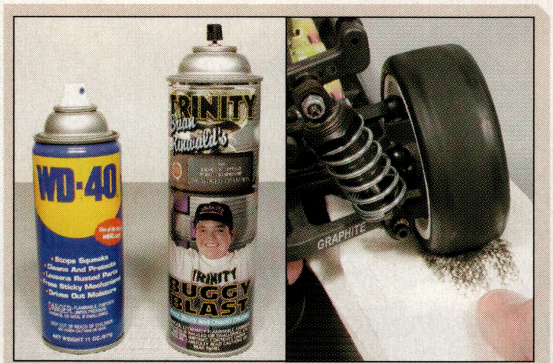
Now that you've spent all that money on new tires, make sure that you get the most life out of them. If your rubber tires are allowed to sit in open air, they will become dried out and will no longer provide the traction they once did. Prevent this by always storing your tires in a resealable container or plastic bag. We remove our tires and seal them up right after each run.

DON'T IGNORE THE WHEELS



We've seen so many sedan racers who believe that all wheels are the same. Quite the opposite: wheels can be as varied as tires! What makes one wheel different from another? There are several key areas that have an effect on wheel performance. The first, and probably the most important, is flex. If you examine several wheels from different manufacturers, you'll notice that some are much more flexible than others. And contrary to what you may have been told, flex isn't always a bad thing. For example, a wheel that is more flexible may help the tire to gain traction on slippery or bumpy track surfaces. A harder wheel will provide better support for the tire and insert on high-bite, smooth tracks.

Wheel offset is another issue. Although most modern wheels have what's called "zero offset," there are also wheels that have greater offset, and these can be used to slightly increase the width (more correctly, the wheel track) of your car to change handling. Finally, there's the wheel's diameter itself. Several years ago, Yokomo introduced its Inch Up wheels. These are slightly larger in diameter than standard touring car wheels, and they serve to thin-out the tire's sidewall and flatten the tire's profile a bit. This helps widen the contact patch while increasing tire support.

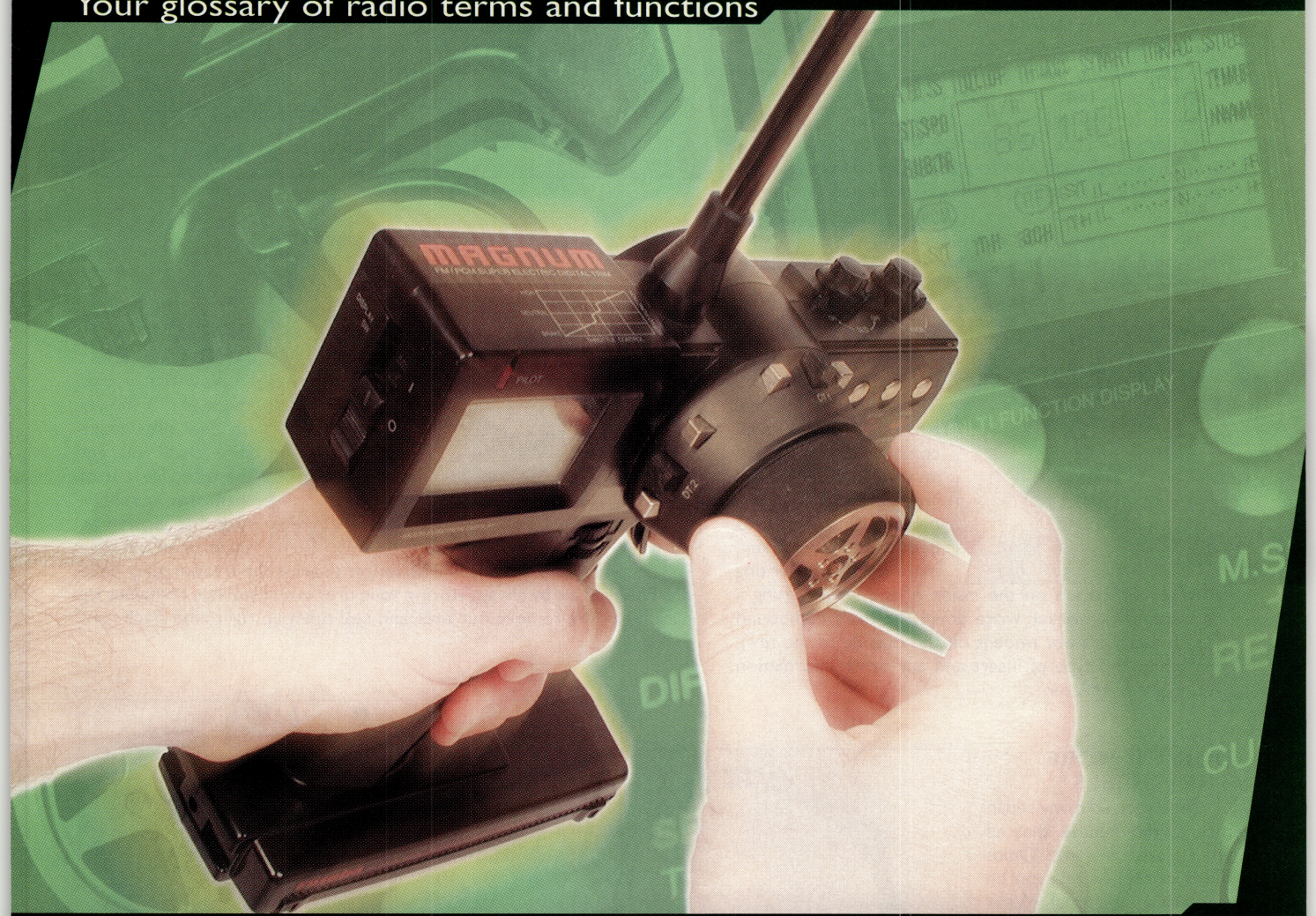


CLEANING AND TREATING

Although most rubber tires work pretty well as they come from the package, there are always guys who figure out how to get more bite. At our local track, the hot setup is to treat the tires with WD-40. Here's how it's done: first, the tire should be cleaned. A little motor spray on a rag will do the trick. Once the tire is cleaned, spray some WD-40 onto a clean rag or paper towel, and rub it into the tire. Try to give the tire 15 to 20 minutes of drying time before your next run. The WD-40 really goes to town softening the rubber - you'll be able to feel quite a difference in tackiness, and traction.

RADIO

Your glossary of radio terms and functions



Chances are, whether you have an entry-level radio transmitter or a top-of-the-line computer radio, you probably only use a couple—maybe a few—of your radio's features. Even many of the nation's best racers don't take the time to try out different settings; most just set it up once then forget about them.

Well, it's just fine to have all those features at your fingertips and to choose not to use them, but you just better be sure that you know what every setting does or you just might be missing something that could make you go faster. We would hate to see you in that situation, so here is our little guide to the features that many of your radios have, but very few people are willing to talk about.

Many of these features apply only to those aforementioned top-of-the-line computer radios, but those *are* the most confusing ones anyway, aren't they? And some manufacturers give the same function different names, so if there are any synonyms available, we'll try to let you know.

DAZE



END-POINT ADJUSTMENTS (TRAVEL ADJUST, ATV)

If the servo arm moves farther than the linkage allows, damage to both the servo and the car can result. This will also cause excessive battery drain. End-point adjustment, or EPA, allows you to set the servo's throw individually in either direction. Note: this is not the same as dual-rate.

Tip: Use the end-point adjustment to set the steering throw only as far as the steering blocks will go without binding. Use a setup tool like the Hudy board to ensure that the throw angle is the same on the left and right. Also, on nitro cars, set the throttle EPA so that the servo only moves just far enough to fully open the carb. If the servo tries to extend the valve any further, damage may occur. EPA is also essential when setting the overall braking strength on nitro vehicles.

TRIM RATE

With all the digital trim buttons and rockers and dials and switches now used on computer radios, one "click" doesn't necessarily have the same effect it did in the old days. The trim-rate function lets you determine just how much of a change a single "click" of a trim button actually does.

DUAL RATE (D/R)

Nowadays, even the most lowly of entry-level radios has a dual rate-setting. This ubiquitous knob or dial lets you adjust the steering-servo throw for the left side and the right sides at the same time. It's kind of like a "maximum volume" control for steering. Less expensive radios use this "poor man's EPA" to limit the steering servo throw so it won't bind.

Tip: Every radio we've ever held that does have a dual-rate setting has it in a convenient location, and for good reason. Use the dual-rate control while you're taking your practice laps to limit the steering throw to just what you need to make it around the tightest corner at speed. This should help minimize spinouts around the rest of the track. The less steering throw you have, the less wheel scrub and the more efficient your car will be.

AUTO DUAL-RATE

This evolution of the dual-rate setting lets you program different steering dual-rates based on your throttle trigger position.

Tip: Although it takes a bit of time playing with it to get the right settings, this feature can be very handy. For instance, you can set your car to have 100 percent dual-rate for any throttle trigger position less than 50 percent, and 70-percent dual-rate for any trigger position from 51 percent to full throttle. This will make the steering less responsive at high speeds (where you don't want to spin out from too much steering input), while getting full throw in low speed turns.

DEAD BAND (QUICK THROTTLE)

All radios have a certain amount of "play" around the center points of the input controls (wheel and trigger). A dead-band setting lets you adjust the minimum amount of movement required for an input to have an effect. Some people like their cars to lurch forward with the slightest amount of trigger pressure. Others shake from nervousness even during qualifying runs. The dead-band setting can adapt to either type of driver.

Tip: Use this in conjunction with your exponential settings to get the right "feel" for your radio.

STEERING EXPONENTIAL (STEERING PUNCH)

The exponential setting is one of the most handy, yet easy to abuse functions. The exponential rate determines how far the wheel must move to make the servo move. Setting a negative exponential rate makes the servo less sensitive to small steering inputs; you have to move the wheel further to have the same effect as straight linear steering. Positive exponential makes the steering more sensitive around the center, and can give the feeling of quicker steering response.

Tip: Steering exponential comes in very handy when you have a twitchy car that you want to get better control of. Just don't set the exponential so low that it takes full lock-to-lock of the wheel just to get the car to go in a straight line. And if your responses are quick enough to handle lots of positive exponential, check your I.D. to make sure your last name isn't Kinwald or Hirosaka.



SUB TRIM

This function lets you coarsely set the center position for your servos. You can use the steering or throttle trim functions to fine-tune the center position if necessary.



THROTTLE EXPONENTIAL (THROTTLE PUNCH)

This functions similarly to steering exponential, but on the throttle/brake channel.

Tip: In nitro applications, throttle exponential can be used to give a rotary carb responsiveness similar to a slide carb. In electric cars, it can help you more easily modulate the torquey bottom-end of a stock motor, or make up for deficiencies in a mod motor's power curve. It is not as flexible as the Throttle Curve setting some radios now have, but it still is very useful (and easier to set).

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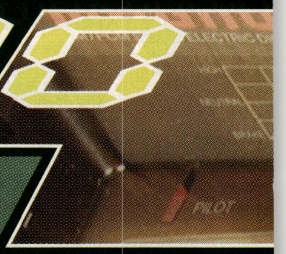
RADIO DAZE



THROTTLE CURVE

This is the next level up from Throttle Exponential. Some of the more complex computer radios allow you to program either an exact trigger position to throttle position setting, or a range to give you even more precise trigger control. The programmable trigger points vary from three to eight steps.

Tip: This is a very cool feature, but we end up using the good ol' Throttle Exponential function more often. But if you have the time to really play with this setting, then by all means go ahead. Just remember that your throttle settings will also be affected by such variables as your electric motor's brush conditions or maybe the ambient humidity for your nitro mill. That's why we find a standard curve to be more consistent.

TRACTION CONTROL (START FUNCTION)

Like the ABS function, this is not a true active traction control like in full-size cars. This setting slows down the throttle servo response when going from idle to partial throttle. Often, the ramp-up time and the throttle position are adjustable.

Tip: Again, it can take some practice to find the best setting, but this function can really help even ham-fisted drivers tame the more slippery tracks.

ANTI-LOCK BRAKING (ADVANCED BRAKING SYSTEM, ACTIVE BRAKING SYSTEM)



This setting has many names, but only one goal: to minimize the chances of locking up the wheels, which could cause a spin. This radio performs this miracle by pulsating the brake channel. The frequency (pulses per second) and amplitude (strength of the pulse) are usually programmable. Some manufacturers go so far as to offer different pulse patterns.

Tip: Initially, you'll probably find that it takes longer to stop the car when ABS is enabled. But your goal should be to use the brakes to slow the car down enough to set up for the next turn, and that is where ABS is handy. If you take the time to practice with ABS, you should find that the brakes are more controllable and predictable; this will help get you through the turns more smoothly. But it you are used to hard, late braking, ABS may not be for you.

IDLE UP

This convenient setting opens up the carburetor to a preset position on your nitro car, so your can start it without having to hold open the throttle manually.

Tip: The proper open position varies from engine to engine, and is also dependent on proper linkage and end point setup. Just don't set it too high, (for example: 30 percent of total throttle travel would be way too high), or the engine will race as soon as it turns over, which could damage it—not to mention that you could get a nasty tire burn.

CHANNEL MIXING

This feature lets you affect more than one channel with a single input. For example, in an R/C boat, a motor and prop at full throttle can torque the boat to turn, even though the rudder is pointing straight. With mixing, you can set the rudder to turn a couple of degrees when the trigger is at full throttle to compensate for this torque.

Tip: If your car is acting like the boat described above, your chassis is tweaked. Fix that, then turn off mixing for your car.

STEERING SPEED

This works kind of like the traction control setting, but for the front wheels. You can independently control how fast the wheels turn away from center and how fast they return to center.

Tip: A typical use of this function is setting the return speed of the steering servo slightly slower than the away speed. This should help smooth out the turns and let the weight transfer happen more gradually coming out of a turn, rather than possibly disrupting the balance of the car with a sharp weight transfer. Most of us don't use it very often, if at all.

DRAGON R/C

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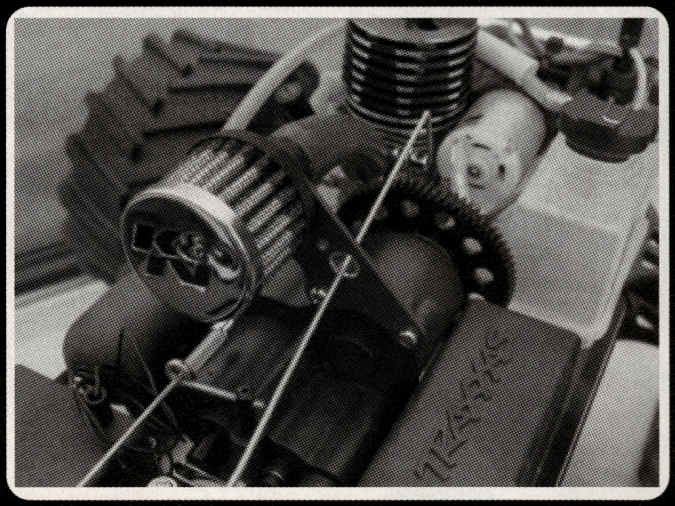

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TEST-DRIVE



Lauterbacher L3 Super Sport

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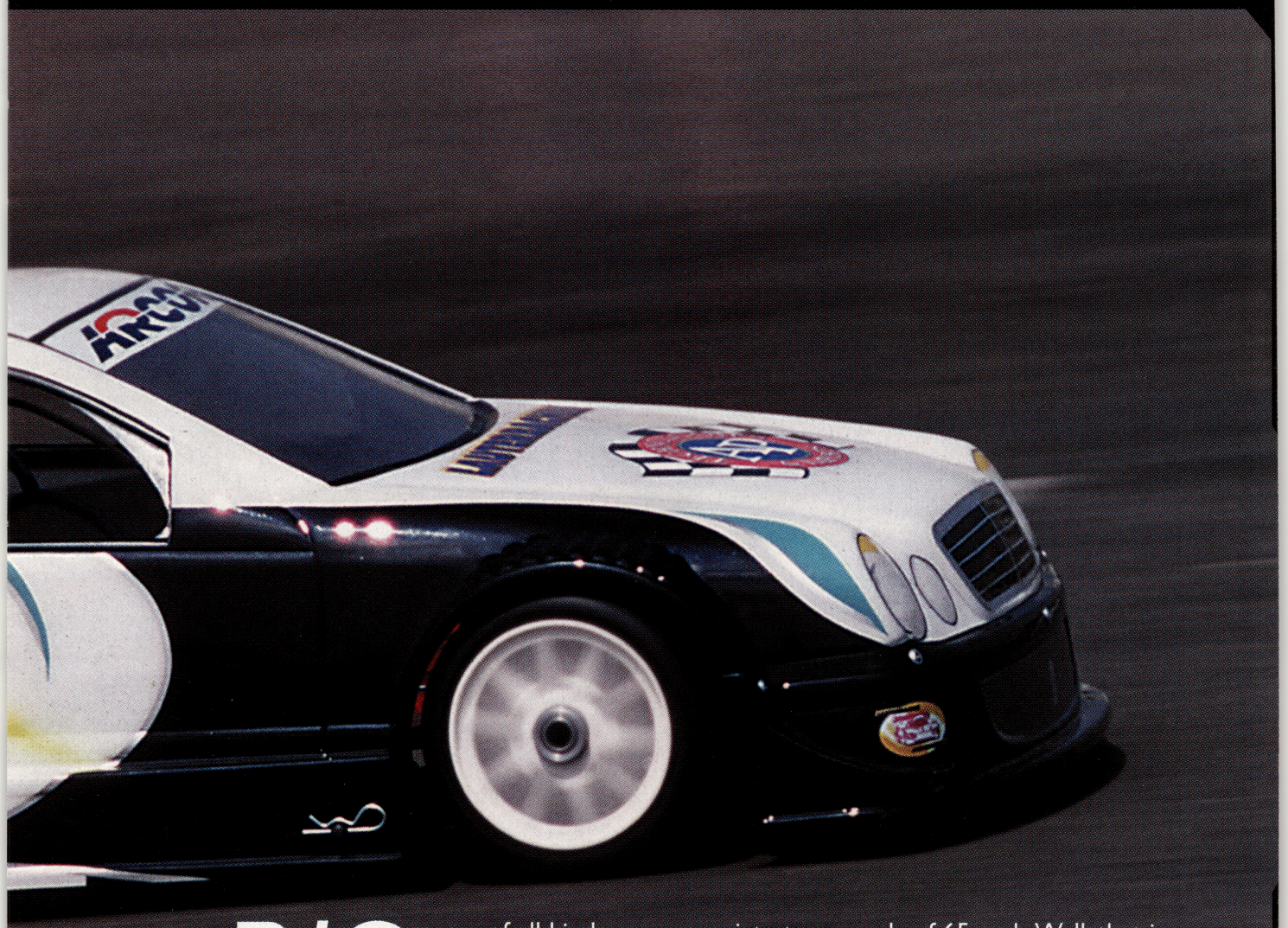
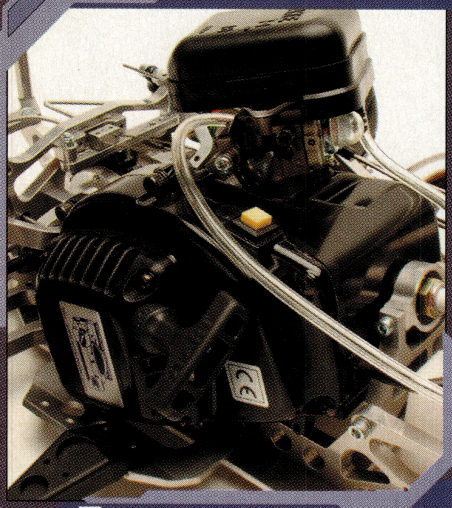
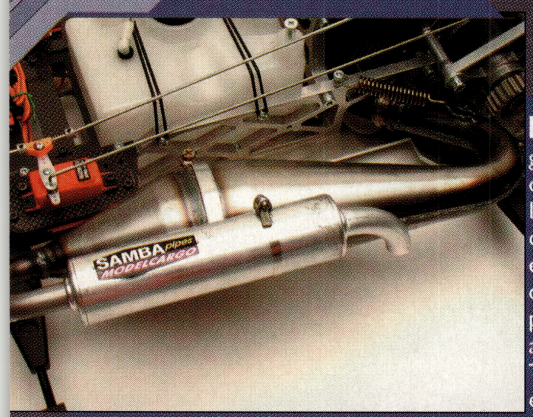


R/C racers of all kinds can appreciate top speeds of 65 mph. Well, that is, if you like driving on the edge with a machine that is worth $2300, such as the Lauterbacher L3SS. Yes, this 1/5-scale costs a pretty penny, but the realism of driving this three-foot long, rear wheel drive, four-wheel disc brake, 4.5 horsepower car is exhilarating to say the least. No other R/C experience even comes close to the adrenaline felt during a half hour of intense driving (1/5-scale cars easily run this long on a single tank of gas). After about 15 minutes, fatigue begins to set in. You're not done; you are only halfway there. With the sun beating down on your body and the high level of concentration that is required, even conditioned athletes tire. The last ten minutes are the toughest. Driving tight lines is much harder than it was 20 minutes earlier. Fighting off fatigue plagues your mind, making it extremely difficult to focus. If you are successful during the long session, the 24-pound sedan will make it back to the pits unscathed. Even if it was not the first time you have driven a 1/5 scale, you will still ramble like a small child to anyone who will listen.

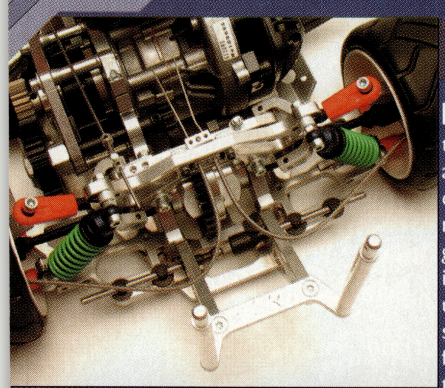
THIS IS NOT A TOY!



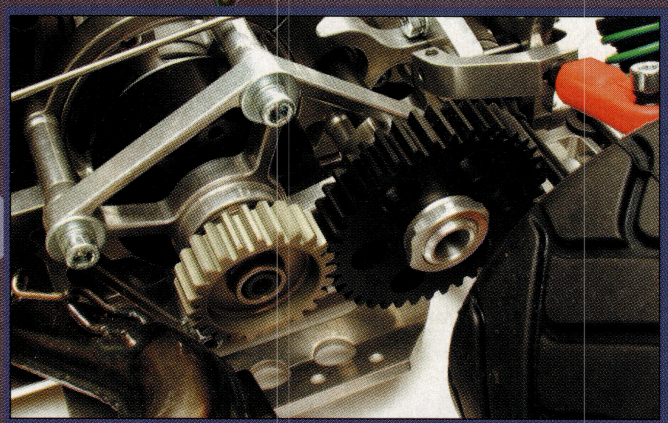
Our test car came with a Zenoah G230RC engine with a Walbro HDA carburetor. The 22.5cc pull-start engine runs on a mixture of unleaded fuel with synthetic two-stroke oil. A 32:1 mixture was used to give the new engine extra lubrication during the warm day on which we tested. A glow-igniter is not necessary since the CDI ignition system provides the spark—just like a full-sized car.



A.P. technologies, the distributor of the Lauterbacher L3SS, claims that the engine cranks out over four horsepower and reaches a shrill 18,500 rpm. The speed we experienced during the test did lead us to believe that this is one of the faster engines available for 1/5 scale racing. The Samba tuned pipe provided extra usable power at both bottom and top-end.



The power is delivered to the wheels through an adjustable two-shoe racing clutch that drives machined pinion and spur gears. The rear differential is an adjustable self-locking unit that controls wheel spin and prevents the diff from unloading. On tracks that have tight turns, where one wheel loses traction and starts spinning, the self-locking unit engages and prevents this loss of power and forward drive. A small set screw is used to change the point at which the differential locks up the rear axle and prevents the L3SS from losing momentum.



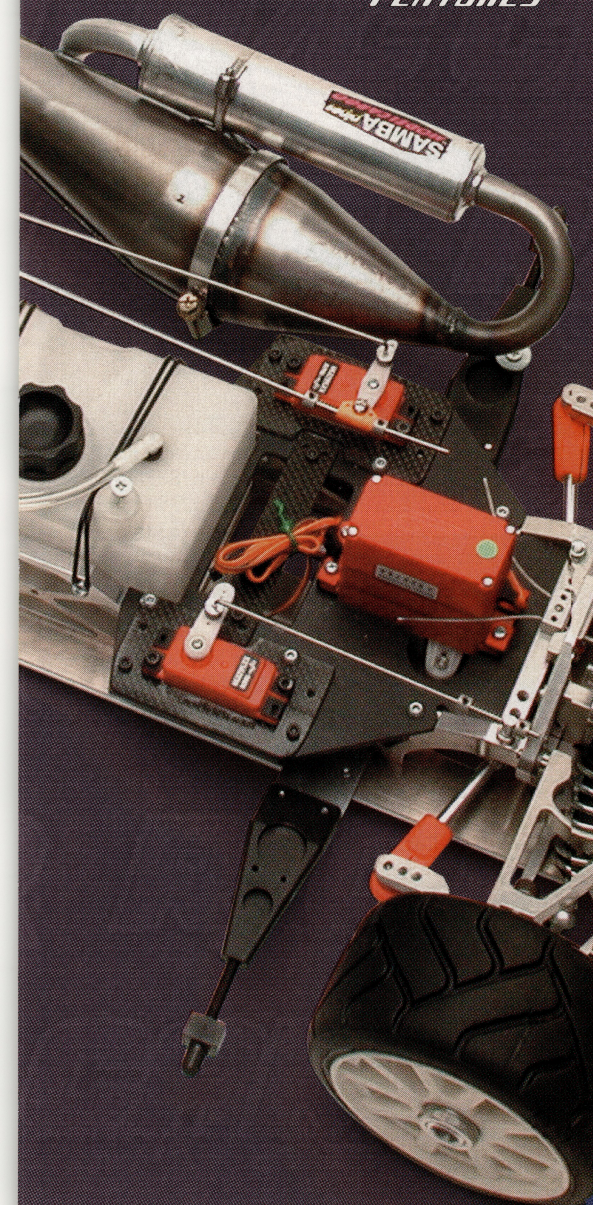
Since the gear mesh is fixed, Lauterbacher took it upon themselves to create different pinions and spurs that work together as sets. Unlike moving the motor in a conventional R/C, the Lauterbacher gears are machined precisely to fit one another. Five pinions are available that will work with each of the three available spur gears to provide a wide variety of gearing possibilities.

It takes a lot of stopping force to bring a 24-pound car to a halt from 65 mph! Lauterbacher leads the industry with its two-piston calipers and long, lever-assisted brake arm. The two-piston calipers can only be seen on an L3SS since the rest of the manufacturers use single-piston calipers. The force generated by the servos is distributed evenly over the entire brake pad's surface. This not only makes for great braking, but the wear of the pads is dispersed over the entire area. This prevents unwanted warping and prolongs the life of the brakes. Both the front and rear brakes come standard and are controlled by a cable actuated discs.

Lauterbacher L3 Super Sport

OUTSTANDING FEATURES

OUTSTANDING FEATURES

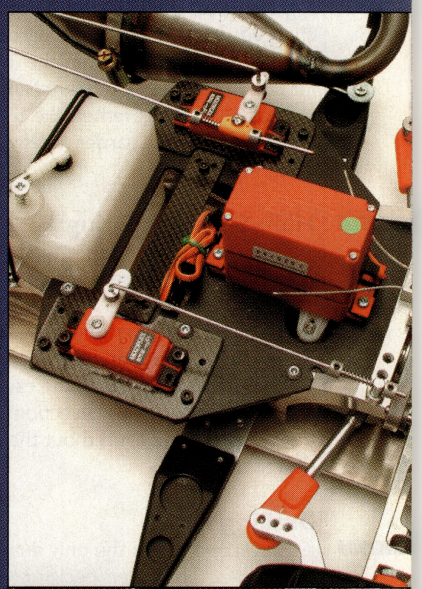


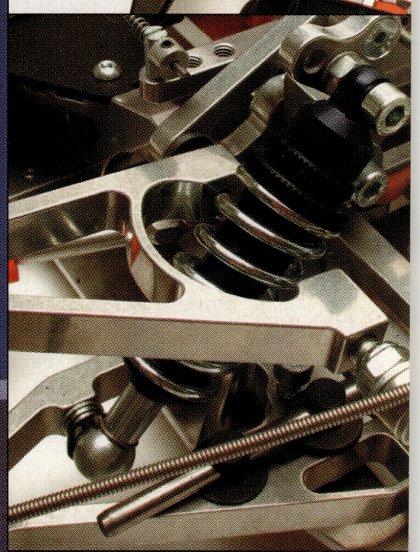


■ Factory-glued low-profile tires come with Lauterbacher's 1/5 scale racer. The Kevlar-belted rubber tires come in various compounds, but just two are included with the car. PMT Kronos 30 compound tires are used up front, while the rear receives the same tires but in a softer 20 compound. The tires require some track time to warm up, but will last many hours of use before they lose their effectiveness.

■ The front suspension provides easy adjustment to control caster, camber, wheel alignment, shock damping and ride height. Rotating the appropriate turnbuckles will allow you to change the camber and wheel alignment in a matter of seconds. Caster is changed using Lauterbacher's own stepless adjustment; the upper arm's position is changed by turning a screw in the front of the arm, while the entire arm slides on a pivot-pin until the new caster position is achieved. The oil-damped shocks come with coil over springs and have threaded bodies for easy pre-load adjustment.

The nearly unlimited adjustability does not stop there. Both the front and rear roll-centers can also be changed by moving the inner support of the upper and lower A-arms either up or down. And even anti-dive characteristics can be changed by tilting the lower A-arms forward or back to obtain varying degrees of reactive caster or rear-wheel anti-squat.

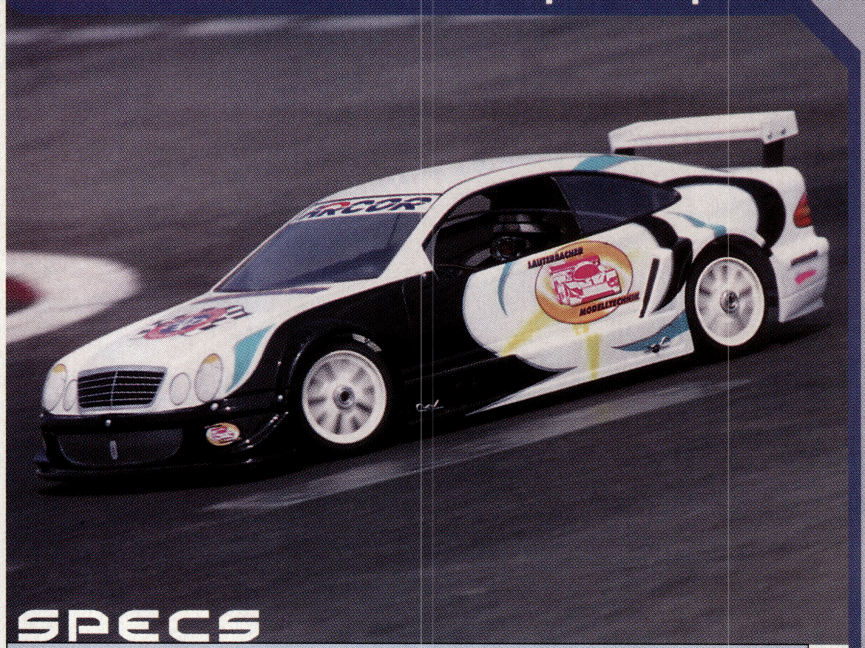






■ The L3SS incorporates a new chassis design that has aluminum "ladders" that run almost the entire length of the car. The chassis also utilizes the engine as a stressed member to increase chassis stiffness. The additional strength eliminates chassis flex, which will allow the suspension to function properly. The lower plate is made from 6mm-thick 6061 T6 aluminum, and has been CNC-milled wherever possible to reduce the overall weight of the car. The additional cut-outs also increase engine cooling, making the chassis an integral piece of this 1/5 scale puzzle.

Lauterbacher L3 Super Sport



SPECS

Price:	$2300
Length:	35 in./889mm
Width:	15.5 in./394mm
Wheelbase:	21 in./533mm
Track (f/r):	12 in./305mm
Weight:	24 lb.
Chassis:	6mm aluminum ladder-style
Drivetrain:	Gear-driven rear-wheel drive
Diff:	Adjustable locking gear
Bearings:	Metal-shielded ball bearings
Suspension:	Independent double-wishbone
Damping:	aluminum oil-filled, coil-over shocks
Tires (f/r):	PMT Kronos 20/PMT Kronos 30
Wheels:	Molded Plastic

Accessories included: Zenoah G230RC pull-start engine
Accessories you'll need: Two-channel radio system, jumbo high-torque steering servo, throttle servo, 6-cell sub-C receiver battery, charger, unleaded gasoline, synthetic two-stroke oil, paint for clear bodyshell

REPORT CARD

Test location: SVM microspeedway in Sun Valley, California

Track conditions: Medium-bite asphalt road-course with a mix of fast sweepers, tricky chicanes and several tight, low-speed turns

Engine: A+

Nothing in stock trim will be faster than the Lauterbacher L3SS. The provided Zenoah engine has more than enough power. The Samba tuned pipe only added fuel to the fire. Our test car was set up by a factory Lauterbacher driver, so it seemed to have just the right gearing. Again, this car was wicked fast and deserves kudos for its high speeds.

Low-speed Steering: B

At the beginning of our test session, the low-speed turns were handled with ease. After about ten minutes, the tires began to heat up, which caused the L3SS to experience a bit of oversteer. The aggressive steering was too much to handle, so we changed the front tires to a harder compound. This helped our situation, but the new tires are not included with the kit. A few changes to the suspension could have prevented the tire change, but time was a factor and harder tires seemed to be the quick fix.

High-Speed Steering: B+

Throttle control plays a major role in the ability to maintain a consistent line on high-speed turns. The huge straightaway at our test track leads to a right-handed sweeper that only presented problems when the gas was completely off. Applying a steady amount of power enabled the car to swoop through the turn. A challenging S-section was also victim to the L3SS once we figured out the importance of on-power traction.

Braking: A

Lauterbacher has the only dual-piston calipers on the market. Since their design provides an even distribution of force over the entire pad, the car stops with authority. It does not wander in any particular direction, and the brakes can be adjusted to suit different driving demands. After significant time was spent on the track testing, the brakes never faded and responded as they did the first time they were engaged.

Straight-line tracking: A

The steering trim on our test car was spot on. The car drove straight and never needed corrective steering. Even after a few curb jumps that left our chassis tweaked, the L3SS was able to hold its line and drive as straight as can be. The large back straight, which is quite far from the drivers' stand, presented no problems after we got familiar with the depth perception.

Stock tires: B

Maybe 1/5-scale drivers get accustomed to driving with inconsistent amounts of traction. The stock tires gave good traction when they were warm but caused the car to push when they were cold. Then, when the tires got too hot, they acted unpredictably. The tires are not bad; they just seem a little too temperamental.

Final Score

Highs: The Lauterbacher L3SS is one of the best-built 1/5-scale cars around. Its near-unlimited adjustability and cutting-edge design put it at the top of the highly competitive 1/5-scale class. The car's top speed is great, and it's able to get there in a hurry. The dual-piston calipers will probably receive due recognition when other manufacturers start designing their own.

Lows: It's unfortunate that so much fun comes at such a lofty price. But to be fair, once the car is purchased, the only additional running costs are gas, tires and oil. The stock air filter is restrictive and will probably be one of the first things that gets replaced.

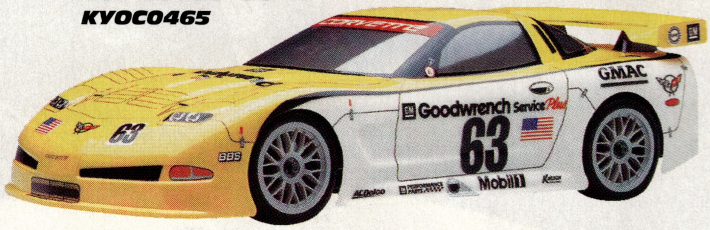
The verdict: Lauterbacher has definitely got a winner on its hands. This car has obviously been designed to accommodate every aspect of 1/5-scale on-road racing. Although it is more expensive than it competitors, an experienced racer will appreciate its unlimited adjustability. The car was really fun to drive and should get praise for the quality of its craftsmanship. Hopefully, with well built cars like the L3SS, 1/5 scale racing will see a spurt of growth

SOURCES

A.P. Technologies and Imports, 560 Library St., San Fernando, CA 91340 • (818) 365-1525

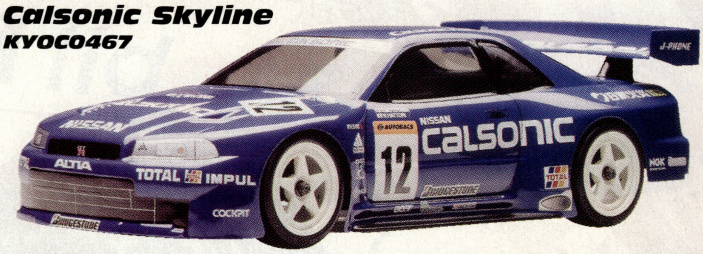
"This could be the best-handling sport nitro sedan ever!"

Corvette C5-R
KYOC0465



V-ONE S™

Calsonic Skyline
KYOC0467



D2 Mercedes
KYOC0466



- **Length:** 15 in (377mm) • **Width:** 7.9 in (200mm) • **Height:** 4 in (100mm)
- **Wheelbase:** 10.2 in (260mm) • **Front/Rear Track:** 6.9 in (175mm)
- **Approx. Weight:** 3.5 lb (1600g) • **Gear Ratio:** 7.26:1 • **Engine:** GS-15R (included)
- **Requires:** 2-channel radio w/2 servos, fuel, field equipment

The above quote is from R/C Car Magazine — and it's an opinion that everyone will share after putting the V-One S through its paces.

The sturdy chassis is 3mm-thick anodized aluminum with countersunk screws. A newly developed 3-bevel sealed gear diff adds durability and improves the car's overall performance. The included GS-15R engine's output and traction are maximized by the V-One S's Kevlar 3-belt 4WD system, and the car is fully ball bearing equipped for friction-free operation. Plus, the radio box is sealed to keep dust and debris away from on-board gear, with two different covers to accommodate a flat or hump receiver pack.

If you're an up-and-coming racer, you owe it to yourself to check out the advantages that the V-One S has to offer. Chances are, you'll agree that it's the best-handling sport nitro sedan ever designed...and a sure-fire ride to the winner's circle.

For more information, and the location of the Kyosho dealer nearest you, visit our web site at: www.kyosho.com or call 1-800-682-8948 and mention code number 2947K.

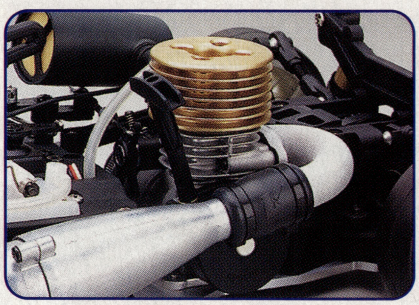


KYOC0463

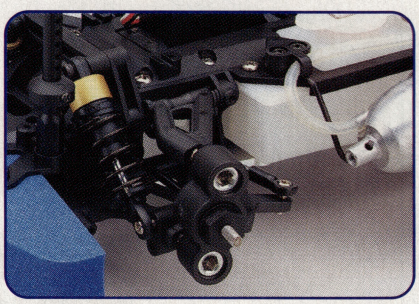


KYOC0464

Besides the sleek Corvette C5-R, D2 Mercedes and Calsonic Skyline pictured above, there are also V-One S kits available with Castrol Mugen NSX and McLaren BMW FA bodies. All include authentic sponsor decals that replicate full-size touring cars.



The powerful GS-15R recoil-start engine cranks out plenty of torque, and comes with a header and tuned Silent Streak muffler.



The front suspension is fully adjustable for caster, camber, track, toe, preload and up-and-down suspension arm travel. Adjustable, oil-filled dampers at all four wheels deliver excellent shock absorption, and the tall rear hubs reduce the effects of chassis roll.

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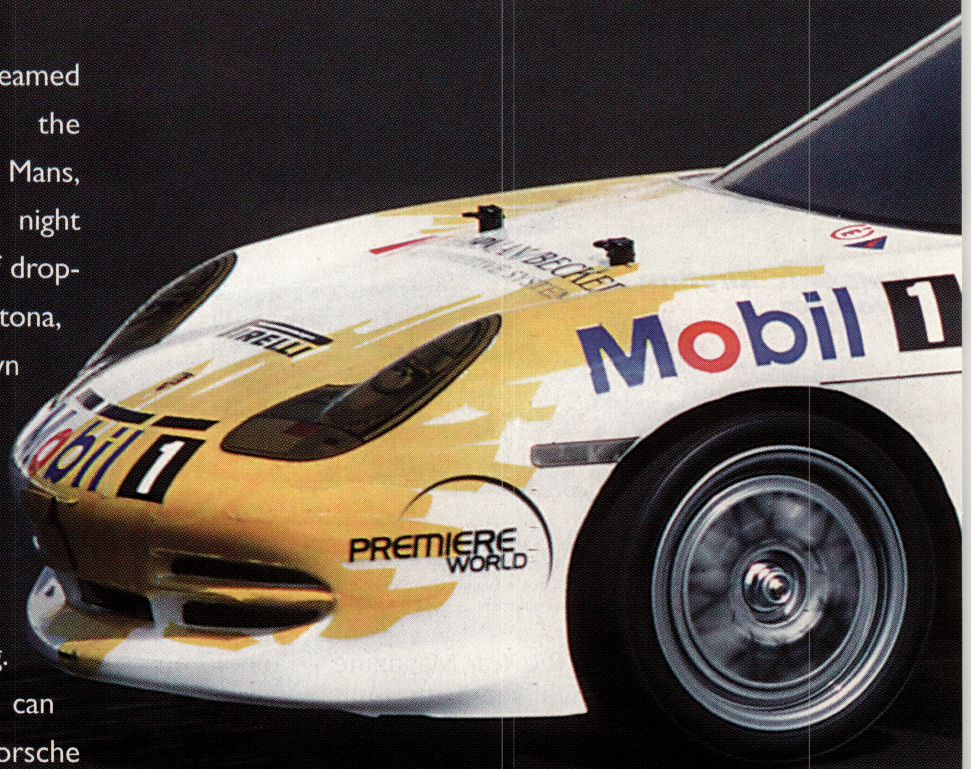
TEST-DRIVE

Tamiya Porsche 911 GT3 Cup "VIP"

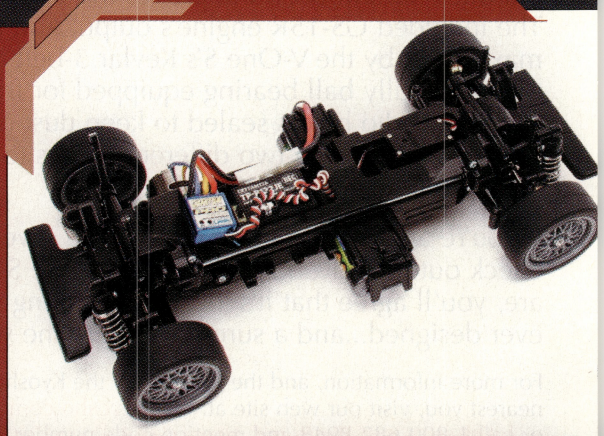
By Jerry Lundergaard

Have you you ever dreamed of blasting down the Mulsanne Strait at Le Mans, your yellow headlights turning night into day? Maybe you see yourself dropping off the high banks of Daytona, braking hard as you slam down through the gears, getting ready to throw your car into the left turn that begins the tricky infield section. Maybe you just love the unmatched beautiful harmony of a flat six at full song. For a scant $100,000, you too can purchase a factory-prepped Porsche GT3.

Only a fortunate few have experienced the thrill of driving one of these full boogie, race-prepared machines. For the rest of us—those on a slightly smaller budget—we are forced to crank up the Speed Channel to near speaker-blowing levels to come close to the experience. Well, once again Tamiya has stepped up to the plate to help us get one small step closer to our dream. For you Porsche buffs, Tamiya has released the 911 GT3 Cup "VIP."

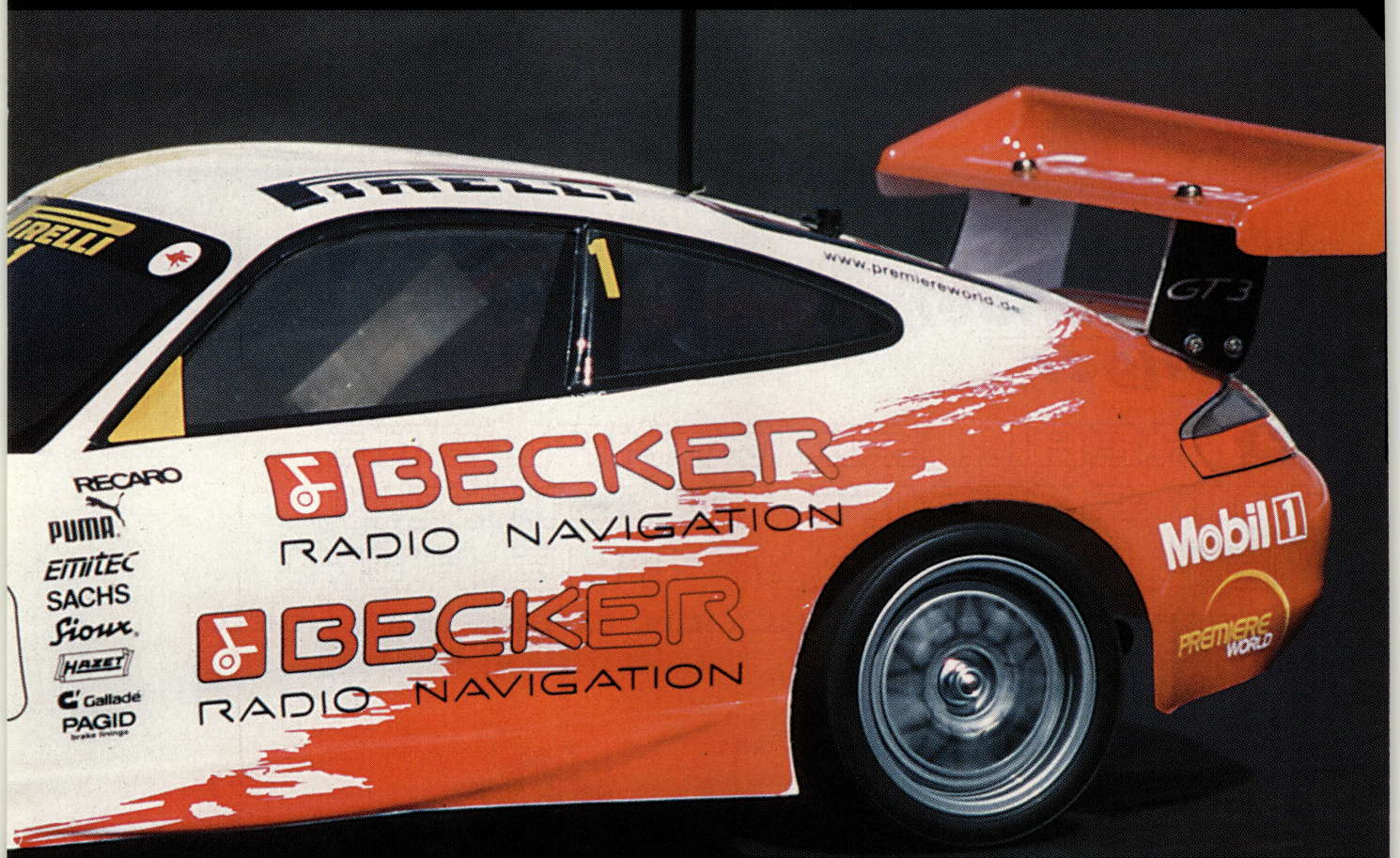


TL-01 FEATURES



The stunning Porsche body rests atop Tamiya's proven TL-01 chassis. The TL-01 features a plastic monocoque chassis design, with a shaft driven 4WD system to get the power to the ground. Non-oil-filled, coil-over shocks handle the suspension duties, and front and rear sealed gearboxes house reliable gear differentials (they're not quite as efficient as ball diffs, but they last forever and don't need to be rebuilt). The entire drivetrain rides on a mixture of plastic and bronze bushings. The cost-conscious TL-01 was designed to be a club racer. It's Tamiya's most basic, entry-level electric touring car chassis, but don't let that fool you—these cars can be very competitive. Check out your local Tamiya TCS race next time it rolls through town. You'd be surprised to see that the TL-01 class is usually one of the biggest classes of the event.

YOUR OWN RACE-PREPPED





CURB APPEAL

Using a reliable and proven TL-01 chassis, Tamiya now makes it possible for you to purchase your very own GT3 for around a hundred dollars.

Porsche fans will not be disappointed by the body set. By using a three-part molding process, Tamiya is able to recreate every duct, every panel line, every undercut with unmatched detail. If you look carefully at the unused areas of Lexan, you'll see a funny little pattern. Those funny little patterns are CNC machining marks. Tamiya CNCs its aluminum molds from actual CAD data, so you know the accuracy will be unmatched; but then again, when you're the Microsoft of the R/C industry you can afford to spend the extra money and do it right.

As with every Tamiya kit, the decal sheet is gorgeous. The best part is that the beautiful "mottled" red and yellow paint scheme areas are decals! No hours spent masking the body only to screw it up. Simply cut, peel and place. To help with decal placement, spray the body with a little Windex before adhering the decals. The thin layer of fluid will allow you to move the decal around and get it into the correct position. Use the edge of a credit card and gently squeegee out the bubbles and excess fluid. Don't worry, the rest of the Windex will evaporate leaving the decal firmly in place.

SPECS

Price	$149 ($95.00 street price)
Length	18.3 in./464mm
Width	7.5 in./190mm
Wheelbase	10.1 in./257mm
Tread (f/r)	6.2 in./157mm
Weight (w/o body)	1085g
Gear ratio	7.96:1
Chassis	Molded-plastic monocoque
Drivetrain	Shaft-driven 4WD
Diffs	Nylon planetary-gear
Bearings	Metal and plastic bushings
Suspension	lower A-arm, fixed upper link
Damping	plastic friction dampers
Tires	rubber slicks
Wheels	BBS-style

Accessories included: Mabuchi "black" Sport Tuned motor, three-step forward-and-reverse mechanical speed control

Accessories you'll need: Two-channel radio system with two servos, six-cell rechargeable battery pack, charger, paint for the body, CA cement

SOURCES

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

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KO Propo VFS 2000 speed control

A technical knockout!

Among R/C's most innovative manufacturers, KO Propo must surely rank highly, as it has introduced several breakthroughs in modern technology that have been of benefit to all—hobbyist and racer. Among these inventive products are the first handheld electric starter system for nitro engines, the first FET-boosted "super" servos and a PC-based lap counting system that recognizes individual radio frequencies.

Following in the footsteps of these innovative products is the new VFS 2000 speed control, which is the first—and only (as far as we know)—ESC that not only allows for the adjustment of its operating frequency, but allows the frequency to be changed throughout the travel of the throttle trigger. To answer your question: no, you haven't seen anything quite like the VFS before. But first, a little background information to help you understand the principles that make the VFS unique among racing ESCs.

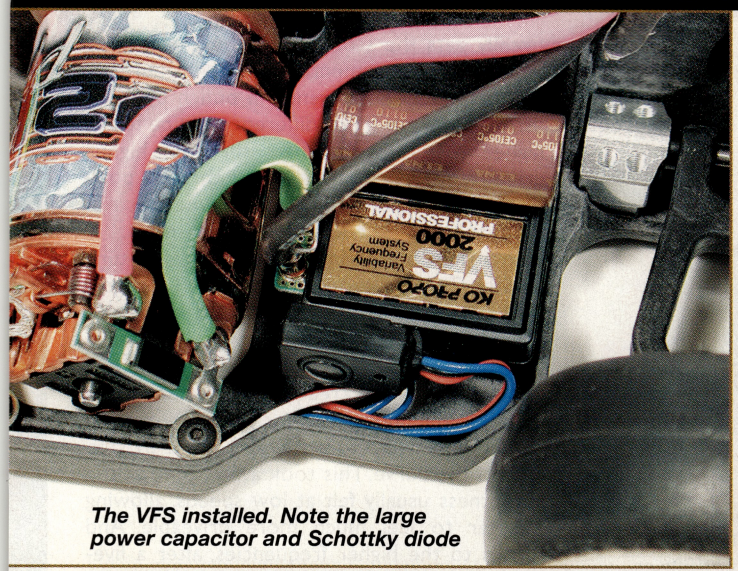
FREQUENCY: THE DRIVING FORCE



Although available separately, the VFS ESC and its handheld programmer are an essential pair. Neither is all that useful without the other.

Contrary to what most people think (if they ponder such things), an ESC doesn't actually change the current going from the battery to the motor, but rather it is a simple switch that pulses between on and off positions. And it is the ratio between the on and off pulses that determines the speed of the motor. For example, if you were to hold the throttle trigger at half-speed, the ESC's on and off pulses would be an equal 50/50. At 75-percent throttle, the current pulse would be on 75 percent of the time and off 25 percent. At full throttle—well, you get the picture. In engineering lingo, this is know as pulse-width modulation, or PWM.

Now, what's the difference between a high-frequency and a low-frequency ESC? Not much, except how many times each ESC can switch on and off in one second. Low-frequency ESCs switch at around 60Hz (Hertz, or "number of times per second), while some high-frequency ESCs can switch at up to 20,000Hz or higher (although most operate well below this figure). Early ESCs were all low-frequency, but manufacturers learned that by speeding up the frequency, they could produce ESCs that were more efficient, easier on motors and had smoother control over the motor's speed.



The VFS installed. Note the large power capacitor and Schottky diode

BUT WHAT'S THE OPTIMUM FREQUENCY?

Bottom line: there isn't one. While there are frequencies that work better under certain conditions, there is no one single "magic" frequency. And in many cases, it's a matter of personal preference. For example: a higher frequency will provide increased control and longer run times, so if you are running on a slippery track, or are just barely making time, you'll be better off with a higher frequency. However, if you don't care about run time, or you need the absolute most punch from your motor (such as when using a stock motor), you may prefer to use a lower frequency.

VARIABLE FREQUENCY: WHAT IS IT?

Speed controls that allow you to alter their frequencies are nothing new. However, all of these models operate on a fixed frequency. In other words, the frequency you choose will be in effect throughout the entire throttle range—you must make a compromise between acceleration and smoothness. KO Propo's VFS is the only ESC that allows you to select different frequencies for each part of the throttle's position. The VFS can operate on any combination of 32 frequencies, ranging from 513Hz all the way up to 6540Hz.

THE CATCH

You knew there had to be one, right? In order to make use of the VFS's capabilities, one must also purchase KO Propo's VFS Setting Apapter or its VFS PC Interface software. You see, unlike most other programmable ESCs—which allow at least some form of rudimentary programming access—you can't do diddly to the VFS without the Setting Adapter or PC software. Without these interfaces, the VFS is little more than a high-performance, micro-sized ESC with a default drive frequency of 2000Hz.

For this test, we received KO's VFS Value Set, which includes the VFS ESC and handheld Setting Adapter in one box. If you're going to buy a VFS, get this package or pick up the software. But for ease of use and portability, we recommend the Setting Adapter over the software (unless you enjoy lugging a laptop to the track).

INSTALLATION AND SETUP

The VFS is a micro ESC, so its "footprint" is very small. And like most micro ESCs, the VFS requires a few "add-ons" necessary for good performance. The first is a large power capacitor that smoothes out the throttle response and keeps the ESC running cooler, and the second is a Schottky diode that must be soldered to the motor.

We know what you're thinking; what good is having a micro ESC is it needs all of this extra stuff? Good question, but the answer from the ESC manufacturers is that by moving these items from inside the ESC case, the rest of the innards remain cooler during operation. Oh yes—here's some confusion for you: the "slash" mark on the power capacitor designates the negative lead, and the "slash" on the Schottky diode shows which side goes to the positive motor tab. And, yes, incorrectly soldering these bits will cause damage.

The VFS is a three-wire ESC—as are nearly all high-performance speedos—and it has large solder lugs that make it easy to attach the included 12-gauge leads. As always, the wires should be kept as short as possible to maintain good efficiency.

One rather unique thing about the VFS is its power switch, which is a pushbutton rather than a sliding switch. The button is located at the end of a four inch lead wire, and its molded housing also contains a status LED. The switch actually performs a variety of functions. In addition to turning the ESC on and off, the switch is used to set the ESC to the transmitter and to enter the "program" mode when the ESC is hooked up to the Setting Adapter or PC Interface.

PROGRAMMING

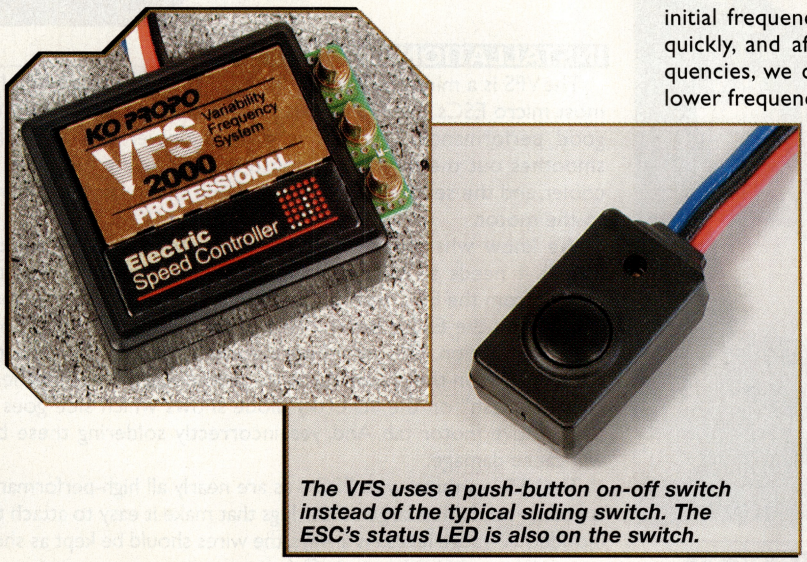
To program the VFS, its receiver lead must be plugged into the handheld Setting Adapter. The ESC's push-button is then pressed on and held until the setup mode is entered, at which time you can use the Setting Adapter to either upload the current settings from the VFS, or to download a new custom setting.

The Setting Adapter is fairly easy to use, with just four buttons (up, down, plus and minus). The LCD screen is easy to read even at night, thanks to its backlighting. Here's a guide to each of the Setting Adapter's menus.

• The "memory access" screen. The Setting Adapter can store up to four custom profiles, which can be downloaded to the VFS.



The handheld VFS programmer allows you to set the ESC's power curve to create a custom throttle response.



The VFS uses a push-button on-off switch instead of the typical sliding switch. The ESC's status LED is also on the switch.

The factory default setting of 2000Hz (frequency 17) is stored in the Adapter as Memory 2.

• The "all select" screen. Each of the VFS's 32 forward steps can receive its own frequency. The all-select feature allows you to select two or more steps at once. If you have a custom throttle-frequency curve already in place, you can select all 32 steps to raise or lower the frequencies of each step in the same increment.

• The "frequency assign" screen. This is where you can assign each of the 32 forward drive steps its own frequency. Oddly, there is also a "drive frequency setting" menu, but this performs the same function as the frequency assign menu—it just begins at throttle step one instead of throttle step 32.

• The "data transmit and receive" screen. This is how the Setting Adapter communicates with the ESC. Pressing the "minus" button uploads the current data from the ESC, while pressing the "plus" button transmits your custom setup from the Adapter to the ESC.

• The "memory access" screen. On this screen, the "minus" button is used to load data from one of the four memory slots. The "plus" button saves your newly created profiles to one of the four memory slots.

Another interesting feature of the VFS system is that you can also share setups between two Setting Adapters by using the included "jumper" cable.

TRACK TESTING THE VFS

As our goal was to actually feel the differences between high and low frequencies as well as between straight and curved throttle profiles, we decided that a test session using both stock and modified motors was in order.

For the first run, we fitted our Team Losi XXX-S sedan with a Trinity P2K Pro stocker. Our test track—Hot Rod Hobbies in Saugus, California—is made up of mostly tight turns, but has a fairly long back straight. We wanted a setup that would provide the most punch on the infield, yet also give us the most speed on the straight. We ended up creating a profile that used a very low initial frequency of 699Hz (step five) for the first two throttle steps, then we gradually increased the frequency until at step ten (roughly 1/3 throttle trigger), we reached our target frequency of 2020Hz (step 17). The low initial frequency really gets the stock motor up and moving quickly, and after a bit of experimentation with higher frequencies, we could really feel a difference in punch by using lower frequencies. Although not much difference can be felt at higher speeds, we suspect that the higher drive frequencies for the latter throttle positions might "take back" some of the lost run time caused by the low initial frequencies.

We then bolted-in a Team Orion 10-turn double Chrome mod motor. Here, our goal was to mellow-out the substantial hit of this high-revving powerplant. For this, we went in the opposite direction from what we had done for stock; we created a curve that started out in the upper frequencies (5110Hz), then curved downward to settle at 3220Hz by step nine of the curve. This took away some of the abruptness usually felt at low speeds, allowing the car to feel much more driveable. And thanks to the higher frequencies, after a five-minute run, the motor was warm, but not hot.

WHAT WE REALLY THINK

The VFS 2000 is a product that makes logical sense. If we are going to have ESCs that can alter their frequencies, why restrict yourself to a linear profile? Of course, the VFS is not for everyone—it's expensive (partly because one must also purchase to Setting Adapter to truly utilized the ESC's capabilities), and it doesn't have the most intuitive interface (the somewhat perplexing instructions don't help all that much). However, we found that the VFS performs as advertised, and the quality of both the ESC and Setting Adapter are first-rate. In the future, we would not be surprised to see other ESC manufacturers explore the possibilities of variable frequency.

SPECIFICATIONS

VFS 2000

Part no.	40030
Price	$270
Size	32.5 x 29 x 15mm
Weight	20.5g
Drive frequency	500Hz to 6500Hz
Maximum peak current	728 amps
Continuous current	182 amps
Operation input current (4 to 7 cells)	4.8 to 8.4 volts
Receiver BEC voltage	6 volts
Motor limit	none

VFS Setting Adapter

Part no.	40031
Price	$125
Size	65 x 133 x 36mm
Weight	103.5g
Power supply (not included)	4 AAA dry-cell batteries
LCD display	two line, 8 character. Backlit

VFS Value Set

(includes ESC & Setting Adapter)

Part no.	40100
Price	$355

VFS PC Interface

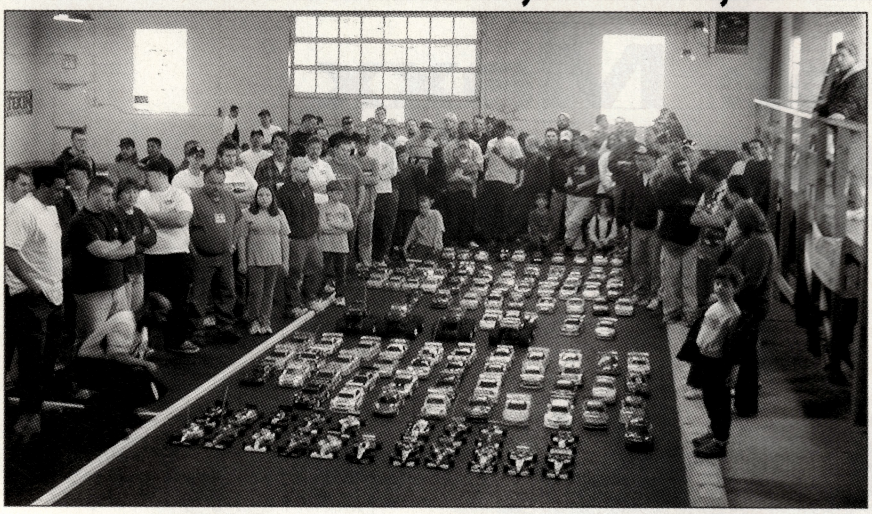
Part no.	40033
Price	$TBA

SOURCES

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

118 RACERS

TCS at R/C Outfitters, Hanover, PA



RESULTS

Formula-1

First Place	Steve Hickman
Second Place	Wilmott Earle
Third Place	Balint Rajki
Best of Show	Dave Galbrath
Top Qualifier	Steve Hickman
Top Rookie	Austin Keech

Super Touring GT1

First Place	Casey Young
Second Place	Ed Ratliff
Third Place	Wilmott Earle
Best of Show	Andrew Earle
Top Qualifier	Casey Young

Touring GT2

First Place	Andy Sprenkle
Second Place	Jesse Wolkenheim
Third Place	Brian Cianfrone
Best of Show	Mike Masters
Top Qualifier	Casey Young
Top Rookie	Steve Vacek

Entries

Racers	**118**
Second Entry:	**44**
Total Entries:	**162**

Mini

First Place	Erik Wippler
Second Place	Matt Jarrett
Third Place	Alan Mok
Best of Show	Matt Jarrett
Top Qualifier	Alex Kikel
Top Rookie	Brian Dolly

TL-01 Spec Exhibition

First Place	Erik Wippler
Second Place	Todd Marshall
Third Place	Scott Miller
Best of Show	Louis Pavlovel
Top Qualifier	Alex Kikel
Top Rookie	Brian Dolly

Tarmac Rally Exhibition

First Place	Chris Shaffer
Second Place	Sean McDevitt
Third Place	Brad Palmer
Best of Show	Nick Nagle
Top Qualifier	Chris Shaffer
Top Rookie	Austin Vacek

Monster Truck Exhibition

First Place	Hank Skipper
Second Place	Nelson Ng
Third Place	Will Graf
Best of Show	Nelson Ng
Top Qualifier	Hank Skipper



Above: 118 racers competed with 162 entries on March 24, 2002 at R/C Outfitters' indoor carpet track in Hanover, PA.

Right: Winners of the day's event. Many qualified to compete in September's TCS North American Finals at Tamiya America's Headquarters in Aliso Viejo, CA.

TO ENTER: **Mail in attached form to:** Tamiya America, Inc., Attn: Customer Service, 2 Orion, Aliso Viejo CA 92656-4200
or Phone: 800.TAMIYA.A or Fax: 949.362.6852 **or** register online.
Hurry! Registration closes at 5 p.m. PST Wednesday the week of the race.

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☐ **Laurel, MD** — **July 28** — Hobby Works

Name _____

Street _____

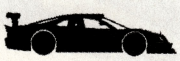
City _____ State _____

Zip _____ Age _____

Phone# ( ) _____

Email** _____

Circle Class(es):
(you can compete in a maximum of 2 classes)

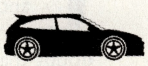

Super Touring GT1


Touring GT2


Formula-1


Mini


Monster Truck Exhibition


Tarmac Rally Exhibition


TL-01 Spec Exhibition

Frequencies *(minimum 2 frequencies required)*:

(1) _____ (2) _____ (3) _____

*by 5 p.m PST the Wed prior to the race date
**optional

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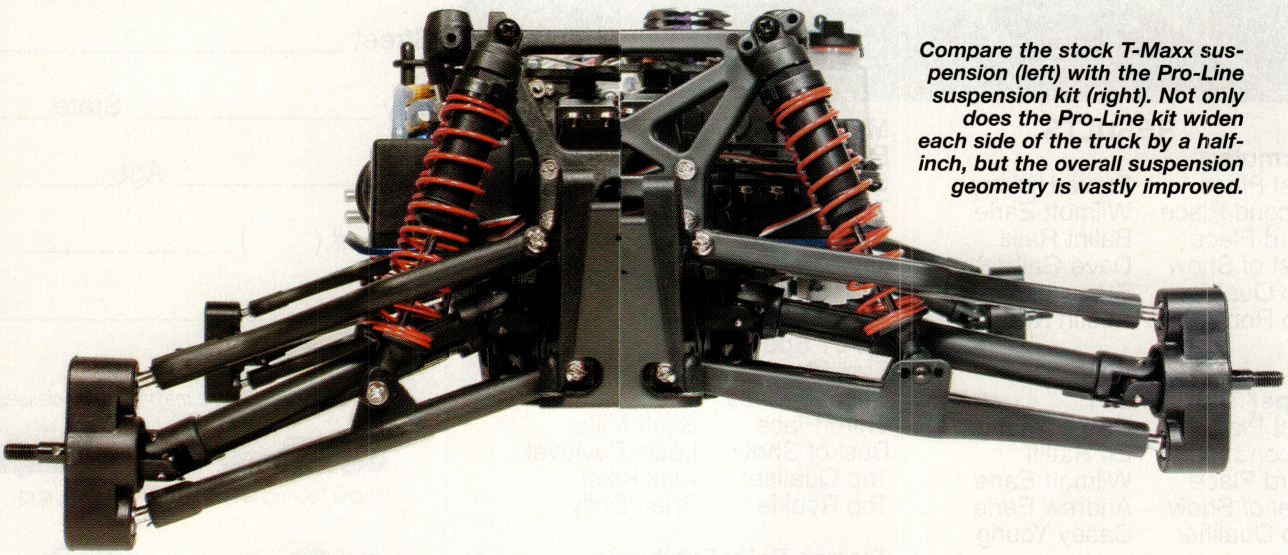
Pro-Line Maxx Suspension Kit

A bolt-on race conversion for the T/E-Maxx trucks

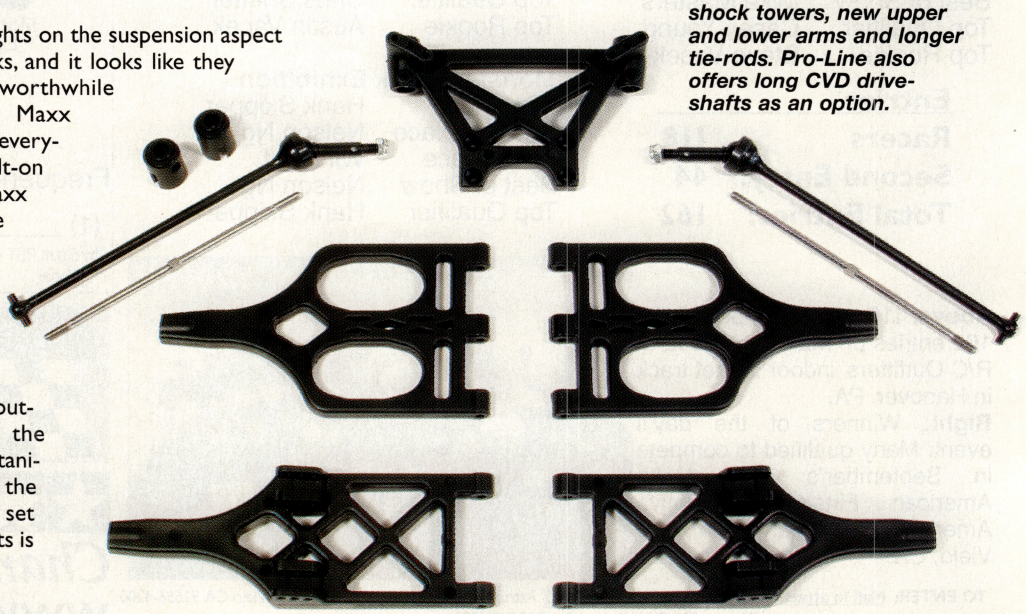
By Brian Skinner



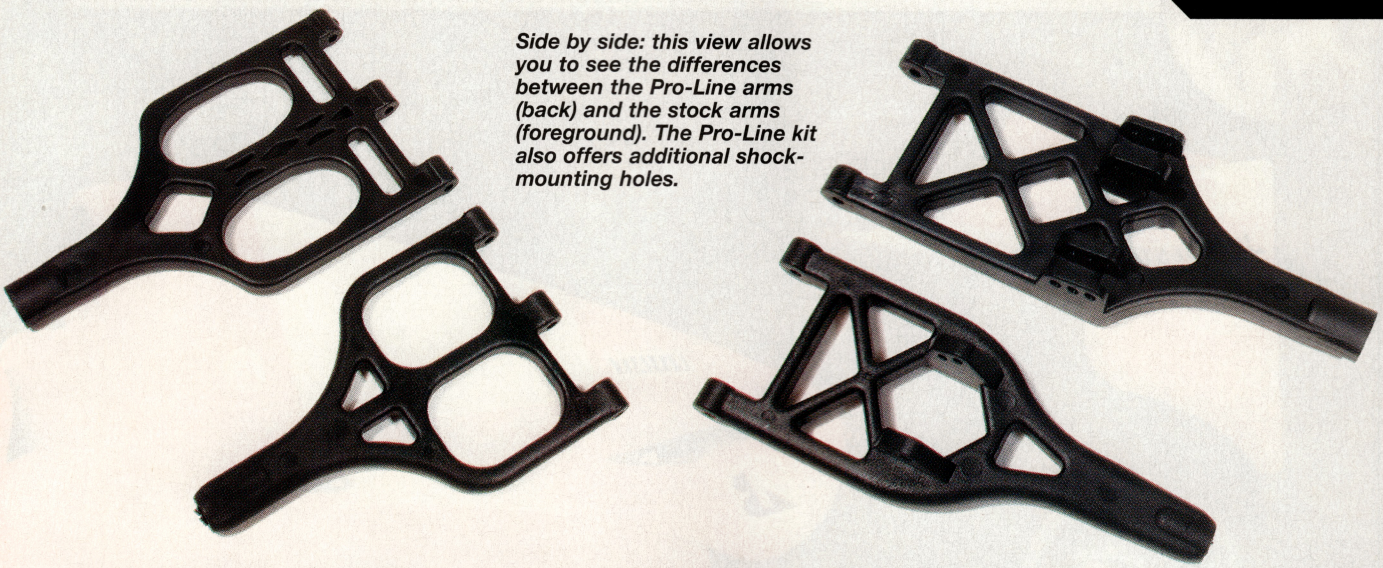
Compare the stock T-Maxx suspension (left) with the Pro-Line suspension kit (right). Not only does the Pro-Line kit widen each side of the truck by a half-inch, but the overall suspension geometry is vastly improved.

Looks like the gear heads at Pro-Line are at it again! This time they did a 180 on us and decided to explore new aftermarket territory once again. Either this or they ran out of ideas for bodies, tires and wheels, and I highly doubt that!

This time they set their sights on the suspension aspect of the all-mighty Maxx trucks, and it looks like they came up with some worthwhile improvements. The Maxx Suspension Kit comes with everything needed to make a bolt-on modification to the stock Maxx suspension. Included in the kit are replacement suspension arms for both ends (which are 1/2-inch longer than stock), replacement shock towers (which move the shock positions outward to compensate for the increased width), and long titanium turnbuckles to replace the stock steel links. A complete set of longer MIP CVD driveshafts is optional.



Included in the kit are new shock towers, new upper and lower arms and longer tie-rods. Pro-Line also offers long CVD driveshafts as an option.



Side by side: this view allows you to see the differences between the Pro-Line arms (back) and the stock arms (foreground). The Pro-Line kit also offers additional shock-mounting holes.

GEOMETRY LESSON

The T/E-Maxx trucks are funny beasts! With all that suspension travel, they can do some "interesting" things when they are in motion. So to control the 3-1/2 inches of travel, Pro Line made several improvements over the stock Traxxas wishbones and shock towers. To begin with, the finished product is very clean, with sharp moldings and a nice, tight fit between the parts. For molded plastic, this is a very clean looking kit. Pro-Line uses an unbreakable material, but I'm not quite sure of its exact makeup. I would guess that it's a nylon mixture or a Zylital compound.

The first obvious change is that the A-arms are longer (by 1/2-inch), and increase the overall stance of the truck by one full inch. This increases wheel track and greatly reduces the chances of a rollover. With the stock Maxx chassis, this really increases stability and does a bit to improve traction as well. For trucks equipped with big-block conversion chassis (such as that offered by Hardcore Racing), this increase in width is perfect and makes the .21 chassis more aggressive in the corners.

MORE IMPROVEMENTS

Another nice idea is the multiple upper and lower mounting positions for the shocks. You can really play with setups to gain the driving feel you want. The hot tip I found best? Slam the shocks out to both extremes. By doing this, you lower the truck's center-of-gravity (CG), yet still benefit from the full stroke of the shocks (there's no reduction in suspension travel). No need to limit the stroke with spacers or strap the A-arms to prevent driveshaft damage. Remember, more oil and a longer stroke mean better damping. Try it, it really works!

Another improvement is the "captured" shock ends. (Warning: marketing buzz word alert!). What the heck are they talking about? On the lower shock mount, the shock's eyelet is sandwiched between two plates. This relieves stress from the bolt and spreads the forces out more equally. But what about the top ends of the shock? You've got stress there, too!

I noticed also that Pro-Line increased the depth of the shock tower where the body posts are inserted. This area is also tapered to help displace impact energy into the shock tower and prevent breakage. A cool idea!

WHAT WE REALLY THINK

That's about it for Pro-Line's hop-up kit. It does come with Lunsford titanium turnbuckles (which are needed to reach out to the elongated suspension uprights), and an optional CVD axle kit. I recommend getting the CVDs if you have a .18 or larger engine, as these tend to cause the stock shafts to wear out more quickly. Also, the extended suspension places more stress on the stock shafts. We here at *R/C Car* give this Pro Line hop-up an A+ and Frank and Doogie can pry this kit from my dead wadded up T-Maxx! No way am I giving up this valuable hop-up!



The Pro-Line shock tower (left) offers three shock-mounting holes compared with the stock tower (right).

SOURCES

MIP, 830 W. Golden Grove Way, Covina, CA 91722 • phone (626) 339-9007; fax (626) 966-2901

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

Tamiya F201 Ferrari F2001



With the release of its new F201 F1 chassis, Tamiya has shown that it still cares about the Formula One category. It has invested heavily in the design of an all-new chassis in hopes of revitalizing interest in this rather stagnant class. Of interesting note, however, is that the groundbreaking design of the F201 raised more than a few eyebrows when spy photos of the car were released earlier than expected on the internet. With no accompanying technical specs, enthusiasts were greeted with a few low-resolution photos to pore over. What became obvious almost immediately was that this car was completely new—not a re-hash of the F103.

DOES FOUR-WHEEL DRIVE

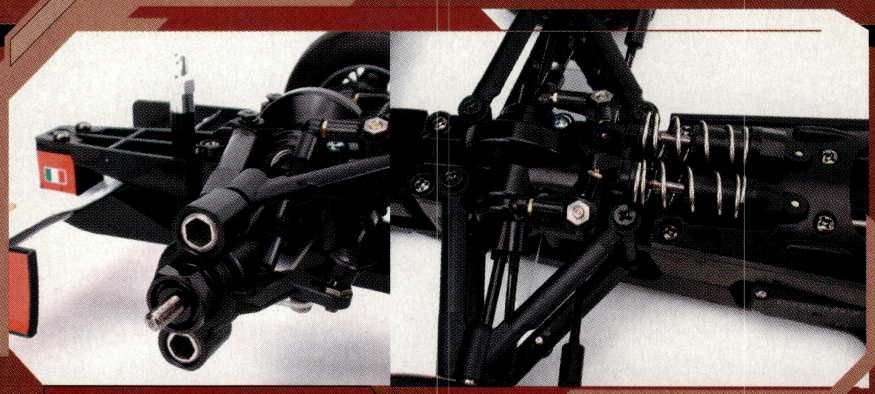


The new F201 features a monocoque chassis, wishbone-style suspension and an inboard shock arrangement. F1 purists were absolutely ecstatic—at first. What surfaced later had those same purists more than a little concerned; the fact that the F201 was going to be based around a shaft-driven four-wheel drive system! Cries from F1 extremists of "How could Tamiya do this to us?" began spreading across internet chat rooms. Others loyalist remained calm, waiting to see more of the car before rendering judgment. What exactly did the folks over at Tamiya have up their sleeves? We recently received the first F201—a Ferrari F2001—sample for review, and we couldn't wait to find out for ourselves if Tamiya had designed a car that even the most diehard purist couldn't overlook.

REALLY JIVE?

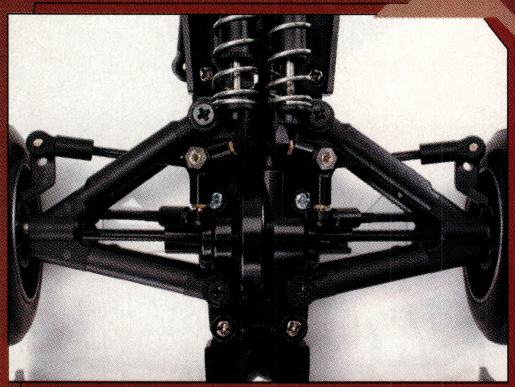


■Running sideways through the chassis is the battery compartment—hard-core racers will be disappointed to learn that the chassis only accepts stick packs. Hopefully, a Tamiya upgrade chassis will be available in the future that will accept side-by-side style racing-packs.



■ As unique as the drivetrain is, we're almost afraid that it will overshadow the advanced suspension arrangement found on the car. Similar to full-size F1 cars, the F201 incorporates an upper and lower wishbone-style suspension both front and rear. In addition, the damping is handled by pushrod-activated oil-filled shocks. In stock trim, the shocks come with solid pistons, but there's talk of aluminum shocks with a variety of drilled pistons being offered as a future upgrade.

At the end of each pair of suspension wishbones is an adjustable upright. Front as well as rear toe-in or out is fully adjustable via turnbuckles. Front caster is set at 9 degrees in stock form.



■ The drivetrain is completely new. Tamiya enthusiasts have pondered whether or not the system was picked up from the TB-01 chassis, but it is in fact an all new drivetrain. The drivetrain features a center-mounted spur gear that engages separate forward and rear propeller shafts. You'll find TA-04-style ball diffs in sealed housings both front and rear. As a bonus, the entire drivetrain is fully supported by ball-bearings, as it should be, considering that Tamiya's previous, relatively friction-free, F1 cars will be used as a benchmark to gauge this car's drivetrain.





■ We almost forgot the body set! How could we forget that Tamiya's new F201 has been topped off with one of the cleanest Ferrari F1 cars ever made? For those who have a passing interest in F1, we'll detail. Those in the know can skip this because you already know just how bad Schuey's ride is! The bodyset is based on the 2001 FIA World Championship winning Ferrari F2001. Driven by Michael Schumacher and his teammate Ruebens Barichello, the F2001 captured both the constructor's title as well as the driver's title (Schumacher won nine races last year with the F2001). With its swooping front nose and ultra-efficient aero package, the car simply dominated last year during the F1 season. Tamiya couldn't have picked a better body set to launch its new F201 with!

Tamiya F201 Ferrari F2001

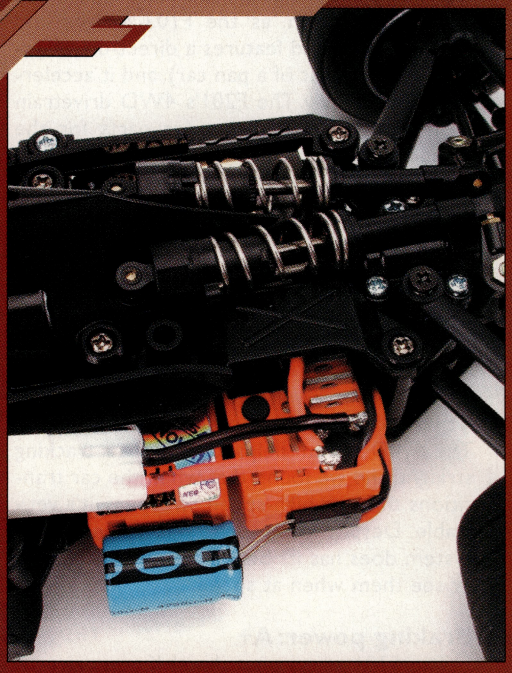
OUTSTANDING FEATURES

OUTSTANDING FEATURES

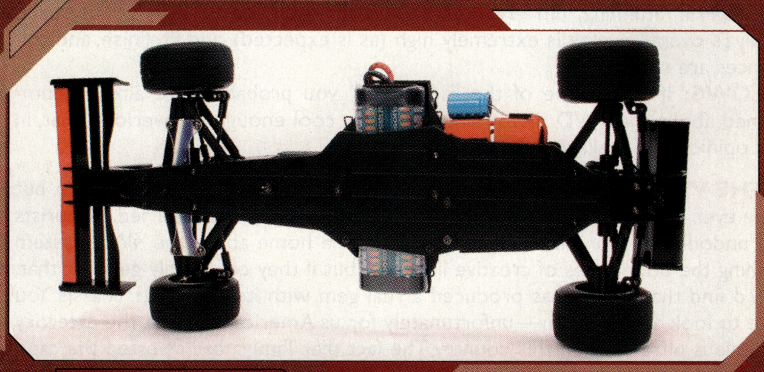




■ New tires and wheels for the F201 are also in use. Grooved tires replicate the ones used on the full-size F2001. We found that the stock tires weren't necessarily grippy—we're waiting for some stickier rubber to come from Japan any day now, which should help keep the car ultra-planted. Rumor has it that Japanese tire company Ride will be producing some new stickier compounds for the F201 soon as well.



■Speaking of electronics, it's a tight fit in there! Obviously, the smaller the electronics, the better. But don't worry too much—we were able to fit our Novak Cyclone TC2 and XXtra receiver in there just fine. The kit comes with one of Tamiya's black Sport Tuned 540 motors. The midship-mounted motor is placed transversely in the chassis; it will be interesting to see if this motor positioning affects the car's handling due to torque reaction while under acceleration. By the way, be prepared: getting to the motor once it's installed isn't the easiest task in the world.



■ As we mentioned, the new F201 is a completely new car from the ground up. It uses a new ABS resin plastic monocoque-type frame versus the standard FRP plate chassis found on every previous Tamiya F1 car. The chassis consists of two upper and lower halves. The front portion of the lower deck incorporates a honeycomb section to add to the chassis' rigidity.

Tamiya F201 Ferrari F2001



REPORT CARD
Test location: Hot Rod Hobbies, Santa Clarita, CA
Test conditions: high-bite asphalt permanent roadcourse. Smooth surface

Steering: A+:

It only helped matters that we put in a digital Futaba S9450 servo to handle the F201's steering, which is by the way, very good. The compound used on the tires is decent, but not very "grippy." We found that on the relatively high-bite surface, the car exhibited a slight amount of push (understeer to you more technical types). We only assume that when Tamiya releases some new, stickier compound tires, the F201 will be ultra-planted. As it is, the stock setup works well enough, and the car steers very consistently at both low- and high-speed.

Acceleration: B+

Good, but not great. When evaluating the F201's acceleration traits, it's hard not to compare it with the Tamiya F103 - which isn't a fair comparison, as the F103 weighs less than the F201 and features a direct-drive system (such as that of a pan car), and it accelerates very quickly. The F201's 4WD drivetrain is heavier (as there are more parts for the motor to spin), so it takes more torque (and time) to get it up and spinning. The included Tamiya black Sport Tuned 540 motor won't spin the drivetrain as fast as it would in an F103. Top speed is so-so, but there's enough of it to make driving around a track more than enjoyable.

High-speed handling: A

The F201 is a very stable platform; it doesn't wander, and it is smooth as glass at speed. The 4WD system helps keep the car tracking straight, and we found that when the car transitions through high-speed sweepers, it's very stable. Despite the weight penalty, the 4WD system does has its benefits, and you can easily see them when at speed.

Braking power: A+

The F201 stops on a dime! If you were to compare the F201 side by side with Tamiya's F103 chassis, you'd be amazed at how much better the F201 stops. With all four tires locked-up, the F201 comes to a halt in much less time than the F103, and it does so without a wiggle or twist - it stays straight and won't spin-out.

SPECS

Price:	$269 ($175 est. street price)
Length:	16.7 in./425mm
Width:	7.7 in./196mm
Wheelbase:	11 in./280mm
Tread (f/r):	6.5 in./164mm; 6.3 in./159mm
Weight (w/o. Body):	1486g
Chassis:	plastic monocoque
Drivetrain:	shaft-driven 4WD
Bearings:	rubber-sealed ball bearings
Suspension:	independent double-wishbone
Damping:	pushrod-activated, in-board plastic oil-filled shocks
Tires:	semi-pneumatic grooved slicks
Wheels:	mesh-style plastic

BUILDING TIPS

This one was passed along by our good buddy Fred "FMW" Medel over at Tamiya America. Fred found that when he was building his rear shocks, the oil felt a little too light. He recommended that we try using 1000wt Tamiya silicone oil (roughly equivalent to 120wt Associated oil) for smoother damping action. According to Fred, when the stock oil is used, the back end of the car has a somewhat "springy" feel to it, and the thicker oil helps the car get better rear traction.

FINAL SCORE

HIGHS: Stunning, ultra-realistic look that rivals its full-size counterpart. Tamiya's overall quality is extremely high (as is expected), and fit, finish, and tolerances are spot-on.

LOWS: If you're one of the F1 "purists," you probably have already complained about the 4WD drivetrain. This car is cool enough to overlook that, in our opinion. Oh well, your loss...

THE VERDICT: Tamiya has always produced stunning-looking F1 cars, but none even come close to the F201 as far as scale looks are concerned. F1 purists will undoubtedly complain until the cows come home about the 4WD system pushing the boundaries of creative licensing, but if they could only get past that, they'd find that Tamiya has produced a real gem with its new F201 chassis. You have to look at it this way—unfortunately for us American F1 fans, the category we love is ultra-small in this country. The fact that Tamiya has invested the capital into a completely new F1 chassis shows its commitment to enthusiasts. The F103 appears to be pretty much a dead platform, so if we're to continue on driving our beloved F1s, it will be with the new F201. Trust us—when you get a F201 in your hands, you won't be disappointed!

SOURCES

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656 • 1-800-TAMIYA-A



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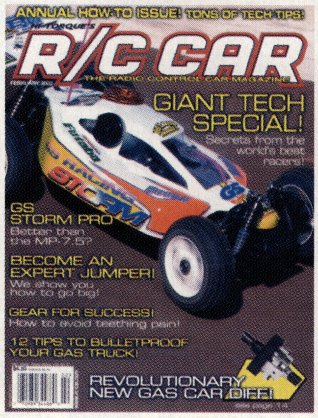





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1/5 SCALE ON-ROAD MOTORCYCLE RWD

Thunder Tiger FM-1e

ONE-WHEEL DRIVE

Think about this: The average automobile weighs around 3,500 pounds and has about 160 horses under the hood. Imagine if you will a vehicle that weighs under 400 pounds, but has an engine capable of producing 200 horsepower! This is the world of super sport motorcycles, and this power-to-weight ratio is the reason that no other roadgoing machines short of F1 cars and top-fuel dragsters can hope to match the acceleration of a modern superbike.

Thunder Tiger has captured the excitement of a superbike with the release of its new FM-1e 1/5-scale electric motorcycle. Now, R/C bikes aren't all that new—although most of the previous offerings have been rather toy-like—but TT's latest is a sophisticated, high-performance model that looks like it might be as fast as it is good-looking. With such features as an aluminum frame and working suspension, we couldn't wait to get the FM-1e out onto the track.



ROCKET

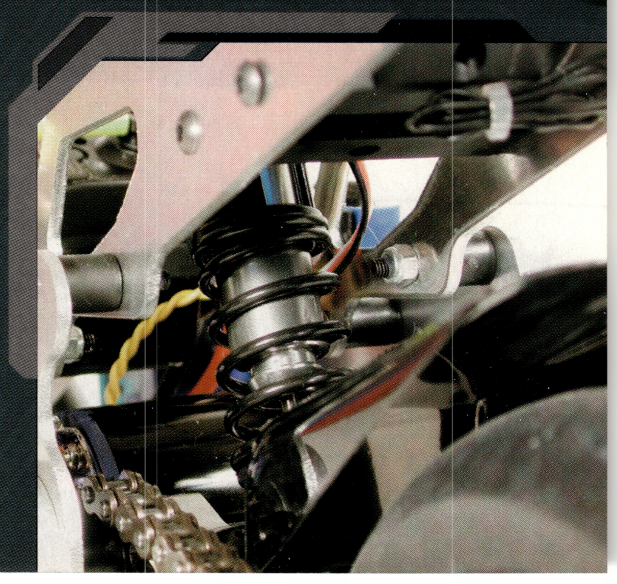
OUTSTANDING FEATURES

OUTSTANDING FEATURES

■ We were really shocked to open the FM-1e's box to find that the bike comes 90-percent assembled from the factory. The chassis comes fully built (you only have to install the running gear and electronics), and the beautiful Lexan bodywork is already affixed.

Although it would appear that Thunder Tiger chose not to license the Yamaha logo, it's no secret that the FM-1e is a replica of the awesome Yamaha R1 1000cc road/race bike. The bodywork comes pre-painted in Yamaha blue, with Yamaha's trademark silver and white striping already applied. Heck, it even says "R1" on the rear fender!

The finishing touch to the FM-1e's good looks comes in the form of a pre-painted PVC rider figure that's the best one we've seen on an R/C bike. The rider is well detailed, and is held to the bike by—what else would be appropriate—the handlebars. The rest of the rider kind of flops around, as there aren't any footpegs for his little Alpinestars boots.

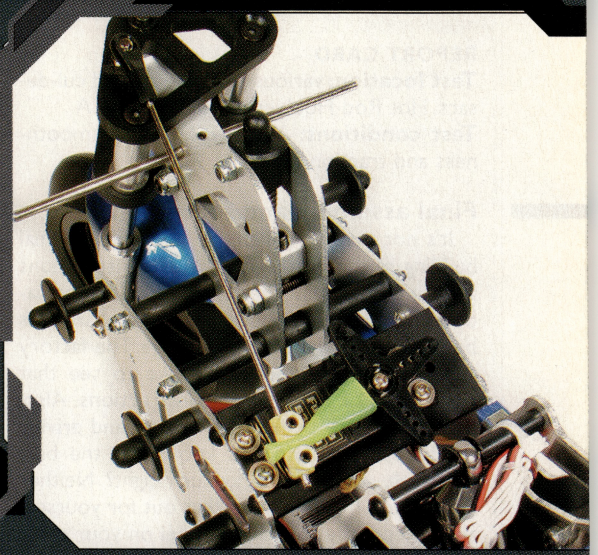


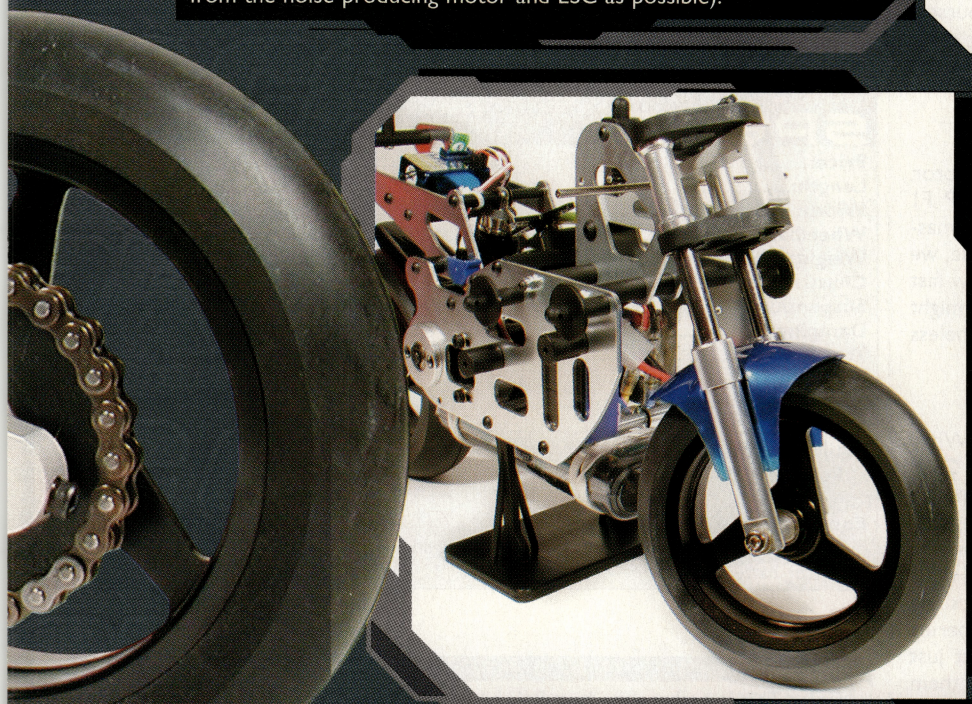
Thunder Tiger FM-1e

■ The FM-1e's chassis consists mainly of three sub-assemblies, each of which is made up of a pair of vertical aluminum plates joined by stand-offs. The main, middle chassis section is the heart of the bike—serving as not only the home of the battery, motor, ESC and servo, but also as the mount for the rear subframe and the front fork stanchion.

The FM-1e uses a typical 540/05 sized motor, which isn't included in the kit. The motor bolts to the bike's right-ride main chassis plate, and a standard-style pinion and spur gear combination is used to transfer power. Any six-cell stick-pack battery can be enlisted to power the bike. The pack is held to the underside of the main chassis by a clear Lexan tray and a pair of nylon zip-ties. This setup keeps the weight of the battery as close to the ground as possible (to help keep the bike upright), but makes changing packs a tedious task.

As with a full-sized bike, the FM-1e's rear subframe serves as a top-mount for the rear shock. The only difference is that with the 1/5-scale bike, there's no helmet storage or tool-kit under the seat, just a molded shelf for the receiver (this location keeps the receiver as far away from the noise-producing motor and ESC as possible).



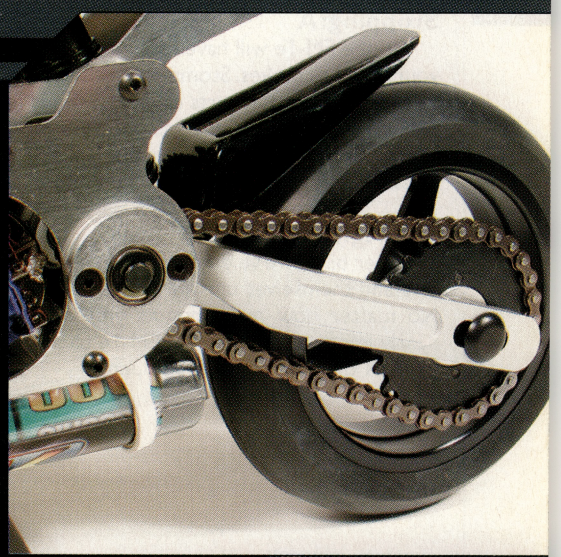


■ Motorcycle enthusiasts will be happy to know that the FM-1e comes with telescopic front forks. They aren't oil-filled, but they do have internal springs and sliding pistons to provide adequate damping. The forks are attached to set of "reversed" triple-clamps—the forks trail the steering head instead of vice-versa. This helps swing the weight of the chassis into the direction of the turns to help steer the rider-less bike.

A really neat feature of the FM-1e is its pivoting steering head, which has been designed to absorb crash impacts through a stiff coil-spring. Another cool part of the fork support is that it allows for the changing of the steering head's rake angle. By turning a single setscrew, the rake can be reduced to improve steering on tight tracks, or increased to add stability on larger, faster tracks.

■ The rear suspension centers around a nicely machined aluminum swingarm. The design is single-legged, which means that the rear wheel is supported from one side only. But the swingarm is more than strong enough to hold the wheel firmly in line. Damping is provided by a single, upright oil-filled shock. The shock looks like it came from the front end of one of Thunder Tiger's 1/8-scale off-road buggies, and it provides a really plush ride with excellent compliance to road irregularities.

■ Everything that rolls or spins on the FM-1e is supported by efficient ball-bearings. This includes the wheels as well as the drivetrain. And speaking of the drivetrain, the FM-1e uses a realistic steel roller chain to get power to the rear wheel. The chain wraps around a set of durable aluminum sprockets, which are driven by the motor through a steel mainshaft. And just like a real bike, the tension of the chain can be set by turning an adjustment screw located at the back of the swingarm.



Thunder Tiger FM-1e



REPORT CARD
Test location: various parking lots and cul-de-sacs. Hot Rod Hobbies, Santa Clarita, CA
Test conditions: Asphalt of varying smoothness and traction

Final assembly and setup: C

It's not that it's difficult to finish up the final building of the FM-1e, it's that the instructions are next to useless. There is very little information provided, especially in such crucial areas as how to set up the steering linkage. The factory assembly is very good; we'd like to see that same kind of detail in the instructions. Also, there aren't any tips on radio setup and driving the motorcycle. Did you know that the bike turns left when the forks turn right? Neither did we; you have to figure that out for yourself, and reverse the steering channel on your radio to make the bike go right when you turn the wheel to the right.

Speed: B

We installed a Reedy MVP stock motor, Reedy 3000mAh NiMH pack and an LRP F1 Sport ESC into our bike. Once we could master the "going in a straight" line technique, we were able to get a good feeling as to how fast this little bike could be. The stock gearing might be a little short, but the bike is nonetheless quite fast once it gets moving.

Turning: B

Driving the FM-1e is an acquired skill. While at the photo shoot local pro driver Chad Bradley tried his hand at the bike - and couldn't even go straight! Once mastered, turning the bike is mainly an issue of speed. Slow down too much, and the bike will tip over. The cool thing is that grabbing a bunch of throttle stands the bike straight up, regardless of its cornering radius. Also, the metal turning guards act just like a rider's knee-pads; tight turns get them scraping!

Stopping: A

Yes, the FM-1e will have rear-wheel braking if your ESC has brakes. Stomping on the brakes is one of the most fun parts of driving the FM-1e. We could really hang the rear tire out in massive lockups. And as soon as the brakes were released, the bike straightened out smoothly.

Self-righting: C-

Other bikes we've driven (ridden?) were able to stand themselves upright after a few donuts. No matter how many donuts we did, it was nearly impossible to get the FM-1e to stand up by itself once it had been dumped.

SPECS

Price:	$259.99
Length:	17.3in/440mm
Width:	7in/180mm
Wheelbase:	11.6in/295mm
Weight:	1430g (w/o electronics)
Chassis:	three-piece aluminum sub-assemblies
Suspension:	telescopic forks (F); pivoting swingarm (R)
Damping:	coil spring (F); aluminum oil-filled coil-over shock (R)
Transmission:	pinion/spur gears, roller chain
Bearings:	metal-sheilded ball bearings
Wheels:	three-spoke aluminum
Tires:	semi-pneumatic rubber slicks

Equipment included:
Rolling chassis

Equipment you'll need:
Two-channel radio, steering servo, ESC, six-cell stick pack battery, electric motor, battery charger

Final Score

Highs: This is perhaps the best R/C bike we've seen. The quality of the parts and of the pre-assembly is first-rate. The bodywork is awesome, and the rider figure is simply the best one out there. Although it takes some time to get the hang of driving the FM-1e, once mastered, it's a blast.

Lows: Weak instructions offer little to no assistance in getting the bike set up and running. Also, the decals on the fairings aren't of the best quality. They are peeling off from the moment the box is opened.

The verdict: We've tested several 1/5-scale bikes, and the FM-1e has them all beat as far as ease-of-use and price. And the level of pre-assembly and detail of the bike and rider is fantastic. Be prepared to suffer some scrapes and bruises (the rider figure, not you!) before you get the hang of driving this rather interesting creation. Smokey burnouts, anyone?

SOURCES

Reedy Modifieds, distributed by Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax
Thunder Tiger, distributed by Ace Hobby Distributors, Inc., 116 W. 19th St., Higginsville, MO 64037 • phone (660) 584-7121; fax (660) 584-7766

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Home-Built TC3-O

How an enterprising machinist made his own Associated 4WD buggy!

By Dan Burnham

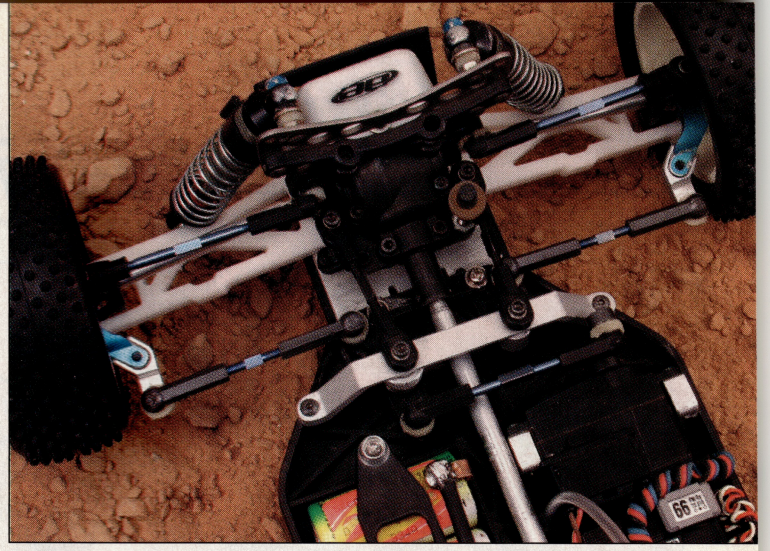


The story of my TC3-O actually goes back three years, when a guy in Ann Arbor, Michigan, opened up an indoor dirt track over the winter. The track was called Washtenaw R/C Raceway. During that first year, I ran stock truck and buggy. A friend of mine by the name of Dell Callihan offered to let me take his Losi XX-4 out for a spin after the racing was over—needless to say, I was instantly hooked on the speed and handling of 4WD. After the run, Dell suggested that I should get a XX-4, but I had no interest in a belt-drive vehicle. So Dell issued a challenge: he said that I should convert an Associated TC3 to an off-road buggy!

You see, I'm an experimental toolmaker, and Dell was aware of this, as I had made a custom motor-winding fixture for him (Dell makes his own motors, called Big Block). I had made a lot of "fun" stuff over the years, so I figured "what the heck!" So that day in November, I sat down with Dell's XX4 and a tape measure and began working out the dimensions that would be used to make the conversion. In the spring of the following year, I found a used TC3 touring car for sale, and I went to work. The car you see here is the final result (well, the nearly final result). The original TC3 chassis has been widened and stretched to match the track width and wheelbase of the XX4 or Schumacher Cat 4WD buggies, and its front end has been "kicked up" to allow the car to work on bumpy off-road tracks.

THE PLAN IS HATCHED

The initial design of the TC3-0 was first sketched out by hand. Whenever I get an idea, I draw it on whatever is handy; cardboard, napkins, my hand—anything that will hold ink. All of the parts were made with CNC machining centers, as well as on CNC lathes and manual milling machines. I use a CAD (computer-aided drafting) system to create the final designs, and this allows me to easily make any necessary changes before the part is actually machined.

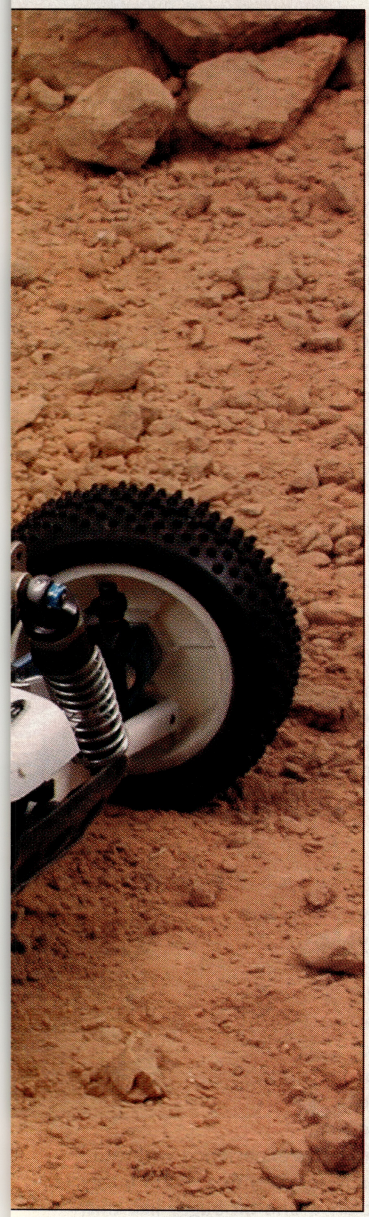


To save weight and to reduce machining costs (Dan plans to offer the TC3-O as a conversion kit), the new car has less elaborate - but still effective - front braces.



Where's the slip? Dan felt that since most 4WD guys locked-up their cars' slippers, the TC3-O didn't require one. After years of running prototypes, he was proven correct.

THE MOST CRUCIAL ELEMENT



Without question, the car's front nose-extension plate was the key to the success of the whole project. This not only adds kick-up to the front suspension to provide the much-needed caster, but it also prevents the nose of the car from digging in after landing from jumps. At the same time, the nose-plate also tilts the front gearbox to the same angle as the front arms' hinge-pins. The trick was to add as much kick-up as possible without causing the center driveshaft to bind in the front gearbox's input cup. The actual degree of kick-up is a secret; but let's just say that I pushed it to the limit!

The new nose-plate is also the method by which the car's wheelbase was extended to 4WD buggy standards, so you can imagine the amount of stress it has to endure. The way I attached it to the main chassis is very secure; the plate is actually sandwiched between the original chassis and the gearbox. The original versions of the TC3-O had elaborately machined upper braces; however, I later replaced these with a cross-brace made from titanium turnbuckles; this is a much simpler method, and it has proven to be just as strong. I must add that I have never experienced a failure of any of these parts.

STRETCHED SUSPENSION

One of my goals with the TC3-O project was to try to maintain the look and feel of the original car wherever possible. With this in mind, I set about designing and machining a set of extended A-arms from Delrin. I also fixed what I felt was a shortcoming of the TC3—on-road or off. I designed the arms and their mounts to accept larger 1/8-inch-diameter hingepins. In two years of running, I have only bent one, and that was during a horrendous crash that I would rather not discuss! Well, OK: I came off a triple jump waaaay out of shape and the car landed on the right-side front A-arm. The arm shattered, the pin bent, and the shock tower broke. But it was all my fault! Otherwise, the car has been rock-solid.

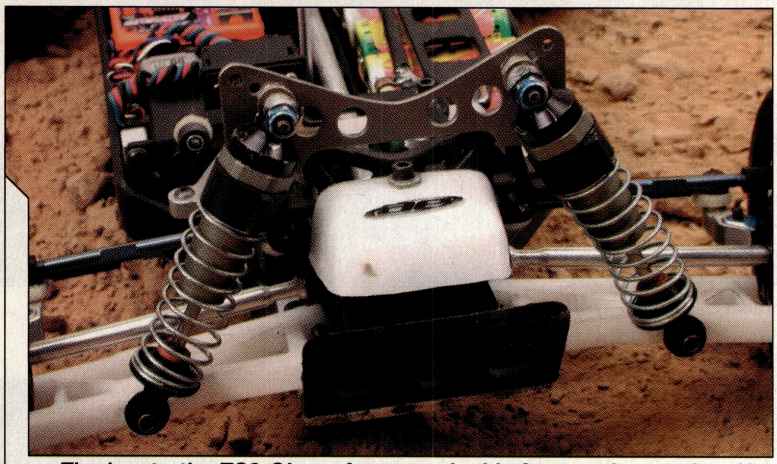
Originally, I had also increased the outer hinge-pins to 1/8-inch diameter, but this required the use of special hubs and uprights. As I am working on marketing the TC3-O as a conversion kit (see sidebar), I decided to switch back to the standard size pins so that anyone who buys the kit can use any aftermarket hubs or uprights without having to modify them to fit.

Another feature that was needed to make the TC3 worthy of off-road action was the new shock towers. I made these out of titanium, and they are "sistered" to the existing molded TC3 towers for added strength. Like the rest of the suspension geometry, the towers and lower arms provide similar shock travel and angles to those of the XX-4 buggy.

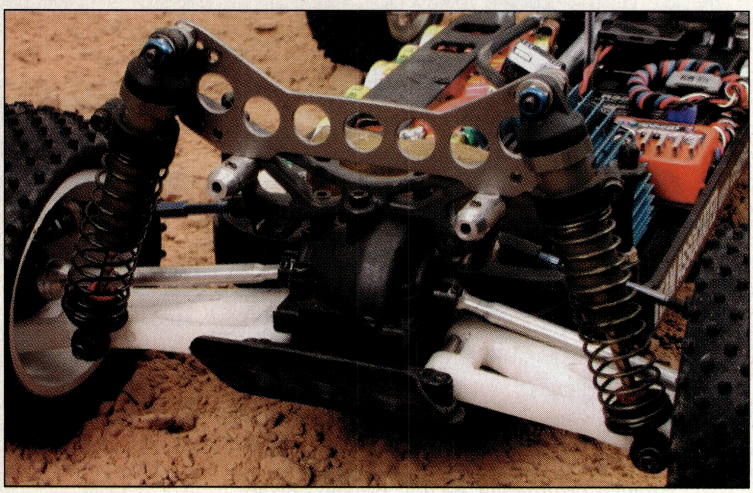
STEERING FOR DIRT

My original TC3-O made use of the TC3's unique sliding steering rack. To make this work, I had an aluminum extension that was bolted to the front of the stock rack. But after running the car, I have found that it needed more steering throw than what was provided by the rack system. So I ended up tossing the entire rack in favor of the dual-bellcrank system from the Associated B3 off-road buggy. Not only did this provide the additional throw I was looking for, but the bellcranks also added some beneficial steering Ackerman. This change also simplifies the conversion as fewer custom pieces are needed—the only parts I had to fabricate were a pair of adapter posts for the bellcranks, which I machined out of Delrin, and a set of aluminum extension-plates for the steering spindles, as more leverage was needed to handle the larger tires.

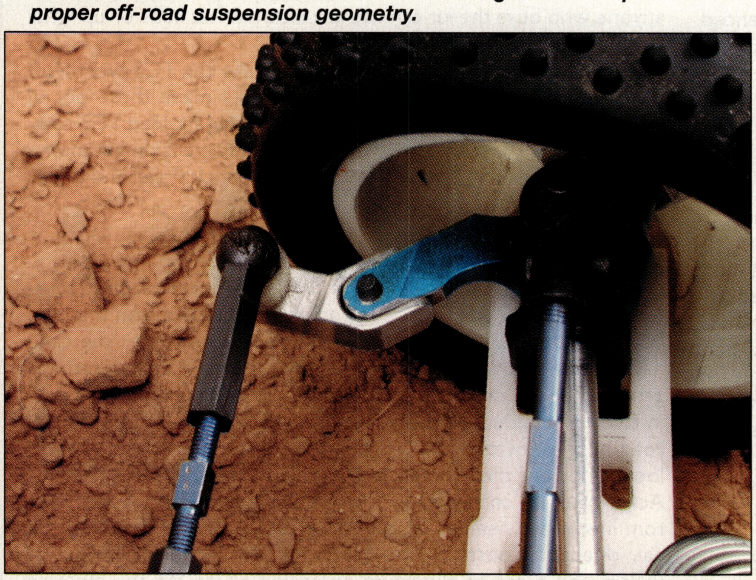
Home-Built TC3-O



The key to the TC3-O's performance is this front-end extension. Not only does it lengthen the car's wheelbase, but it also provides some much-needed front kick-up.



Although the stock TC3 shock towers are retained, custom titanium tower extension are "sistered" to the existing towers to provide the proper off-road suspension geometry.



For greater leverage against the larger off-road tires, Dan created these extensions for the stock TC3's steering spindles.

DRIVETRAIN

To answer the first question most people ask: no, I didn't add a slipper clutch. Why? Because there is very limited space with the stock chassis, and I didn't feel that the benefits of a slipper would outweigh the expense of a custom-made chassis. In discussions with a lot of 4WD mod racers, both locally and on the internet, I have found that most of them lock-out their slippers anyway. As for durability; I have never had any type of drivetrain failure during three years of hard running with this car. The diffs are actually the original ones that came with the car, which I bought used from an A-main modified carpet racer. At the time, the diffs had already had one full season on them. They have never been rebuilt, and their adjustment has only been checked once or twice. I am performing a durability test, or maybe I'm just lazy!

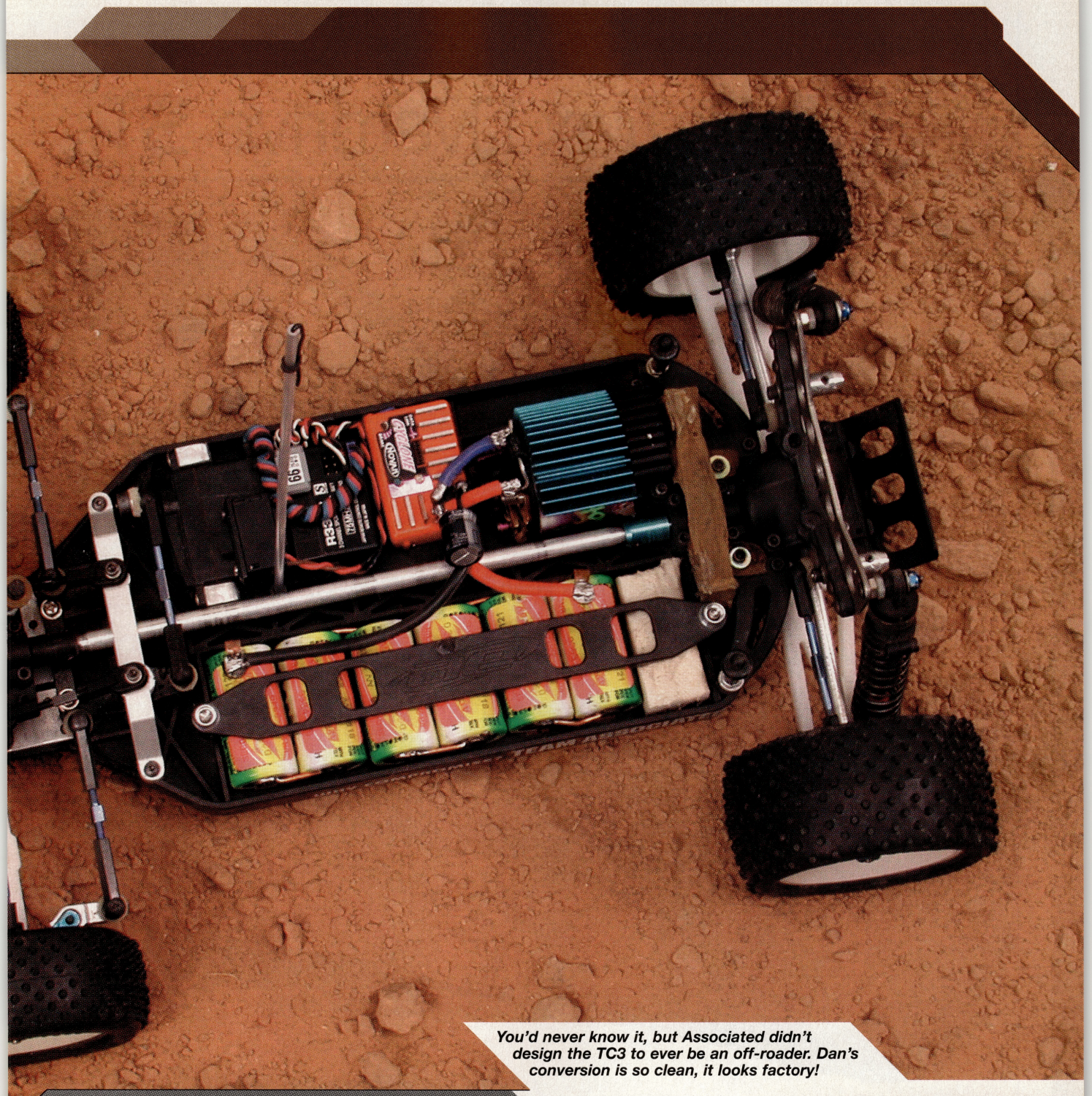
As both the wheelbase and width have been extended, I had to create a longer center driveshaft (which I machined out of aluminum). I also had to create longer CVD shafts out of aluminum. As you can see from the photos, I made them a little thicker than normal to help them to resist bending.



HOW DOES IT WORK?

So far, I love the way my TC3-O drives. It's very responsive and it handles very well, although it's a bit nose-heavy; but this can be corrected by learning how to control the car in the air. I am working on removing more weight from the front of the car. Even though I've had very little experience with mod motors, and absolutely no experience with a 4WD buggy prior to this project—especially a one-off buggy like this, where I didn't even know where to begin as far as gearing and setup—I still did OK. I was third overall in points during this past winter, which is not bad at all.

Now that the TC3-O project is nearly finished, I have a couple of other ideas in the works. One of them is a shortened aluminum chassis for the original "tub" RC10. For all of you who still have your original RC10s and RC10Ts laying around, there may soon be a wheelie chassis available. All of the stock components fit the new chassis, and it runs great! Even with a stock motor and the truck suspension, it is a wheelie monster!



You'd never know it, but Associated didn't design the TC3 to ever be an off-roader. Dan's conversion is so clean, it looks factory!

PSSST! WANT YOUR OWN TC3-O?

Once I had the first prototype of the TC3-O up and running, I posted photos of it on the internet. The response has been unbelievable—everybody wants one! So for the past few months, I have been working to finalize all of the dimensions for the conversion, and I'm getting quotes right now from machine shops on producing a commercial version of the kit.

The only differences between the prototype that you see here and the production version will be that the shock-tower extensions will be thicker and made from aluminum instead of titanium (this will keep the cost down), and the CVDs will likely be made from tool steel instead of from aluminum. The aluminum driveshafts are lighter, but I have noticed that the drive pins do wear the shafts over time. The steel shafts will be virtually bulletproof, but I may offer the lightweight aluminum shafts as an option.

The majority of the conversion will be a bolt-on modification. The only actual modifications you need to make to a stock TC3 will be to add a couple of holes in the front of the stock chassis (to mount the extension plate) and to remove a little material in the rear of the chassis to allow for the full extension of the rear arms. As for bodies: both the Yokomo MX-4 body and the Schumacher Cat body will fit. I prefer the Schumacher because it allows for more airflow and for the use of a motor heatsink. The first car used Losi 4WD wheels, but I later made aluminum hex-adapters that fit Schumacher wheels, as they have a larger hex for more support and stability.



DuraTrax Overdrive ST





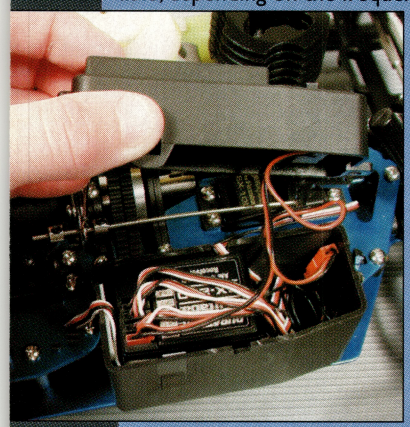
The folks at DuraTrax must love coming up with new ways to create nitro trucks. From the 1/10-scale 2WD Maximum series all the way up to the goliath 1/8-scale 4WD Thunder Quake, DuraTrax has perhaps the most extensive lineup of off-road monsters in the business. The newest member of the family is the Overdrive, which at first looks like just another nitro-powered off-roader. But when you look more closely, you'll see that the Overdrive is packed with features—some you'll find on other trucks, some that would be options on many other trucks, and a few that are unique to DuraTrax. We would describe the Overdrive as a stadium-sized nitro truck with 4WD, 2.2-inch race-truck-sized tires, a two-speed and a reversing gearbox. That's a lot of stuff packed into one vehicle, but DuraTrax managed somehow to pull it off. We'll see if they were really successful.

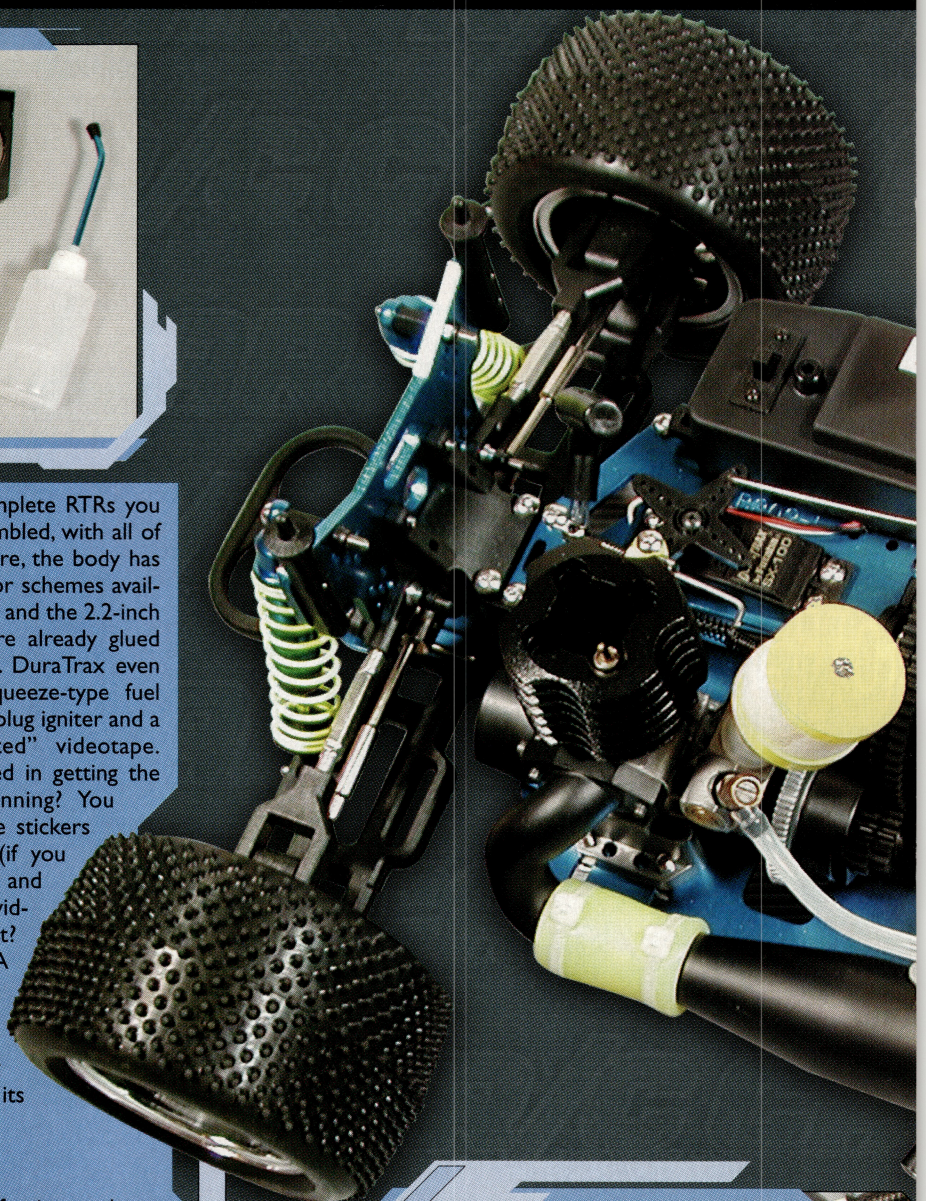
COMES EARLY



READY-TO-RUN DEFINED

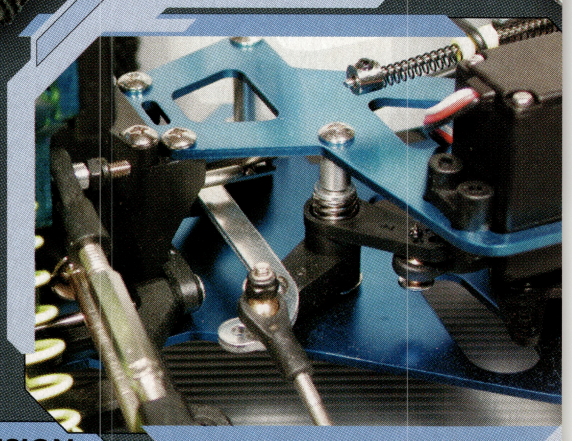
The Overdrive ST is one of the most complete RTRs you will find. The truck's chassis arrives fully assembled, with all of the radio equipment pre-installed. What's more, the body has been painted and trimmed (there are six color schemes available, depending on the frequency of the truck) and the 2.2-inch spiked tires are already glued to the wheels. DuraTrax even provides a squeeze-type fuel bottle, a glow-plug igniter and a "getting started" videotape. What's involved in getting the Overdrive running? You must apply the stickers to the body (if you elect to do so) and install the provided (get that? Provided!) AA cells into the radio (the four AA cells for the receiver are already in place). The only thing you have to buy is fuel which, because of its volatility, cannot be shipped with the truck.

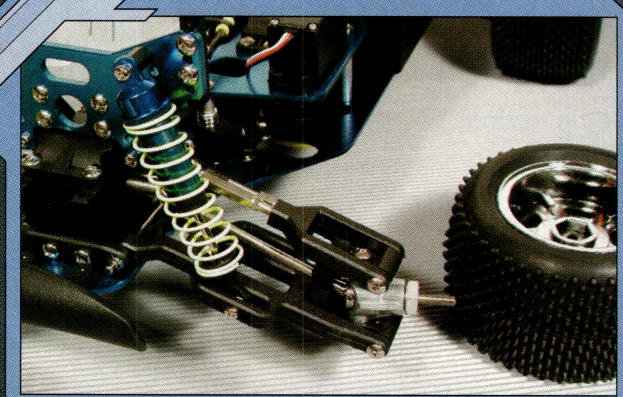




CHASSIS

DuraTrax apparently loves to coin names for its products. Want an example? Just read on. The Overdrive ST's backbone is its 3mm-thick Rigi-Frame (see what we mean?) chassis, which is made from blue-anodized 6061 T6 aluminum. There's also an upper deck made from the same material (although it's a little thinner), which spans from the front gearbox to the rear, adding stiffness to the chassis. Along with a large molded box (which holds the receiver and its battery), the upper deck also serves as a foundation for the Overdrive's three servos.





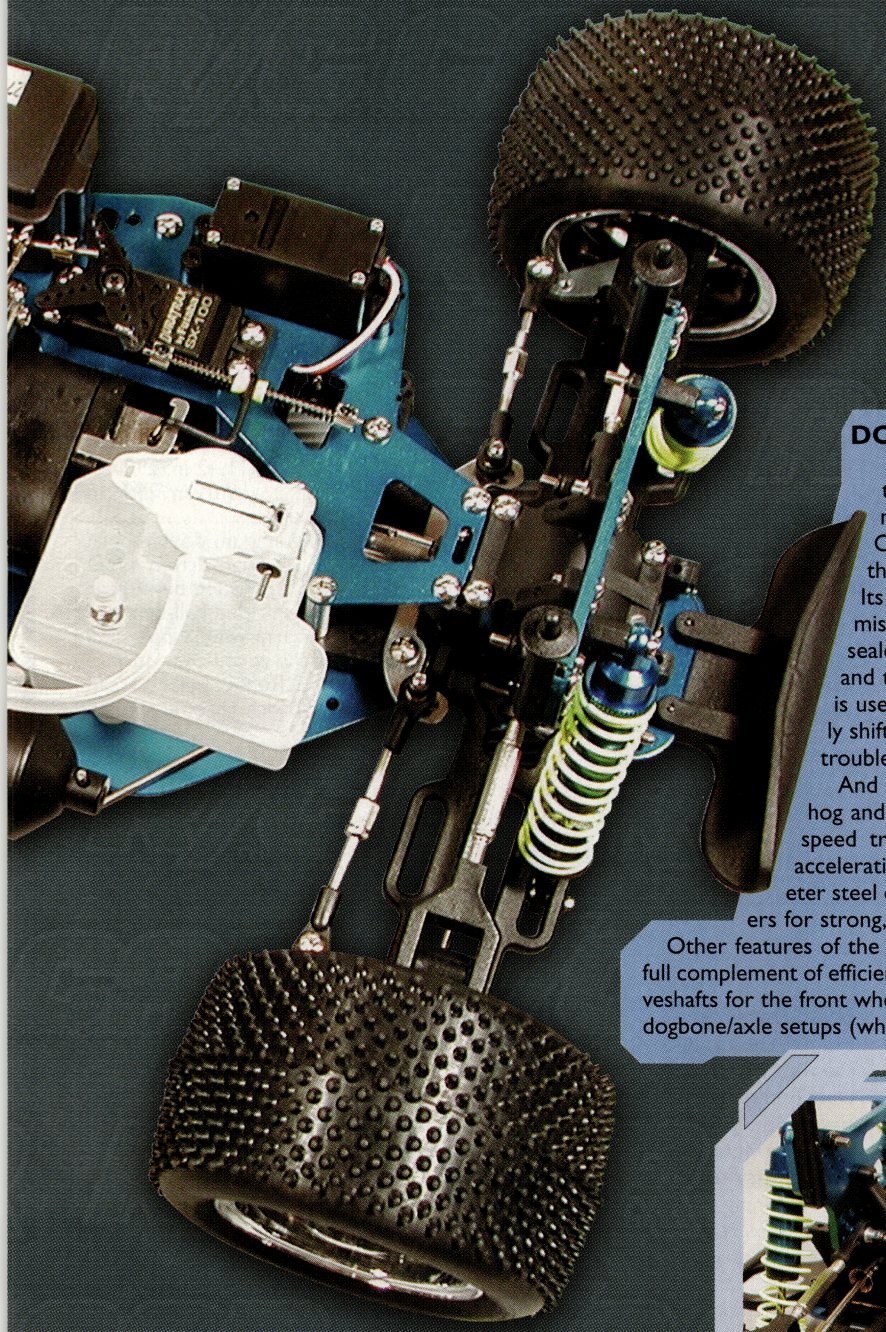
SUSPENSION

The Overdrive's Stress-Tech (here we go again!) suspension components are molded from an ultra-tough nylon composite, which offers a good blending of stiffness with flexibility. Each corner of the truck is suspended by a long-travel lower arm with a steel turnbuckle (a Rapid-Tune turnbuckle, no less) for easy adjustment of the truck's camber angle. The weight of the truck rests on a set of large-volume Rapid-Tune oil-filled shocks. The shocks on the Overdrive are blue-anodized aluminum, and they feature threaded adjusters for the springs' preload (which allows you to quickly set the truck's ride-height).

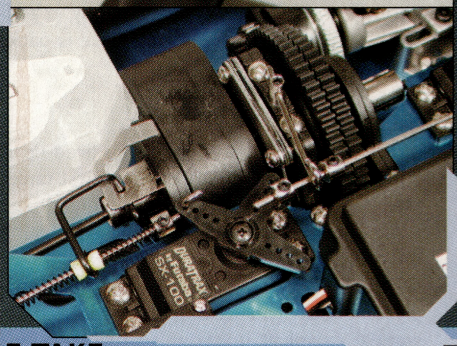
DuraTrax Overdrive ST

OUTSTANDING FEATURES

OUTSTANDING FEATURES





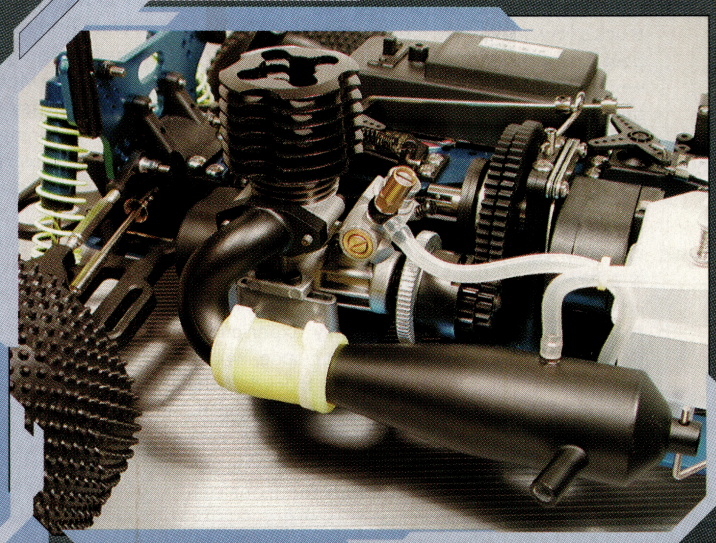


DOUBLE-TAKE

Besides the fact that they are messy and noisy (are those bad things?), the only complaint one could make about nitro vehicles is that they can't back up. Or can they? More and more nitro trucks now have the ability to reverse, and the Overdrive is the latest. Its Double Shift 2SR (trademark, copyright, etc.) transmission has two distinct sets of internal gears in its sealed gearbox, with one set designated for forward, and the other for reverse. A toggle-switch on the radio is used to trigger the truck's third servo, which smoothly shifts the tranny into reverse, allowing it to back out of trouble.

And if that weren't enough, DuraTrax has gone whole-hog and has endowed the Overdrive with a separate two-speed transmission for the best of both worlds—better acceleration and higher top-speed. There's also a large-diameter steel disc-brake setup, which has steel pads with fiber liners for strong, fade-free stopping power.

Other features of the Overdrive's shaft-driven 4WD drivetrain include a full complement of efficient ball bearings (20 in all) and universal-type CV driveshafts for the front wheels. These are much more efficient than the typical dogbone/axle setups (which are still used for the rear wheels).



HIGH VELOCITY

The heart of the Overdrive is its Velocity .17 engine, with true ABC construction (this means that the engine has an aluminum piston with a long-lasting chrome-plated brass cylinder liner), a twin-needle carb, an oversized black-anodized cooling head and a ball bearing supported crankshaft. The engine looks like a more-expensive racing mill, and with its twin-needle carb, the Overdrive can be tuned to provide substantial low-end power as well as high-speed rpm. A handy recoil-type pull-starter is used to crank the engine.

DuraTrax Overdrive ST



REPORT CARD

Test location: SVM speedway, Sun Valley, California

Test conditions: dry and hard-packed off-road course. Very bumpy and with several large jumps

Completeness: A+

If there were a higher score for this category, the Overdrive ST would have received it. If you are looking for the easiest way to get into nitro off-road, the Overdrive deserves your consideration. The only thing you have to buy, in addition to the truck, is fuel. Everything else is packaged inside the box.

Starting up: C+

Initially, the Velocity .17 engine fired-up easily and idled contentedly through its first tankful of fuel. Subsequent runs yielded mixed results. After breaking-in the engine in the morning, we encountered some trouble getting the Overdrive to run properly for the afternoon photo shoot. The carb settings needed a substantial re-adjust in order to make the engine run properly. Our advice is take your time during break-in; the longer the break-in period, the easier it will be to tune the engine (plus it will make more power if broken in properly).

Acceleration and speed: A

We knew that the larger .17 engine would make some good power, but we were a bit unprepared for just how fast the Overdrive was. Even without the two-speed (which didn't shift until we loosened its factory setting), the Overdrive was ballistic in first gear. When we got the truck to shift, it became almost scary-fast. And with the ability to tune the engine for acceleration (via the carb's low-speed needle), the Overdrive has plenty of grunt down low.

Overall handling: B–

Straight-up: the Overdrive isn't going to win you any trophies at the local off-road track. But racing isn't this truck's forte; it's designed for the backyard basher or the casual racer. In this light, the Overdrive delivers competent handling. Its steering is quite nimble (partly due to the truck's low stance and smaller tires), and its suspension, although under-damped (thicker oil would fix this), provides stable tracking over bumpy terrain.

Durability: C

Before you DuraTrax loyalists get up-in-arms, let us qualify this rating. Overall, the Overdrive is a very durable truck, but what hurt its rating is a flaw in its design. Namely, rear suspension arms that have too much droop and allow the rear axles to be ejected. We only experienced the problem with the right-rear axle, which pretty much fell out any time the truck left the ground with its engine running. Our simple fix was to install travel-limiters inside the rear shocks to reduce the amount of droop. We didn't experience this problem with the front suspension, which has universal driveshafts.

SPECS

Price:	available at $349.99
Length:	18 in./460mm
Width:	12.2 in./310mm
Wheelbase:	11.42 in./290mm
Track (F/R):	9.84 in./250mm
Weight:	lb.
Chassis:	Aluminum double-deck
Drivetrain:	Shaft-driven 4WD
Diffs:	Sealed bevel-gear
Bearings:	Metal-shielded ball-bearings
Suspension:	Ind. lower arm w/adj. upper link
Damping:	Aluminum oil-filled shocks w/coil-over springs
Tires:	Rubber spiked tread
Wheels:	2.2-inch chrome spoked

Accessories included:

DuraTrax Velocity .17 engine, Futaba/DuraTrax three-channel pistol radio, painted and trimmed truck body, glow-plug igniter, fuel bottle, AA batteries for radio, C-size battery for igniter

Accessories you'll need:

Nitro fuel

Final Score

Highs: The most complete RTR package on the market today; aside from fuel, there's nothing left to buy. Overall, the Overdrive is a tough customer, and DuraTrax's Stress Tech parts warranty provides free replacements if you break a suspension part (for up to one year). The third-channel shifting mechanism works flawlessly; although the toggle switch is rather awkward (in its positioning), it's easy to use.

Lows: Tuning the engine was a little troublesome at first; the carb settings didn't seem to remain constant. After break-in, however, things got better. The rear arms have too much droop, and allow the rear driveshafts to fall out.

The verdict: For a comparatively reasonable price, the Overdrive ST provides a good blending of all the features that monster-truckers have come to expect: nitro power, two speeds and reverse. As a package, the Overdrive is a little smaller than some of today's most popular trucks, but this slightly diminutive stature translates into handling that's more nimble, combined with the speed and acceleration of a racing truck. Do yourself a favor and check out the Overdrive before you buy a sport-level, RTR nitro truck.

SOURCES

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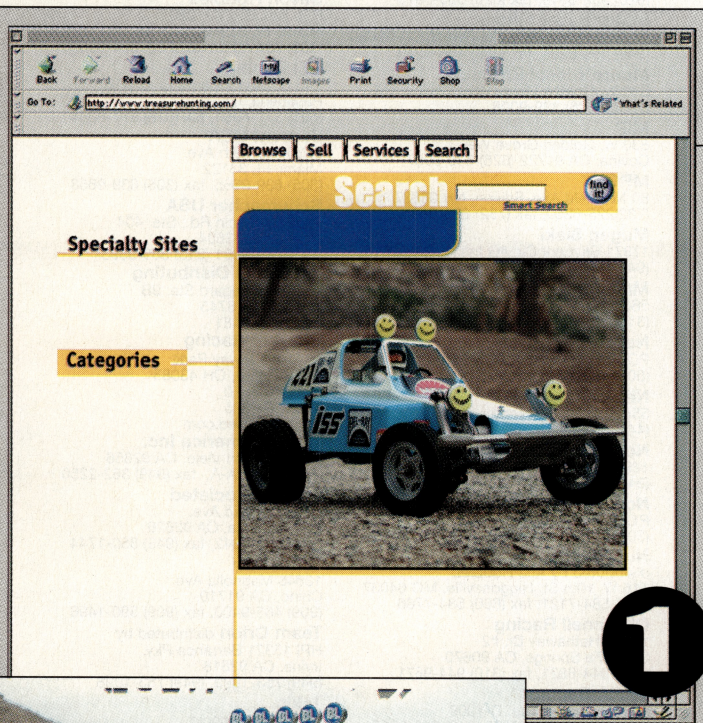
TREASURE

Finding that R/C treasure on-line!

By Richard Trujillo

Those of you who have read my "Vintage R/C" column will know that I have made another great find on eBay. EBay is probably my favorite place on the web (next to *www.teamlosi.com* and *www.rc-car.com*—shameless plug). EBay is like a huge garage sale in the comfort of your own home. It's open 24-hours a day, seven days a week. For me, what is the most fun is being able to bid and try to out-bid others who want the same item that you want. In this article, I'm hoping to give you some tips and info on how to enjoy the eBay experience.





REGISTERING

Before you begin to search on eBay, I would suggest that you sign up first. You don't want to find something that you want, realize that you have to register, and then have the auction close before you can even bid. It's actually a pretty simple process and anyone over 18 with a credit card can sign up (eBay requires that you sign up with a credit card to confirm your identity).

Buying on eBay is free, and they never charge your credit card. The only time they will charge your credit card is when you begin to sell. I'll explain selling in a future article. To register, simply go to *www.eBay.com*, click on the link "new users." This link will take you through three steps. The first is to register all your info, e-mail address, name, home address and contact info. Once you have filled that out, they will send you an e-mail to continue the process.

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Each eBay user has his own personal user i.d. When you choose one, make it something you can easily remember, and personalize if you'd like. EBay gives you the option of using your e-mail address as your user i.d. The only bad part about doing that is that anytime you bid on something, other users will know your e-mail address, and who knows what some people will do with that info. I would suggest that you make a user i.d. that does not include your e-mail address. The only time someone will have access to your e-mail address is if you are the winning bidder on an auction. At that point the seller will have access to your e-mail address to contact you about winning.

HUNTING



SEARCHING

There are several ways to search for items on eBay. You can go to the "browse" link to view some new items listed in many different categories. Since most of you will be searching for R/C car stuff, I would recommend using the"search by title" link. Basically, type in a word that would be used to describe what you are looking for. If you own a T-Maxx and you are looking for some aftermarket parts, type in "T-Maxx" in the search box and hit the "enter" button. This type of search will bring up every auction that has T-Maxx in the title. If you are looking for a specific part, there is a small check box next to the search window that shows "search by title and description." This option will search every item listed and pull up every auction that has T-Maxx in the title as well as the description.

When I search for old Tamiya parts, I will type in "vintage Tamiya" or "old Tamiya." Sometimes sellers are not quite sure what they have, so they will list the auction as an "old Tamiya part." This has come in handy quite a few times. Play around with different ways of searching for the items you might be looking for—you'll be surprised at how some sellers list their auctions.

PREPARING TO BID

Once you have found an item that you want, there are a couple things you can do. First, if it is a newly listed item, some sellers will add the "Buy it now" option. This allows you to end the auction early by agreeing to pay the seller's final price, or what he'll settle for. Be careful before you choose this option. Sometimes it will be an inflated price that if the seller can get, he'll take it. Other times the seller may not really know what they have and it can be a great price. At that point you definitely want to choose the buy-it-now option!

The next thing you will want to do is check the pictures and description for the auction you are looking at. Read all the details and look carefully at the item. If you have any questions, click on the user's i.d. and you will be able to send them an e-mail with your questions. Since you are a prospective buyer, most sellers are happy to answer any questions you may have relating to the auction.

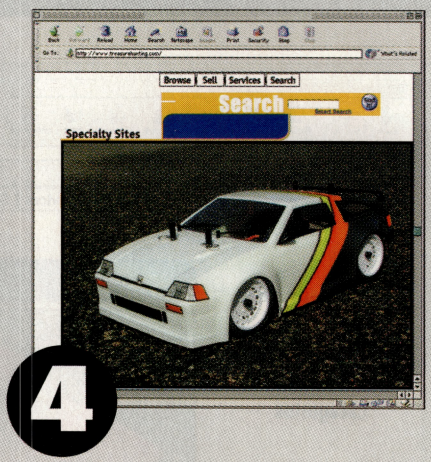
Next, you'll want to check the seller's feedback rating. Next to the seller's user i.d., there will be a number. This number signifies the number of "positive" feedbacks that the user has. By clicking on the number, you will be able to view comments from others that have purchased or sold to the person you are considering buying from. Every person who wins an auction will have the opportunity to leave feedback on the seller. The seller will also be able to leave feedback on the buyer. For myself, a seller's feedback is the most important thing when I decide whether or not I will bid on an auction. If the seller has numerous "negative" feedbacks, then he or she is probably not a reliable person to deal with.

Finally, you'll want to read the seller's terms for shipping and payment. Before you bid, make sure you understand the shipping costs and the forms of payments the seller accepts. If the seller does not list the type of payments or shipping costs, e-mail him or her before you bid.



TREASURE HUNTING

BIDDING



4

Now comes the fun part—bidding. There are couple ways to go about bidding. One way is to find the item you like, figure out what you are willing to pay for it, and bid that amount. eBay uses a proxy bid type format. Proxy bidding means that a bidder can submit a maximum bid amount and the eBay system will bid in your absence, placing your bid for you and trying to keep the bid price as low as possible. This way you don't have to monitor the auction every minute.

The other way is to use the "sniper" approach. A sniper is someone who will literally wait until the last second to bid on an auction in hopes of beating out all the other bidders. Now if you are going to attempt being a sniper, be sure that you are content with what you are willing to spend and not regret your bid if you lose. To be a sniper, simply have your bid amount entered in the bid amount box, and try and time it, so that when you hit that "submit bid," you'll be the last one to bid and hopefully have the high bid.

A helpful way to keep an eye on auctions is to use the "watch this item" option on the auction listing. By clicking the link, it will send a link to your "My eBay" page. On this page you will be able to monitor all the auctions you have bid on, which ones you have won, how much all your auctions will cost you, and auctions that you are monitoring.

When you enter a bid amount, always add a few cents to the amount. For example, I won an auction at the last second for $98.07; the second highest bid was $98.00. If the other bidder had bid $98.08, he would have won the auction. Sometimes those extra pennies can mean the difference between winning and losing an auction.

SETTLING UP



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Now you have won your first auction. You'll need to contact the seller. When an auction closes and you are the winner, eBay will notify the seller and buyer with contact information and the specifics of the auction. At this time, you can use the e-mail address provided to contact the seller. Basically send the seller a note saying that you're the high bidder, give him or her your shipping address, and ask for a total amount and where to mail it.

Most sellers prefer money orders. Some will accept personal checks, but checks take at least two weeks to clear before the seller will ship your item. A lot of sellers will also accept on-line payments. A couple of the popular are PayPal, BillPoint and BidPay. All are very good services, but the most popular is PayPal. Using your credit card or checking account, you can send money instantly.

As a courtesy to the seller, you should e-mail a little note letting them know when you sent payment. Most sellers require that they receive payment within ten days. Make sure you pay promptly and usually a seller will ship within two days of receiving payment. Once your package arrives, make sure that it is the item that you won and it is as it appeared in the auction. If you're not satisfied, most sellers will be happy to work something out. If you send an e-mail in a mature and business-like fashion, you're bound to get a decent response. But if you send that nasty letter saying that they ripped you off, you might not get too much help. I have made over 400 eBay transactions and (knock on wood) luckily I have only been ripped-off once. If this happens to you, got to eBay's "Safe Harbor" and they will provide you with several steps on how to get your money back. If you do your research on your seller and he has excellent feedback, then you probably have nothing to worry about.

FEEDBACK



6

This is probably one of the most important things when completing an eBay transaction. Other buyers and sellers will judge you by your feedback rating. If you are happy with your purchase and shipping was quick, let other buyers know this by leaving your seller positive feedback. You can do this by clicking on the "services" link at the top of the page, and by clicking on the "leave feedback" link. Log-on and eBay will pull up a page with a place to submit you feedback. There are three choices:

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After you leave your feedback for the seller, they will usually do the same for you, if you don't receive it within a week of leaving your feedback for the seller, e-mail them and remind them to leave it for you.

Buying on eBay can be a great and fun experience; just be sure to do your homework and spend sensibly. Next month we will talk about selling that stuff that you have sitting around. Remember, "One man's junk is another man's treasure."

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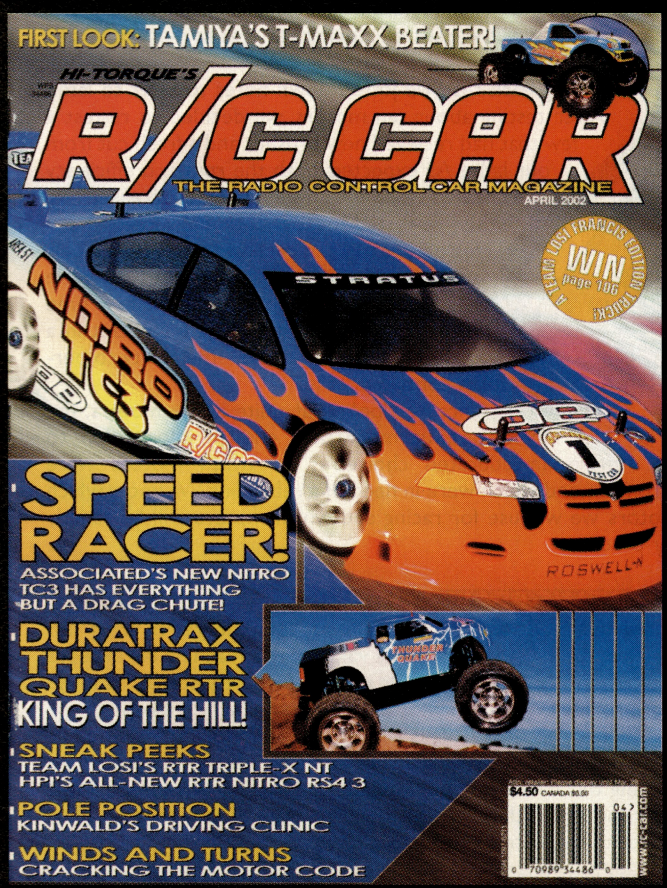



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Integy INDI Dyno Pro

An affordable motor tester for the average racer

Motors are a key ingredient to the recipe of success. Racers are always looking for the edge over their competitors.

"I wonder what motor I should use for my main?"
"If I gear up, I hope I won't dump."

These comments and many others like them are the reasons why we tested this relatively inexpensive new motor dyno from Integy. With the INDI Dyno Pro, racers of all skill levels can test their motors in several crucial categories. And with high-end motor dynos costing upwards of $500 or more, a more cost-effective alternative for the average racer is a welcome sight.



Integy INDI Dyno Pro
Part no.: E2009
Retail price: $129.99

FEATURES

The INDI Dyno Pro is lightweight and compact and will fit just about anywhere. Its simple design utilizes two buttons and an output voltage knob. By pressing the top button, the user can view four different screens while testing a motor. The first of the four screens is the output voltage, or the amount of voltage given to the motor. The voltage can easily be adjusted by turning the knob to the desired amount. The second screen displays how many amps the motor is drawing. The third screen, which may be the most important, is the rpm the motor is turning. Lastly, the condition mode appears and displays the motor's efficiency.

Before any testing can begin, the provided magnetic coupler must be attached to the motor. Then the test motor has to be secured in place with three thumb screws. With the larger alligator clips attached to a 12-volt power supply, and the smaller clips attached to the motor, the dyno is ready for action. With a simple touch of the lower start/stop button, the desired voltage is given to the test motor and evaluating results can begin.

TEST RESULTS

Honestly, we were not too optimistic when we started testing. The dyno is rather simple, and as it's only a fraction of the cost of most dynos, we weren't expecting too much. To our surprise, the INDI Pro performed really well and the results were very helpful. Many of the motors we tested were old and needed some work. We tested stockers as well as many low-turn modifieds.

During each test, we jotted down notes to refer to later. After testing about ten motors, we decided to re-test a few that had received new brushes and a fresh cut from our lathe. As expected, both the rpm and efficiency increased while the amp draw had decreased. We then re-tested motors that had already been tested but had not received any changes. This is when we were shocked; the results were exactly the same as they were the first time we tested. This is what's most important in a tool such as the Dyno Pro—the ability to perform consistent tests.

Since we looked at quite a few motors, the dyno gave us more than enough information to make an educated choice as to which motors were strongest, and which were in need of a rebuilding. We know which motors we will use for racing and which motors will be strictly for practice.

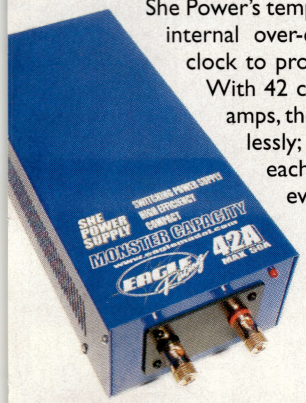
WHAT WE REALLY THINK

Integy's INDI Dyno Pro will join our "don't forget to bring" list for each time we go racing. The value of this machine far exceeds the cost involved in purchasing it. With four easy-to-read displays that provide a wealth of information, guessing which motor to use is no longer an issue. This is a must-have item for racers who like to have the edge over their competitors. The only negative to owning this dyno is that all of your buddies will want you to test their motors. If they race in the same class as you, then you had better think twice before you say yes!

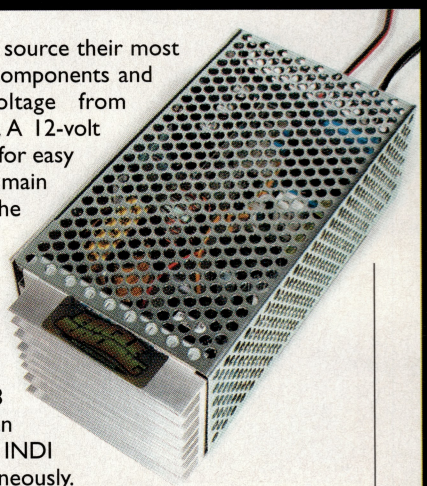
POWERFUL ALLIES

During our test of the INDI Dyno Pro, we had the opportunity to try out two of Integy's new power supplies, the monster capacity 42 amp She Power Supply and the 18 amp compact Power Supply.

The bright blue She Power (wasn't she He-Man's counterpart?) weighs 4.9 pounds, which is rather light considering its capabilities. Oversized gold-plated terminals are installed for easy and efficient connections. An internal cooling fan keeps the She Power's temperature extremely low while in use. The internal over-current protection works around the clock to protect the internals from excessive draw. With 42 continuous amps and a peak surge of 54 amps, the strong She Power Supply worked flawlessly; it easily handled the current draw of each of our test motors, and did not get even slightly warm.



The compact 18 amp Power Supply weighs less than three pounds, and is a little easier to carry to the track. Integy considers this power source their most versatile. It has solid state components and an adjustable output voltage from between nine to 13.5 volts. A 12-volt charger terminal is supplied for easy connection away from the main unit. Heat-sinks surround the internal components to ensure that things stay cool during operation. Like its big sibling, the 18-amp power supply has an internal over-current protection system. The continuous 18 amps provided more than enough power to run the INDI Dyno and a charger simultaneously.



Part nos.: 1468 (She Power Supply); 00528 (18-amp Power Supply)

Retail prices: $239.00; $159.99

SOURCES

Integy Technologies, Inc., 1140 Centre Dr. #E, City of Industry, CA 91789 • phone (909) 444-2766; fax (909) 627-4132

NEW ERA MODELS

1/10 SCALE www.NewEraModels.com
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HOT HOT HOT

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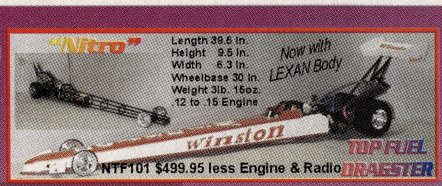
MICRO RS4 PARTS & UPGRADES IN STOCK









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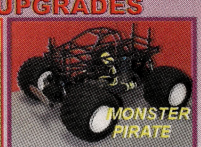
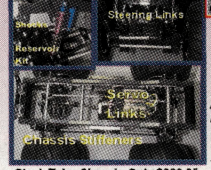
1/10 SCALE UPGRADES







Upper Steel Tube Chassis for OFNA Monster PIRATE $169.95



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Call for Other Upgrades



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Nitro Rustler and Stampede CNC Aluminum Upgrades

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TRS333 Rear Control Arms	pr. $34.00
TRS402 Rear Arm Mounts	pr. $23.50
TRS430 Front Shock Tower	$23.50
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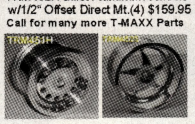
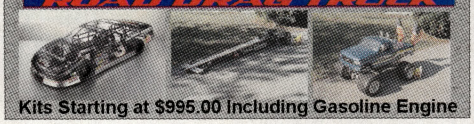
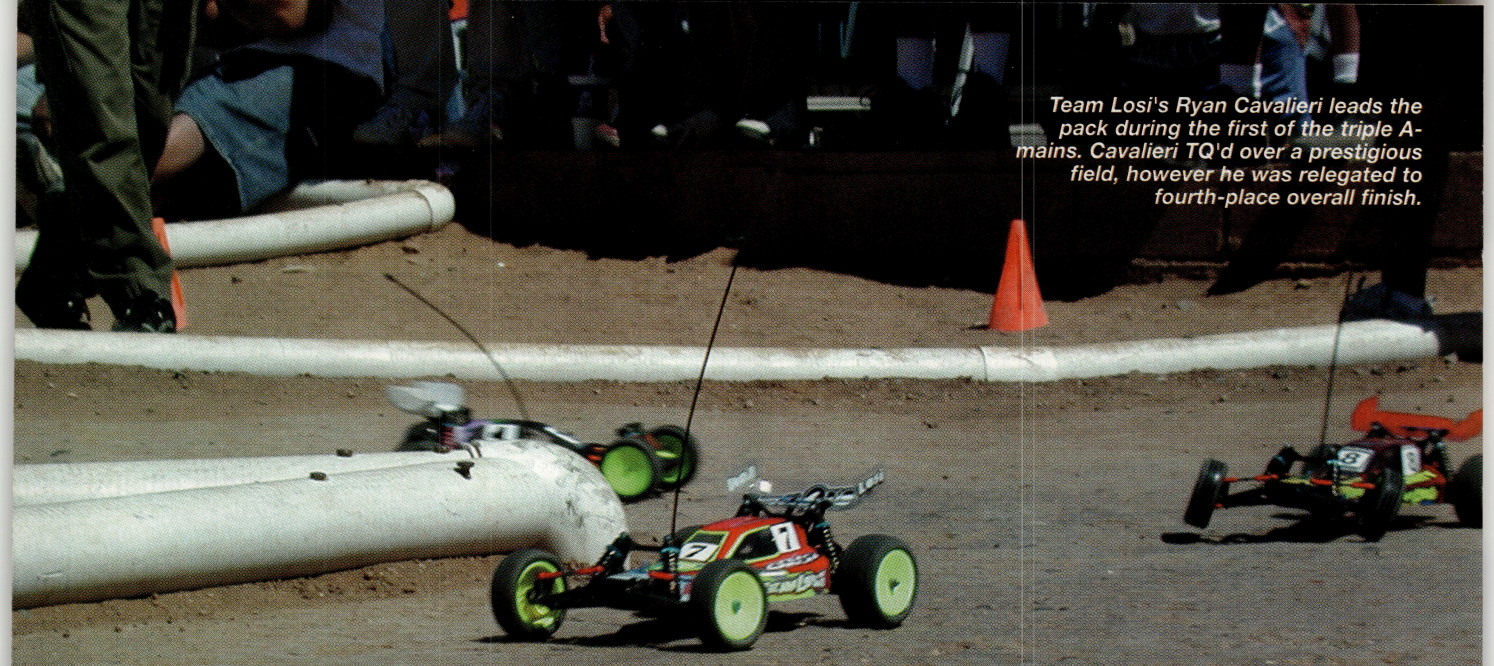


1/4 SCALE www.NEMScaleCars.com
ROAD DRAG TRUCK





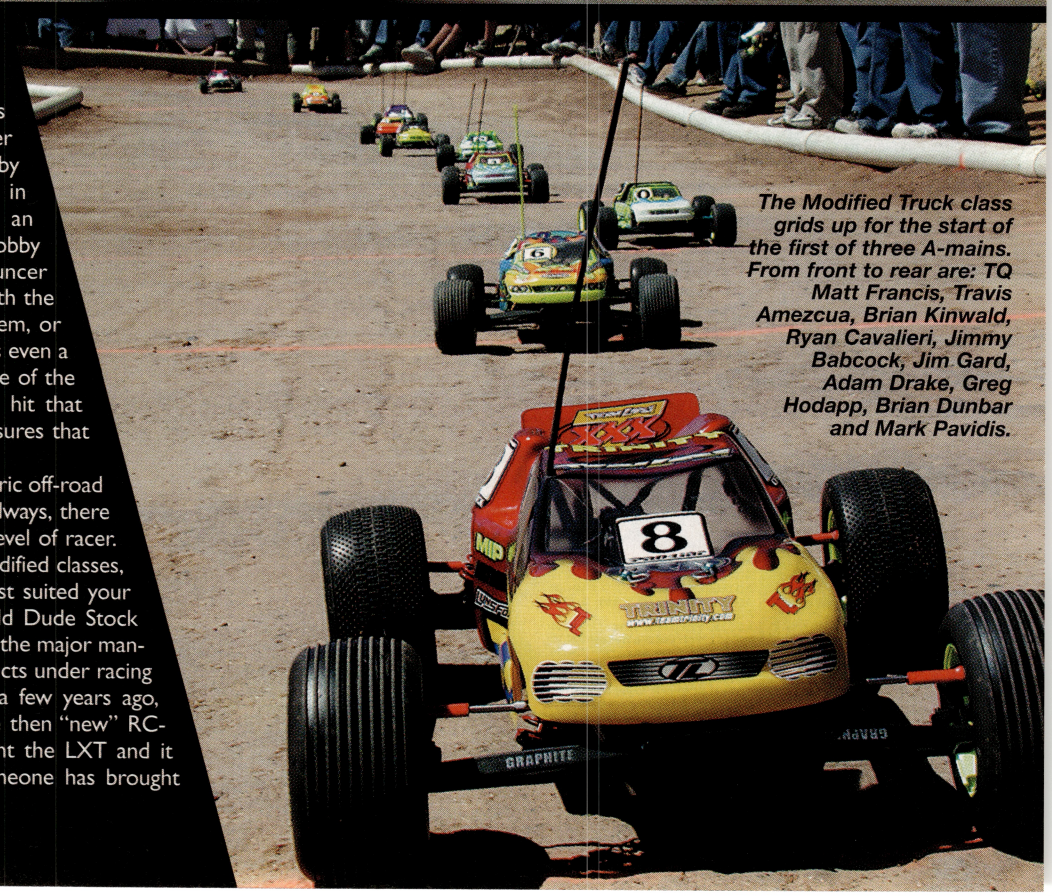
Team Losi's Ryan Cavalieri leads the pack during the first of the triple A-mains. Cavalieri TQ'd over a prestigious field, however he was relegated to fourth-place overall finish.

the 16th annual pro-line cactus classic

Losi makes a clean sweep!

March 15th-17th 2002: The Cactus Classic has become one of the largest off-road races on the west side of the county. This year was no exception, with over 400 entries! The race, hosted by Scottsdale R/C Speedway in Scottsdale, Arizona, provided an atmosphere of just plain fun. Hobby shop manager and race announcer Scott Anfinson has a lot of fun with the racers by poking jokes about them, or just telling some bad jokes. There's even a cowbell attached to a pipe on one of the corners on the track, and if you hit that board, the clanking of the bell ensures that the entire track knows it!

There were eight different electric off-road classes to choose from, and as always, there was a little something for every level of racer. From sportsman stock, to the modified classes, you could find something that best suited your skill level. There was even an "Old Dude Stock Truck" class! In years past, a lot of the major manufacturers liked to test new products under racing conditions at the Cactus. Quite a few years ago, Team Associated brought out the then "new" RC-10T. Soon after, Team Losi brought the LXT and it seems that every year since, someone has brought something new to try.



The Modified Truck class grids up for the start of the first of three A-mains. From front to rear are: TQ Matt Francis, Travis Amezcua, Brian Kinwald, Ryan Cavalieri, Jimmy Babcock, Jim Gard, Adam Drake, Greg Hodapp, Brian Dunbar and Mark Pavidis.



Everyone agreed that the SRS track in Scottsdale, Arizona, was an awesome layout.



Matt Francis scored big at the Cactus, winning both the 2WD Modified and Truck Modified classes with his Trinity-powered Team Losi vehicles.

The mod truck B-main drivers all voted to have a "supercross" style start with all 10 trucks starting abreast. Chaos ensued. That's Rick Hohwart on his side and Lloyd Dassonville up on the pipe. Todd "Hodgimoto" Hodge (center) is the only truck to get away cleanly. Scott Brown played it smart and waited until everyone else crashed!



Matt Francis' Losi Triple-X soars over the triples on its way to the overall win in the highly competitive 2WD Modified class.



The 2WD Modified A-main takes over the drivers' stand.

the 16th annual Pro-Line Cactus Classic



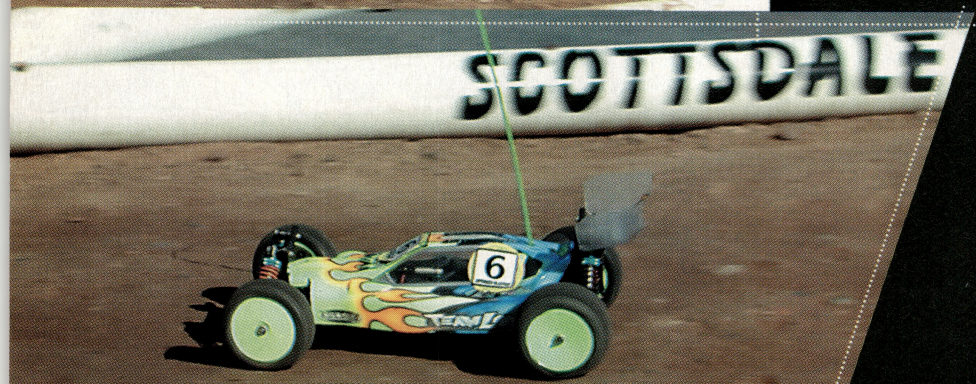
Local hero Lars Johnson impressed everyone with his A-main performance. He may have finished 10th, but he had the most fans.



Team Losi dragged out "sedan guy" Greg Hodapp, who hasn't race off-road in a long while. Ironic, as Hodapp used to be dominant at the Cactus, winning the 2WD class for several years in a row.



When Mark Pavidis is 60-years-old and retired, he'll still be faster than the rest of us! Mark is always a threat whenever he races. Although he had to really work to finish fifth in the truck class, he showed glimpses of the speed that carried him to a world championship.



This year, Pro-Line brought out some new tires for the blue groove track, and rumor had it that Team Associated brought out a prototype B4 buggy for a shakedown run.

The racing was pretty intense, with most races coming down to the last of the triple A-mains. In fact, in qualifying, most of the top ten drivers were only four seconds apart over the entire four rounds of qualifying! In the end, Team Losi dominated the event by winning every class. Team Losi's Matt Francis won both 2WD and Truck Modified, while Travis Amezcua won the 4WD Modified class.

SRS and Pro-Line put on an awesome event with great raffle prizes, awesome racing conditions, and just good ol' fun. Make sure to mark the 17th annual Cactus Classic on your calendar for next year! For now, we'll let the pictures do the talking.



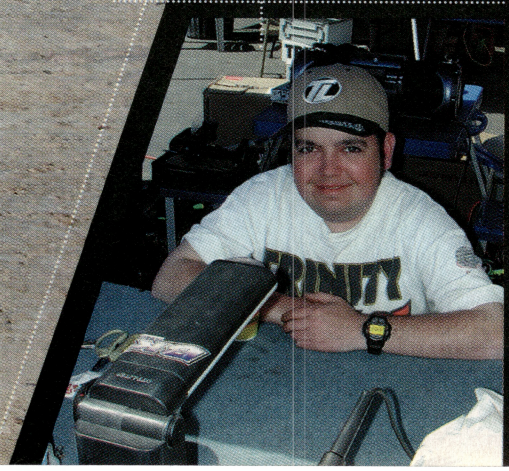
Concours winner Perry "not nearly as fast as my son" Maifield's Associated T3.

Travis "Peanut" Amezcua's 4WD Modified-winning Losi Double-X4.



The concours competition is always a big part of the Cactus, and this year's was no exception. Look carefully at this entrant; note the live tarantula inside the truck's cab! And no, the truck's owner was not required to run this way!





Dedication: Brian Kinwald seemed to struggle a bit with his setups this year, so he spent every waking moment at the track - and we mean literally! Kinwald didn't leave the track for four days; he even refused to go back to the hotel, choosing instead to sleep in his Blazer.

RESULTS

2WD MOD

Q	F	Name	Vehicle	Front Tires	Rear Tires	Speedo	Motor/Wind	Battery
2	1	Matt Francis	XXX KE	Wide Body	Taper	LRP	Trinity 12x2	Trinity
5	2	Brian Kinwald	XXX KE	Wide Body	BK Bar	Novak	Trinity 12x2	Trinity
3	3	Jim Gard	XXX KE	Wide Body	Tape	rLRP	Orion 12x2	Pro Match
1	4	Ryan Cavalieri	XXX KE	Taper	BK Bar	Novak	Orion 13x2	Orion
7	5	Brian Dunbar	XXX KE	Wide Body	Taper	LRP	Fantom 12x2	SMC

2WD STOCK

2	1	Michael Cometti	XXX	Wide Body	Taper	Novak	P2K2	Peak
4	2	Adrian Redding	XXX	Wide body	Taper	Novak	N/A	Nuclear Power
1	3	Chris Wilde	XXX	Wide Body	BK Bars	LRP	P2K2	Pro Match
5	4	Ed Hoffman	XXX	Wide Body	X-2000	LRP	Peak	Peak
3	5	Theo Captanis	XXX	Wide Body	Taper	LRP	Peak	Peak

EXPERT 2WD STOCK

1	1	Billy Fischer	XXX	Wide Body	Taper	Novak	P2K2	Pro Match
6	2	Doug Scripture	XXX KE	Taper	Taper	LRP	Orion	Orion
2	3	Ryan Mayfield	B3	PL 4 Rib	PL Square	Novak	Reedy	Reedy
3	4	Jon Ringer	XXX	Wide	BodyTape	rLRP	P2K2	Trinity
8	5	Lars Johnson	XXX KE	Wide Body	Taper	LRP	Peak	Steve's

STOCK TRUCK

1	1	Kyle Schmitz	XXXT MF	8 Rib	Taper	Novak	Banzai	Pro Match 2400
2	2	Joel Van Horn	XXXT	8 Rib	T-2000s	Novak	KC Racing	KC Racing
6	3	David Calica	XXXT	PL Edges	Taper	LRP	Peak	N/A
3	4	Andrian Redding	XXXT	8 Rib	Taper	Novak C2	N/A	Nuclear Power
8	5	Steve Campbell	XXXT	8 Rib	Taper	Novak	Mudslinger	Reedy

EXPERT STOCK TRUCK

1	1	Joe Pillars	XXXT MF	8 Rib	Taper	LRP	Peak	Peak
2	2	Billy Fischer	XXXT	8 Rib	Taper	Novak	P2K2	Pro Match
3	3	Charlie Perez	T3	Pan Micro Rib	Pan Switch	Novak	Reedy	Pro Match
4	4	Brian Westerman	XXXT MF	Taper	Taper	Novak	Peak	World Class
8	5	Chris Higa	XXXT MF	Pan Micro Rib	Pan Switch	Keyence	P2K2	Orion

"OLD DUDE" STOCK TRUCK

1	1	Frank Riley	XXXT M	F8 Rib	Taper	Novak	Trinity	Trinity
10	2	Dave Rosen	T3	8 Rib	Taper	LRP	P2k2	Pro Match
3	3	John Henry III	XXXT	Taper	Taper	LRP	Pro	Peak
6	4	J Scott	XXXT	Taper	Taper	Novak	P2k2	Pro Match
2	5	Scott White	T3	PL	Taper	Tekin	Banzai	Pro Match

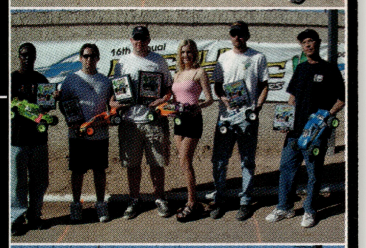
4WD MODIFIED

4	1	Travis Amezcua	XX4 WE	Taper	Taper	Novak	Peak 9x2	Peak Powerflo
1	2	Brian Kinwald	XX4 WE	Taper	BK Bar	Novak	Trinity 10x2	Trinity
2	3	Matt Francis	XX4 WE	Taper	Taper	LRP	Trinity 10x2	Trinity
7	4	Greg Hodapp	XX4 WE	Taper	Taper	Novak	Peak 9x3	Peak Poweflo
3	5	Ryan Cavalieri	XX4 WE	Blockheads	Taper	Novak	Orion 10x2	Orion

MODIFIED TRUCK

1	1	Matt Francis	XXXT MF	8 Rib	Taper	LRP	Trinity 11x2	Trinity
3	2	Brian Kinwald	XXXT MF	8 Rib	Taper	Novak	Trinity 10x2	Trinity
4	3	Ryan Cavalieri	XXXT MF	8 Rib	Taper	Novak	Orion 11x2	Orion
9	4	Brian Dunbar	XXXT M	F8 Rib	Taper	LRP	Fantom 11x3	SMC
10	5	Mark Pavidis	T3	PL Edge	PL Evil Twin	LRP	Reedy 10x2	Reedy







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HOBBYTOWN USA	5030 E. RAY RD #11	Phoenix	85044	480-598-5282
HOBBYTOWN USA	1102 E. 22ND ST	Tucson	85713	520-882-8888
SCOTTSDALE R/C RACEWAY	3023 N. SCOTTSDALE RD	Scottsdale	85051	480-945-2186

CALIFORNIA

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CASTLE HOBBIES	14918 CAMDEN AVE	San Jose	95124	408-377-3771
COVINA HOBBY SHOP	140 N. CITRUS	Covina	91724	626-331-1910
CYCLE ART RACING	2211 N. PLEASANT WAY	Fresno	93705	559-233-3665
D & J HOBBIES	96 SAN THOMAS AQUINO RD	Campbell	95008	408-379-1696
DISCOUNT HOBBY WHSE	4444 CONVOY ST	San Diego	92111	619-560-9633
DOLLHOUSE TRAINS & MORE	300 ENTRADA DR	Novato	94949	414-883-0388
EXTREME MOTOSPORTS	1230 JUAREZ ST	Napa	94559	707-251-9876
FRANCISCIAN HOBBIES	1920-A OCEAN AVE	San Francisco	94127	415-584-3919
GIZMO'S HOBBY	2010 WEST BURBANK BL	Burbank	91506	818-842-8200
HOBBIES TOYS & MORE	17600 COLLIER AVE/ H172	Lake Elsinore	92530	909-245-1147
HOBBY SHACK	18480 BANDILIER CIR	Fountain Valley	92728	714-964-0827
HOBBY WORLD	6148 BOLLINGER RD	San Jose	95129	408-873-2109
HOBBYTOWN	727 CENTER DR #106	San Marcos	92069	760-739-0672
HOBBYTOWN USA	2500 E.IMPERIAL HWY #130	Brea	92821	714-990-9652
HOBBYTOWN USA	3069 WEST BULLARD AVE	Fresno	93711	559-435-3342
HOT ROD HOBBIES	25845 SAN FERNANDO RD	Santa Clarita	91350	805-255-2404
JAKES PERFORMANCE HOBBY	6650 COMMERCE BLVD #21	Cotati	94928	707-586-3375
JAX HOBBIES	17421 BROOKHURST/107	Fountain Valley	92708	714-378-8924
KIT & CABOODLE	550 EL CERRITO PLAZA	El Cerrito	94530	510-524-9942
KRAZY KEVIN'S	1223 3RD ST #D	Chula Vista	91911	619-422-2724
LPRP	24771 NORTHERN DANCER	Moreno Valley	92551	
MARTY'S HOBBIES	1728 N. MOORPARK RD	Thousand Oaks	91360	805-497-3664
MODESTO HOBBIES	1300 SYLVAN AVE #C7	Modesto	95355	209-529-7310
PALMDALE HOBBIES	2127 E. PALMDALE BLVD	Palmdale	93550	661-273-6229
PEGASUS HOBBIES	5515 MORENO BLVD	Montclair	91763	909-982-6507
R/C COUNTRY HOBBIES	6011 FOLSOM BLVD	Sacramento	95819	916-731-5868
R/C TECH	1618 SULLIVAN STSTE 105	Daly City	94015	650-992-7600
RACERS HAVEN	7401 WHITE LANE #12	Bakersfield	93309	805-835-0441
RIPON R/C SPEEDWAY	701 N.ACACIA	Ripon	95366	209-599-5160
ROBIN'S HOBBY SERVICE	1844 WEST GLEN OAKS	Glendale	91201	818-240-2093
SAVAGE MOTORSPORTS	948 MAIN STREET	Ramona	92065	
SHELDON'S HOBBIES	2135 OLD OAKLAND RD	San Jose	95131	408-943-0872
SMITH BROTHERS HOBBY	8941 RESEDA BLVD	Northridge	91324	818-885-8636
SO CAL R/C RACEWAY	19118 BROOKHURST ST	Huntington Beach	92646	714-963-7484
SPEED WORLD RWY & HOBBY	1704 CHILTON DR	Roseville	95747	916-783-8864
THE HOBBY PLACE	10600 W. PICO BLVD	Los Angeles	90064	310-836-2000
VISALIA HOBBIES	2137 W. WHITENDALE AVE	Visalia	93277	559-734-8072

COLORADO

COLPAR HOBBIES	804 S. HAVANA ST	Aurora	80012	303-341-0414
CUSTOM HOBBIES	2813 E. PLATTE AVE	Colorado Springs	80909	719-634-7400
HOBBYTOWN USA	4348 S. COLLEGE	Fort Collins	80525	970-226-3900
HOBBYTOWN USA	6815 WEST 88TH AVE	Westminster	80021	303-431-0482
HOBBYTOWN USA	800 SOUTH HOVER RD	Longmont	80501	970-226-3900
MHOR R/C RACEWAY	12559 E. KENTUCKY	Aurora	80012	303-343-0151

CONNECTICUT

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

DELAWARE

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

FLORIDA

ACE HOBBIES	2127 S. RIDGEWOOD AVE	Daytona Beach	32119	904-761-9780
ATOMIC HOBBIES	13205 S.W. 137 AVESTE 103	Miami	33186	305-235-3232
BOB'S HOBBY CENTER	7333 LAKE UNDERHILL RD	Orlando	32822	407-277-1248
CENTRAL FLORIDA HOBBIES	5600 W. COLONIAL DR #310	Orlando	32808	407-295-9256
COLONIAL PHOTO & HOBBY	634 N. MILLS AVE	Orlando	32803	407-841-1485
CROWN HOBBIES	7439 S.W. 24TH ST	South Miami	33155	305-264-3964
G & C HOBBIES	1228 HYPOLUXO RD	Lantana	33462	561-547-3812
HOBBIE WAREHOUSE INC.	1237 AIRPORT RD S.	Naples	34104	941-262-2701
HOBBY CENTRAL	UNIVERSITY MALL	Pensacola	32504	850-471-9800
HOBBY NUT INC.	12679 DIXIE HWY	South Miami	33156	305-235-9584
HOBBYTOWN USA	12608 S.W. 88TH ST	Miami	33186	305-273-7803
JACKS HOBBIES	131 N.E. 17TH PLACE	Ocala	34470	352-351-2224
MONSTER HOBBIES	616 S.E. 10TH ST	Deerfield Beach	33441	561-392-5447
PHIL'S HOBBY SHOP	6050 PARK BLVD	Pinellas Park	33781	727-545-1251
R.C. HOBBIES	6800 N. UNIVERSITY DR	Tamarac	33321	954-721-5720
ROB'S HOBBY WORLD	8602 S.W. ST RD 200	Ocala	34481	352-854-2799
SCOTT'S HOBBIES	26690 61ST RD	Branford	32008	904-935-0758
SPACE COAST HOBBIES	2135 PALM BAY RD NE	Palm Bay	32905	321-722-3696
SUPERIOR HOBBIES	1478 E. SEMORAN BLVD	Casselberry	32707	407-834-9299
TAVERNIER BIKE & HOBBIES	91910 OVERSEAS HWY	Tavernier	33070	305-852-2859
WARWICK CUSTOM HOBBIES	7676 PETERS RD	Plantation	33324	954-370-0708

GEORGIA

ALLISON PERFORMANCE HOB.	12 GREENVILLE ST	Newnan	30263	770-254-9557
HOBBY MART	6889 PEACHTREE INDUST. /STE H	Peachtree Corners	30092	770-840-8495
HOBBYTOWN USA	19 NORTHSIDE DR EAST	Statesboro	30458	912-489-8700
HOBBYTOWN USA	6770 VETERANS PKWY/STE 1	Columbus	31909	706-660-1793
HOBBYTOWN USA	800 E. BARRETT PKWY	Kennesaw	30144	770-426-8800
NATIONAL HOBBY	1975 SOUTH COBB DR	Marietta	30060	770-333-0190
SUGAR BOWL SPEEDWAY	5272 NELSON BROGDON WY	Sugar Hill	30518	770-945-6709

HAWAII

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

IOWA

BOB'S R/C HOBBY	6322 UNIVERSITY AVE/UNIT E	Cedar Falls	50613	319-277-0211
BOX KAR HOBBIES	3649 FIRST AVE S.E.	Cedar Rapids	52402	319-362-1291
FAGAN'S	2327 CENTRAL AVE	Dubuque	52001	319-588-0846
HOBBY CHEST	209 E. MAIN	Ottumwa	52501	641-683-4436
HOBBY HAVEN	7672 HICKMAN RD	Urbandale	50322	515-276-8785
HOBBY SHOP	1700 S. FIRST AVESTE 17	Iowa City	52240	319-338-1788
HOBBYTOWN USA	2406 E. 53RD ST	Davenport	52807	319-355-2071
HOBBYTOWN USA	2737 16TH AVE S.W.	Cedar Rapids	52404	319-364-3289
HOBBYTOWN USA	620 LINCOLN WAY #6	Ames	50010	515-232-9060
WILD BILLS R/C HOBBIES	901 W. JONES	Knoxville	50138	515-842-5973

IDAHO

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

ILLINOIS

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

INDIANA

B & R HOBBIES	9014 CRAWFORDSVILLE RD	Indianapolis	46234	317-297-4257
BREMEN HOBBIES	308 N. BOWEN AVE	Bremen	46506	219-546-3807
G & G HOBBIES	105 E. MAIN ST	Griffith	46319	219-924-6686
GRANGER HOBBY STOP	12131 STATE RD 23 UNIT L	Granger	46530	219-243-2390
HAPPY HOBBIES	1398 EASTERN BLVD	Jeffersonville	47129	812-282-0060
HOBBY TOWN USA	139 N. BURKHARDT RD	Evansville	47715	812-477-7200
HOBBYLAND INC.	2564 MIRACLE LANE	Mishawaka	46545	219-255-1722
HOBBYTOWN USA	6336 E. 82ND ST	Indianapolis	46250	317-845-4106
HOBBYTOWN USA	1858 E. 80TH PLAZA	Merrillville	46410	219-736-0255
JOE'S HOBBY BARN	1950 E. SPRINGHILL DR	Terre Haute	47802	812-299-5773
P & T HOBBIES AND RWY	2412 N. POORFARM RD	Bedford	47421	812-849-6666
PHILS HOBBY SHOP	3112 N. CLINTON	FT. Wayne	46805	
R & D HOBBIES	4217 FRANKLIN ST	Michigan City	46360	219-879-7563

KANSAS

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

KENTUCKY

HOBBYTOWN USA	12615 SHELBYVILLE RD	Middletown	40243	502-245-5755
PIT STOP HOBBIES	1927 IRVIN COBB DR	Paducah	42003	502-527-8216
SCALE REPRODUCTION	3073 BRECKINRIDGE LANE	Louisville	40220	502-459-5849

LOUISIANA

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

MASSACHUSETTS

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

MARYLAND

DOUGS HOBBY	2935 CRAIN HWY	Waldorf	20601	301-843-7774
GPA HOBBIES	2431 CROFTON LANE STE 6	Crofton	21114	301-858-0004
HOBBY CITY	15751 COLUMBIA PIKE	Burtonsville	20866	301-421-5977
HOBBYTOWN USA	1305 W. 7TH AVE #28	Frederick	21702	301-694-7395
HOBBYTOWN USA	CHESAPEAKE SQR SHP CTR	Glen Burnie	21061	410-590-4950
HUNT VALLEY HOBBIES	10824 YORK RD	Hunt Valley	21030	410-666-1098
STONELEIGH HOBBY INC.	6717 YORK RD	Baltimore	21212	410-377-4447
THE TRACK	16806 OAKMONT AVE	Gaithersburg	20877	321-417-9630

MAINE

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

MICHIGAN

ACTION HOBBIES	211 EAST MAIN	Niles	49120	616-687-8550
ANYTHING GOES	5108 ROCHESTER RD	Troy	48085	248-740-2277
CAPITOL CITIES HOBBIES INC.	15357 HALL RD	Macomb	48044	810-532-0050
HOBBIES & TOYS	106 WEST MAIN ST	Gaylord	49735	989-732-3963
HOBBYTOWN USA	2252 S. MAIN ST	Ann Arbor	48103	734-996-2444
HOUSE OF HOBBIES	2763 N. 120TH AVE	Holland	49424	616-786-3686
JOE'S HOBBY CENTER	35151 GRAND RIVER RD	Farmington	48335	248-477-6266
KECK HARDWARE & HOBBY	2132 WEST RD	Trenton	48183	734-676-2282
LARRY'S PERFORMANCE R/C'S	43665 UTICA RD	Sterling Heights	48314	810-997-4840
NANKIN HDWRE & HOBBY	35101 FORD RD	Westland	48185	734-722-5700
P & D HOBBY SHOP	31280 GROESBECK HWY	Fraser	48026	810-296-6116
PASTIME HOBBIES	2700 PINE GROVE RD #16	Port Huron	48060	810-982-2874
PROP SHOP HOBBIES, INC.	23326 VAN DYKE	Warren	48089	810-757-7160
R & L HOBBIES & RACING	9782 PORTAGE RD	Portage	49002	616-323-3686
R/C NITRO ZONE	213 WEST MAIN STSTE #9	Brighton	48116	810-225-9586
RIDER'S HOBBY	32115 JOHN "R" RD	Madison Heights	48071	248-589-8111
RIDER'S HOBBY	42011 FORD RD	Canton	48187	734-981-8700
RIDER'S HOBBY SHOP	22789 NORTHLINE RD	Taylor	48180	734-287-7405
RIDER'S HOBBIES	2061 S. LINDEN RD	Flint	48532	810-720-2500
RIDER'S HOBBY	4417 S. WESTNEDGE AVE	Kalamazoo	49008	616-349-2666
RIDER'S HOBBY SHOP	2055 28TH ST S.E."UNIT 12	Grand Rapids	49508	616-247-9933
RIDER'S HOBBY SHOP	4035 CARPENTER RD	Ypsilanti	48197	
RIDER'S HOBBY SHOP	1609 E. MICHIGAN AVE	Lansing	48912	517-485-0700
RIDER'S HOBBY SHOP	30991 FIVE MILE RD	Livonia	48154	734-425-9720
ROBBY'S HOBBY	1106 COLUMBUS AVE	Bay City	48708	517-893-2712
THE HOBBY HUB	526 FRANDOR AVE	Lansing	48912	517-351-5843
YESTERDAY'S COLLECTION	5899 JACKSON RD	Ann Arbor	48103	734-668-6304

MINNESOTA

CHRISTOPHER'S HOBBIES	116 WEST BRDWAY ST	Owatonna	55060	507-451-2825
HOBBY TOWN USA	7916 BROOKLYN BLVD.	Minneapolis	55445	612-424-6052
HOBBY WAREHOUSE	7120 CHICAGO AVE S.	Richfield	55423	612-861-5587
HUB HOBBY CENTER	82 MINNESOTA AVE	Saint Paul	55117	612-490-1675
NORTHWOODS HOBBY	614 FRONT ST	Brainerd	56401	218-829-9257
R.C. CAR KINGS	1913 W. BURNSVILLE PKWY	Burnsville	55337	952-895-9643
TWIN CITIES HOBBY & RWY	7577 BROOKLYN BLVD.	Brooklyn Park	55443	763-569-5069

LOCATOR

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MISSOURI

CHECKERED FLAG HOBBIES	4491 LeMAY FERRY ROAD	St. Louis	63129	314-892-5353
HOBBY HAVEN	14100 A EAST 42ND ST	Independence	64055	816-478-3233
HOBBYTOWN USA	524 N.W. ENGLEWOOD RD	Kansas City	64118	816-459-9590
HOBBYTOWN USA	533 S.E. MELODY LANE	Lees Summit	64063	816-525-6885
JOPLIN R/C HOBBIES	1900 S. RANGELINESTE 9	Joplin	64804	417-623-0011
MARK TWAIN HOBBY CTR	2793 WEST CLAY ST	Saint Charles	63301	636-946-2816
REAL R/C	12019 EAST 47TH	Raytown	64133	816-358-0238
SCHAEFER'S R/C SHOP	4206 VIRGINIA AVE	Saint Louis	63111	314-352-3750

MISSISSIPPI

HOBBYTOWN USA	4378 MALL DR	Tupelo	38804	662-690-6030
HOBBYTOWN USA	6380-D RIDGEWOOD COURT	Jackson	39211	601-957-9900

MONTANA

NORTHLAND HOBBIES INC.	1325 HWY 2 WEST	Kalispell	59901	406-257-1808
PRAIRIE UNIQUE	114 S. LOGAN ST	Terry	59349	406-635-5598
THE TREASURE CHEST	1612 BENTON AVE	Missoula	59801	406-549-7992

NORTH CAROLINA

ACTION HOBBIES	8500 PINEVILLE MATHEWS RD	Charlotte	28226	704-540-0311
HOBBY TOWN USA	8332 PINEVILLE MATHEWS RD	Charlotte	28226	704-544-2303
HOBBYTOWN USA	SHERWOOD PLAZA SHP CTR.	Winston Salem	27106	336-774-2324
K/C HOBBY INC.	10948-G NORTH MAIN ST	High Point	27263	336-434-3482
KING R/C	614 S. MAIN ST	King	27021	336-983-3969
Z N Z HOBBIES	972 TALBERT BLVD	Lexington	27292	336-249-6127

NORTH DAKOTA

HOBBYTOWN USA	2500 S. COLUMBIA RDSTE D	Grand Forks	58201	701-746-0708

NEBRASKA

FUN TIME HOBBY	2020 CENTRAL AVE	Kearney	68847	308-234-1806
HOBBYTOWN UNLIMITED	EAST PARK PLAZA	Lincoln	68505	402-434-5056
HOBBYTOWN USA	13110 BIRCH DR	Omaha	68164	402-498-8888
HOBBYTOWN USA	3537 WEST 13TH ST	Grand Island	68803	308-382-3451

NEW HAMPSHIRE

HOBBY ETC. INC.	90 WEST PEARL ST	Nashua	03060	603-883-4919

NEW JERSEY

ALLIED HOBBIES	CHERRY HILL MALL	Cherry Hill	08002	856-665-7888
ALLIED HOBBIES	207 ECHELON MALL	Voorhees	08043	856-772-1268
ALLIED HOBBIES	264 BURLINGTON CENTER	Burlington	08016	609-386-5044
CRUIZIN WITH RC'S INC.	53 EAST MAIN ST	Ramsey	07446	201-825-4884
FISHKIN BROS.	285 MADISON AVE	Perth Amboy	08861	732-826-0048
HOBBIES ETC.	240 S. BRD ST	Woodbury	08096	609-384-7740
HOBBY WORKSHOPS	510 WEST KINGS HWY	Mount Ephraim	08059	856-931-2400
JERRY'S HOBBY CENTER	336 RT 22 W	Greenbrook	08812	908-752-6030
THE HOBBY SHOP	ABERDEEN TOWNSQUARE	Aberdeen	07747	732-583-4189
WACKY RC'S HOBBY SHOP	409 EAST 2ND ST	Roselle	07203	908-241-6700

NEW MEXICO

ALBUQUERQUE HOBBY CO	1431 EUBANK BLVD N.E.	Albuquerque	87112	505-275-1882
BIG BOYS TOYS	1735 JUAN TABO N.E.	Albuquerque	87112	505-298-1023
CHARLIES HOBBY SHOP	1230 N. SOLANO DR	Las Cruces	88001	505-541-1097
HOBBIE'S & STUFF	9577-L OSUNA RD N.E.	Albuquerque	87111	505-293-1217
HOBBYTOWN USA	636 W. BRDWAY	Farmington	87401	505-325-5156

NEVADA

DANSEY'S INDOOR R/C HOBBIES	741 N. NELLIS BLVD.	Las Vegas	89110	702-453-7223
HOBBYTOWN USA	5085 W. SAHARA AVE #134	Las Vegas	89146	702-889-9554
HOBBYTOWN USA	3789 S. CARSON ST	Washoe Valley	89701	775-883-5475

NEW YORK

ACTION HOBBIES	1070 MIDDLE COUNTRY RD	Selden	11784	516-736-1574
BROOKLYN HOBBIES	3842 FLATLANDS AVE	Brooklyn	11234	718-951-2500
BRUCKNER HOBBIES	3587 E. TREMONT AVE	Bronx	10465	800-288-8185
COMPETITION HOBBY SUP	1006 LOUDON RD	Cohoes	12047	518-786-3622
EAST COAST HOBBIES	2515 65TH ST	Brooklyn	11204	718-627-3814
FANTASIA HOBBIES	17169 46TH AVE	Flushing	11358	718-460-5671
HOBBY HOUSE	2366 LYELL AVE	Rochester	14606	716-429-6280
HOBBY WORLD	311 BROADWAY	Monticello	12701	914-794-8770
HOMETOWN HOBBIES	14 FEDERAL PLAZA	Monroe	10950	914-782-2401
LARRY'S HOBBY SUPPLIES	3006 JERICHO TPKE	East Northport	11731	631-499-7166
MACH 1 HOBBIES	249 W. 29TH ST #1	New York	10001	212-947-0157
NAGENGAST HDWR & HOBBY	68-02 FRESH POND RD	Flushing	11385	718-821-0958
PERFORMANCE HOBBIES	15 WEST MAIN ST	Webster	14580	716-872-4990
RACING CITY HOBBIES	MIDTOWN SHOPPING CTR	Glens Falls	12803	518-792-7272
RAMPAGE R/C AND HOBBIES	782 RT 9G ROCKLEDGE PLAZA	Hyde Park	12538	914-229-1379
TONY'S HOBBY SHOP	229 HARRISON AVE	Harrison	10528	914-835-4765
TRANS BORDER CUSTOMS	C/O MODELER DISTRIBUTION	Champlain	12919	514-687-6214
UNIVERSAL ENTERTAINMENT	1611 PINE AVE	Niagara Falls	14301	716-282-4840
WALT'S HOBBY	2 DWIGHT PARK DR	Syracuse	13209	315-453-2291
WILLIS HOBBIES	300 WILLIS AVE	Mineola	11501	516-746-3944

OHIO

CAPSTONE HOBBIES	562 W. SCHROCK RD	Westerville	43081	614-899-6313
DIVE IN SCUBA CENTER	3182 WARREN SHARON RD	Vienna	44473	330-856-6275
GRANDVIEW HOBBIES	1460 W. FIFTH AVE	Columbus	43212	614-486-3532
HOBBY STOP WEST	4550 MONROE ST	Toledo	43613	419-471-1108
HOBBYTOWN USA	8000 PLAZA BLVDSTE 9	Mentor	44060	440-946-5588
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HOBBY CENTER	18177 GULF FREEWAY	Webster	77598	281-488-8697
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TSG HOBBIES	251 W. LEE HWY #691	Warrenton	20186	540-347-9212

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PERFORMANCE R/C	320 E. SUIRHAVEN AVE #100	Burlington	98233	360-691-4922
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REDMOND HOBBIES	1629 REDMOND	Redmond	98052	425-885-3639
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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
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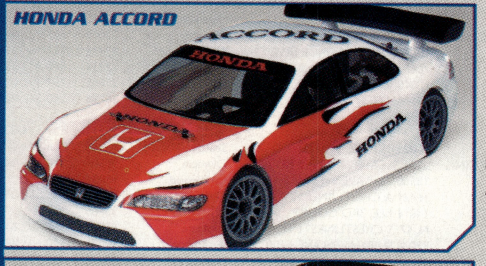



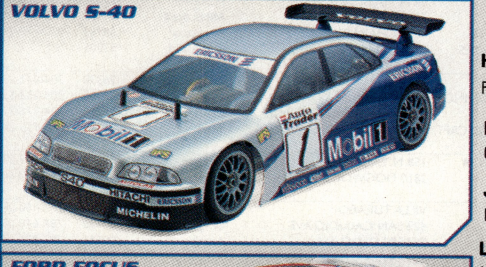



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Scottdale R/C Speedway, 3023 N. Scottsdale Rd., Scottsdale, AZ 85251 (480) 945-2186

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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Sarasota RC Speedway, 8475 Cooper Creek Blvd., University Park, FL 34201, (941) 358-7047

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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

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

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

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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

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

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

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

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

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

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

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

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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

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

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

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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

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

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

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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

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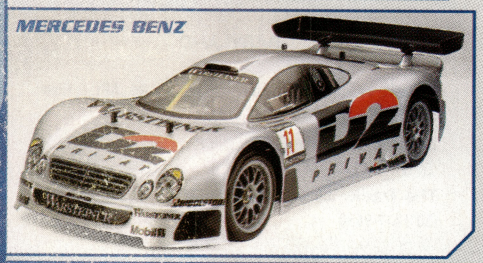









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OFF ROAD ON ROAD INDOOR ELECTRIC TRACK ELECTRICITY WATER RESTROOMS

Tamiya Ford F-150 Ranger



BY RICHARD TRUJILLO

Behold my latest find on eBay! The F-150 Ford Ranger truck is based on the Tamiya Rough Rider and Sand Scorcher chassis. And once again, Tamiya outdid themselves on the realistic looking body. This is probably the first R/C truck kit that could be run at higher speeds. Sure, the Hi-Lux and Blazing Blazer hit the hobby shop shelves around the same time, but they didn't have the capable suspension of the Rough Rider and Sand Scorcher.







And with the weight of the Hi-Lux and Blazer coming in around a hefty ten pounds, they didn't have the speed either!

Once again, I regret that I can't reveal what I paid for the Ranger (wife), but it was a pretty fair price for the condition it is in.

The main thing I was concerned about when I bought this truck was that the body was straight and free from cracks. Luckily, it is in excellent shape. It does have several coats of paint on it, but some Easy-Off oven cleaner will take care of that. Some of you might recognize the body as being from one of the first popular "monster trucks," the all-powerful Tamiya Blackfoot. Tamiya actually modified the Ranger's body tool to work on the Blackfoot chassis.

I purchased a Blackfoot chrome bumper and grille to replace the beat-up original Ranger chrome. In addition, my new find was missing the rear window glass, but good ol' eBay came through, and I was able to pick up a new front and rear window. I also found a new set of stickers for the Ranger on eBay as well. These stickers are pretty rare to find new, and I'll probably get in trouble for writing this, but I paid $60 for them. I know what you're thinking, but I really want to get this thing back to looking like the original kit, and only a new set of stickers will accomplish this.

The chassis is in fair condition, but it's going to need a lot of clean-up. Luckily, I have a lot of parts left over from the Sand Scorcher and Rough Rider, so I can replace any worn-out parts. It won't be a prefect chassis, but the body will look like new and it will display nicely. I've seen these trucks sell in the $150 to $450 range, and this example is going to make a nice addition to my collection. I hope to start working on restoring the Ranger real soon. Hopefully by the time you read this, it will be done and ready to be shown in a future issue.

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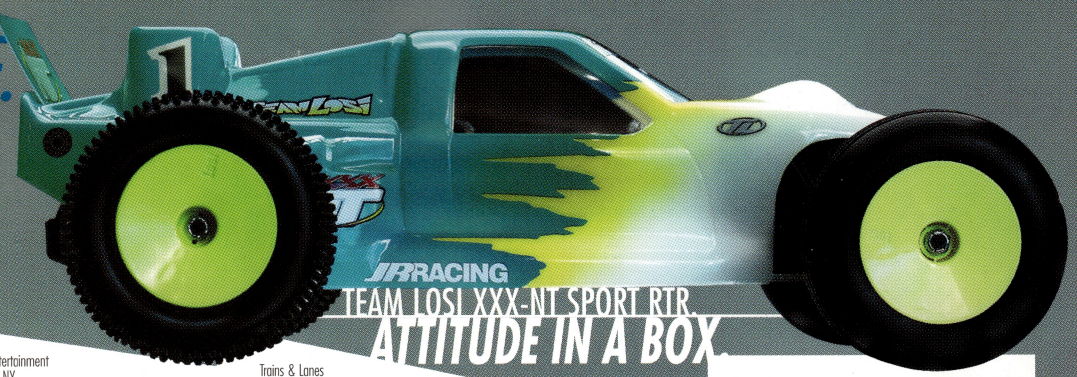

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What do you get when you put 14+ volts of power to twin 550 motors in a T-Maxx class monster truck? In a word, it's brutal. The E-Maxx with its new high voltage EVX speed control packs a punch that knocks out just about anything that stands in its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

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- Twin Titan™ fan-cooled 550 motors, powered by dual battery packs,* punch out brutal 14 volt wheelies.
- New EVX electronic speed control with forward, reverse, & brakes!
- T-Maxx proven 4-wheel drive system with hardened steel ring and pinions, slipper clutch, and full ball bearings.
- The E-Maxx uses the same drive, climb, & jump-over-anything suspension as the T-Maxx, delivering over 3½ inches of super-plush travel with 8 oil-filled shocks.
- E-Maxx is the most powerful monster truck you can buy!

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EVX POWER by NOVAK RACING ELECTRONICS

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

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

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