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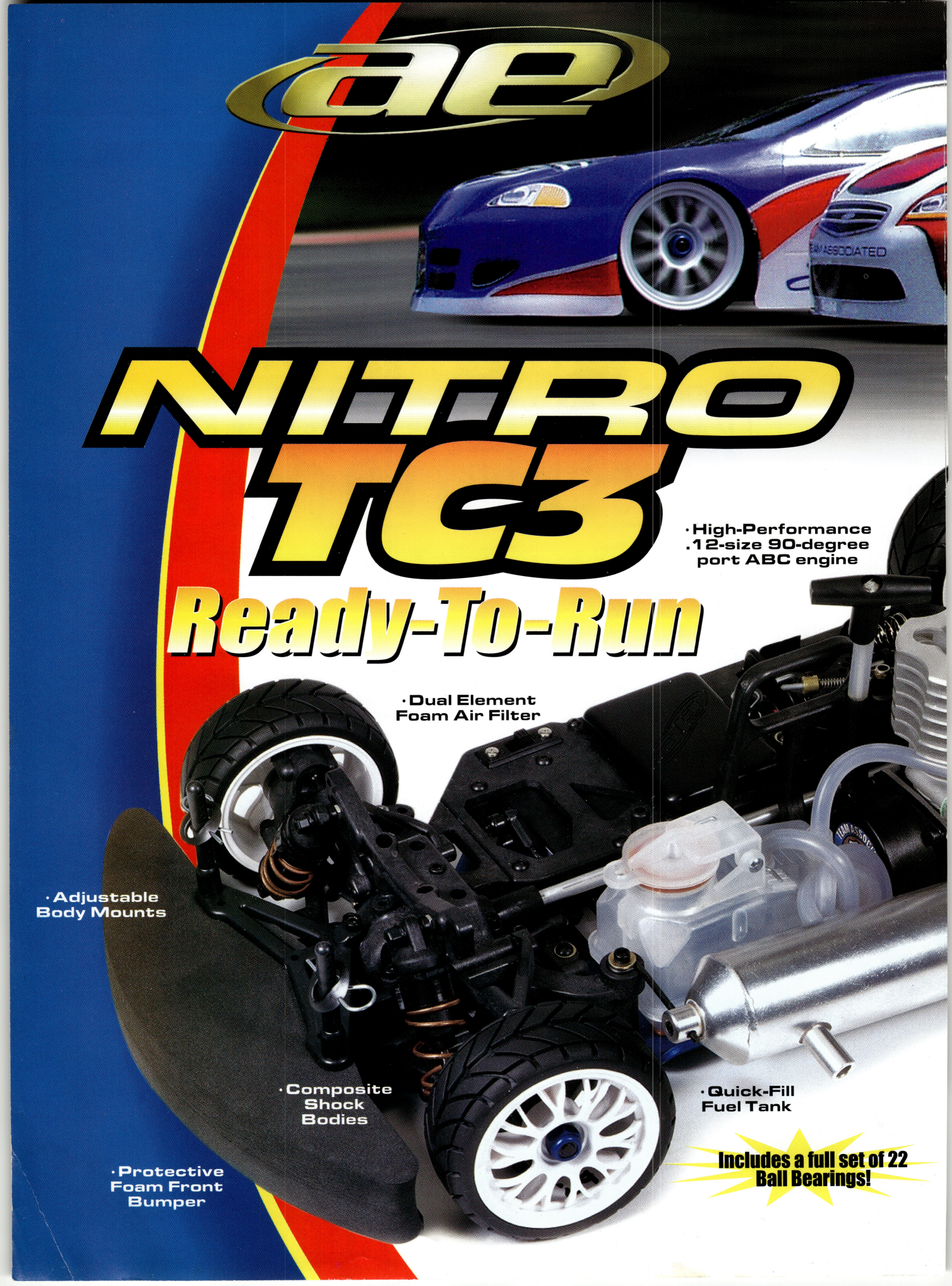
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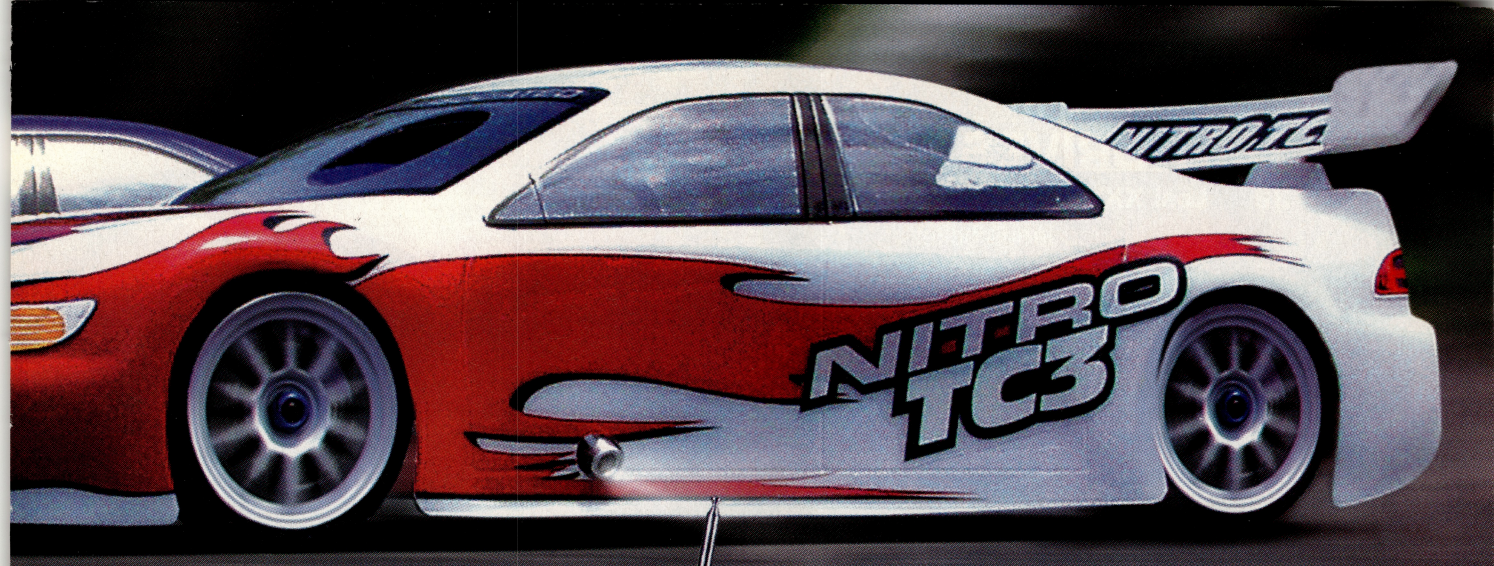

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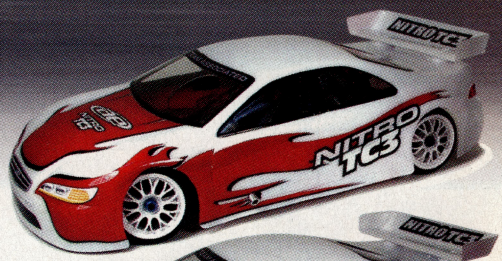
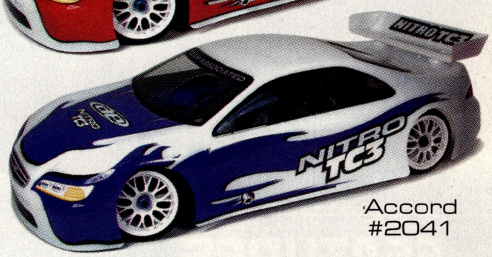
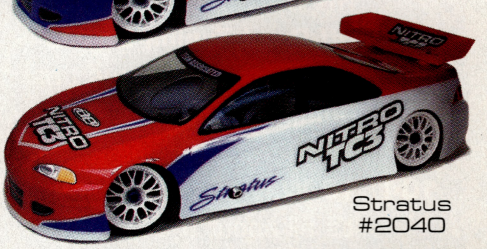




Accord
#2041





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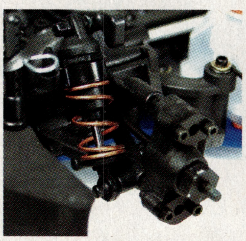
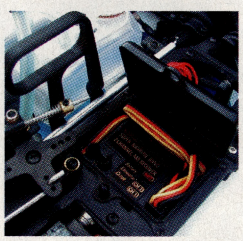
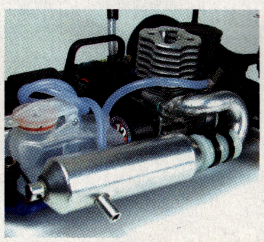
Team Associated's shaft-drive Nitro TC3 changed the face of nitro touring car racing forever. Now the Team introduces the Nitro TC3 Ready-to-Run, the same state-of-the-art 4WD nitro-powered touring car in a factory-assembled package, with a powerful .12 engine and high-quality 2-channel radio gear installed.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



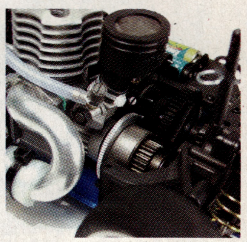
Pivot-ball type suspension with easily adjustable caster, camber, and toe-in. Interchangeable front and rear hub carriers.



Enclosed receiver compartment for protection from fuel and dirt. Easily removeable radio tray detaches with just six screws.



Side-exhaust manifold and pipe. Reverse-fill fuel tank and convenient carrying handle included.



Shoe-type, spring loaded clutch with single-speed transmission (Optional two-speed assembly available separately)

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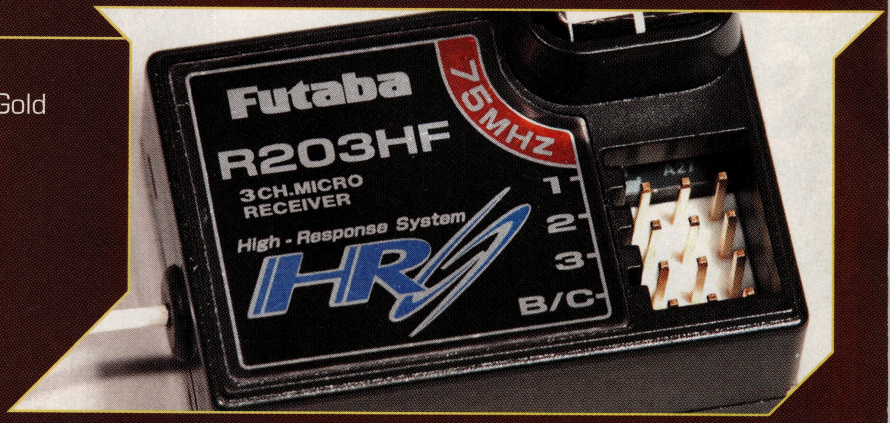



On the cover: RTR Buggy Shootout—Photo by Mike Basher

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R/C CAR
THE RADIO CONTROL CAR MAGAZINE

EDITOR
FRANK MASI
CONTRIBUTING WRITERS
BRIAN SKINNER • SPANKY JOHNSON • RICHARD TRUJILLO • CAPTAIN CHAOS
ONLINE EDITIORS
BRAD ROE
BradR@hi-torque.com
TOM HINZ
TomH@hi-torque.com
DESIGNER
TIM La PAGLIA
PHOTO ARTIST
PAT CARRIGAN
COPY EDITOR
JIM ALGAR
PRODUCTION COORDINATOR
KAY DEICKEN

ADVERTISING
EXECUTIVE ADVERTISING DIRECTOR
MARK THOMAS
ACCOUNT EXECUTIVE
DERRECK BERNARD
AD PRODUCTION MANAGER
PEGGY REID
ACCOUNT ADMINISTRATOR
ZAHAVA SEGAL
EXECUTIVE WEB ADVERTISING DIRECTOR
SEAN McCOY
smccoy@hi-torque.com

HI-TORQUE PUBLICATIONS
PRESIDENT & PUBLISHER
ROLAND HINZ
ASSOCIATE PUBLISHER
LILA HINZ
ASSISTANT TO PRESIDENT
CASSANDRA MITTELBERG
ASSISTANT TO PRESIDENT
KATHARINE McCOY
CIRCULATION DIRECTOR
CUYLER GIBBONS

SUBSCRIPTION AND PROMOTION MANAGER
RYAN CLEEK

ADVERTISING & GENERAL OFFICES
25233 ANZA DR.
VALENCIA, CALIFORNIA 91355
(661) 295-1910
FAX: (661) 295-1278

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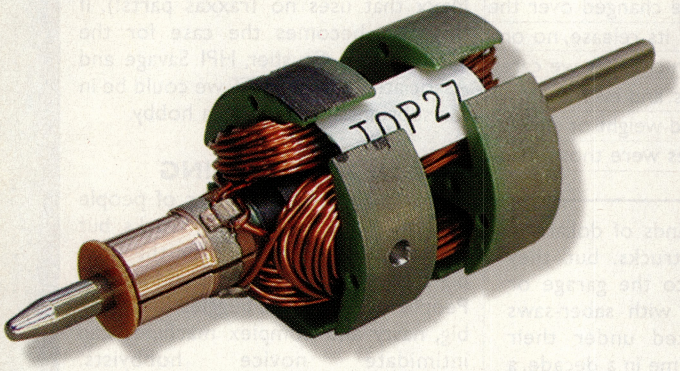
Stock Spoiler!

The whole idea of Stock Racing is to place everyone on an equal level. Team Orion spoiled that idea with the CORE STOCK RS.



Dual Stack Armature
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Huge Cooling Ports
lower operating temperatures and preserve magnet strength

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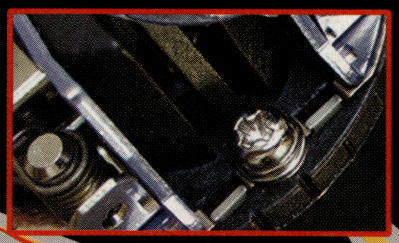
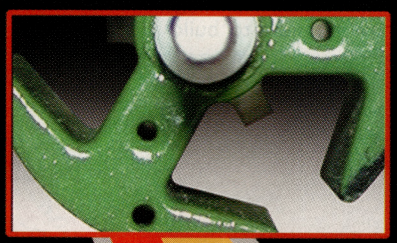
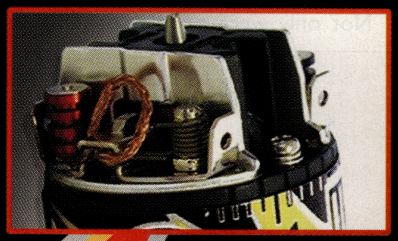
come pre-installed eliminating soldering and are less susceptible to damage



Power Tunnels
trick the motor into performing like it has more timing than the maximum 24 degrees



Oversized Heat-sinks
cool the endbell assembly insuring maximium power for the duration of the race



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[Drivers' Stand]

BY FRANK MASI

BACK TO THE '80s, BABY!

What's happening with this hobby? Things sure have changed over the last three years, and I blame the T-Maxx. Up until its release, no one took monster trucks seriously. In fact, the only trucks that we cared to tune and soup-up were 1/10-scale racing trucks, and even then, we were very careful to use only those hop-ups that would not add weight or slow us down. Usually, this meant that the only "acceptable" accessories were those made and sold by the truck's manufacturer.

This trend began during the early '90s, as the technology of racing cars and trucks began to grow to keep up with the improvements in tires, and the subsequent increase in grip. Prior to this, we were able to experiment with our vehicles, by installing all sorts of crazy parts—some of which we fabricated ourselves! When was the last time you saw somebody with a home-made chassis on a T3 truck? Aside from Brian Kinwald, who often fabricates his own prototype parts, just about every racing truck you'll find will either be stock or slightly modified using the manufacturer's own accessories. In a nutshell, modern race trucks and buggies are so finely honed that we're all afraid to tamper with them!

Then along came the T-Maxx and the immense aftermarket industry that sprang up around it nearly overnight. Not only were people spending hundreds, if not thousands of dollars in hopping up their trucks, but they were heading out to the garage or into the basement with saber-saws and Dremels tucked under their arms. For the first time in a decade, a mass of hobbyists was expressing themselves through their R/C vehicles. We began to see hundreds of custom trucks: handmade chassis, one-of-a-kind suspension systems and various technical solutions. In fact, some of these "garage entrepreneurs" have subsequently gone into business for themselves. All thanks to the "canvas" that was the T-Maxx.

Now that there are several notable competitors for the Maxx, this trend will only continue to grow; and we know that the aftermarket people are breathing sighs of relief, as they have really taken the T-Maxx as far as its current design will allow (it's now possible to build a complete T-Maxx that uses no Traxxas parts!). If this also becomes the case for the Tamiya Terra Crusher, HPI Savage and Associated Monster GT, we could be in for substantial growth as a hobby.

THE NEXT BIG THING

Not that there's any fear of people becoming tired of monster trucks, but we are always searching for the next big class—and we think we've found it. People love 1/8-scale buggies, but these big, nasty and complex machines can intimidate novice hobbyists. Fortunately, several manufacturers have realized this and have produced RTR versions of their nitro buggies. Just like other RTRs, these big beasts come fully assembled, often have pre-painted bodies and have pre-installed radio systems. Now, everyone can experience the speed and handling of a 1/8-scale buggy without having to make a thousand-dollar investment.

To honor this burgeoning category, we gathered up the top contenders this month to learn which ones rule and which ones need a bit more work. If you're interested in this class, be sure to check out our "RTR Nitro Buggy Shootout" elsewhere in this issue before you buy.



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BRUSHLESS MOTOR SYSTEM

The Super Sport Brushless Motor System is the first in a series of brushless motor systems from Novak. The system includes a mild-modified, sensored, brushless motor and a compact, programmable speed control. Designed by Novak specifically for R/C car applications, the brushless motor and speed control will provide approximately 20% longer run times and higher performance than similar brushed motor systems—with virtually no maintenance.

SUPER SPORT SPEED CONTROL ESC FEATURES

- 4-7 cell input voltage
- User-selectable multiple throttle profiles
- Fits in most popular 1/10 scale electric R/C cars
- Size: 1.32" x 1.75" x 1.05" (w/heat sink); Weight: 1.7 oz. (w/out power wire)
- Variable Throttle Step Technology for the smoothest performance
- The One-Touch/Programming Button, along with a series of four different-colored LEDs, easily guides the user through the profile selection
- Industry-first Transmitter Check Mode
- Locked Rotor Detection Circuitry prevents motor, battery, or ESC damage
- Direct-solder wiring tabs
- Replaceable input harness
- Heavy-duty BEC
- One-Touch Set-Up

Part #: 3005
List Price: $395



SUPER SPORT BRUSHLESS MOTOR FEATURES:

- Virtually maintenance-free: no brushes, brush springs, or commutator to true or wear out
- Completely enclosed motor provides protection from the elements
- Sensor technology provides excellent starting torque and continuous synchronization for great, low-speed driveability, vehicle control, and consistent, accurate brakes
- Standard 540-size car motor with a 1/8" diameter hardened output shaft to accept all existing pinion gears
- High performance design: Kv=5,800 RPM/Volt; Kt=0.45 in-oz/amp; Power output: 196 watts *(See below for definition of Kv and Kt)*
- Pre-wired and ready to install
- Low cogging for smooth acceleration and smooth coasting *(See below for definition)*
- Ball bearings for smooth, low-friction operation
- Direct-solder wiring tabs for easy wire replacement
- One-piece, multi-pole cylindrical neodymium magnet for high reliability, and stationary windings for better heat conduction over brushed motors

MULTIPLE THROTTLE PROFILES

The Super Sport ESC will contain multiple throttle profiles, including at least 1 profile with Limited Reverse.

SUPER SPORT ESC

***Brushless motor technology has existed for quite some time. Since their inception, brushless motors have been rated by the following defined terms, which we have also applied to rate our* Super Sport Brushless Motor System:**

Kv: *The motor voltage constant expressed in RPM/Volt. This indicates how fast the motor will turn for a given voltage (given there is no internal resistance). i.e. the Super Sport's Kv rating is 5,800 RPM/Volt. Therefore, if a 6.0-volt battery pack is used, the* ***Super Sport's*** *RPM would be 34,800 (6.0 x 5,800). Comparatively, a typical 10-turn brushed motor's Kv rating is 5,400 RPM/Volt.*

Kt: *The motor torque constant expressed in inch-ounce of torque per amp of current. This indicates the amount of torque a motor would produce per amp of current draw. i.e. the Super Sport's Kt rating is 0.45 in-oz/amp. Therefore, if the motor is drawing 5 amps, the* ***Super Sport*** *would produce 2.25 in-oz of torque (5 x 0.45). Comparatively, a typical 10-turn brushed motor's Kt rating is 0.33 in-oz/amp.*

Cogging: *Describes the non-uniform angular velocity of the rotation of the motor rotor. The rotation occurs in jerks or increments rather than a smooth motion. The lower the cogging, the smoother the rotation, and the smoother the acceleration and coasting.*

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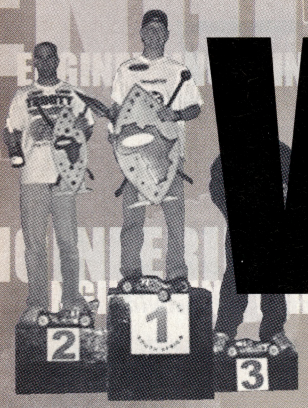

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XXX Kinwald Edition
2002 IFMAR Off-Road TQ & World Champion
2002 ROAR Off-Road Stock & Modified National Champion



XXX-S Graphite Plus
2002 ROAR Stock Sedan National Champion

The trophies are pretty nice though.

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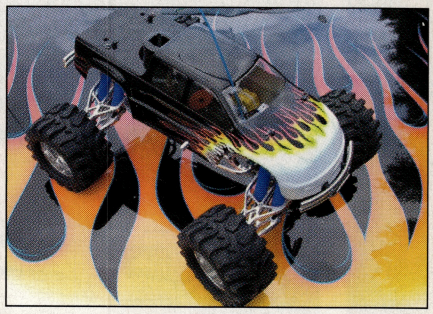
UP FRONT







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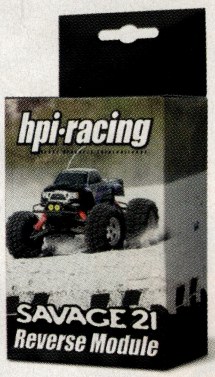

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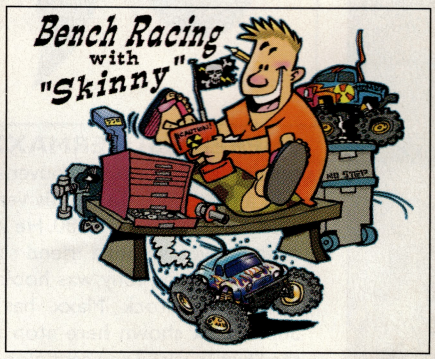


TRUCK COLUMN [PAGE 22]

[Readers' Projects]

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

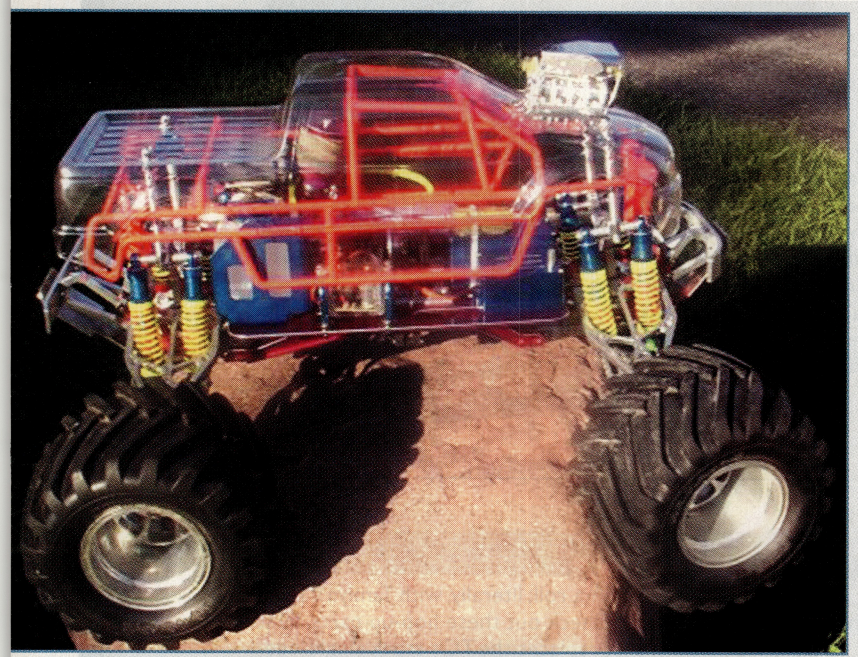






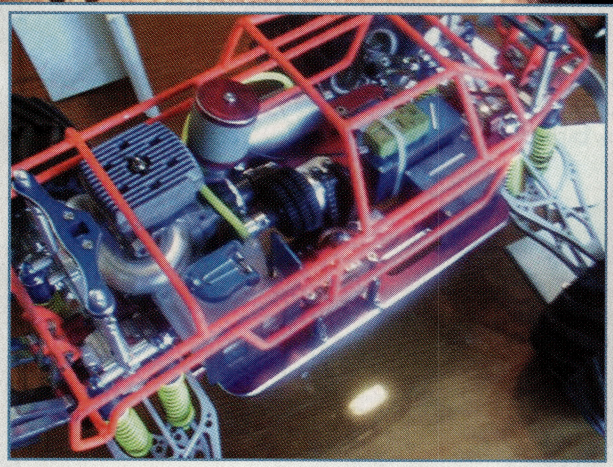
SUPREME SUPERMAXX

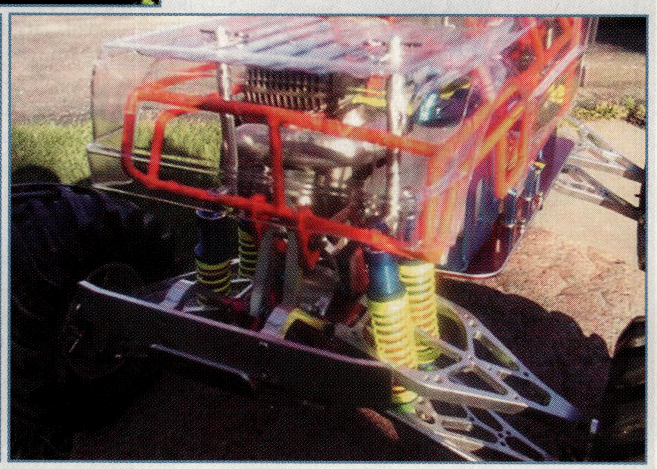
Tony Dew from Vancouver, British Columbia, has been an R/C addict since he got his very first car, a Jerobee 1/12-scale electric, way back in 1980. He had been "retired" from R/C for over ten years until a friend showed him his new T-Maxx, and needless to say, Tony was hooked again. A year and a half later and Tony's stock Maxx has been transformed into the SuperMaxx shown here atop the hood of Tony's daily driver, the "FireTruck." Tony sent along a list of all the parts that have gone into his monster, and to list them all here would take up the entire page! So here are the highlights. The base of the truck is Unlimited Engineering's Stage 3 EXT suspension and EXT nitro chassis, as well as their 7.5 Ultralite 1/8-scale diffs, 10mm forward-only conversion, generation 2 servo saver, 1/8-scale SuperShocks, titanium center shafts and CVD driveshafts. The servo skid, body braces and custom-painted Pro-Line body (that matches the flame job on Tony's full-sized truck) were provided by Adrenaline RC. Other chassis mods include front and rear skids and Vortex aluminum wheels from Hardcore Racing, Great Assembly 7075 aluminum bulkheads, aluminum bumpers, brackets, tranny case and two-speed gearset from Traxxas, and braces and a Mugen Seiki flywheel and aluminum three-shoe clutch. Power is supplied by an OFNA Hyper .21 big-block engine with an RB Concepts 086 one-piece pipe and header. Tony uses an Airtonics M8 radio with 94375 throttle and brake servos and a 94358 steering servo to control this mega-monster truck.



70 MPH MAXX!

Tim McNamer sent us some pics of his incredible .70, chain-driven, three-speed T-Maxx, which he custom built at Rolling Thunder Customs in Mt. Horeb, Wisconsin. Tim states that his monster has been clocked at 69 mph, and with a Thunder Tiger .70 two-stroke engine and a three-speed, chain-drive system from a Kyosho Mad Force, we believe him. Aside from the immense engine and custom drivetrain, Tim's Maxx also features a Stage 3 wide-track suspension, titanium axles, driveshafts, roll cage, diff cases, tie-rods and skid plates. It also has 7.5 diffs from SuperMaxx, and aluminum diff supports, body posts and steering knuckles from Hardcore Racing. Tim also outfitted his truck with dual batteries to power the digital servos, an on-board failsafe device and dual electric fans to keep the engine cool. Tim also tells us that he has many other rides, including a .70 Monster Pirate, a 120 4-stroke T-Maxx, a dual .21 T-Maxx and a 0.70 direct-drive Maxx. We'd like to see some of those, too!





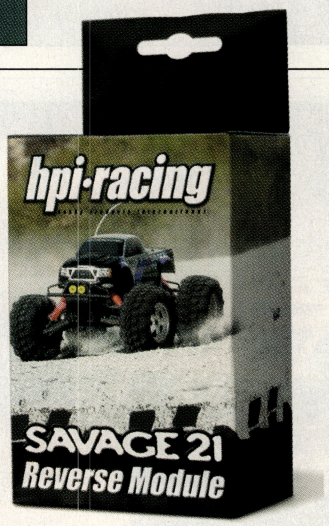
DAMAGED MONSTER

Angel Hernandez (Damage, Inc.) from the Bronx sent us this photo of his highly modified Traxxas T-Maxx, which features an XTM .21 big-block conversion kit utilizing a pull-start O.S. RG engine. Chassis modifications include a Pro-Line wide suspension kit, Hitec servos and Megatech aluminum shocks. The Pro-Line body features a custom paint scheme devised by Angel, and it even features working headlights for added realism. Angel says that although his truck is pictured with Pro-Line Bow-ties, he also has a set of Jumbo tires to "instill fear on Dominator owners."



TURN TO THE LEFT...

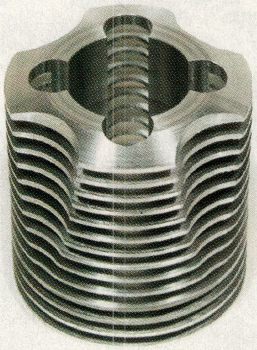
HPI has finally spilled the beans about its much-anticipated reverse module for its incredibly popular Savage 21 nitro monster truck. This innovative module is designed for easy bolt-on installation, and comes with all the necessary hardware and linkage needed. The only additional item you'll need is a third servo to handling the shifting. Don't worry about the radio; HPI's TF-4 transmitter – the one that comes with the Savage – already has the additional third channel. And the receiver? It's all set to accept the additional servo. HPI has set the retail price of the reverse module at $45.00. Contact HPI for more information at (909) 753-1099.



TERRA CRUSHER REDUX

Our friends at New Era are on a roll, literally, with Tamiya's Terra Crusher nitro monster truck. Check out these hop-up parts. First is the Big Bore carb set that replaces the TC's stock single-needle setup. This larger, 6.2mm bore carb not only gets more mixture to the hungry Tamiya .18 engine, but is also gives you the added flexibility of tuning your truck's low-end – a noted shortcoming of the stock carb.





Next up is New Era's 12-fin heatsink head for Tamiya's .18 (it will also fit K&B and Hot Bodies .18s). This head provides greater surface area for improved cooling (and more power), and a separate head button for improved combustion.









Last up is a racing necessity for the TC. New Era's forward-only conversion kit for the TC. The only fault we've ever found with the TC is its sometimes-slipping transmission. What's actually slipping is the clutch that's used for the reverse function. New Era's forward-only kit does away with the clutch as it eliminates reverse. You won't be able to back out of trouble anymore, but your TC will really lay down the power.

For more information on these products, call New Era Models at (603) 888-4453.

TRAXXAS® New MAXX™ Monsters!



2WD Nitro Monster Truck!

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

SportMaxx Features!

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

SportMAXX™

UPGRADE OPTIONS

2-SPEED

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

4WD

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

REVERSE

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

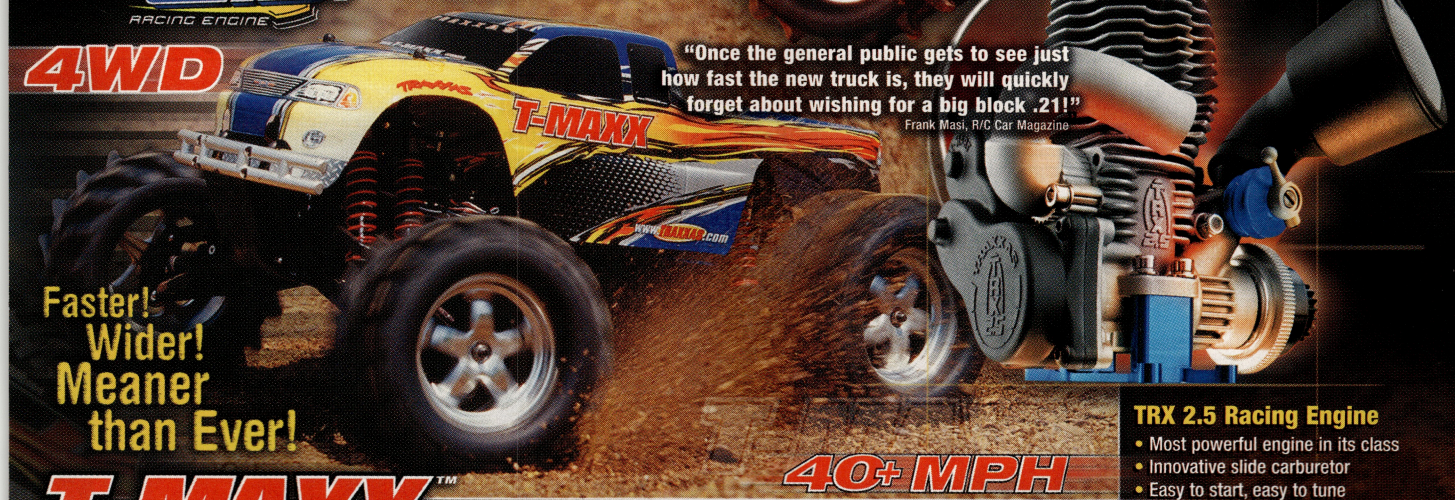


2WD

Light! Quick! Agile!

TRX 2.5 RACING ENGINE

4WD



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

Faster! Wider! Meaner than Ever!

40+ MPH

T-MAXX™



4WD Nitro Monster Truck!

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

Nitro with Reverse!

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

New wider suspension!

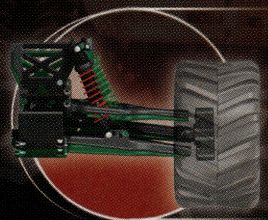
MAXXimum Adjustability! Tougher, wider suspension arms add over an inch of track width over the first generation T-Maxx for incredible stability. Multiple shock mounting positions (up to 10) on the arms and the new shock towers provide the widest range of adjustability. Set it for that famous, bottomless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

Adjustable Caster

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

TRX 2.5 Racing Engine

- Most powerful engine in its class
- Innovative slide carburetor
- Easy to start, easy to tune
- Push button electric starting with the all new EZ-Start™ system
- Engineered from the ground up for the most power and reliability possible
- Backed by the best service and support in the hobby industry



Traxxas Corp.1100 Klein Road Plano, TX 75074 Ph. 972-265-8000, Fax (972) 265-8011.
Traxxas U.K., P.O. Box 1128, Winterbourne, Bristol BS17-2SH, England. Ph. 44-117-956-1002 Fax 44-117-956-1121.
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www.TRAXXAS.com

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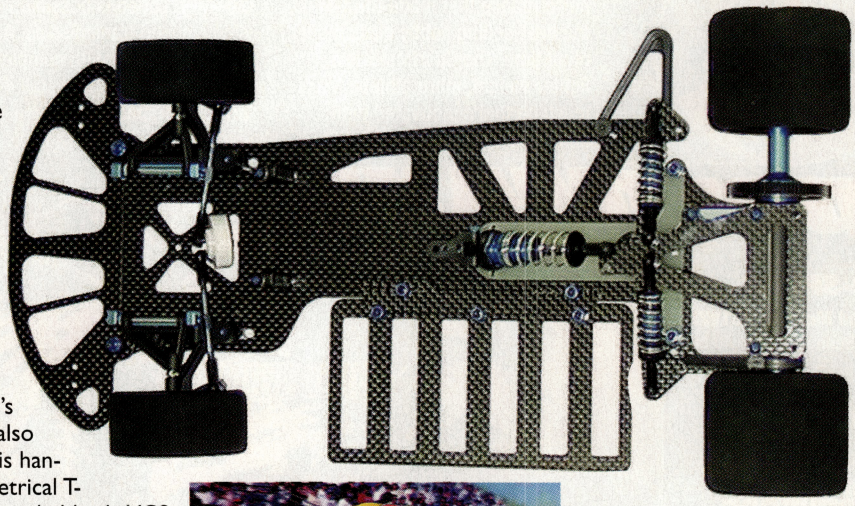
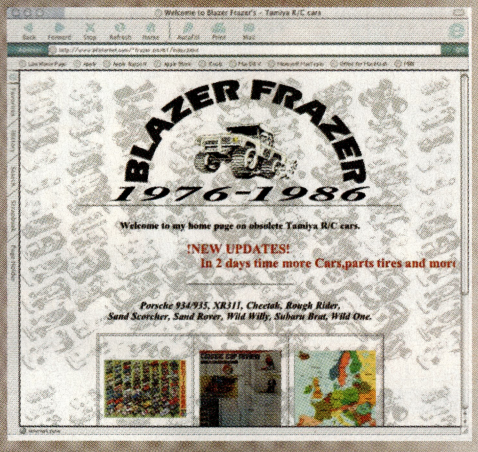
OVAL RACERS REJOICE!



The first "4 Series" car to be released by Team Associated is not the B4 buggy, but the new RC10L4 Oval racer. Developed through input from some of the country's top oval racers such as Daryl Silva and Sean Cochran, the L4 is built around Associated's Factory Team "bias tray" graphite chassis, which features a moveable six-slot battery tray that allows for precise shifting of the battery's weight (an optional four-cell tray is also available). The L4's rear suspension is handled by a .075-inch fiberglas symmetrical T-bar, two VCS Micro shocks and threaded-body VCS Macro shock. The rear pod comes standard set for the "full offset" position, and the rear axle/diff assembly consists of all-new IRS parts, including a graphite Pro axle (with locking D-ring diff) and IRS's double-clamping left-side hub. Other features include Associated's new 1/5-ounce featherweight foam bumper and Dynamic Strut front suspension with IRS's adjustable aluminum front-arm mounts. Contact Associated for more information at (714) 850-9342.



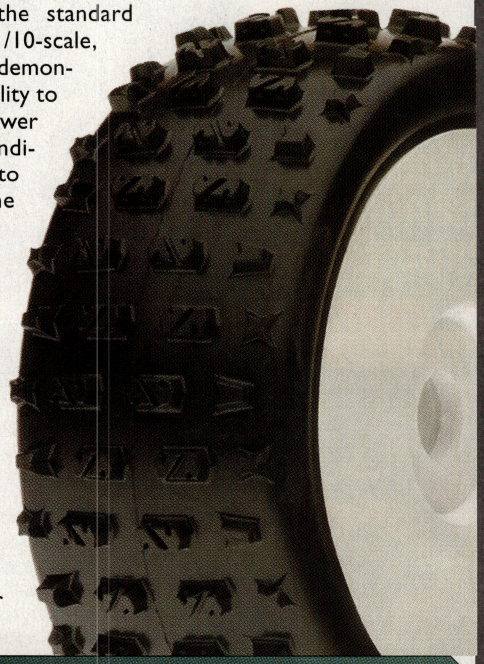


WEBSITE OF THE MONTH

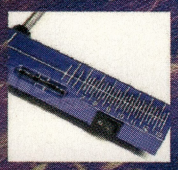
Into vintage Tamiya kits? Need some info for that killer Rough Rider restoration? Look no further than *www.blazerfrazer.com*. Here, you'll find everything from production numbers, current market values and where to find those "impossible to find" rare Tamiya kits and accessories. Frazer even has a hard-to-find Tamiya kit or two on the block.

TURN TO THE LEFT...

Pro-Line's new Mugshot tires bring the effective Bow-Tie technology to 1/8-scale buggy racing. Like the standard Bow-Tie tires for 1/10-scale, the Mugshots have demonstrated the unique ability to lay down the horsepower on varying dirt conditions – front loam to hard-pack, the Mugshots get the job done. According to multi-national champion Mark Pavidis, these tires "just plain work!" The Mugshots are available in both Pro-Line's XTR and softer M2 compounds, and come with firm, low-roll foam inserts. Contact Pro-Line at (909) 849-9781 for more information.

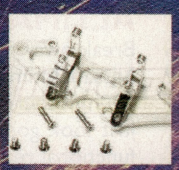


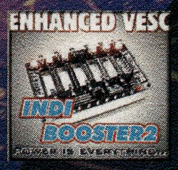
[www.integy.com]







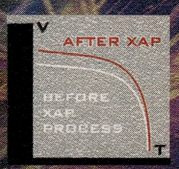






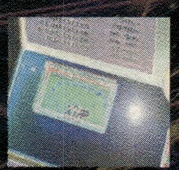












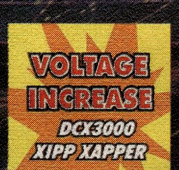


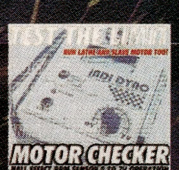














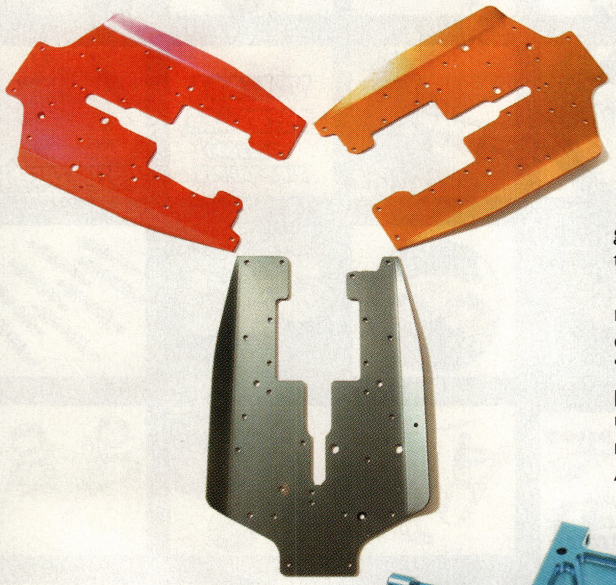



TEAM INTEGY
http://www.integy.com

ALTIMATE SEDAN SHELL

Break away from traditional sedan bodies by picking up ProtoForm's new Nissan Altima – a low-slung replica of Nissan's "sleeper" sedan for your 190mm touring car. ProtoForm ensured that the Altima would do more than just look good by giving it a low front end for exceptional steering, and a functional rear-deck spoiler for improved stability. As usual, the body comes with window masks, a comprehensive decal sheet made from the highest quality vinyl, and protective overspray film. Contact ProtoForm at (909) 849-9781 for more information.

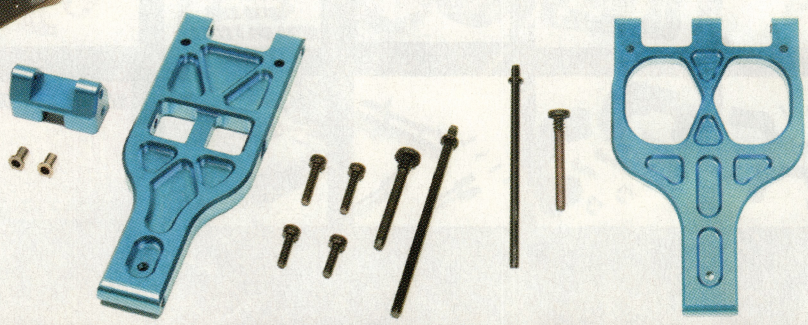




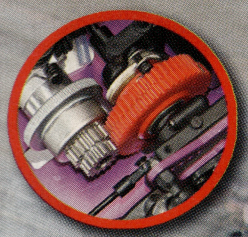
BIG-TIME TAMIYA

Tamiya comes out swinging with these hot new accessories for its Terra Crusher nitro monster truck. The first things that is on our TC shopping list are these awesome anodized replacement chassis. Made of Duraluminum, these direct-fit hop-up chassis are available in your choice of gold, red or gray anodizing. Just the thing to give your truck a whole new look.

Also on the TC agenda are these billet-aluminum replacement suspension arms. You won't break or even bend these babies – no matter how much you "hillbilly" your truck. The arms are sold one to a package, so you'd need four complete sets of each upper and lower arm to fully outfit your TC. For more information, including price, contact Tamiya America at 1-800-TAMIYA-A.



Fun Factor Ready To Run



Free 2-Speed pre-installed (4WD only)

Each Funfactor is available 2Wd or 4WD and includes our highly powerful NT-16 engine. 2-Channel pistol grip radio includes with each kits. Choose your favorite body below. Experience the quality that CEN racing delievrs.



RTR Ready To Run WITH 2 CHANNEL RADIO

P&D Fully painted & decorated body

Totally Convertible Stadium Truck 2 WD Rally Smart Chassis Buggy 4 WD Monster Truck

- .16 Chrome sleeved high performance engine
- 2-speed transmission
- Pivot ball suspension
- Anodized violet chassis and top plate
- Aluminum front and rear shock towers
- Counter-sunk chassis
- Oil filled coil over shocks
- Dual-chamber tuned pipe
- Super hardened diff gears
- Steering bell cranks with built-in servo saver
- Available 2wd or 4wd
- 18 Ball bearings included
- Many upgrades available
- Ready to run out of the box



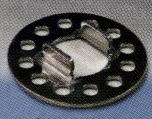
Cooling Head for NT-16



Steering Linkage



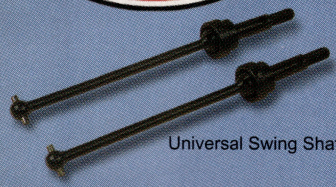
Clutch Bell M10



Break Disk



One way Differential



Universal Swing Shaft



Alum. Gear Hub



Ball B5.8x11



Ball B5.8x6



FF037/FF337 MT

FF039/FF339 ST

FF038/FF338 Schlesser



FF392 BG2

FF390 MT2

FF391 ST2



FF3923 ATX



FF036/FF336 BG

FF088/FF388 Citroen Xsara

FF089/FF389 MINI COOPER

FF074/FF374 Peugeot

FF073/FF373 Subaru

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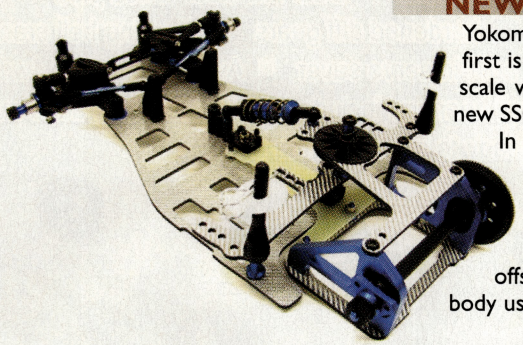
PLEAZING MAXX FANS

First there was the Crowd Pleazer for stadium trucks, then came one for sedans. Now, Pro-Line has brought its unique Crowd Pleazer styling to the world of monster trucks with the new Maxx Crowd Pleazer. Molded from ultra-rugged .060-inch Lexan, the Maxx Crowd Pleazer will give your Maxx the low-profile stance of a racing truck and a look that definitely screams "custom." Along with the body, you'll also get window masking, a decal sheet and even a racing-inspired rear spoiler. The Maxx Crowd Pleazer sells for $28.00. Contact Pro-Line at (909) 849-9781 for more information.

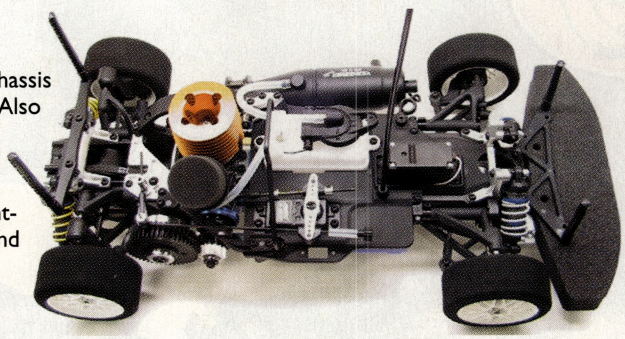


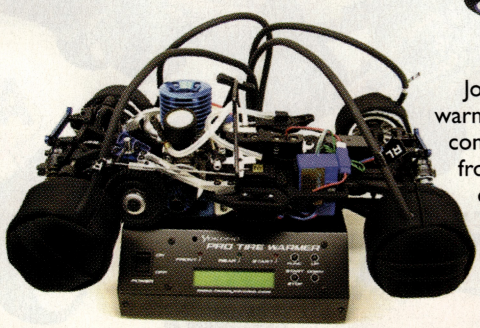
NEW YOKOMO GOODIES!



Yokomo has been busy developing new products for on-road racers. The first is a replica of the car used by Masami Hirosaka to win the 2002 1/12-scale world championship. The new YRX-12 Worlds Edition utilizes an all-new SSG (Silver Surface Graphite) material for its main chassis components. In testing, this new material allowed the car to maintain handling that's more consistent. Other features include adjustable battery positioning, full adjustment for the front suspension, provisions for optional side dampers and a symmetrical T-bar design. The kit also includes Yokomo's Stealth 3 super ball diff, an Associated VCS oil-filled shock, offset front axles, titanium turnbuckles and the same MS-1 lightweight body used by Masami. Retail price for the kit is $365.00.

Next is the new GT-4 S-Type competition chassis kit, which comes with a hot RB X12 engine. Also included are Yokomo's black in-line tuned pipe set, aluminum shock towers, shoe-type 2-speed transmission and adjustable Centax racing clutch. Other goodies that come with the S-Type are lightweight hollow layshafts, a front one-way diff and both a solid axle and gear diff for the rear end.



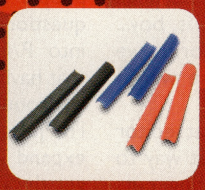


Jointly developed by Yokomo and Team Sorex, this new tire warming system for touring cars has cup-style warmers and a computerized thermo-controller that can be set to warm the front and rear tires at separate temperatures in precise 0.1-degree increments (up to 176 degrees Fahrenheit). The warmer is compatible with 7.2 to 12 volt power supplies, and was used by Masami Hirosaka to win the 2002 Japanese touring car nationals. Retail price is $349.50. Contact Yokomo USA at (949) 252-8663 for more information.

GET AGGRESSIVE



Introducing Hitec's NEW Aggressor 2 Channel AM & 3 Channel FM Pistol Grip Radios



You want performance, need reliability and gotta have style, so check out Hitec's all new, affordable Aggressor Radios. Be the first to customize your new Aggressor with thin or thick Grip Pads in three different colors for big or little hands. Then choose Tuning Covers from 5 different styles and colors to customize your new radio and make it "your own."





As always, Hitec loaded both radios with valuable features: dual rate steering, servo reversing, a built-in charging jack for optional rechargeable Nicads, and a rock solid signal for reliable control.

Need to be more aggressive?

The Aggressor 3 Channel FM features a push button third channel that can be used for shifting! For easy set up and maximum performance, we've also added throttle and steering end point adjustments (EPA's).



 # 125271 Aggressor 2 AM 27MHz w/two HS-311 servos and HAS-02MB receiver
 # 125751 Aggressor 2 AM 75MHz w/two HS-311 servos and HAS-02MB receiver
 # 125752 Aggressor 2 AM 75MHz w/one HS-311 servo, HAS-02MB receiver and Hitec's EZX-R Reversible Electronic Speed Control
 # 125753 Aggressor 2 AM 75MHz w/one HS-311 servo and HAS-02MB receiver
 # 126751 Aggressor 3 FM 75MHz w/one HS-325HB servo and HFS-03MM receiver

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HITEC

[Truck Column]

This year has brought a plethora of new monster trucks, all of them RTR, and all of them are good. I know that may be hard to believe, but it's true; all of the trucks I have been testing are good straight out of the box. It is really getting hard to say which one is the best, mainly because they all have strong points and weak points. It's all starting to come down to what *you* like in a truck! Which reminds me; I am always asked, "Hey, does that truck wheelie?" Or, "Hey, how fast does that thing go?" Is this all you guys are interested in? If it is, boy... that will make my job easier! As for us, we like performance. Mainly because we go racing.

I like to race, and Frank (that editor guy) likes to race, too. It's a great way to test vehicles and products. Racing puts hard miles on things quickly, and lets us know what works and what doesn't work in a timelier manner (plus it's in a more controlled environment). Both of us feel that what happens on the racetrack directly translates to what happens in your backyard or at your secret dirt lot bashing area.

Getting back to the questions of wheelies and speed. Yes, wheelies are nice—at first—but then what? More wheelies? And what about being super fast? That's nice too, but then what? More high speed passes up and down the front of your house? No, that blows up your engine faster than Homer can cause a meltdown at the Springfield Nuke plant!

Now don't get me wrong; I was just like the people who ask me these questions when I first got into R/C. I soon found out that having a truck that performs all-around was the most fun of all! I'm just trying to help out here and expand your R/C fun. I want you guys to get the most out of your trucks whether it be bashing or racing. I say look for a truck you like, use the mags (hopefully only ours) as a guideline, and trust me, ALL the trucks I have tested so far are good. They all have good and bad points, but there are no duds; not yet, anyway. All the trucks will do wheelies, all the trucks will go fast (some more than others); all you need to do is change gearing or whatever. Just go with your gut (like I do); why do you think it's so big? Don't listen to little



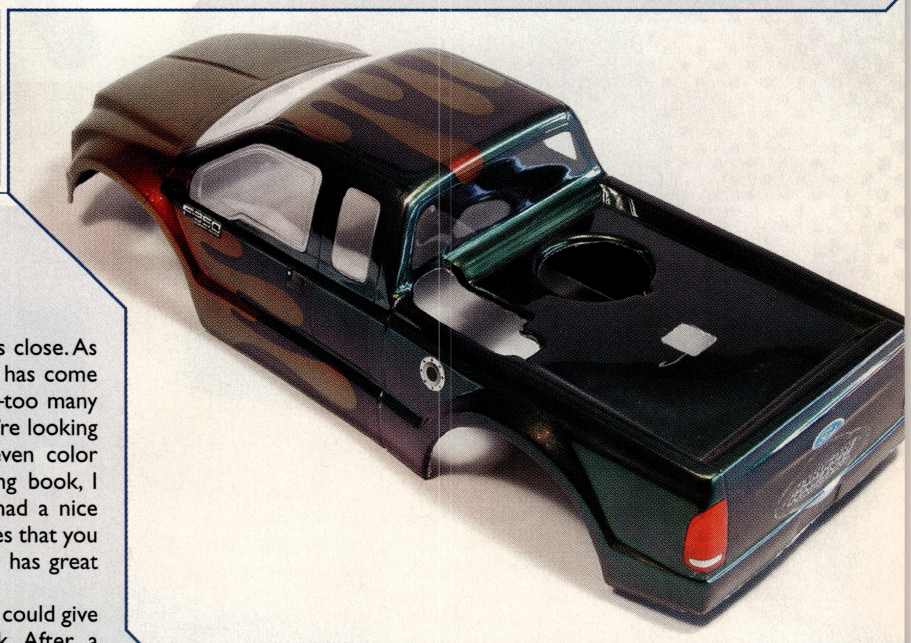
Johnny down the street. Don't listen to that Skinny guy. No! Go with what makes you excited and build on it. I hope this helps in your buying decision this year. Lord knows we all have a lot to choose from this year. As soon as I find that elusive "best" truck, you will be the first to know.

Just remember: at the end of that straightaway, there's a corner!

EARL SCHEIB'S PAINT & BODY?

Well, not exactly! But Racers Edge sure is close. As you may well know by now, Racers Edge has come out with a whole slew of paint choices—too many for me to list here. But chances are if you're looking for a color, they have it. Since I can't even color between the lines in a children's coloring book, I went to my buddy's at C&C Paint and had a nice long talk with Chris. He paints all my bodies that you see in the mag, and he is really good and has great pricing too!

I gave him all the paints to try out so he could give me some feedback on how they work. After a month or so, this is the result. Racers Edge paints





BY BRIAN SKINNER

READER WRITES

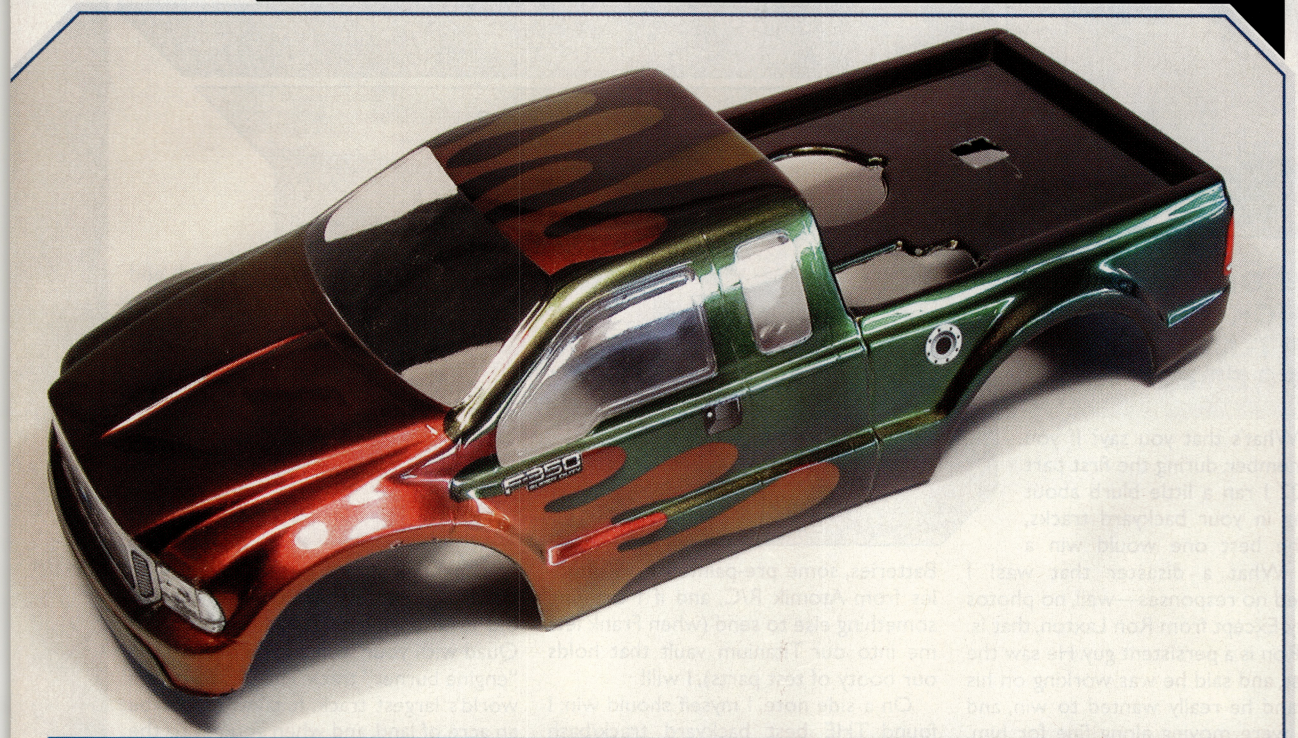
I just wanted to say how much I love your column. I became a recent subscriber. I was wondering: I am looking for a small monster truck. Any suggestions? Also does Richard Trujillo have an email? Thanks, and looking forward to the next issue.

Todd Shaffer

Todd, thank you for loving my column! That is what makes my job worthwhile! As far as the small monster truck (that's one of those oxymorons you hear about), I'm guessing you're talking about the trucks I cover in my column! Well, Todd, you're in luck! For the '03 season, you have a good number of trucks to pick from: Tamiya Terra Crusher (my current love), HPI Savage, Traxxas 2.5 T-Maxx, Associated BFT, then you get into the OFNAs, Thunder Tigers and so on. Todd, they are all great trucks, and you can't go to wrong with your choice. I would suggest you go with what your local hobby shop carries and stocks parts for.

Look at the choices they have, close out all the noise the sales guy is telling you. Then and only then make your decision! Listen to what your mind is saying, and not the sales guy or whoever it may be. Remember, *you* are the one buying the truck, and *you* are the one who will play with it! So make yourself happy, not the other person.

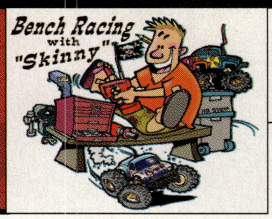
P.S. Richard won't even give me his email! [Actually, just send an email to *tomh@hi-torque.com* and we'll pass it along to Richard—ed.]



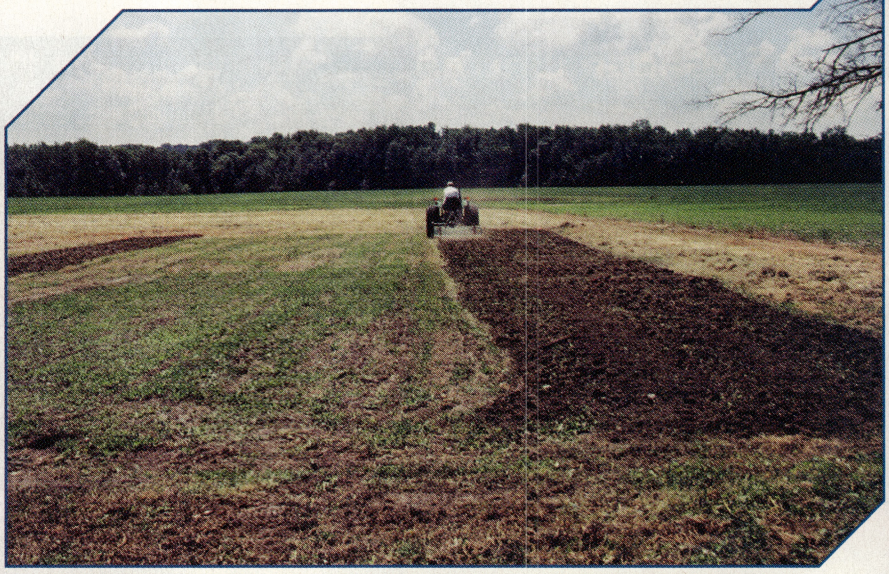
work great! They stick well to the Lexan, and are colorfast, meaning they don't fade or peel.

We really got excited about the glow-in-the dark paint, dreaming of how cool it would look on Thursday night racing. And with our delusions of grandeur, we painted a body and headed out to the track. We found out that glow-in-the dark paint only works if it's really dark. Out on a reasonably well-lit track, it's not dark enough to let the body glow (bummer), but on the dark side of the pits, that was a different story! See? That's what you get for daydreaming.

Moving out of the dark and into the light, we have a different story. Pictured here—for lack of better words—is the "Chameleon" paint job. This paint—similar to a special-order paint used by Ford—is very expensive in the "real" world. I'm sure you have seen it around town, it's the car you see driving down the street, and it passes you looking one color, and then you look back again, and it's another color! And you're standing there thinking, "What the ...?" Yeah, that's what this is! And for show, you can't beat the look! So unlike me, if you want to be like Earl Scheib, contact Racers Edge (866-855-5566 or *www.racers-edge.com*) and order some paint and tell them Skinny sent you.









THE BACKYARD TRACK CONTEST THAT NEVER HAPPENED

Huh? What's that you say? If you all remember, during the first part of 2002 I ran a little blurb about sending in your backyard tracks, and the best one would win a prize! What a disaster that was! I received no responses—well, no photos anyway. Except from Ron Laxton, that is. Now Ron is a persistent guy. He saw the contest, and said he was working on his track and he really wanted to win, and things were moving along fine for him. That was until the dreaded in-laws came to town.

Well, that pretty much stopped him and his boys from finishing the track, and now it's too late. So since my contest never happened, and his track never happened, I figure that Ron and his boys win! Hmmm, what a concept; winning a prize for not finishing. Who would have thought it! Ron, I love your persistence. For that I'll be sending you a cool on-board battery pack from Ballistic Batteries, some pre-painted F-150 bodies from Atomik R/C, and if I can find something else to send (when Frank lets me into our Titanium vault that holds our booty of test parts), I will!

On a side note, I myself should win; I found THE best backyard track/bash area. It's more like four-in-one. And of all places, it's in Durango, Colorado. My good friend Greg Herbold and his faithful sidekick Kenny Wehn have it made. Greg has a "very large" area to play with! And next to his "very large" garage is his 1/10-scale track that rivals any professional racetrack! Getting bored with that? Let's go over to the 1/8-scale track. Want to do some jumping and transitions? Lets go over to the "freestyle" park. Just turn the R/C around and head down to the end of the 1/8-scale track and launch off a nice sized jump and land fifteen feet down the embankment into a cutout ravine with bowls and jumps. Want to finish off that old tired engine for good? Hop on the Quad with your stuff and go over to the "engine burner" track. This has to be the world's largest track. It takes up maybe an acre of land, and when you get to the backside of the track, your buggy looks about the size of a dime! The way the track is laid out you can run your buggy pinned, and quickly melt your engine, thus the origin of the track's name.

When the snow clears I think I'll go out and get some photos for you, and let you see for yourself—this "mecca" for R/Cs. The funny thing is, Greg's in the mountain bike industry, and has more R/C tracks than he does MTB tracks! I love it!

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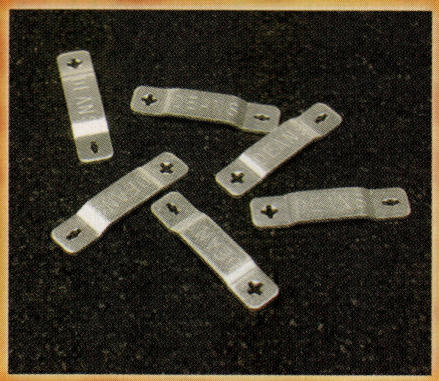

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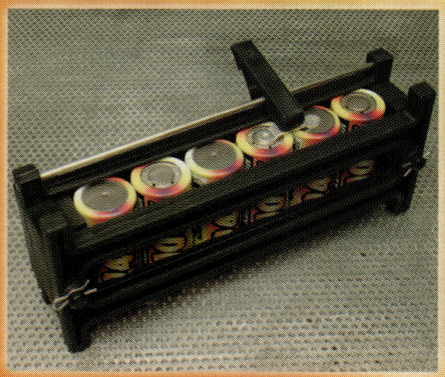

"Ten Must Have Tools" - R/C Car Action
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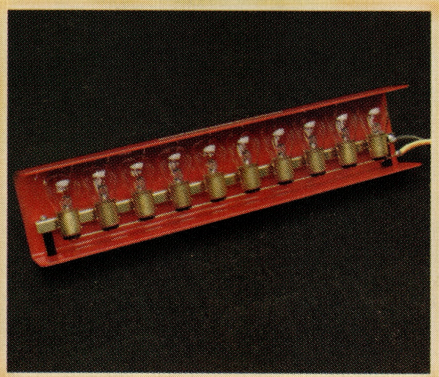
DISCHARGER



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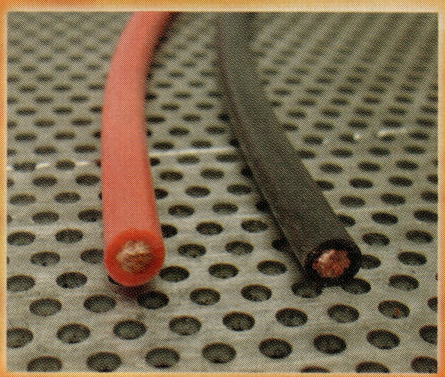

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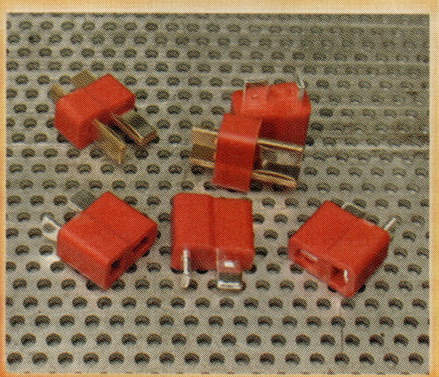

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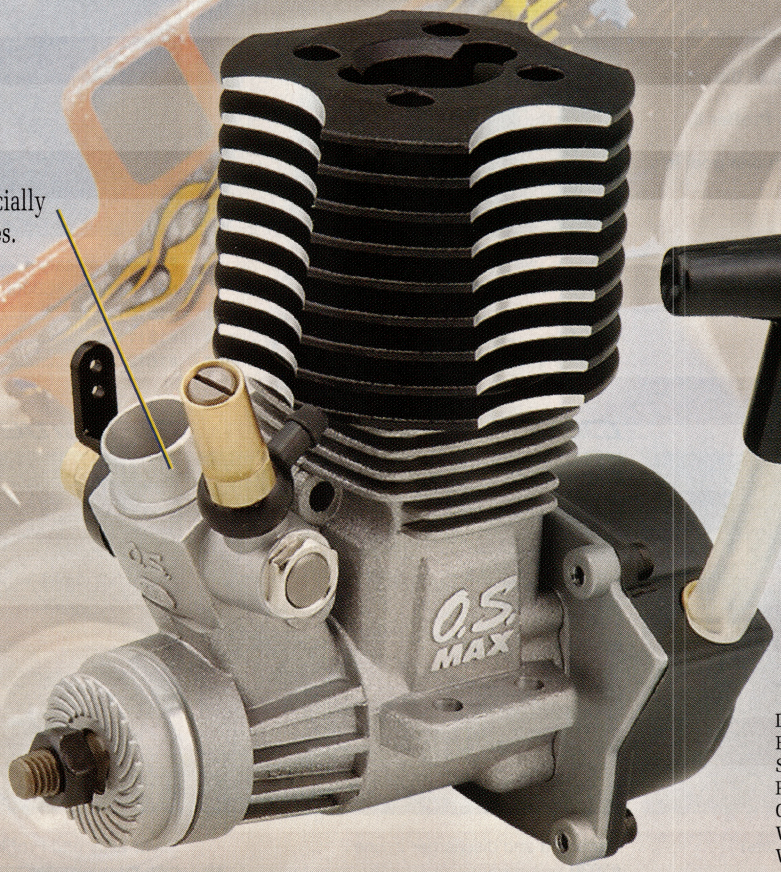

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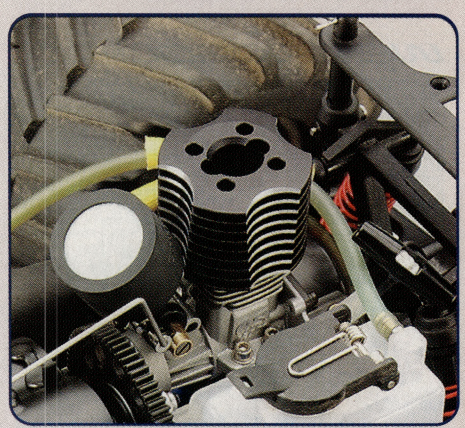

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INSURANCE POLICY

I own a Team Losi NXT with a Hitec Lynx FM radio. It has a Hitec servo, and an Airtronics servo. I was considering putting a fail-safe adapter in my car. What do they do? Do I need a special one for my radio? Could you tell me where I could get one, and how much they are? Is it worth it to get one?

Tony Orlofske
Via *rc-car.com*

Originally, Futaba's PCM radios were the first to offer a fail-safe feature. In the event that the signal from the radio loses contact with the receiver, fail-safe automatically intervenes to move the servos to predetermined "safe" positions, which prevents the car from running out of control. Unfortunately, you must own an expensive PCM radio in order to get this feature. However, several manufacturers now offer fail-safe devices that are connected in-line between the receiver and the throttle servo. Although they don't quite perform the same function as a radio fail-safe, these inexpensive modules will return your throttle servo to neutral or brake in the event of signal loss. One such device is made by Dynamite (DYN2550), and it will also intervene should the battery's voltage drop too low. It sells for under $30. You can contact Dynamite by calling (800) 338-4639.

IF WE KNEW THAT...

I heard all the new 2.5s are coming out from Traxxas, and until now I wanted the new 2.5 T-Maxx. Now I hear there is a Stampede 2.5 coming out, and I was wondering if the 'Pede was 4WD like the T-Maxx, and what would you buy and why between the Terra Crusher, T-Maxx 2.5, Stampede 2.5 or Savage 21?

Kyle Johnson
Via *rc-car.com*



Yes, Traxxas has updated the Stampede by replacing the old TRX-15 with the new TRX 2.5 engine that was developed for the T-Maxx. As the new engine puts out way more power than the engine it replaces, expect the new Stampede to be one of, if not the, fastest RTR trucks available. But there is a hitch; the Stampede has neither the T-Maxx's compliant suspension nor does it have the full-time 4WD system that make the Maxx so capable. As for the T-Maxx's competition, early testing shows that the new Maxx gives up nothing to the big-blocks in terms of speed; however, it is a bit smaller than the rash of new big-block trucks.

WHICH YOKE?

Dear R/C Car,

I'm trying to make the decision about buying a nitro touring car. I've done some research and thought my best option would be to buy a Yokomo. Here's my question: since I plan to race, would it be best to buy the GT-4 RTR or the GT-4 Pro? I'm wondering if the RTR would have the qualifications needed to win a race coming out of the box, or should I buy the Pro? If you think I should buy the Pro edition, would you be so kind as to recommend an engine, tuned pipe and tires, please. Thanks for your advice and time.

Terrence Peeples
Via *rc-car.com*

It just so happens that we have raced both the GT-4 RTR and Pro models, and here's what we learned: the RTR is wickedly fast, but it needs a little work before it can put that power down on a closed-course track. First, the steering servo is weak, and at high speed, the RTR can get a step behind what you're telling it to do. The stock tires will need to be replaced with foams (this can cost up to $40 or more). You'll also want to use a different body than the Veilside RX-7 that comes with the RTR; it's not very stable at speed. The RTR also comes with a locked front diff spool, which makes the car feel hyperactive on a track. So if you're going to race, we recommend the Pro version of the GT-4. As for equipment, any racing style .12 will do well, and we were happy with the optional Yokomo tuned pipe and manifold we used for our test car. Also, the stock

[FEEDBACK]

GT-4 Pro tires work well, but they don't last too long.

IMPATIENT?

Hello! I heard there is a Team Associated B4 to come out soon. Is there going to be a T4 as well this year?

Eric Smith
Via *rc-car.com*

Eric, the good news is that there is a new B4 buggy, and it will also be used as the basis for a new T4 truck. The bad news is that Associated probably won't have the buggy ready until at least the first quarter of '03, and it's going to take up to half a year or longer after that for the truck version to be released.

FORGOTTEN E-MAXX

I haven't been in the R/C scene for a while, but my last R/C was an E-Maxx. I truly enjoyed that monster truck, but with no class and very few people to race with, I dropped out from R/C. Anyway, just recently, I read with interest about the new T-Maxx with the 2.5 engine and wondering whether you would know if Traxxas is coming up with an update for the E-Maxx as well? Also, are there other manufacturers with electric monster trucks?

Dennis Aquino
Via *rc-car.com*

Although Traxxas hasn't announced any plans to update the E-Maxx (other than the switch to the Novak-made EVX ESC), they have given the "okay" for the use of two seven-cell packs with the EVX speed control—as long as the stock Titan 550 motors are used (using any other motors will void the warranty). With this setup, the E-Maxx will hit speeds in excess of 30 mph, which is close to that of most nitro trucks. We're surprised that Traxxas hasn't yet adapted the wide suspension from the T-Maxx 2.5 for use on the E-Maxx, but you can always purchase a wide suspension kit separately from Traxxas or from Pro-Line. Other news that may be of interest to E-Maxx owners is that Novak plans to release a 14-volt version of its upcoming Brushless Motor System, which should raise speed and torque significantly, as well as eliminate the waiting period and wear usually associated with standard electric systems.

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CROSSING THE THRESHOLD

I have a MRC Super Brain 959 charger, and in auto function it won't fully peak my batteries. It false peaks every time. To set the delta peak myself, what would be the best setting for a 1500 and 2400mAh pack? I can choose 5mv to 50mv. Any help would be greatly appreciated.

Mark
Via rc-car.com

Mark, the voltage threshold, i.e., the drop in cell voltage that the charger uses to sense a full charge, varies with the type of cell (NiCad or NiMH), the cells' capacity and the condition of the cells. The best advice we can give is that you start low and work up to a higher threshold - checking pack temperature after each charge. When the pack becomes very slightly warm to the touch, you're good to go.

HONORABLE DISCHARGE

I've heard there is a way to make your own discharger with a light bulb. If there is a way, how do I make one?

Michael
Via rc-car.com

People have been making their own dischargers out of 12-volt automotive lightbulbs for years. I believe that each bulb pulls 1 amp, but don't quote me (you can figure that out with a visit to an auto parts store). Buy enough bulbs to place a 10- to 20-amp load on your packs. Wire them together "in series," i.e., negative of one bulb to the positive of the next one, and so on. Most people find that a brass rod makes a good connecting medium, as it has good conductivity and holds the bulbs securely once they've been soldered in place. You'll need two rods: one for the positive lead and one for the negative.

E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@attbi.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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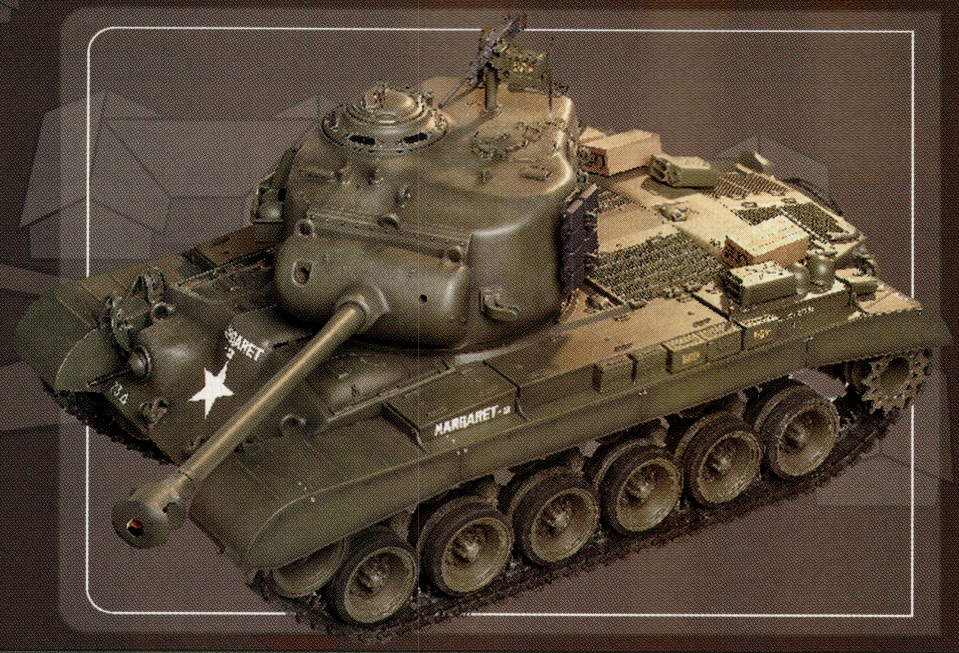
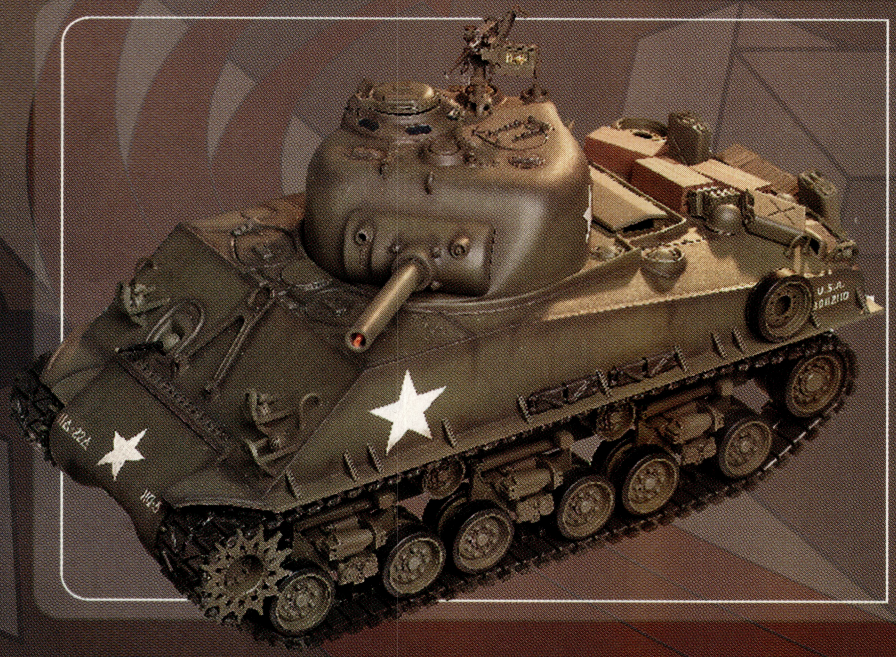
1/16 KING TIGER Full-Option Kit (#56018), **1/16 M26 PERSHING** Full-Option Kit (#56016)



PERSHING

M26 Pershing
Full-Option Kit #56016

RES TO THE BATTLE OF THE CUL-DE-SAC.



SHERMAN

M4 Sherman
105mm Howitzer
Full-Option Kit #56014

Your neighbor has been talking trash for weeks and now it's time to settle the score! It's 1300 hours and all is quiet on the cul-de-sac front; except for the distant idle of your neighbor's dreaded Tiger I. The adrenalin rush is almost unbearable as you wait for a gap in the enemy's strategy and your opportunity to finish him off for good. He's slowed, because you hit him twice already and your heart is pounding as you wait to pump your last infrared round downrange. You smile because all of his trash-talking propaganda has had no psychological effect. You have him right where you want him... Think this is a game? Naw, it's personal! Combined with the BL System (Hop-Up Option offered separately), Tamiya has the most advanced tank-to-tank scale combat system ever made. From the original Tiger I to the newest King Tiger, these monsters have realistic engine sounds from start-up to idle; flash, blast and recoil of the main gun; sound and flash of the bow machine gun; and realistic damage blast and shuddering as the tank shuts down from an infrared "hit." For realistic fun on a grand scale, skip the video games. After all, this is WAR! So get all your neighbors and charge down to your hobby shop, demand your weapon of choice and then shut the "trash talker" up once and for all!

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TEAM LOSI

Team Losi's tradition of offering special versions of its kits, ones with virtually every hop-up item in the catalogue, began back in '97 with the very first Double-X 'CR' Kinwald Edition. Since then, nearly every kit in Losi's lineup has included a Graphite Plus version. When the XXX-S touring car was introduced in '00, we knew it was only a matter of time before it too received the royal GP treatment. Well, here we are two years later, and staring into the open box of the XXX-S Graphite Plus. Staring and drooling at all the super-trick parts that we'd soon be putting together, racing and reviewing!

LOSI'S SEDAN GETS

4WD UNASSEMBLED KIT ELECTRIC POWER

XXX-S GRAPHITE



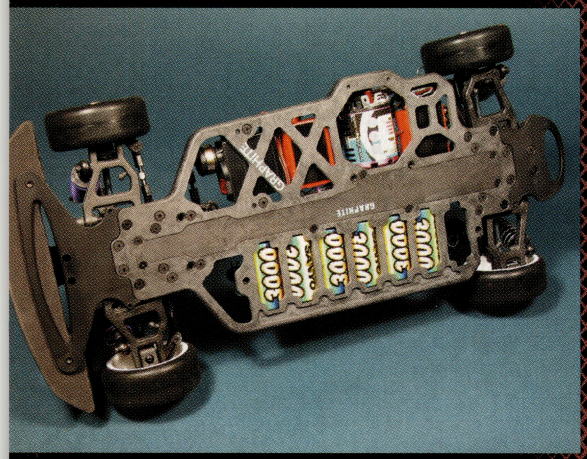
THE TREATMENT!

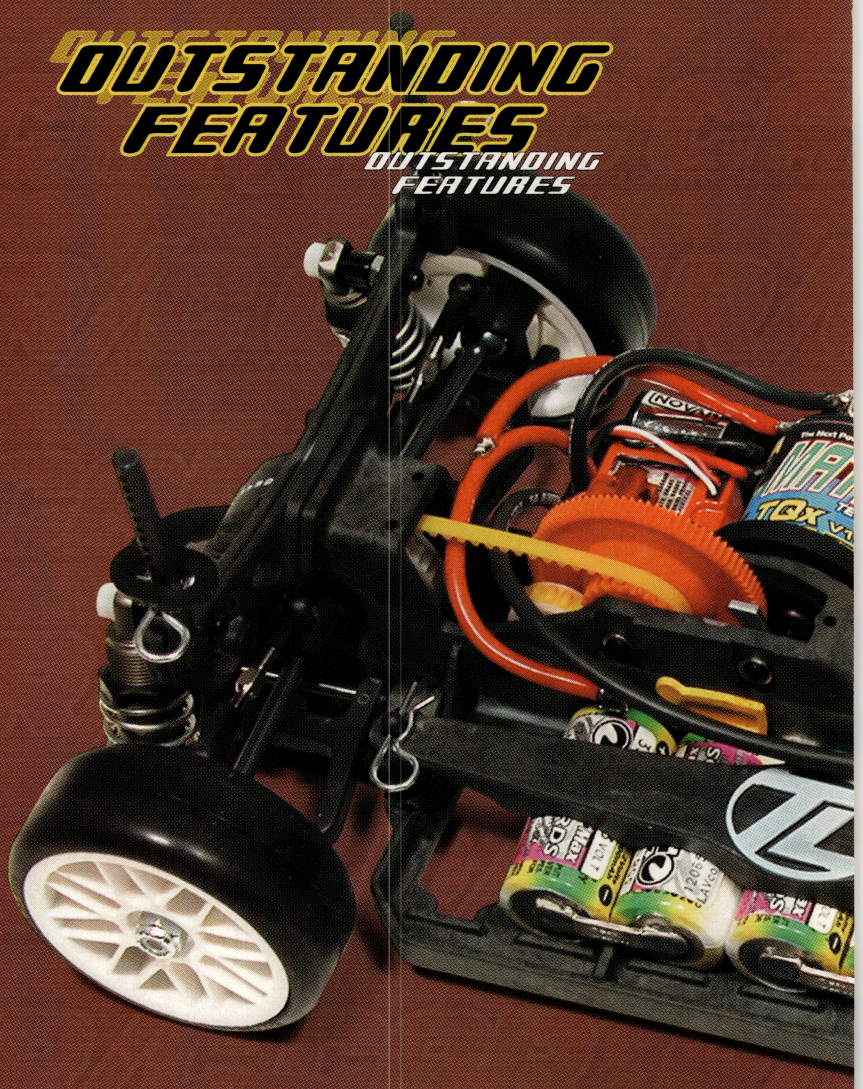
OUTSTANDING FEATURES

OUTSTANDING FEATURES

COMPOSITE SKETCH

Virtually every molded part of the XXX-S GP is molded from graphite composite, which is both lighter and stiffer than Losi's usual Stiffezell composite. This includes the chassis (which has been further lightened through careful material removal), the suspension arms, hubs and uprights; even the battery hold-down strap, droop gauge and belt access-cover are made from this high-end material.

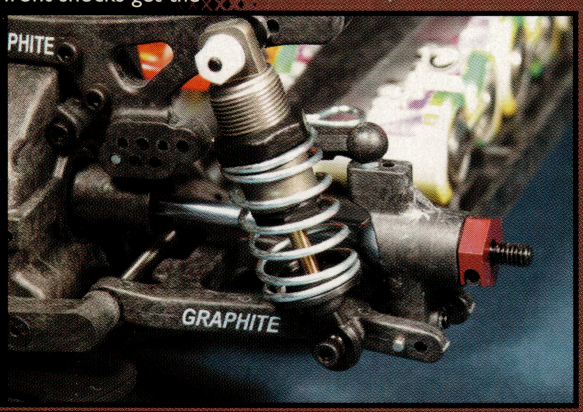




REVISED SUSPENSION

Although the Graphite Plus comes with graphite pivot blocks, it also includes as an option a set of graphite low roll-center blocks, which lower the arms' hingepins closer to the chassis. When the lower blocks are used, the car becomes softer in roll so that it can lean into the turns easier. This setup is good for when racing in extremely high-bite conditions such as on carpet, or for when racing on slippery or bumpy outdoor tracks where additional traction is required. When using the lowered blocks, it's usually necessary to run slightly stiffer springs.

The shocks on the GP kit has received substantial upgrading with titanium-nitride-coated shock shafts, which reduce both friction and stiction (the amount of energy required to cause an object to move). The standard aluminum shock bodies have been replaced with Losi's hard-coated threaded shock bodies, which make it much easier - and more precise - to adjust spring pre-load. The rear bodies are the standard 0.36-inch lengths, while the front shocks get the new 0.28-inch bodies, which allow more up-travel for the front suspension. Hard-anodized aluminum suspension balls replace the heavy steel pieces of the standard kit to reduce upsprung weight from the suspension.



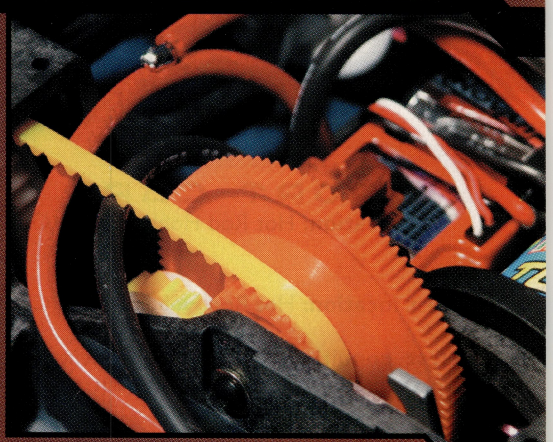
New graphite offset rear hubs have different pivot geometry that allows the chassis to rotate easier when entering turns, then square up more quickly when exiting corners. These hubs tend to work best on tight tracks (such as indoor carpet courses) or whenever you're on a track where there are few high-speed or constant-radius turns. The GP comes with Losi's new graphite rear arms, which have a new, additional hole for the new hubs as well as the hole for use with the standard-offset hubs (which are usually better for use on faster outdoor tracks, as they tend to keep the rear end more stable through sweepers and other high-speed turns).

The hubs that come in the GP kit provide 2 degrees of toe-in per side, but you can use Losi's optional 1/2-degree or 2-degree graphite offset hubs to reduce toe-in and gain a bit of steering.

The steering bellcranks no longer must pivot on plastic bushings, as they now have a quartet of tiny, sealed ball bearings on which to spin. This not only reduces drag in the steering linkage, but also "tighten" things up by reducing unwanted play.

The final tweak of the GP's suspension comes in the form of lightweight and strong machined-titanium turnbuckles for the upper camber-links and the steering tie-rods.

XXX-S GRAPHITE

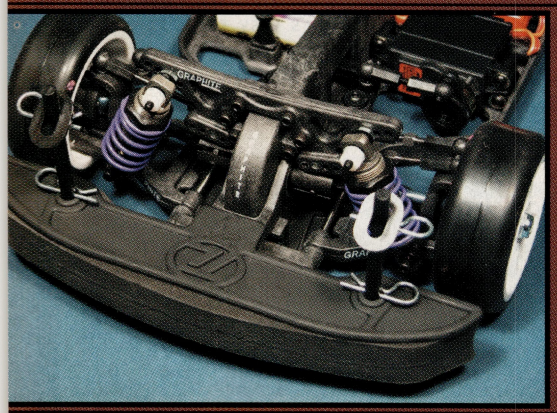


DRIVETRAIN PLUSES

The already-efficient XXX-S is improved further with the addition of a new yellow drive belt, which is created from an exceptionally flexible material that reduces drag as it is wrapped around the diff and drive pulleys. As a result, both acceleration and top speed are improved. The GP kit includes both front and rear diffs as well as the means to build a locked front "spool."

And despite the fact that the standard XXX-S kit already comes with MIP CVD driveshafts at all four corners, the GP kit takes reduced drivetrain weight to the next level with a set of MIP's lightweight aluminum CVDs.





ADDITIONAL UPGRADES

Losi also paid attention to the front bumper area. The impact-absorbing foam bumper element is now sandwiched between the lower bumper support and a new molded upper brace. The brace helps soak up collision energy while also providing support for the front body posts.

Also included with the GP kit is Losi's 190mm Alfa 156 sedan body, which comes with a new molded wing that has dual vertical channels to assist with stability. Losi also wisely updated its kit wheels. The lightweight new hoops are industry-standard 24mm instead of 26mm, and they fit standard 12mm touring car hubs; no special adapters are needed.

XXXS GRAPHITE



REPORT CARD

Test location: Hot Rod Hobbies, Santa Clarita, CA

Test location: Hot Rod Hobbies, Santa Clarita, CA

Test conditions: Smooth permanent asphalt roadcourse, medium-sized with an open-style layout

Speed and acceleration: A

What else can we say about Losi's innovative single-belt 4WD? Of all the belt cars on the market, the XXX-S definitely has the edge when it comes to its free-spinning drivetrain. The new yellow belt really adds a bit of snap to the feel of the GP edition. We also felt that the new belt reduced the amount of belt skipping present during braking - perhaps because it's more pliable. With a stock motor, the car feels as loose as a TC3, meaning that its acceleration and ability to roll through the turns is above average.

Braking: B

We'll never get used to the XXX-S's habit of skipping its belt during braking. Losi says this is normal and doesn't hurt the belt or pulleys, but it remains a disconcerting trait. The new yellow belt does reduce this tendency. Otherwise, the GP stops straight and short, as it is equipped with front and rear diffs and no one-way.

Low speed steering: A-

Built as per the new GP setup (as recommended in the instructions), our test car exhibited a bit of roll in the turns, but this tended to make the car feel very locked-in. Initial turn-in generated a slight amount of understeer, but once in the turns, the car was very stable and carried a great amount of speed.

High speed steering: A-

The Hot Rod Hobbies track has a section that can be taken nearly flat-out. It consists of a large sweeper followed by a very large and smooth chicane. We have driven cars that can take this section flat-out without lifting (they have all been equipped with one-ways), but we had to let off a bit to help the GP to hug the tightest line on the sweeper. Of course, the new offset rear hubs are better for tighter tracks, so we would suggest that you use the standard hubs if your track has such wide-open sections (and consider Losi's optional front one-way).

Durability: A

Losi builds tough cars, and the XXX-S GP is no exception. We didn't break or even crack a single part during our test; and we did have a few high-speed mishaps, including a full-throttle barrel-roll!

SPECS

Price:	$269.99 (varies with dealer)
Length:	16.6in/422mm
Width:	7.5in/190mm
Wheelbase:	10.1in/257mm
Track (f/r):	6.4in/165mm; 6.9in/176mm
Weight:	3lbs, 4oz
Chassis:	Molded tub
Suspension:	Ind. lower arms w/adj. upper links
Drivetrain:	Belt-driven full-time 4WD
Diff(s):	Adj. ball diffs (f/r)
Damping:	Aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	Rubber slicks
Wheels:	One-piece white mesh

Final Score

HIGHS: The Graphite Plus kit represents a substantial value; the price of the options if purchased separately would almost equal the price of the original kit! The GP costs just $50 more than the original kit! This is one of the best handling, easiest-to-tune touring cars on the market today. You don't have to be Gil Losi Jr. to win with this kit.

LOWS: How can we find fault with a car that has won a national championship and includes so many hop-ups for so little money?

THE VERDICT: The XXX-S has become one of the most popular electric sedans, and for good reason: it's full of innovation, it's easy to build and maintain (make that extremely easy), and it handles so neutral straight from the box. Add in a truckload of optional parts for a little more than the price of the original kit, and you have a sure-fire winner on your hands (or in your pits!).

SOURCES

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

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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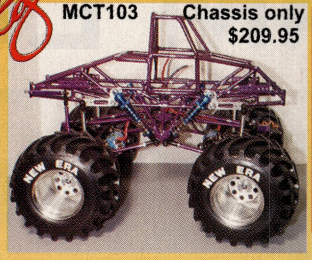
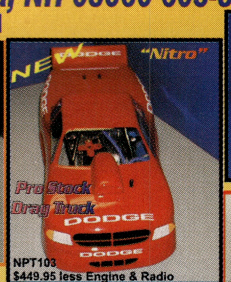




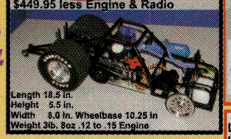
NPT153 $529.95 less Engine & Radio



NPT103 $449.95 less Engine & Radio



NPS153 $529.95 less Engine & Radio





NPS103 $449.95 less Engine & Radio





MICRO RS4
PARTS & UPGRADES IN STOCK

OS.21 RG HEADER ADAPTER TRM505 $19.95





NFC102 $459.95 less Engine & Radio

"CLOD" Upgrades

MCT201 Standard 4 Link Suspension	$69.95
MCT202 Long 4 Link Suspension	$79.95
MCT203 Upper 4 Link Mount	$19.50
MCT204 Steering Servo Adp. Up Front	$34.50
MCT205 Rear Steering Eliminator	$24.50
MCT207 Heavy Duty Steering Rods	$39.95
MCT302 Rear Sway Bar	$39.95
MCT301 Front Bumper	$39.95
MCT401R Shocks w / Reservoir (SALE)	$65.00
MCT402 Bearing Kit 20 piece (SALE)	$34.50
MCT403 Right Angle Body Mounts (pr.)	$ 3.95

"CLOD" Options

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HOT HOT HOT

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TRS223 Stampede Wheele Bars	$39.95

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MJT204 Steering Servo Adapter	$44.50
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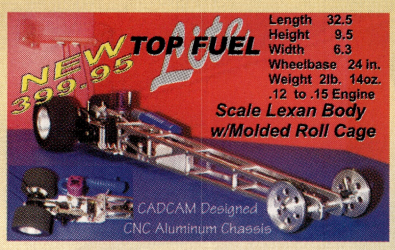
DRAG CARS





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T/E-MAXX CNC Aluminum Upgrades Silver or Blue





1/10 & 1/8 SCALE UPGRADES



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TXT324 Frt Bumper Sup	$19.50
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TXT334 Center Skid	$19.95
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TXT418 Cantilever Levers	$42.95
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TXT822 Lower Supports	$39.95
TXT801 Threaded Shk (pr)	$23.00



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AGT334 Rr Arms Aluminum	$34.50
AGT430 Frt Shock Tower Alum	$19.50
AGT431 Rr Shock Tower Alum	$19.50
AGT345SD Servo Reciever Guard	
CNC Alum for RTR and TEAM	$16.95



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TEC110 .21 Conversion	$139.95
TEC241 Big Tube Header	$23.95
TEC330-31 SD Bulkhead	$85.00
TEC332-33 (8) Alum. Arms	$99.50
TEC339 Alum Turnbuckles	$24.95
TEC340 Bulk Brace F/R	$16.95
TEC348 Forward Only Con	$29.95
TEC360 Gearbox Support	$18.95
TEC601 Big Bore Carb.	$28.95
TEC617,18.20 Gears	$15.90
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TRS333 Rear Control Arms	pr. $34.00
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TRM107XL	3.2mm EXT.MAIN CHASSIS		$49.90
TRM110XL	.21 CONVERSION KIT		$129.95
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TRM320SD	FRONT SKID PLATE (SD) 3.2mm		$22.50
TRM321SD	REAR SKID PLATE (SD)3.2mm		$22.50
TRM322	FRONT BUMPER (2 PIECE)		$18.95
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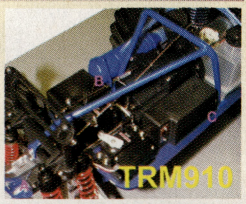
TRE103	E-MAXX 3.2mm Alum. Chassis		$39.95
TRE107	E-MAXX Extended Main Chassis		$49.95







.18, .21, .25 UPGRADE ENGINES CALL

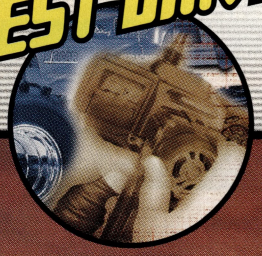












TEAM LOSI

Ready-to-run R/C models have come a long way since their earliest incarnations. What once was the domain of the plastic, break-on-the-first-run, slow-as-sin beginner's vehicle has now been invaded by race-quality, high-performance models that give up precious little to their competition counterparts. One such vehicle is the new XXXS Sport RTR from Team Losi, which is the first of the new line of electric RTRs that were shown during last year's Chicago Hobby Show. Unless you've been living in a cave for the past two years, you know that the XXXS is Losi's racing sedan that has already won its fair share of big titles during its short career. When we opened the XXXS Sport's colorful box, we were shocked at how closely the pre-built chassis resembles that of the race kit that's already in our stable. This thing looks like it's ready to race straight from the box!

READY TO RUN

4WD READY-TO-RUN ELECTRIC POWER

XXXS SPORT



RACER!

IMPORT REVOLUTION

Team Losi is up front with the fact that, unlike the kit versions, their RTRs are actually made overseas (this is the case with 99 percent of RTR vehicles). But don't let this little fact sway you into thinking that the RTRs are cheap knock-offs; the reasons they are manufactured and assembled overseas are purely economical, and Losi's engineers work closely with their overseas vendors to ensure that the quality of the materials and assembly is up to their rigid standards. So although some of the parts themselves are made of slightly different materials than those of the kit version, they are interchangeable with both the OEM kit parts and hop-ups that are available in hobby stores around the world.

OUTSTANDING FEATURES

OUTSTANDING FEATURES

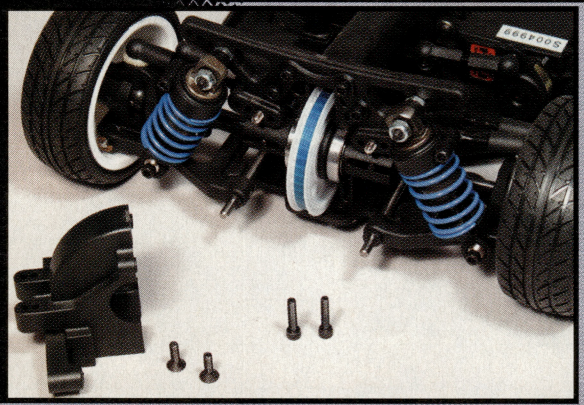
CHASSIS & SUSPENSION

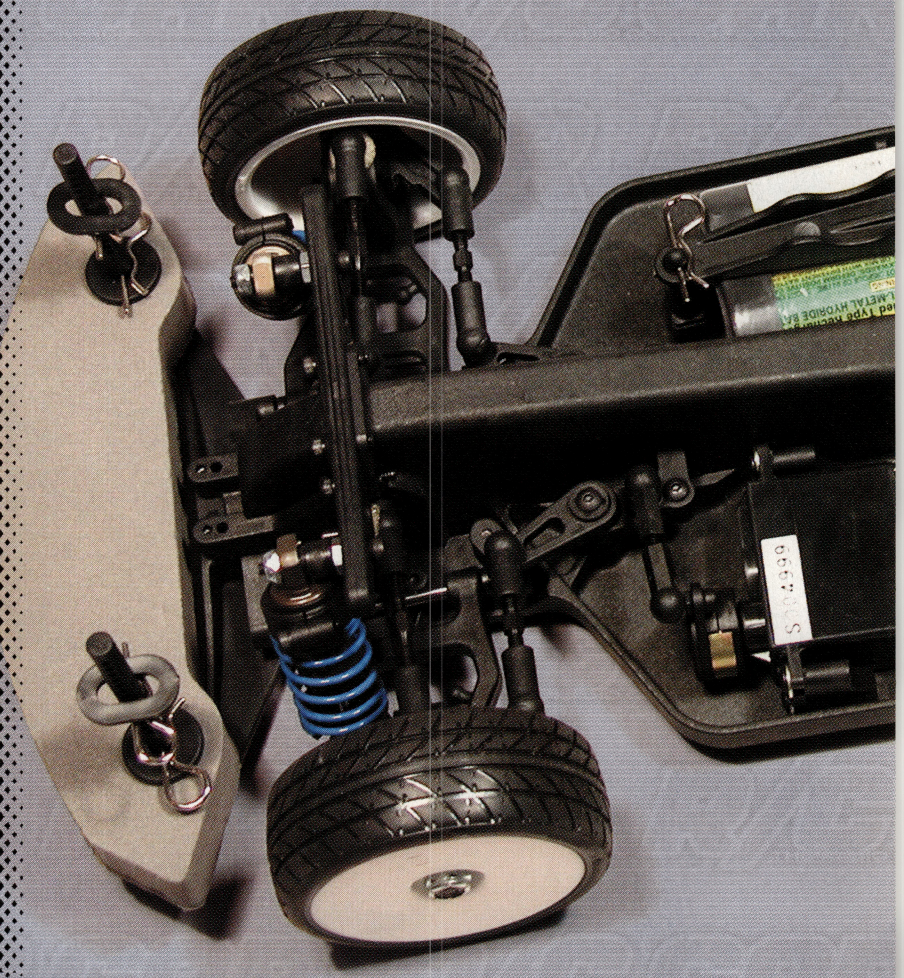
All of the XXXS Sport's parts are made from tooling similar to that designed for the XXXS



kit. This of course includes the molded artwork that is the XXXS chassis. This tub-style chassis has a large central "tunnel" that serves as protection for the belt-drive system and as a stiffening backbone that virtually eliminates fore/aft flexing. For easy installation, the battery is placed to the right side of the chassis, and is held in place with a molded strap that can accommodate both stick and side-by-side packs. The RTR's chassis is a bit more flexible than the kit version's, but it's still plenty stiff and will likely be even better at surviving crashes.

The suspension is the same effective setup found on the XXXS kit. With lower A-arms, adjustable upper camber links and fully adjustable roll-centers, the XXXS Sport can be tuned to any track surface with ease. Both the camber links as well as the steering tie-rods feature beefy steel turnbuckles for fast and accurate adjustment. Another bonus is the shocks, which have hard-anodized aluminum bodies. Losi simplified tuning by eliminating the droop adjustment screws; limiters within the shocks provide the right amount of down-travel.





SINGLE PURPOSE

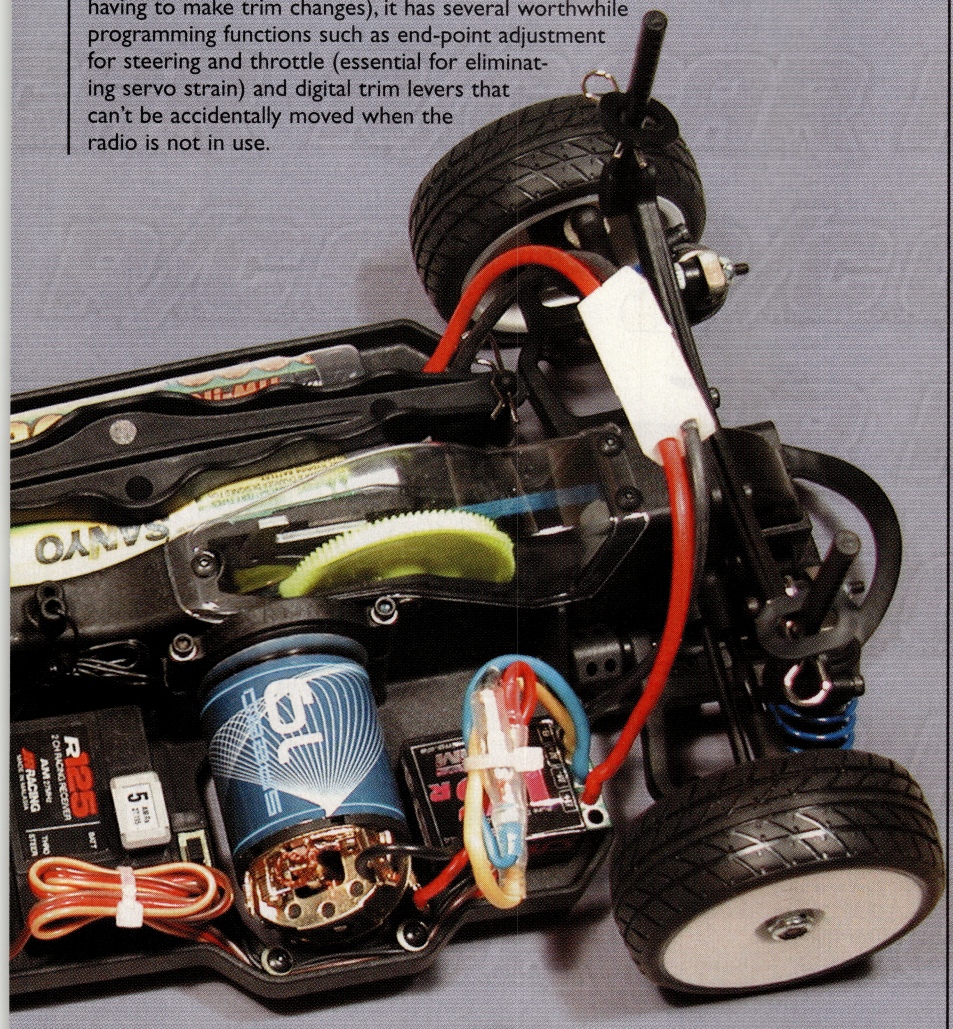
Losi's revolutionary single-belt 4WD system carries over from the XXXS kit. One belt is artfully routed to both the front and rear ball diffs for efficient, full-time 4WD traction. And when it's time to perform routine maintenance, you'll be glad to know that the XXXS is one of the easiest sedans to work on; six screws are all that stand between you and either diff assembly. And it's even easier to reach the spur gear assembly and its innovative belt-tensioning device.

All rotating drivetrain parts spin on efficient ball bearings—no power-robbing bushings for this RTR. Losi even includes a full set of CVD driveshafts—one for each wheel.

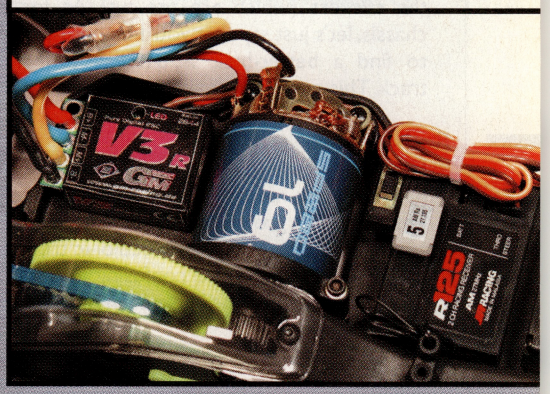
LOSI XXXS SPORT

COMPUTER CONTROL

The XXXS Sport follows in the tradition of the popular XXX NT Sport by coming with a JR Racing XR2 computerized AM radio system. Not only does this radio offer two-model memory (so you can also use the XR2 to control a second vehicle without having to make trim changes), it has several worthwhile programming functions such as end-point adjustment for steering and throttle (essential for eliminating servo strain) and digital trim levers that can't be accidentally moved when the radio is not in use.







The electronics package also includes a new JR Z270 steering servo that puts out an impressive 49 oz./in. of torque with a zero to 60 degrees transit time of 0.19 seconds—definitely a notch above the standard servos provided with most RTRs! The deal gets even better with the inclusion of a micro-sized GM V3R reversing ESC. This is a racing-style speedo that offers brakes as well as reverse; when you move the trigger to the brake position, the brakes are applied. But when you hit brakes twice, the ESC goes into reverse. Losi also includes a powerful 19-turn racing motor that has replaceable brushes. All you need to supply is a six-cell battery pack and charger—Losi provides everything else needed to run!



BODY BEAUTIFUL!

For the sake of getting up and running as quickly as possible, we'll gladly forego the artistic freedom provided by a clear body shell. So we were happy to see that Losi includes a nicely painted version of its "Stratuspheric" two-door touring car body. There are three color variations available, with our test car having the graphite-themed paint scheme. Racers will appreciate the body's clear windows, which conform with current rules (which prohibit painted-over window areas). The body comes pre-trimmed and with pre-drilled body-post holes. Even the rear wing has been trimmed and mounted for you (with screws for extra security!).

LOSI XXXS SPORT



REPORT CARD

Test location: Hot Rod Hobbies, Santa Clarita, CA

Test conditions: Dusty asphalt, permanent roadcourse. A wide-open, flowing layout with lots of sweepers and chicanes

Completeness: A

As a RTR, the XXX-S Sport is a fantastic package. It comes in a great-looking box that doubles as a carrying case (complete with handle). Inside, you'll find that the car is nearly ready to go. The body is painted and trimmed, the radio is installed and the tires are glued. You really only have to add your battery pack and put on the stickers (which are pre-cut). As for the chassis, let's just say that you'd be hard-pressed to find a better-built XXX-S at your local track. This car is tight!

Radio: A

How many other RTRs come with a two-channel computer radio? The JR XR2 is definitely a radio that can grow with you as you become a better driver. Dealing with electronic trims and menus might be a little confusing at first, but you'll be programming like a champ in no time.

Speed: B

With its race-proven drivetrain, 19-turn open-endbell stock motor and efficient GM ESC, the XXX-S Sport is very peppy for a RTR. Compared to our full-race XXX-S with a competition 24-degree stocker the RTR comes up a little short on acceleration, and both cars have similar top speeds. On a smaller parking lot or on a closed-course track, you won't be wanting for more horsepower.

Handling: B+

Why only a B-plus grade? C'mon, this is a national championship winning car. Well, tires are a big part of the performance equation – especially with sedans. The stock treaded radials actually work very well on regular asphalt, which is probably where most of these XXX-S Sports will be headed. When the surface bite goes up, the stock tires show their limitations in the form of oversteer, particularly when entering sharp turns.

Durability: A

The material spec'd for the Sport RTR seems just a bit more flexible than the Stiffezell composite that is used for the kit version, and as a result, the Sport provides novice drivers (and some of us "experts") a little bit more of a cushion in case of a crash. We let several youngsters take a turn at the Sport's helm, and the car came shining through.

SPECS

Price:	$269.99 (varies with dealer)
Length:	16.6in/422mm
Width:	7.5in/190mm
Wheelbase:	10.1in/257mm
Track (f/r):	6.4in/165mm; 6.9in/176mm
Weight:	3lbs, 4oz
Chassis:	Molded tub
Suspension:	Ind. lower arms w/adj. upper links
Drivetrain:	Belt-driven full-time 4WD
Diff(s):	Adj. ball diffs (f/r)
Damping:	Aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	Rubber radial tread
Wheels:	One-piece white dish

Final Score

HIGHS: A great car is now a great RTR. We loved the packaging, the body and just about everything else about this car. The inclusion of the JR computer radio is a nice touch. We also have to compliment Losi on the overall quality of the parts as well as the construction. Top-notch all the way.

LOWS: Really nothing to speak of. We can't even complain too much about the tires, as they did work well on dirtier, rougher asphalt; this is where the Sport was intended to run.

THE VERDICT: Losi not only created a great RTR with the Sport, but it incorporated the winning XXX-S chassis with a superb overall package. When we picked up the car for the first time, we had a hard time distinguishing it from our own race kit. The only drawback? We wish we had such cars when we got started in the hobby!

SOURCES

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

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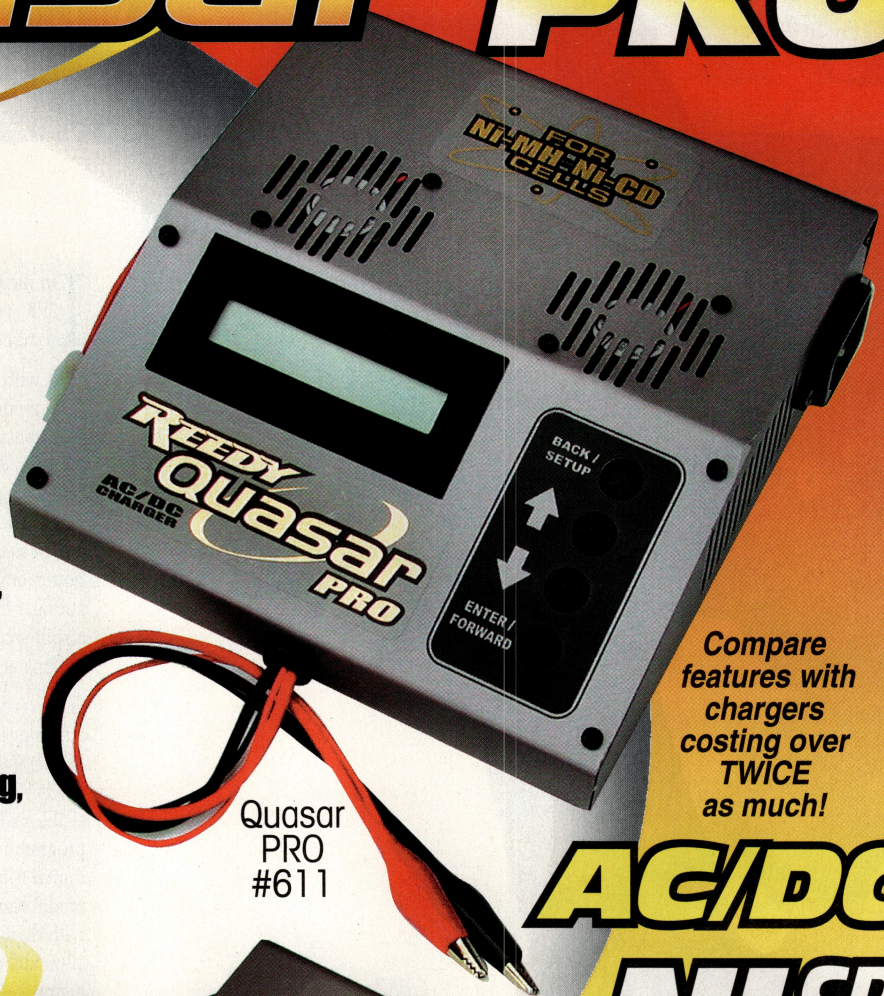

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BIG BUGGY

Which 1/8-scale RTR rules?





Local engine guru Todd Tanner lends a hand during break-in. See Todd's break-in notes for each car later in the article.

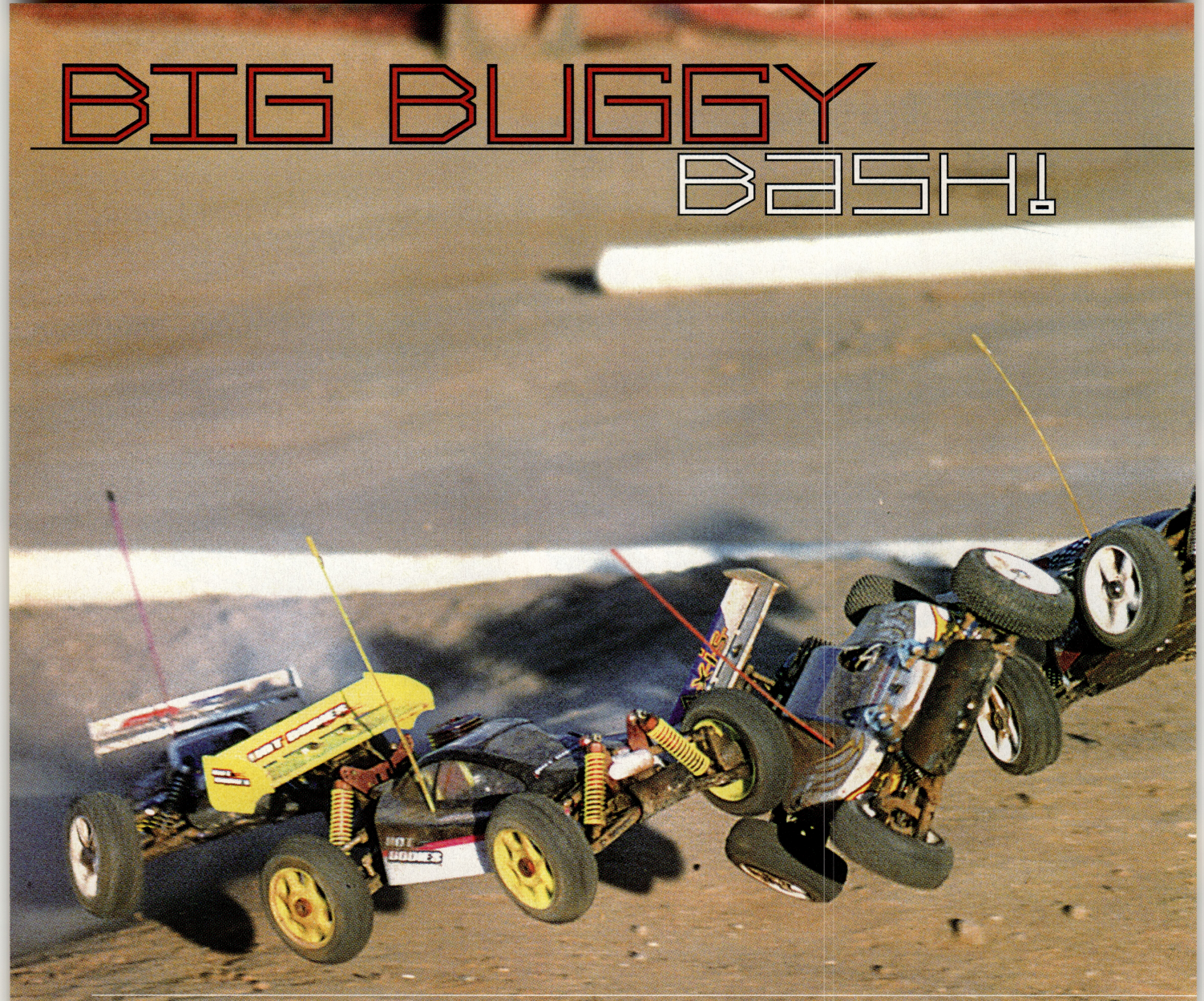


BASH!

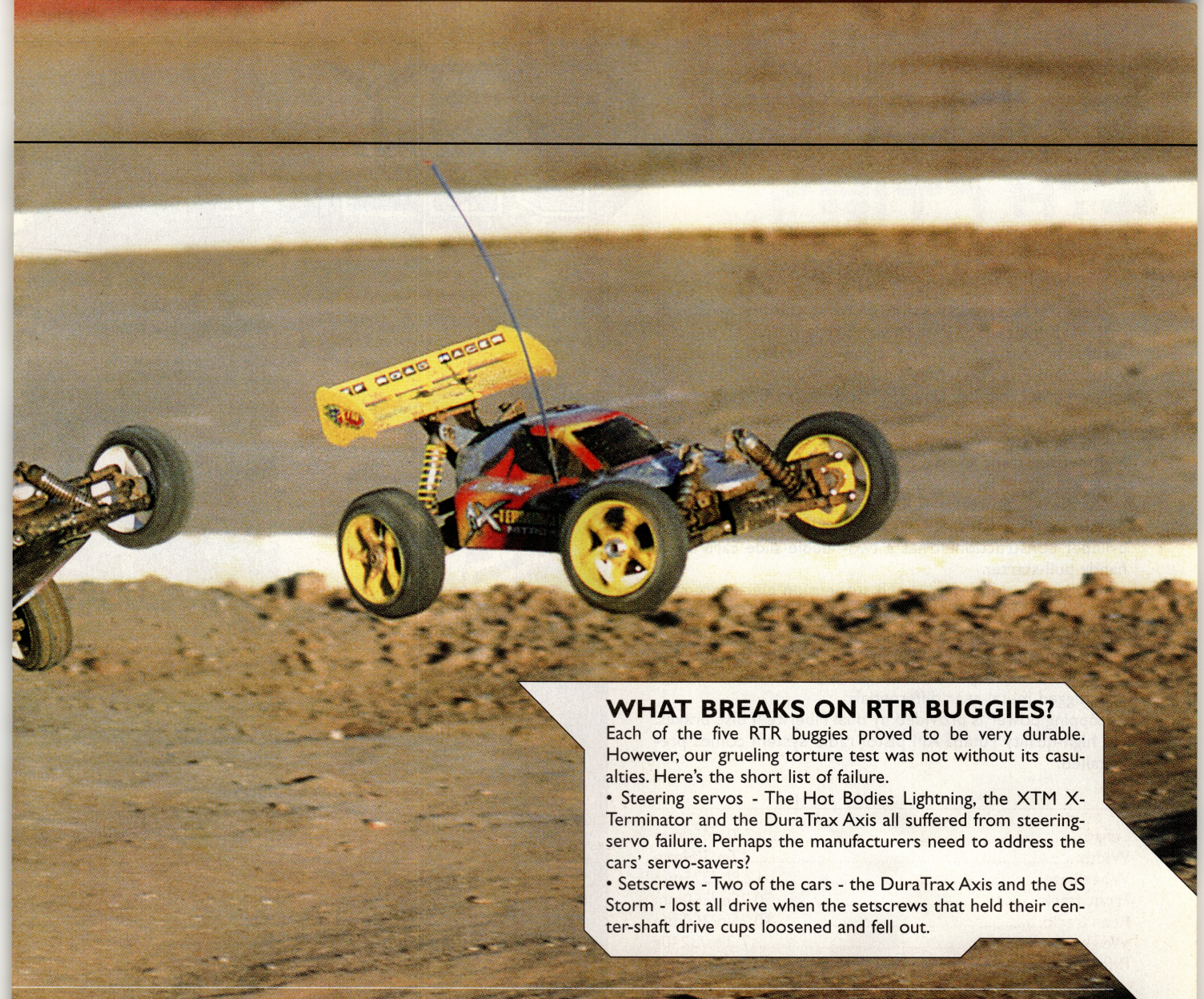


Ready-to-run 1/8-scale buggies are the next big thing. You can quote us on this if you'd like. People love nitro. People love all those big nitro monster trucks (which account for a vast majority of new kit sales). But to many, the ultimate nitro rush (with apologies to HPI) is the big buggies. However, we're sure that there are many of you who are intimidated by the prospect of building a nitro buggy from a kit. After all, these are complex, high performance machines. Fortunately, more and more manufacturers have realized this fact and have acted accordingly. The result is what you see here: five ballistic nitro buggies that come fully assembled with radios installed and bodies painted. All you have to do with any of them is to install AA batteries, add fuel and go.

BIG BUGGY BASH!



In choosing the participants for this RTR buggy shootout, we checked with every manufacturer known to us; those that already had RTR buggies and those whom we suspected might have one in the works. Thunder Tiger, Hot Bodies, DuraTrax, XTM and GS Racing each sent us brand-new samples of their RTR buggies. The only company that had an RTR buggy - several of them in fact - but declined the invitation to participate, was OFNA. Why didn't they want to join the program? According to the owner, he felt that if he sent us one or more cars for the shootout, the other mags might be inspired to write similar articles and that he'd have to send them cars as well. We offered to send his cars back when we were finished, but this didn't dismiss his concern. He also told us that he believed that because his company doesn't currently advertise with this magazine, we wouldn't give his cars a fair shake. We pointed out that two of the five companies that did send us cars also don't advertise, but again, we couldn't convince him to participate. This was a shame not only because we wanted this to be a comprehensive shootout, but because OFNA started this category, and they have several very good offerings.



WHAT BREAKS ON RTR BUGGIES?

Each of the five RTR buggies proved to be very durable. However, our grueling torture test was not without its casualties. Here's the short list of failure.

- Steering servos - The Hot Bodies Lightning, the XTM X-Terminator and the DuraTrax Axis all suffered from steering-servo failure. Perhaps the manufacturers need to address the cars' servo-savers?
- Setscrews - Two of the cars - the DuraTrax Axis and the GS Storm - lost all drive when the setscrews that held their center-shaft drive cups loosened and fell out.

TESTING, TESTING

For this shootout, we chose to put each car through its paces at KZ Speedway (formerly Sun Valley Micro Speedway) in Sun Valley, CA. Not only is this world-class venue close by, but it's one of the few facilities that offers a permanent 1/8-scale-sized off-road track - one that is so challenging that it swallows standard 1/10-scale stadium trucks whole!

To keep the testing as equal as possible, we tried to eliminate as many variables as possible. Here were our rules: All of the cars were tested as they came from the box; we weren't allowed to go through the cars to tighten loose hardware or add Loctite where needed - this was to be a truly "out-of-the-box" test; we weren't allowed to tune the suspension, add diff oil or change tires (see the text on the Thunder Tiger EB-4 to learn why we ignored this rule in its case). We also broke in each engine at the exact same time for the exact same duration, thus ensuring that no engine could have the advantage of being more broken-in than another. We also used the same fuel, from the same container, for each car (Sidewinder Backyard Basher 20-percent nitro).

BIG BUGGY BASH!

4TH (TIE)

FOURTH PLACE (TIE): DURATRAX AXIS



The Axis gets the distinction of being the first-ever 1/8-scale RTR buggy. However, this also means that it's the oldest design of the group. And it shows, but not as much as you'd think. First, the chassis is flat, with no front-end kick-up - a feature that has become standard in 1/8-scale design. But on the positive, the Axis is the most complete RTR in the group, with everything from AA batteries, a fuel bottle, a glow-igniter and even a how-to videotape! Here are the technical highlights.

- DuraTrax's powerful TORQ .21 is a racing-style rear-exhaust engine with ABC (aluminum, brass and chrome) cylinder construction. It has a two-needle slide carb and a handy pull-starter.
- All of the molded chassis and suspension pieces are covered by DuraTrax's Stress-Tech six-month replacement warranty. Break a part and DuraTrax will replace it for free.
- The Axis has a near-bulletproof 4WD drivetrain with hardened-steel ring and pinion gears, 18 steel ball bearings and rugged metal-gear differentials.
- Stopping power is provided by dual Fiberite II disc brakes.
- A high-quality Futaba AM pistol radio system comes pre-installed.

Length:	17.7in/450mm
Width:	12in/304mm
Wheelbase:	12.8in/325mm
Front track:	10.25in/260mm
Rear track:	10.25in/260mm
Weight:	7.3lbs/3240g
Price:	$379.98 (varies with dealer)

TODD'S BREAK-IN NOTES

Here's something you don't see everyday: the Axis' glow plug reduced itself to component parts when we attached the glow-igniter! I'm sure that this was a one-in-a-million occurrence, so I won't hold it against DuraTrax (although it did take us a while to extricate the parts). We were able to install an O.S. plug, and the engine started right up. It's perfectly tuned from the factory, and idled through its first tank without so much as a hiccup.

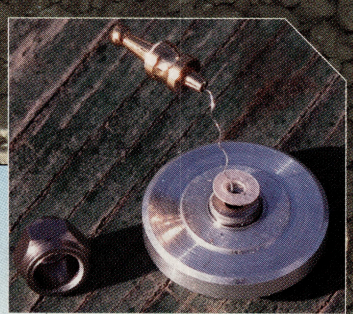
FRANK'S TEST NOTES

I admit that in the light of the newer, seemingly more capable competition, I predicted that the Axis would fall on its face in the performance test. That belief fell apart when I was out driving the Lightning, and the next thing I know, Todd is all over my butt with the Axis. "That's the Axis?" I shouted. I thought for sure that the Axis wouldn't have handled the rougher sections of the track as well as the newer cars, but it held its own.

As for steering, the Axis again did better than expected. It has plenty of steering, and the servo is strong enough (although, like all of the cars in this test, a stronger, faster steering servo would be the first upgrade I'd make).

The TORQ 21 engine is a very good ABC mill. The loud "ping" that is heard when the pull-starter is yanked is a testimony to the engine's ABC construction and the close tolerance of its piston and sleeve. I'm of the mind that the Axis drivetrain, which had a slight bind to it, had held back the true potential of this engine. However, I'm fairly certain that the bind will work itself out with time.

The suspension is good, but you can definitely tell that it was having trouble with the "surfs up" section as well as with several other formidable obstacles. The car had a tendency to be deflected off course with greater ease than the other cars, and it was more difficult to align the Axis with the jump faces because of this instability. All of the testers had praise for the car's cornering and its speed.



Want to know what a glow plug looks like on the inside? We found out the hard way!



HIGHS:

- The Axis is the definition of the term RTR in that it is the most complete package of its kind. You'll only need to buy fuel.
- The TORQ .21 is powerful, reliable and with the exception of the odd problem we encountered with the glow plug, very easy to get running.
- DuraTrax offers a six-month warranty against suspension breakage!

LOWS:

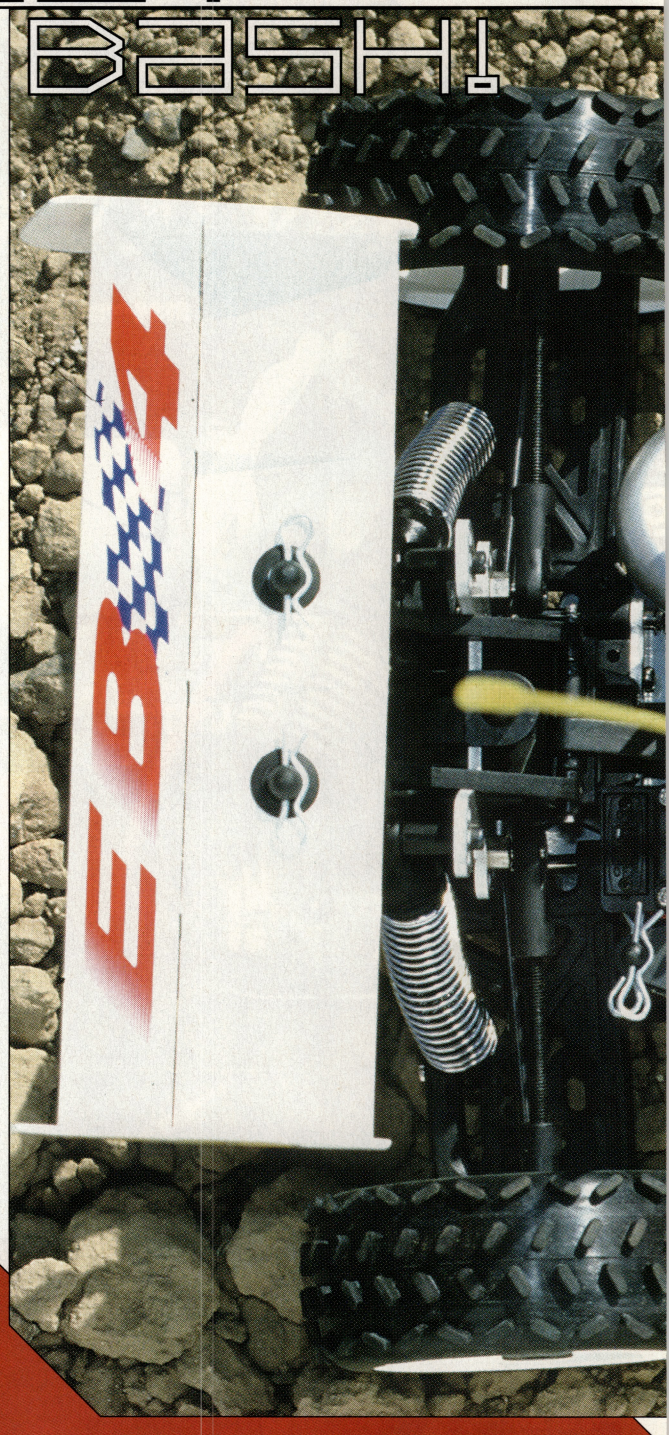
- No chassis kick up.
- The gearboxes exhibited a degree of binding when new.
- Overall handling is a notch below its more modern competitors.
- Relatively expensive; priced similarly to some of its contemporaries.

THE VERDICT:

The Axis broke new ground when it was introduced, and despite having been through a few seasons, it's holding up quite well. For the average hobbyist looking for something to provided the adrenaline rush that can only come from launching a powerful 1/8-scale buggy high into the air, or blasting through a sandy turn at 40-plus mph, the Axis is a willing accomplice. The only time it shows any weakness is when pushed hard on a purpose-built track.

BIG BUGGY BASH!

4TH (TIE)
THUNDER TIGER EB-4 RTR



Renowned chassis designer Franco Sabatini conceived the EB-4, and it is the only car in this group other than the Storm that has been raced at the highest level of competition. Although we weren't aware of it at the time we ordered our EB-4 RTR, there are actually several versions available: the regular RTR, the S2 RTR and apparently, a "Euro" version. Unfortunately, the people at Thunder Tiger sent us what must have been the European version for this shootout, as our came with a two-channel stick radio (!), tires that were obviously meant for running on grass, and a solid middle diff. Not having the luxury of time, we decided to make due with what we were given. We were able to swap the stick radio for an Ace Jaguar pistol radio (standard equipment for the American EB-4 RTR), and to be fair, we tested the car with both the stock tires as well as the best tires in the group, the ones from the Hot Bodies car. The only concession we had to make was to leave the solid middle diff in place - we simply didn't have the time to order a replacement diff. Here are the technical highlights.

- The EB-4 RTR comes ready to do battle with a glow igniter, fuel bottle and what was by far the best-looking pre-printed body of the bunch. Heck, the EB-4's body would do anyone proud. Even the stickers have been applied. There's no easier way to look good at the track.
- The engine is a powerful Thunder Tiger Pro-21 pull-start.
- The Ace Jaguar pistol radio has become a favorite among our testers. It's a clean, simple design that has such necessities as dual-rate and throttle EPA. Hitec's powerful 645MG ultra-torque servo is used for steering.
- The American version comes with molded Zytel wheels and high-grip GRP tires.

Length:	18.1in/456mm
Width:	12.1in/305mm
Wheelbase:	12.75-12.95in/324-239mm
Front track:	10.24-10.55in/260-268mm
Rear track:	10.28in/261mm
Weight (dry):	3,300 grams
Price:	$489.99 (varies with dealer)

TODD'S BREAK-IN NOTES

This engine did not want to fire up. The glow plug seemed as if it was a colder plug, as it didn't light up as brightly as a normal heat-range plug. It was really hard to prime; it seemed as if the engine wasn't getting any fuel at all. We put in the Hot Bodies plug, richened up the bottom by a full turn and the top by a half-turn. It really needed to be primed a lot; we had to put a finger over the exhaust, hold full throttle and yank the heck out of the starter cord. We got it running, but the low-speed needle had to be backed out almost to the point where it would fall out of the carb. When we got it running, it must have been upwards of 300 degrees.

FRANK'S TEST NOTES

I know this car is capable of finishing higher than fourth, so what happened to lower our opinion of this capable off-roader? At first, we had thought that Thunder Tiger had neglected to fill the shocks with fluid; there was no perceptible damping present. Skinny was tasked with solving this mystery, and he soon discovered that there was indeed fluid in the shocks, but it was like "0.5" weight! Yes, we violated our "out-of-the-box" rule for the EB-4, but as this clearly wasn't the right version for our shootout, we felt it necessary to cut it some slack.

Despite its lack of a middle diff, the EB-4 was surprisingly good on the track - even on the rougher sections where a middle diff helps the car bias its power between the front and rear wheels. The only time this became a deficit was on the slicker turns, where the car felt as if it were skating on marbles. With the better tires installed, however, this trait was significantly diminished.



Skinny changes the water in the EB-4's shocks to something a bit more suitable for hard-core off-roading.



HIGHS:

- Very capable, race-inspired chassis.
- The best-looking pre-painted body we've seen, and they have tastefully applied the stickers for you!
- Once the engine was tuned, it proved to be very powerful and reliable.

LOWS:

- Of the five cars tested, the Thunder Tiger had the most finicky engine. It took our resident engine guru several minutes and several calluses (from the pull-starter handle) to get the engine fired. It's safe to say that a rank novice would not have gotten good results without help.

THE VERDICT:

The basic EB-4 is a good package, but no RTR should have the carb issues that we experienced. Sure, once running, the Pro-21 was excellent, but getting there... But overall, we'd have ranked the EB-4 higher in the standings were it not for this problem and the issue with the strange shock fluid. We're confident that the version with the better tires and center diff would have fared better.

BIG BUGGY BASH!

3RD GS STORM RTR

The GS Storm RTR is one of the older buggies in this shootout, but it has also received a recent upgrade in the form of the new JR XR3i computer radio. Along with the radio, the car benefits from its JR Z2590 metal-gear steering servo. What makes the Storm one of the more potent RTRs is its close kinship to its racing cousins, the Storm and Storm Pro. Little has been lost in the transition to RTR, including the Storm's excellent suspension geometry, material and ruggedness. Here are the technical highlights.

- The Storm comes with a GS 21B-02S Power pull-start .21 engine and aluminum ("loudest of the bunch") tuned pipe. This engine is a newer version of the original car's 21B-01P engine.
- The brakes are top-shelf, with one steel disc at each end of the center diff, and fiber-lined steel pads for added clamping force.
- Various racing features included turnbuckle tie-rods for fast and easy adjustment of the toe-in and wheel camber.
- The nicely pre-screened body comes with the decals already applied.
- The JR XR3i is the only computerized radio of the bunch, and it has such features as multi-model memory and end-point adjustment for both steering and throttle channels.
- Heavy-duty steel universal front driveshafts are standard.

Length:	17.4in/446mm
Width:	12.3in/306mm
Wheelbase:	12.8in/325mm
Front track:	10.4in/265mm
Rear track:	10.1in/257mm
Weight:	7.4lbs
Price:	$549.95 (varies with dealer)



TODD'S BREAK-IN NOTES

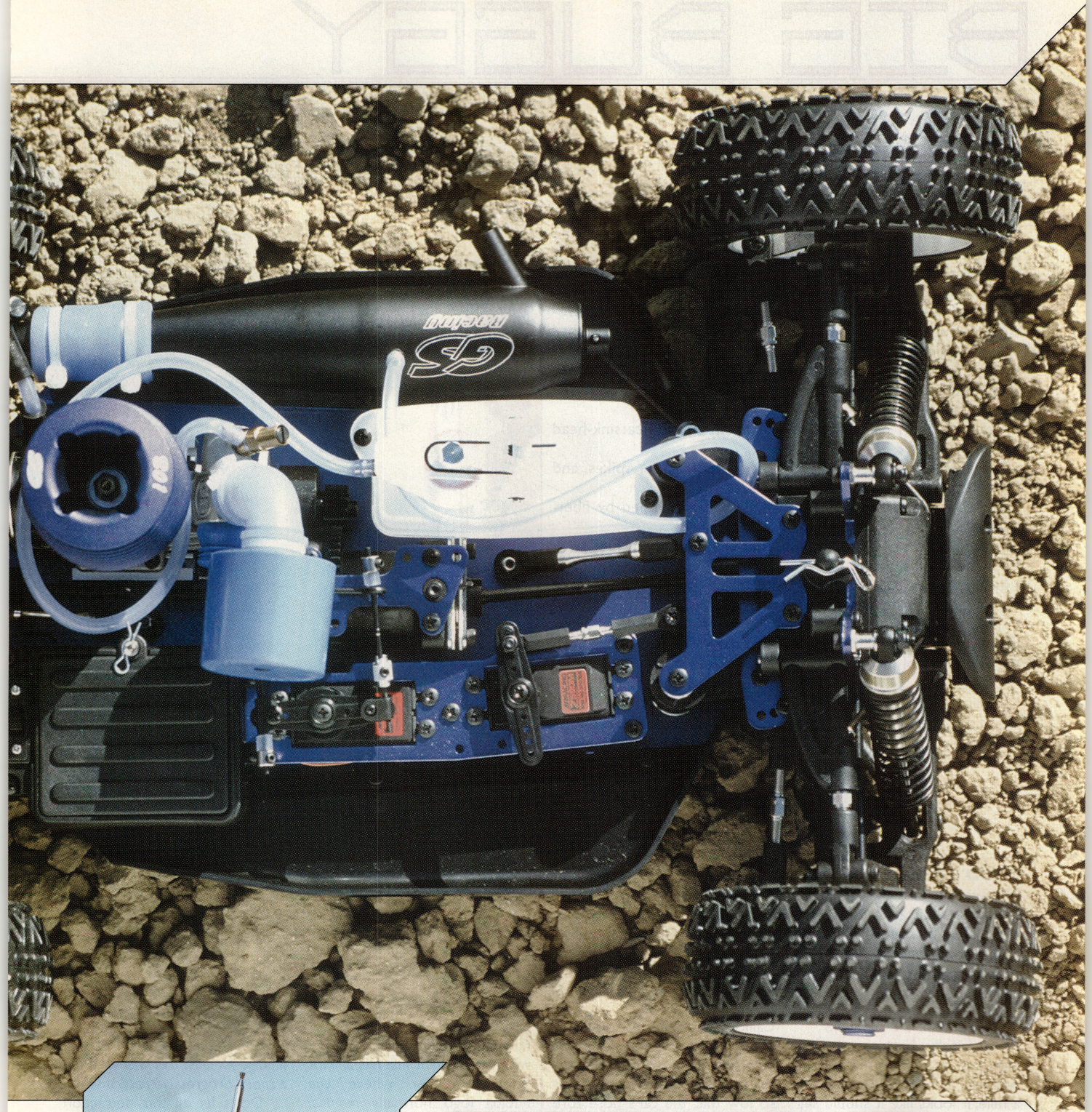
The GS engine started on the first pull, right after being primed. This is definitely the loudest engine of the bunch (we attributed this to the car's un-baffled aluminum pipe). The carb was set at perfect break-in tune, and the engine easily idled through a complete tank of fuel without stalling. It didn't take much to have this engine ready to hit the track.

FRANK'S TEST NOTES

As I had been the one who tested both the Storm and Storm Pro kits, driving the RTR version was like a visit with an old friend. The suspension and overall feel of this car is very much like that of the higher-end versions. The only difference that I could feel was that the engine was a little soft on the bottom end compared with the top two finishers. Also, although I know that the JR Z2590 is one of the best steering servos in any of these RTRs, for some reason, the Storm didn't want to straighten out very well after turning. It was as if there was something binding in the steering assembly. This was something that took a little while to become accustomed to.

The overall driving experience was very rewarding. I love the new XR3i radio, as it feels truly high-end in this field of sport-level AM pistols. That it has such niceties as dual-rate and EPA (end-point adjustment) means that it is better able to match the mechanical requirements of the car. For example, you would never have to resort to using a block of wood to limit the trigger's throw (as is the case with the Hot Bodies Lightning).

The Storm's strongest suit was its excellent suspension, which was perhaps the best of the group at soaking up harsh landing and surfing through the choppy whoop sections. I must have cased the huge quad jumps four or five times in a row - and we're talking a belly flop from as high as eight or nine feet - and the Storm never even whimpered. If I were going to race this car, I'd definitely change the pipe to a quieter one, fix whatever it was that was binding the steering, and look into a gear- or clutch-swap to gain a little bit of acceleration.





HIGHS:

- The best radio of the group. We loved the Storm's JR XR3i computer pistol.
- The GS engine was very easy to start, and it was also powerful and reliable.
- Excellent preassembly.

LOWS:

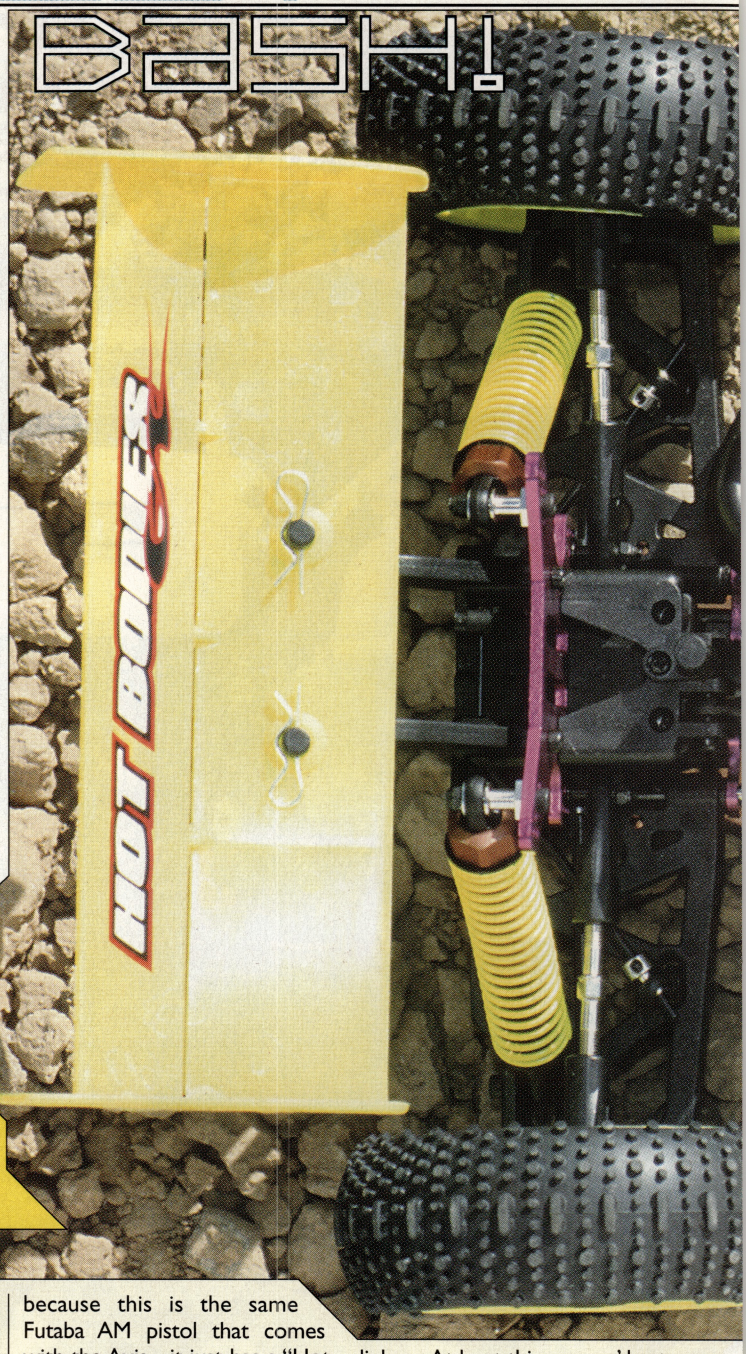
- A binding in the steering linkage prevented the car from straightening out when exiting turns.
- Loud exhaust!

THE VERDICT:

The Storm RTR is nearly indistinguishable from its racing cousins, the Storm and Storm Pro. In fact, all of the hop-ups available for those cars will easily fit the RTR version. Overall, the Storm is a willing performer that handles well, runs reliably and looks great. It was only a smidge behind the top-two finishers in terms of performance and speed.

BIG BUGGY BASH!

2ND HOT BODIES LIGHTNING RR



The Lightning is the first complete car kit offered by Hot Bodies. It comes in an attractive window box that will surely attract the attention of those looking to get into nitro off-road. The car is nearly ready to go straight from the box; all that's needed is fuel and a C-cell for the included glow-igniter, as the car comes with a fuel bottle and batteries for the radio. Even the decals are pre-cut (although there aren't enough of them to cover the rather ugly pre-painted body!). Here are the technical highlights:

- The Lightning comes with heavy-duty steel ring and pinion gears and a steel spur gear. You won't have to worry about drivetrain failure here.
- A pull-start, .21 c.i. engine with an 11-fin purple heatsink-head is included.
- The stock tires are excellent soft-compound pin spikes, and they are pre-glued to the yellow wheels.
- The dual-disc brakes consist of steel discs clamped by fiber-lined steel pads.
- A useful molded-plastic splash guard keeps spilled fuel away from the brakes.
- Includes extra suspension-arm mounts so that the geometry of the lower A-arms can be tuned to suit track conditions.
- The Lightning comes with a Futaba Magnum Sport AM radio system (although it says "Hot Bodies" on the radio, it is identical to the Futaba pistol that came with the DuraTrax Axis).

Length:	20.4in/518mm
Width:	12in/305mm
Wheelbase:	12.75in/324mm
Front track:	12.75in/324mm
Rear track:	11.75in/298mm
Weight (dry):	7.2lbs/3275g
Price:	$379.99 (varies with dealer)

TODD'S BREAK-IN NOTES

This was the first car I started. It was a little lean on the bottom-end, but it did start on the first pull. The engine ran beautifully, but after idling through the first tank, I pulled the plug and found a pretty good-sized shard of metal on the plug (obviously a piece of excess casting left over from the manufacturing process).

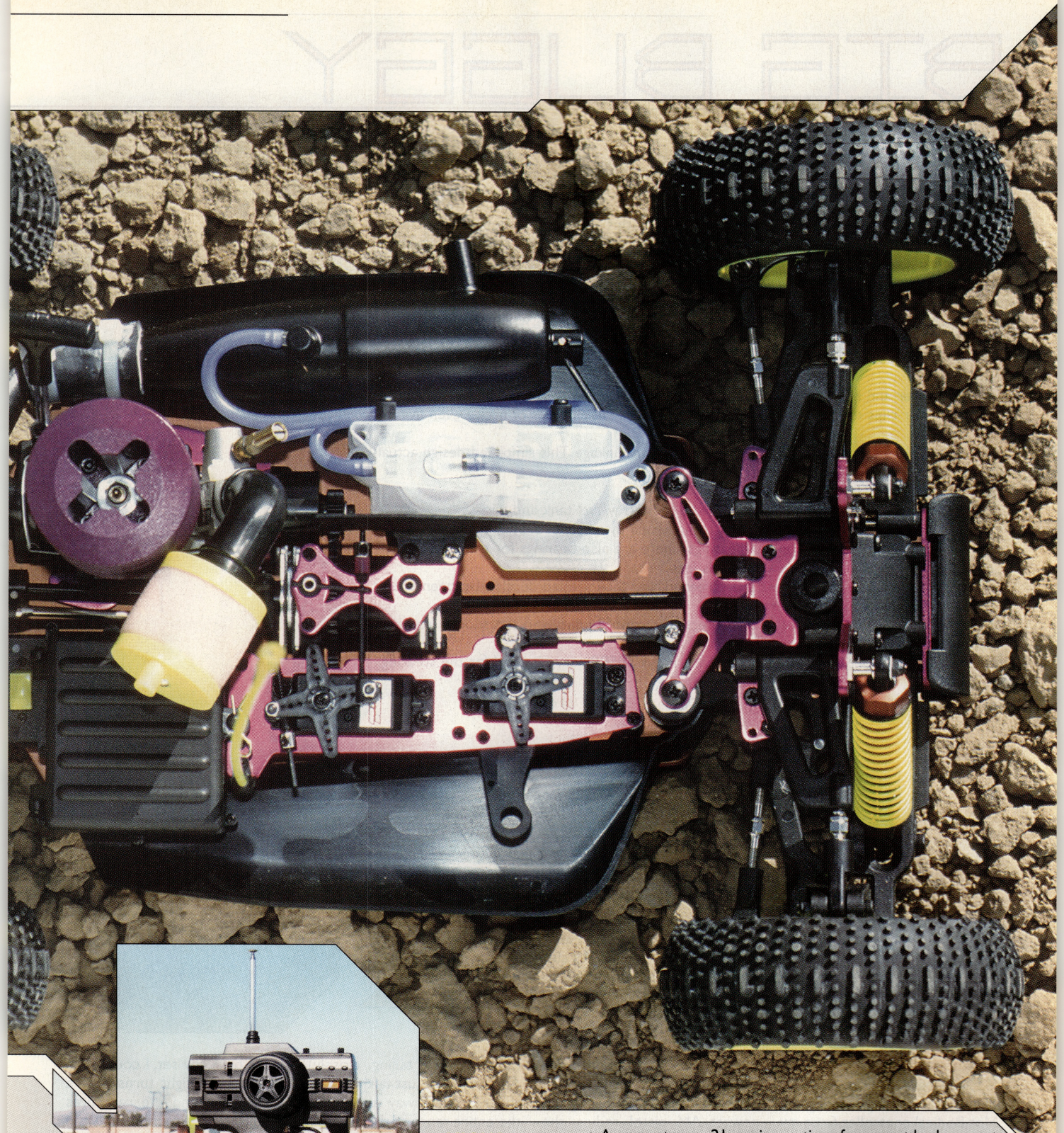
FRANK'S TEST NOTES

I was really banking on the Lightning to come through. It was my "workbench winner" by a mile; it looks like it should sell for twice was it does, and Hot Bodies gets extra points for choosing a copper-ish color for its aluminum anodizing - the car looks as if it is chock full of after-market hop-ups. That it most closely resembles the "world's best buggy," the Kyosho MP-7.5 is surely no coincidence.

On the track, the Lightning was clearly the second-best. Its damping felt wonderful on the bench, but in the heat of the California sun, the car suddenly became a big softie. It also didn't help that the car's ride height - its front end in particular - was so low that the car's nose tore up huge chunks of dirt upon every landing. Steering was also unresponsive. The car was very easy to drive and had plenty of traction, but it felt numb during turn-in. Adding insult to injury was the Lightning's brakes, which weren't all that powerful early on, then pulled a no-show towards the end of the day. Can you say "fade"?

I think Futaba makes great radios, and so must Hot Bodies, because this is the same Futaba AM pistol that comes with the Axis - it just has a "Hot Bodies" sticker where the Futaba logo normally resides. Hot Bodies has taken a unique approach to the radio's missing throttle EPA (end-point adjustment) feature; they glued a block of wood behind the throttle trigger to limit its throw! Can you believe that? It took several laps before I became accustomed to having about 1/8-inch of throttle travel. Personally, I'd rather have seen them leave the travel intact and tackle the issues of excessive throw by fiddling with the carb linkage. At least this way we'd get a more progressive response.

Don't let all this detraction lower your opinion of the Lightning - especially if you're in the market for a RTR buggy. Until I drove the XTM, I had already chosen the Hot Bodies as the winner in this shootout! Its soft suspension, disappointing pre-painted body (c'mon, can't I have that great paint job that's on the box?) and sluggish turn-in are the only things that kept the Lightning from at least sharing the top rung.



HIGHS:

• Great looks. This car gets the "it must cost the most" award, even though it is one of the cheapest.

• The Lightning was one of the most durable of the group.

• The stock tires are very good.

• A very strong .21 engine; second only to the XTM's larger mill.

LOWS:

• Weak steering combine with brakes that should have worked better to create pesky understeer.

• Stock damping was too soft and the ride height too low.

• The box builds our expectations for a great body; we get black and pink!

THE VERDICT

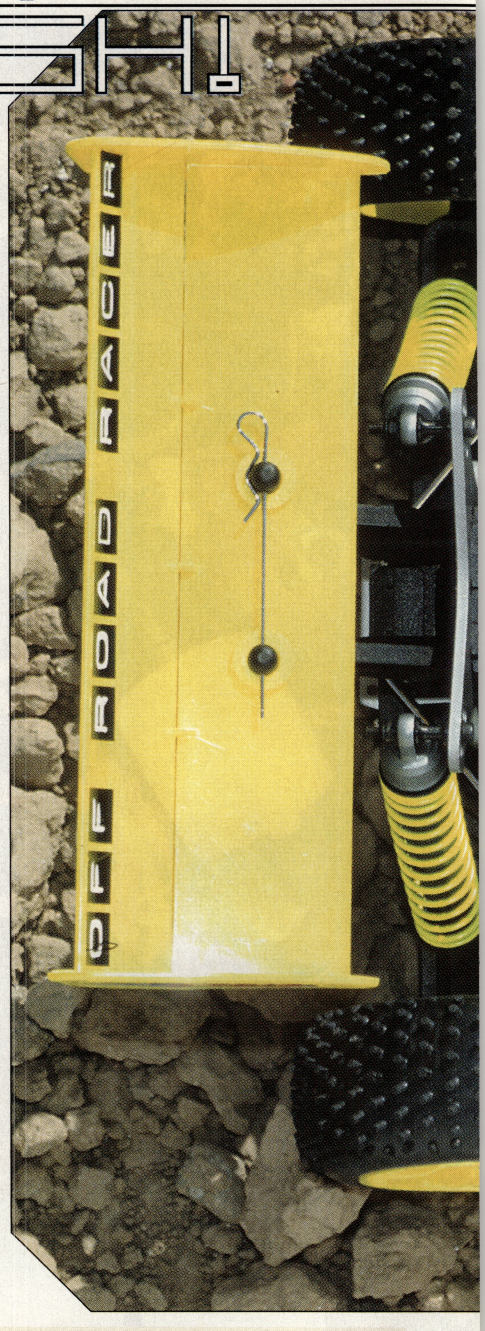
Although it's a runner-up, the Lightning's shortcomings aren't life-threatening. A little tuning of the suspension and perhaps a stronger steering servo could well have elevated the Lightning from bridesmaid to bride.

BIG BUGGY BASH!

1ST XTM X-TERMINATOR

The X-Terminator from XTM was the wildcard of this shootout, as none of us had any experience with XTM's products (it's a new brand for Global Hobbies). We were impressed with the car's appearance and its quality components, and the entire chassis looks very high-performance. Here are the technical highlights:

- The X-Terminator has a unique radio tray that angles the servos and fuel tank so that they are closer to the middle of the car (this improves the car's turning ability).
- XTM's 24.7 engine is the largest in this class, breaking the .21 barrier that has been the norm for 1/8-scale. This ABC engine also comes with a blue powder-coated aluminum tuned-pipe.
- The receiver and battery are encased in molded boxes that have snap-fit lids - there are no screws or clips to lose. The battery box will actually fit all types of pack - even five-cell flat packs.
- The dual-disc brakes are controlled by a single wire linkage. This simplified design actually worked very well.
- A steel spur gear is standard
- The car comes with aluminum posts for the radio tray, fuel tank and wing.
- The 3mm aluminum chassis is further strengthened by a pair of aluminum braces.
- The entire drivetrain spins on ball-bearings. There are also bearings for the steering bell-cranks (very few high-end racers have this feature).
- The X-Terminator's body comes pre-screened, and the included decals have been precut to speed-up the detailing process.
- Silicone rubber boots are used to protect the front U-joints and the shocks from dirt penetration.
- A Hitec Lynx Sport AM radio is provided. A Hitec 605BB servo is used for the steering.



Length:	19.7in/500mm
Width:	12in/304mm
Wheelbase:	13.1in/333mm
Front track:	10.25in/260mm
Rear track:	10.25in/260mm
Price:	$449.99

TODD'S BREAK-IN NOTES

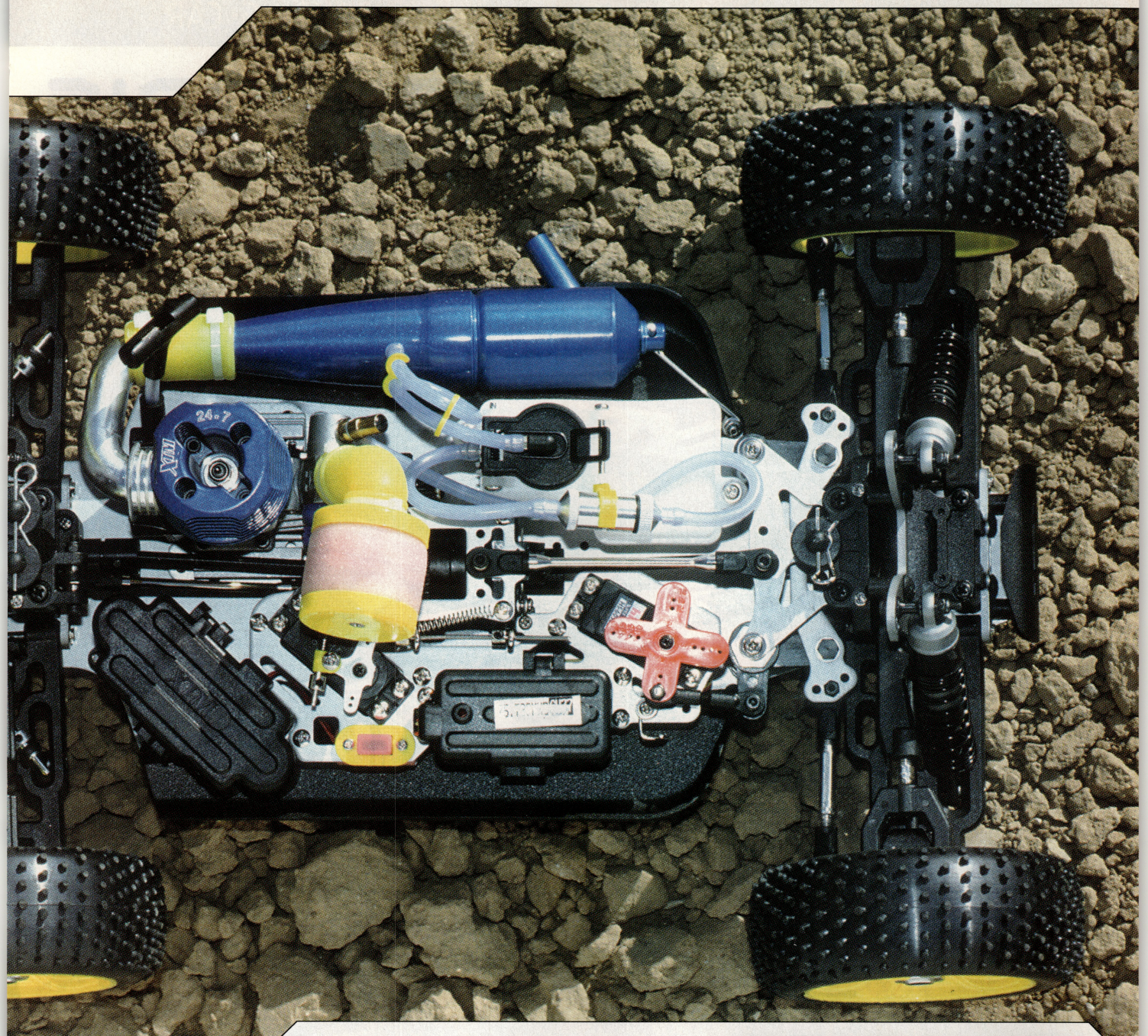
The XTM started right up and ran as if its sleeve was of a softer metal, as if the engine had already been broken in. The highest quality racing engines have very high compression and they don't like to idle until they're fully broken in. But the 24.7 is superbly user-friendly, as it is very easy to start and break-in, and its factory settings were about as perfect as can be.

FRANK'S TEST NOTES

"You have to try this car!" Skinny was already yanking the Hot Bodies' controller from my hand and replacing it with the Hitec Lynx of the X-Terminator. I was jaded from the beginning, mostly because I liked the HB Lightning and Skinny had already proclaimed that the X-Terminator would reign supreme. "Ha!" I scoffed; this car is just a backyard basher, just look at that gaudy blue pipe! And that engine; it's a marketing gimmick made up to fool the naïve. I couldn't have been more wrong.

After months of testing the newest AM pistol radios, the XTM's Hitec Lynx felt awkward; the trigger "loop" took a little getting used to. I can't wait until the new Hitec Aggressor (tested in this issue) starts finding its way into RTRs. But despite this, it soon became clear that the X-Terminator had come to the RTR game with a serious ace up its sleeve: the 24.7 engine. Hands-down, this was the fastest car in the group (with the Lightning tailing closely). And we're not just talking about sheer straightaway speed, but the entire range of the engine is strong. The XTM pulls hard from way down low, transitions smoothly to mid-range, and screams at full throttle. Did I call the blue pipe gaudy? I take it back; this thing sounds like a Novarossi.

All of the other cars felt a little numb on turn-in. Grab their brakes and the equal bias forced the front wheels wide. The X-Terminator's brakes were perfectly set. I could slide the car into tight turns, grab a little brake and the rear tires would slide around until the nose of the car was pointed towards the next corner. All of the elements seemed to be in harmony. The damping was suitably stiff, the stock tires provided good bite (but not quite as good as the Lightning), and the engine provided enough grunt to clear every obstacle - even the intimidating quads, which measured a full 15 feet from beginning to end.





HIGHS:

- Fantastic engine with tons of useable power.
- The X-Terminator is loaded with racing features. It has an equipment list that tops all other cars in this category.
- Out-of-the-box, this car handles like a well-tuned racing buggy.

LOWS:

- The 24.7 engine needs a larger cylinder head; the one provided looks as if it came from a small-block .12.

THE VERDICT

We had no experience with any XTM products, so we had no idea what to expect from the X-Terminator. XTM has done its homework well, and has created a high-performance RTR buggy that will satisfy everyone from backyard bashers to big-air jumpers to club racers. The X-Terminator is the cream of the crop.

SOURCES

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

Hot Bodies, 11318 South St., Cerritos, CA 90703 • phone (562) 468-1121; fax (562) 468-0619

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

Thunder Tiger, distributed by Ace Hobby Distributors, Inc., 116 W. 19th St., Higginsville, MO 64037 • phone (660) 584-7121; fax (660) 584-7766

XTM, distributed by Global Hobby Distributors, 18480 Bandilier Circle, Fountain Valley, CA 92708

TEST DRIVE

TAMIYA RAYBRIG



In the U.S. we have a popular racing series known as NASCAR; in Japan, however, it's the JGTC, better known as the Japan Grand Touring Championship. This is a series that allows Honda, Nissan, Toyota and other manufacturers to showcase their products and technology. The Raybrig NSX 2002 races in the GT 500 class, which limits the cars to 500 maximum horsepower! From carbon fiber bodies to billet aluminum sub-frames and liquid cooled, six-piston calipers, racecars don't get any meaner than this.

JAPANESE GT RACER

4WD UNASSEMBLED KIT ELECTRIC POWER

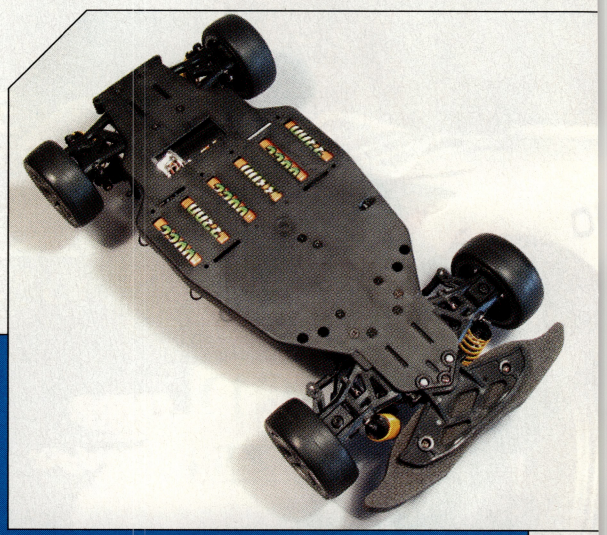
NSX 2002



GETS A FACELIFT

OUTSTANDING FEATURES





Report Card

Revelation Raceway, Pomona, California
Track Asphalt road course

Low Speed Steering: A

The track was a little green from the previous night's rain. With the six-degree castor blocks included, it seems like Tamiya was looking for the most neutral type of steering they could set the car up with. Even with the cool temperatures, the car seemed to have very good grip in the tight turns and made it easy to drive

High Speed Steering: B

On power the car had a bit of a push to it, which, for most drivers, will keep them from making mistakes. We would have been happy with just a touch more steering; however, this may have been caused by the "green" track.

Acceleration: A

Tamiya included their Low Friction drive belts in the TA-04R to help with overall efficiency and acceleration. The aluminum hub set for the drive gear, coupled with the two-degree toe-in hubs, help squirt the car right out of the corners, while having great overall speed. Even in stock racing, this car should keep up with the single belt and shaft drive cars out there.

Braking: A

Tamiya included ball differentials front and rear. With this setup, the car always "straight line braked." We'd be curious to see how the car will handle braking with a one-way, but right out of the box, this car has excellent and predictable braking.

Straight-line tracking: B+

Most of the time the car was awesome, but with the cool temperatures, we think the tires kept the car from getting good straight-line performance. The tires keep it from getting an A rating.

Adjustability: A

Tamiya gave the TA-04R several different camber positions and shock postions. Tamiya also has optional spring sets, sway bars, and hubs to allow you to fine-tune your car to your home track.

Durability: B+

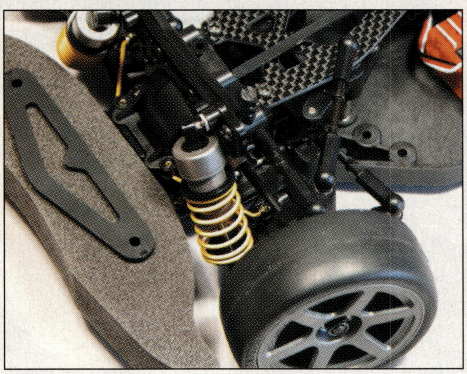
We definitely tested the durability of the TA-04R. With the combination of "softer" plastic on the arms and hubs, the car took the bumps and hits in stride. The only casualty was a ball cup the kept popping off, thus the B+ rating.

TAMIYA RAYBRIG NSX



SPECS

Price:	$264.99 (varies with dealer)
Length:	16.5 in./420mm
Width:	7.4 in./189mm
Wheelbase:	10.1 in./257mm
Track: (f/r)	6.5 in./166mm
Weight (RTR):	52.3 oz
Chassis:	Molded tub
Bearings:	Steel ball-bearings
Suspension:	Ind. lower A-arm, upper link
Drivetrain:	Belt-driven full-time 4WD
Diff(s):	Front and rear ball diffs
Damping:	Plastic oil-filled shocks
Tires:	Rubber slicks
Wheels:	One-piece molded nylon



UNDER THE HOOD

Tamiya has reproduced this car on the TA-04R chassis. The TA-04 chassis has been tried and true, and with the R added to the title, comes all the "R-acing" goodies.

- Carbon Reinforced Resin Lower Deck
- TRF Dampers
- Aluminum Servo Stay
- Urethane Bumper
- Universal Shaft
- Medium-Narrow Reinforced Tires Type A
- Medium-Narrow Soft Inner Foam
- TA04 Ball Differential Unit
- TA04 Aluminum Motor Heat Sink
- On-Road Tuned Hard Spring Set
- TA04 Color Stabilizer Set (Front)
- TA04 Color Stabilizer Set (Rear)
- 4mm Hard Lock-Nut & Spacer Set
- TA04 Aluminum Hub Set For Spur Gear
- TA04 Racing Hub Carrier Set
- TA04 Toe-In Rear Uprights
- TA04 Low Friction Belt (Front)
- TA04 Low Friction Belt (Rear)
- TA04 Carbon Upper Deck
- Full Bearing Set

Final Score:

Highs: Almost all the optional Tamiya parts are included with this kit. We love the full bearings throughout the car. The carbon fiber upper deck and spur gear brace give it that "hardcore race" look. As always, Tamiya's instruction manual is awesome, especially when you consider it is done in four languages. The body and sticker detail are typical Tamiya high standards.

Lows: Even though the car is a little more durable with the softer plastic suspension parts, as a racer kit, we would like to see a stiffer version of the car. Although we love the detail of the sticker sheet, we were a little disappointed that they were not pre-cut. Tamiya has teased us with this feature in other kits, and considering how many stickers are on this car, it would have been nice.

Test Equipment:

Airtronics M8 transmitter
Airtronics 94757 High Speed/High Torque Servo
Novak Cyclone Two-speed controller
Team Orion Core Rebuildable stock
Team Orion GP3300 Matched Team pack

SOURCES

Airtronics, 1185 Stanford Ct., Anaheim, CA 92805 • (949) 978-1895; fax (949) 978-1540
Novak Electronics, Inc., 18910 Teller Ave., Irvine, CA 92612 • (949) 833-8873; fax (949) 833-1631
Tamiya America, Inc., 2 Orion, Aliso Viejo, CA 92656-4200 • (949) 362-2240; fax (949) 362-2250
Team Orion, 22601 LaPalma Ave., Suite 103, Yorba Linda, CA 92887 • (714) 694-2812; fax (714) 694-2815

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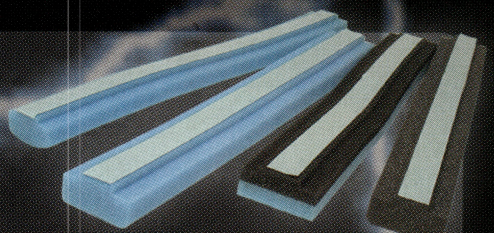
Mounted.....$19.99
Unmounted $12.49





1/8-scale Off-Road Buggy Tire Inserts

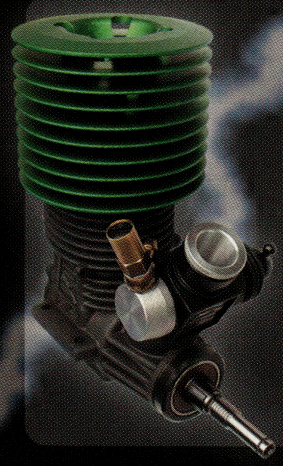


44900 .....Flat Profile Hard "Grey"
41340 .....Medium Profile Double Density
41330 .....Medium Profile "Blue"
41320 .....Round Profile "Pink"



Novarossi Medial Pro M2K .21

- 8 mm carburetor
- Long stroke 8 ports
- Hard black treated Crankshaft
- Special cooling head "green"
- JP Black anodized crankcase
- Double ring cam-rod
- Water-tight front ball bearing
- 14 mm eccentric rear ball-race ball bearing
- Simple tuning carburetor with reduction system
- Separated glow plug insert



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Special Ultra.....N68776
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Novarossi Tuned Exhaust

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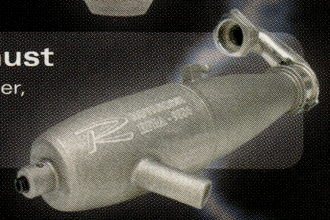

1/8-Scale Off-Road Buggy Tires

Introducing original Medial Pro 1/8-scale buggy tires. These tires are made in France using only the best pure rubber and original compounds. With over 500 international victories, including World and European championships, these tires are the absolute best choice for both racing and backyard bashing. All tire designs are available both un-mounted or pre-glued on Medial Pro 5 spoke star wheels. Don't be fooled by knock-offs, Medial Pro performance and pricing can't be beat!

Street Price PRE-GLUED $25.95



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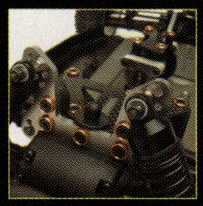
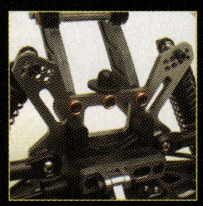
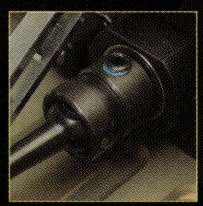
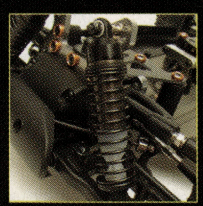
STORM PRO





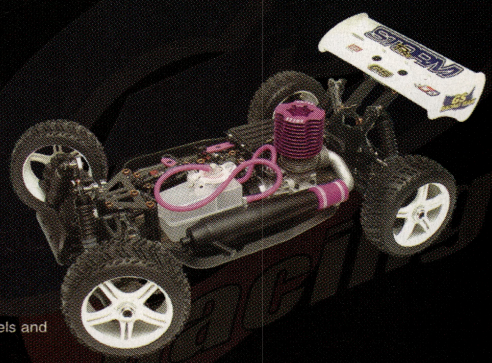




FEATURES

- 7075 T6 MAIN CHASSIS
- 7075 T6 FRONT/REAR SHOCK TOWER
- 7075 T6 FRONT UPPER SUSPENSION HINGE PIN HOLDER
- 7075 T6 3° LOWER SUSPENTION HINGE PIN HOLDER SETS
- ADJUSTABLE SERVO SAVER PIPE SET
- 7075 T6 FRONT/REAR CHASSIS BRACE
- UNIVERSIAL FRONT/REAR AND CENTER DRIVE SHAFTS
- HARD ANODIZED WHEEL HUB SET (4)
- ALUMINUM RADIO TRAY POST
- ALUMINUM WING JOINT
- HEAT-SINK ENGINE MOUNTS
- HIGH PERFORMANCE FRONT/REAR SHOCKS
- GRAPHITE RADIO TRAY, FRONT SUPPORT PLATE AND BRAKE PLATE
- FUEL TANK SPLASH GUARD
- BRAKE SPLASH GUARD
- DUAL DISK BRAKES

GS Racing



Radio, engine, exhaust, wheels and tires not included.

GS RACING

STORM PRO | 1/8 SCALE BUGGY



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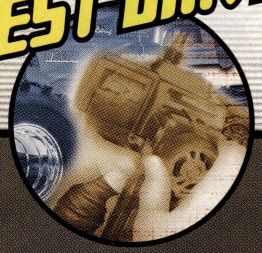


TRINITY REFLEX

When Trinity introduced its Reflex NT nitro sedan two years ago, it was undeniably at the top of the high-end category. With a list of standard features that read like an aftermarket catalogue, the Reflex NT was truly a "needs nothing" kit. Apparently, this wasn't enough for Trinity, as is evidenced by this new "Team Only" version, which is packed with a significant

IF MERCEDES-BENZ

NT "TEAM ONLY"



number of new features and upgrades that propel this kit into true dream-car status. Many of the new additions are based on the setups and preferences of Team Trinity drivers such as Joel Johnson, Josh Cyrul and Chris Smith, who have now had two full seasons of racing the Reflex NT. What you see here is the result of that rigorous R&D.

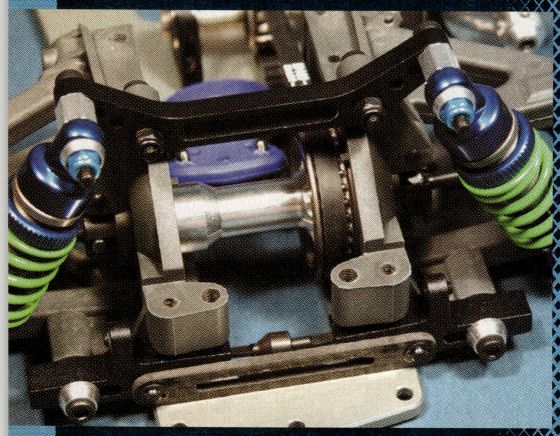
MADE AN R/C SEDAN...

QUALITY IS JOB ONE

Upon opening the box, we were impressed with every facet of the Reflex NT's parts. The kit is loaded with high-quality billet aluminum and carbon-fiber pieces; it's like building a Mercedes-Benz from a kit! Although the instructions are very well illustrated, the accompanying text could have been a little clearer. Two addendum sheets are also included—one is a supplement to the main booklet, while the other covers the new Team Only features.

ONLY ONE WAY TO GO

Assembly begins with the differentials. The Team Only kit comes with a front one-way unit that allows for the front wheels to coast freely off-power. But if you plan to race on a tight track that calls for lots of braking, Trinity still supplies enough parts to build a front gear diff. The rear end still gets a sturdy gear diff that uses high-quality sintered-metal gears. Trinity also gives us thick silicone oil for the diffs (50,000wt.).

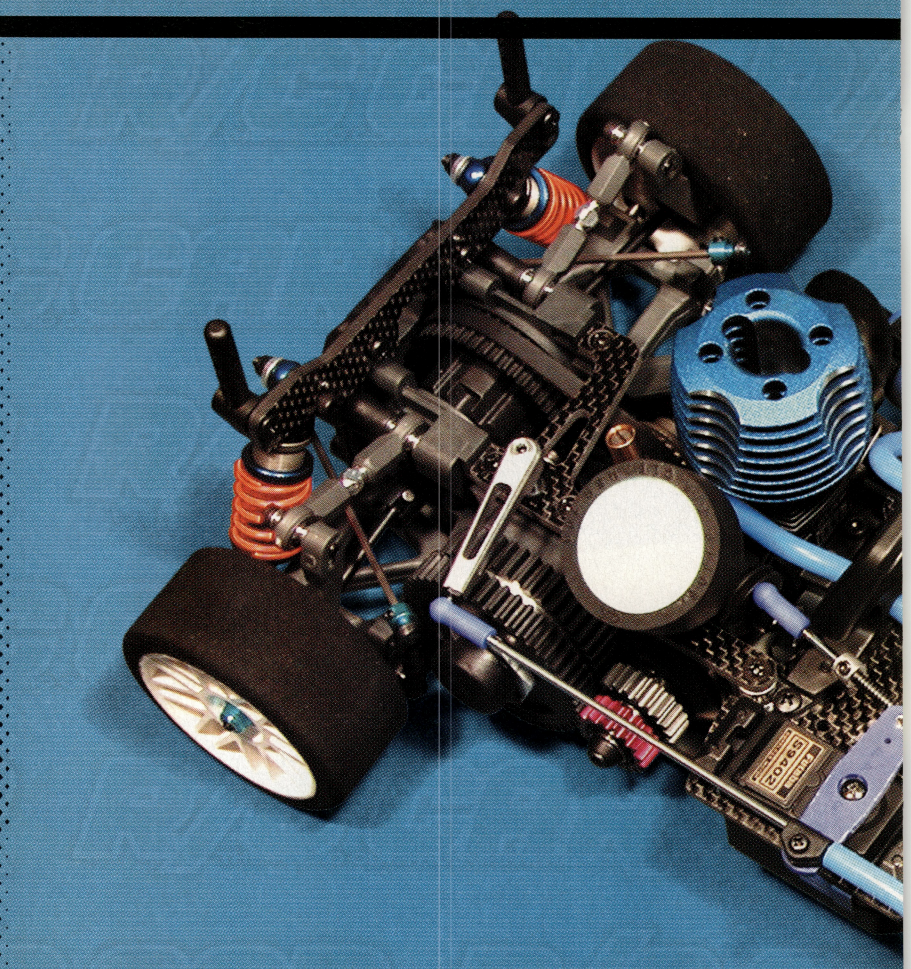


ABSOLUTE ARTICULATION

The suspension is next in line for assembly. All of the Team Only kit's suspension components—wishbones, bulkheads and braces—have been molded from a light-gray composite material that's stiffer than the original pieces. Large 9mm pillow balls secure all four hubs to the upper and lower wishbones. The aluminum pillow-ball nuts secure the pillow-balls without the benefit of friction-reducing plastic inserts, so it's extra important to leave a little gap when tightening the nuts or else the suspension will bind.

All four wheels get the added benefit of smooth power delivery thanks to a full set of steel universal-joint driveshafts. For added security, the U-joint pins are held by the inner ball-bearing, so they cannot come out during a run.

The Team Only kit also features a new blade-style front sway-bar. The bar mounts also double as the front suspension's up- and down-travel stops, and because they are made from aluminum, these settings become more precise. The two-piece ball-and-socket swaybar allows for unrivaled anti-roll adjustment; laying the flat portion of the bar horizontally provides the least roll-resistance, while standing it up provides the most. Of course, stiffness can be adjusted anywhere in between as well. Roll bars of two different thicknesses are also provided for the rear of the car.



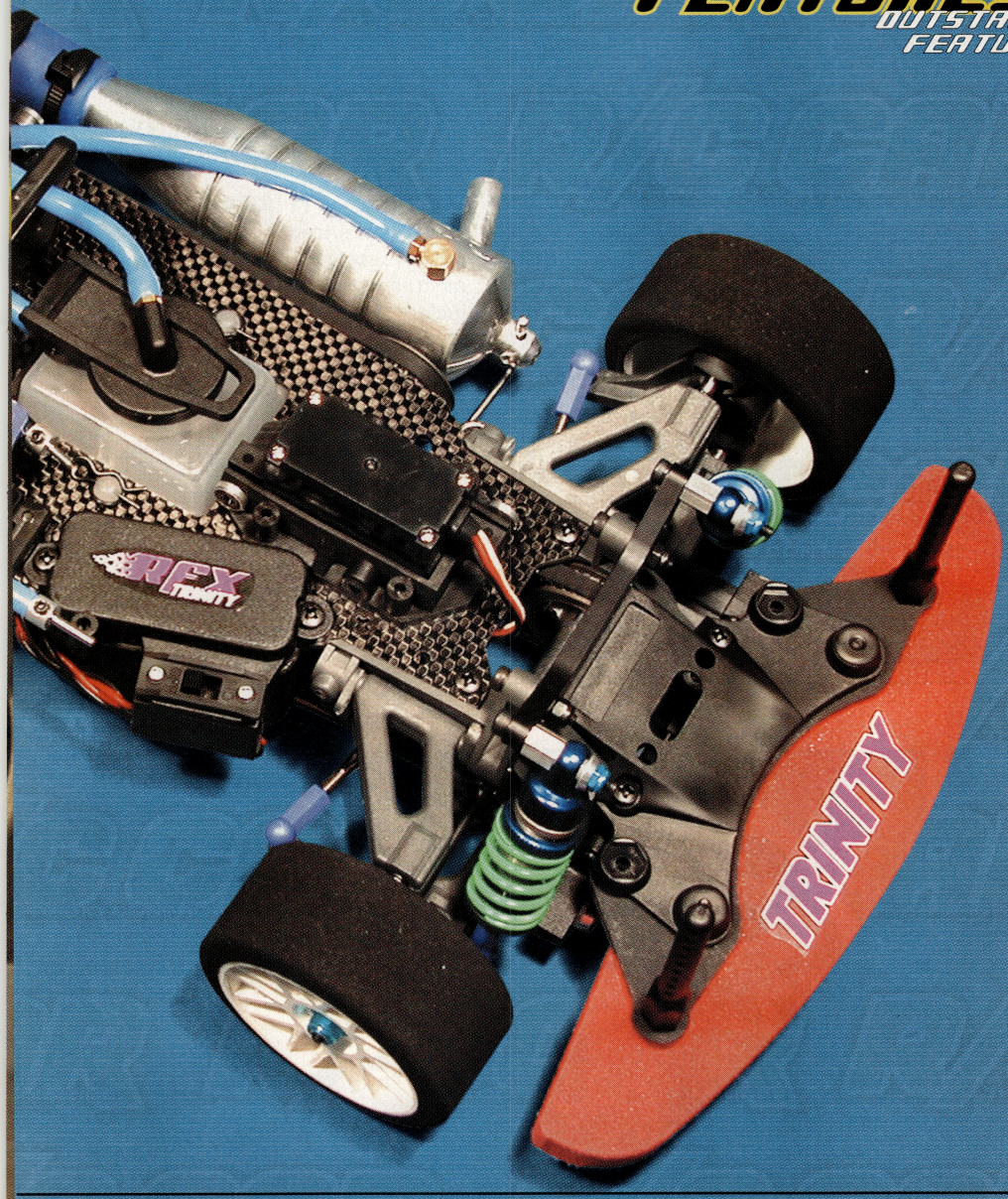


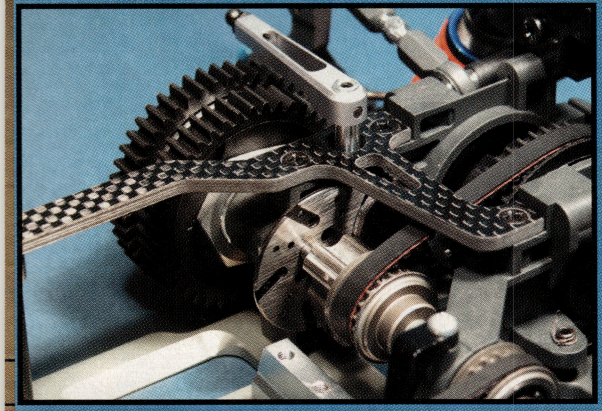
According to several Reflex NT owners we know, the original car's front bumper was a weak spot. The Team Only kit addresses this with its new Big Bash front bumper, which sandwiches a red foam bumper between a pair of Kydex braces. The new bumper also relocates the front body mounts further apart to provide more support for the front of the body.

There has also been a change to the front shock tower. The original carbon-fiber tower, which provided only one mounting position for the shocks, has been replaced with Trinity's optional aluminum tower, which provides three choices for attaching the front shocks.rd to follow three sets of instructions at once, so we recommend that you study each one thoroughly before you begin construction.

OUTSTANDING FEATURES

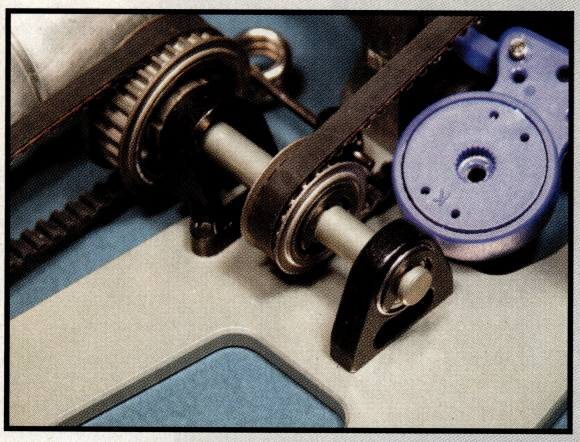
OUTSTANDING FEATURES



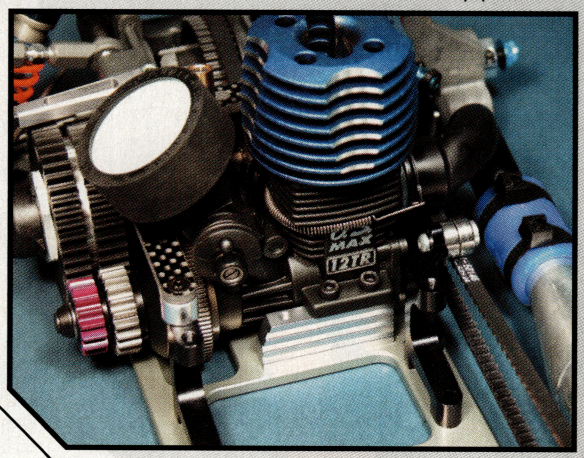


STOP AND GO

There are two kinds of two-speed transmissions: finger-style and clutch type. Which is better? The clutch type, because it provides smoother shifting and is far more durable. The Reflex NT comes with a super high-quality clutch-type two-speed that is held together with large aluminum nuts rather than those pain-in-the-rear circlips, making it much easier to assemble and maintain. There's even a plastic cap that protects the two-speed's outer bearings from dust. The Team Only kit also comes with a vented steel brake disc that should work better because it will remain cooler throughout the run. Helping the brakes is a new aluminum brake lever that provides better control of the stopping force.



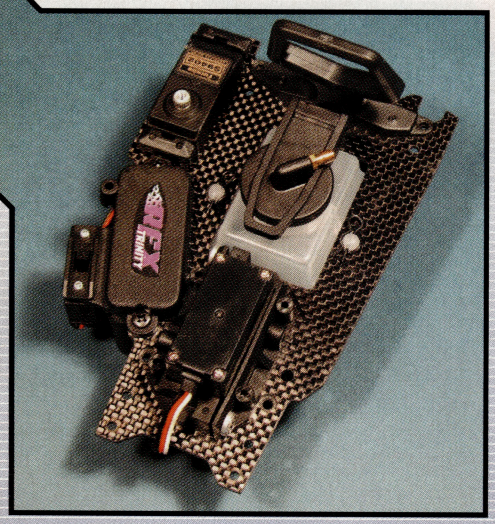
Unlike all of its competitors, the Reflex NT's belt pulleys are each machined from aluminum, then hard-anodized to provide the utmost durability. Even the belt shafts, which are heavy steel on most other cars, are made from hard-anodized aluminum for less rotating mass. The Team Only kit further beefs up the drivetrain with a new aluminum middle-belt mount that greatly reduces flex in this high-stress area. The new mount also incorporates the pipe mount.

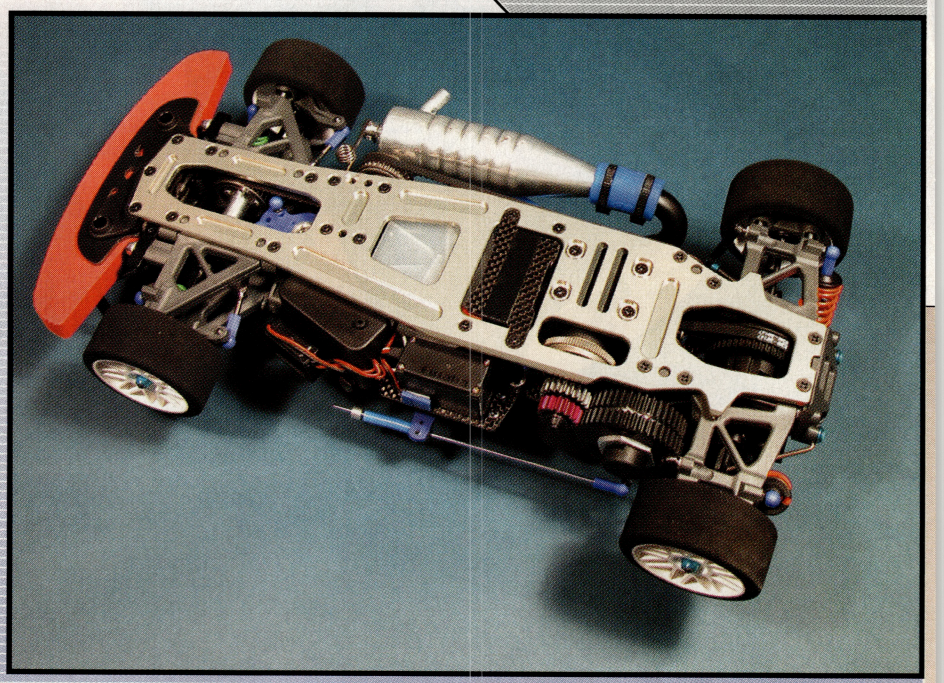


The engine bay of the Reflex NT also received several major upgrades. First, there is a new two-piece engine mount that lowers the engine significantly compared with the old one-piece mount from the original kit. And in addition, Trinity includes a K Factory "push" clutch (it's like a Centax clutch) in place of the original three-shoe clutch. The advantage of this clutch is that its engagement can be finely tuned. Yes, conventional clutches can be tuned, but not from the outside as with the Reflex's clutch, and not without modification. If you don't like how the Reflex clutch is working, you can always go back to your starting point; but once you cut standard clutch shoes, you can't go back!

HOT NEW THREADS

Hard-anodized threaded-aluminum shocks are standard equipment; however, the Team Only kit includes new two-hole Delrin shock pistons—the same ones as used by the factory team. The kit also includes a set of shock springs in three degrees of firmness (blue, green, orange and blue) to provide greater tuning options. Trinity also provides a full bottle of 40 wt. silicone shock fluid, which is a good all-around starting point with the new pistons. All four shocks are attached to the towers with new aluminum mounts that have Delrin pivot balls for smoother operation.

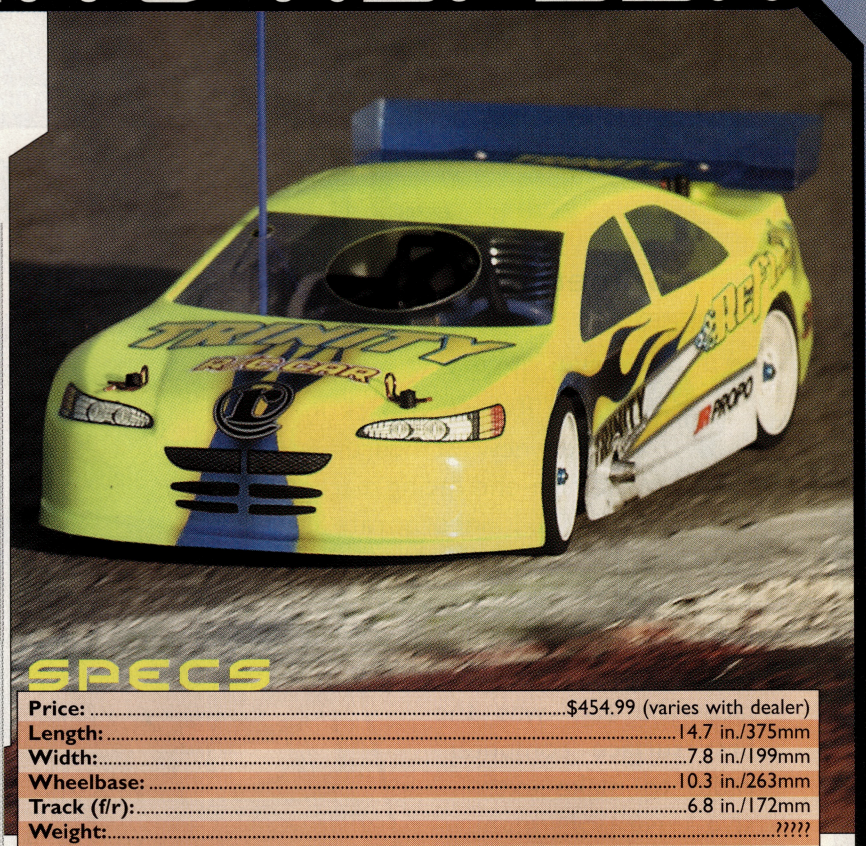




TOP DECK PARTS

Building the carbon-fiber upper chassis deck revealed a host of innovations, not the least of which is a 75cc fuel tank that is situated directly along the car's center so that left-right weighting remains unaffected by fuel level. The steering servo is also placed in the center of the car, and you have the option of securing it with a clamping mount that really keeps the servo steady. This theme of keeping most of the heavy items towards the middle of the car is carried on with the battery pack, which is mounted to a graphite plate then passed through the lower chassis. Unfortunately, the Reflex will only accept a "three by two" five-cell pack. A nice molded box protects the receiver from fuel spills, and it also serves as a mount for the electrical switch.

TRINITY REFLEX



REPORT CARD

Test location: KZ Speedway, Sun Valley, California. (818-771-1003).

Test conditions: Large, permanent asphalt roadcourse

Acceleration and speed: A

We once had a rough experience with a Centax-style clutch (no, it wasn't a Serpent clutch), so we were a little unsure what to expect from the Trinity (K-Factory) push-type clutch. What a great setup it turned out to be! Set just as the instructions had specified, the clutch propelled the Reflex NT like a bullet from a gun. Other highlights include the smooth-shifting two-speed and the efficient drivetrain. After breaking in for a few tanks, the drivetrain rolled excellently made the power seem almost fluid.

Stopping: A

Again, another excellent score. The new upgraded vented disc-brake setup is like having a big Brembo at each wheel. The system doesn't bind at all during coasting, and the brakes come on gradually and predictably. Even with the car's front one-way, we were able to dial-in just enough useful brakes to slow the car for the tighter turns without looping.

Low-speed steering: B

Despite our setup, which with a front one-way and a stiff rear diff, the Reflex NT still exhibited a tendency toward understeer in the slower sections of the expansive KZ track. Part of the blame probably rests on the magenta TRC foams we used at both ends; they're very soft and grippy. Otherwise, the car was predictable and easy to drive.

High-speed steering: A

This is where the Reflex shined brightly. On-power and through the sweepers, the car could hold the tightest lines without needing to be slowed excessively. The car was also able to carry lots of speed into the faster sweepers and medium-sized turns. And the Reflex was phenomenal through the chicanes.

Durability: B-

Overall, the Reflex NT is about as bulletproof a car as one can get. However, the Team Only composite suspension material, while stiffer, feels like it strips more easily. We discovered this when, after a relatively minor skirmish with a curb, one of the front lower pillow-balls pulled out of its wishbone.

SPECS

Price:	$454.99 (varies with dealer)
Length:	14.7 in./375mm
Width:	7.8 in./199mm
Wheelbase:	10.3 in./263mm
Track (f/r):	6.8 in./172mm
Weight:	?????
Chassis:	4mm aluminum plate; graphite upper plate
Suspension:	Ind. double wishbone
Drivetrain:	Belt-driven full-time 4WD
Diff(s):	Front one-way; Rear sealed gear-diff
Damping:	Aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	not included
Wheels:	not included

Final Score

HIGHS: You've probably heard it before: This car needs nothing to race at the highest level. Well, we really mean it this time! Every single piece of this car is made from the best material. We liked the beefy drivetrain, the great vented brake and the bevy of options. Although it's priced on the high side compared to other racing sedans, the Team Only version is actually quite a value (for example, just the clutch alone retails for $150).

LOWS: The instructions could use additional clarification for some steps. The gray composite material is strong, but it strips more easily.

THE VERDICT: If you're looking for a nitro sedan that comes with every conceivable hop-up known to man, look no further than the Reflex NT Team Only. This car is engineered to the hilt, has superb chassis balance and excellent parts support through Trinity.

SOURCES

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

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

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

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

Sidewinder Performance Racing Fuel, produced by Morgan Fuels, P.O. Box 311201, Enterprise, AL 36331 • (334) 347-3525

Trinity Products, Inc., 36 Meridian Rd., Edison, NJ 08820 • (732) 635-1600; fax (732) 635-1640

JR RACING

Sometimes all that glitters *is* gold!

When JR Racing first released the R-1 radio back in '97, it set new standards in features for the high-end racing market. Not only did the R-1 incorporate several never-before-seen functions, such as channel mixing, but it also ushered in a new era of graphic interface; the R-1 was the first surface computer radio to make extensive use of menu scrolling, graphic representations of radio functions and the ability to select operating modes in accordance to your skill level. JR recently introduced a newer version of its top-line racing radio, called the R-1 Pro, and we were curious to find out if there more to the new model than just its gold trim.



R-1 PRO



WHAT MAKES THE PRO

The main difference between the Pro and the normal R-1 is the signal processing time; the new R-1 Pro and its R200 speak to one another much faster than before. What this improvement in communication nets is a faster reaction to what you do. If you have cat-like reflexes, the new R-1 Pro can keep up and then some. Of course, there are some limitations to this technology; you have to use the JR receiver, and to get the most out of the faster processing, digital servos are a must.

Also new is what JR refers to as a "Losi inspired" Progressive Resistance steering wheel. This describes the resistance in the steering wheel; close to center, the wheel is easier to turn, but the farther your turn it, the more resistance you'll encounter. The advantage of this progression is that it's easier to make subtle steering corrections, yet you'll need to exert a bit more effort for extreme steering throw.

And of course, let's not forget the final difference that separates the Pro from the original R-1: the "bling, bling," the gold trim! Some of our testers hated it, some loved it. But one thing's for sure the Pro's gold-plated steering wheel, power switch, trim levers and hardware definitely make a bold statement.

TECHNICAL HIGHLIGHTS

The R-1 is a technological marvel. Programming the radio is accomplished through the forward-facing display - a huge 128 x 64 dot-matrix LCD capable of utilizing over 8,000 points of data! This is how the R-1 can simplify some of the more complex tasks through intensive graphic displays.

Navigating through the R-1's maze of functions is done with a series of eight pushbuttons located to the right of the steering wheel. Although hardly an intuitive interface, the logic of the buttons is revealed in minimal time.

There are a total of five digital trims - three surround the steering wheel, the other two are located on the grip. Each of the trims can be programmed to control one of seven possible functions: static brake, panic brake, steering dual-rate, steering trim, ABS point, ABS swing or the auxiliary third channel. In addition, there are a pair of two-position rocker switches that can be used to control the idle-up feature, or to choose between different throttle and brake curves and steering rate or exponential curves. The rockers can also be used to choose the ABS braking and servo speeds if so desired.

One feature that sets the R-1 apart is its two-speed scrolling. When you're adjusting the trim values, holding the trim lever for more than three seconds causes the R-1 to shift into a faster scrolling speed. This is particularly useful when you're making changes to functions that have a wider range of adjustment. The beep that accompanies the trim adjustment changes its tone to let you know which scrolling speed is being used.

KNOW YOUR MODES

The R-1 contains three basic modes: System, Function and Direct modes. System mode contains settings that you'll usually only use once when setting up a new vehicle. For example, such functions as servo reversing, model name, signal mode and failsafe selection are contained in the System mode.

The next up is the Function mode. This is where you'll be able to fine-tune your model with such features as dual-rate, exponential, sub-trim, and throttle curve. You'll also be able to access some of the radio's more advanced features such as the servo-speed adjustment, the ABS (Advanced Braking System) and the Quick Throttle option. Note that not all the features of the Function mode are accessible when the R-1 is set to the "beginner" mode.

There is also a Direct mode, where you can access six of the most commonly used functions without having to scroll through the R-1's various menus. As an additional shortcut, the Direct mode's functions are printed in orange on the keypad's buttons, so you can navigate them and change values with very little effort.

ADDITIONAL FEATURES

The R-1 allows you to adjust the steering servo's speed independently, i.e., when steering and when returning. Of course, the maximum speed of the servo cannot be exceeded when using this feature, but you can make the servo less "twitchy" around its neutral point by slowing it during initial travel. You can also help your car to center itself better after turns by selecting a faster return value.

One of the features that make such high-end radios as the R-1 valuable to racers is the ability to function as a timer. The R-1 has one of the most comprehensive timing function of any radio. The R-1 has three timers: a lap timer (activated by a grip-mounted pushbutton and able to store as many as 99 laps), an up-timer and a down-timer. The radio also has an internal timer that tells you how long it has been switched on.

WHAT WE REALLY THINK

The R-1 Pro is a technological tour-de-force. We can think of no other radio that offers more computerized tuning options, but among all the current computer radios, the R-1 is probably the most complex; it is the least intuitive radio, and the one that benefits the most from having a well-written instruction manual. However, once you've become accustomed to navigating through its various menus, you'll eventually wean yourself from reliance on the instructions. As a racing radio, the R-1 Pro offers everything: versatility (it's one of the best radios for R/C boaters), performance, excellent ergonomics and balance (although it is among the heavier of its kind), and enough features to provide the knowledgeable racer an advantage should he choose to explore all that's offered. And with the new Pro edition, everything we liked about the R-1 remains intact; it's just much faster now, and it sells for $50 less than the original!

SOURCES

JR Racing, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • phone (217) 355-9511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NITRO RS4 RTR 3



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The RTR Nitro RS4 3 is the easiest way to get into the exciting world of nitro touring cars. It's our third generation Nitro RS4, and everything that we've learned about making a simple and reliable car has been added as standard equipment. The updated 15FE engine is designed to be user friendly, featuring a single needle carburetor for easy tuning, even if you aren't a nitro engine expert (yet). We've added a billet aluminum heat sink head to keep it cool, a high performance exhaust system for speed, and the reliable built-in pullstarter makes starting as easy as it gets. The "RTR 3" comes factory assembled, so you can start driving with a professionally assembled car quickly. To maximize durability, we added a tough shaft drive system to eliminate the chances of rocks getting stuck in drive belts, and we use molded camber links so that the suspension is set perfectly, with no chance of changing in hard crashes. Not satisfied leaving your car stock? The RTR 3 is compatible with a huge variety of body shells and hop-up parts to customize your car. If you're looking for a simple, durable and reliable car as your first step into nitro R/C, ***give the RTR Nitro RS4 3 a try!***



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FUTABA 3PK

Radio or radar gun? You decide

Futaba can be credited with the very first high-end radio—the Magnum. Remember the original Magnum, with its box-like design, hidden panel of endless potentiometers (no computer chips there) and wrist strap? It certainly was an unconventional design, and it was viewed as the radio of its generation. Over time, Futaba's top-of-the-line radios began to adopt a more conventional appearance, and although they were still among the most reliable and feature-laden, they sort of became lost in the shuffle.

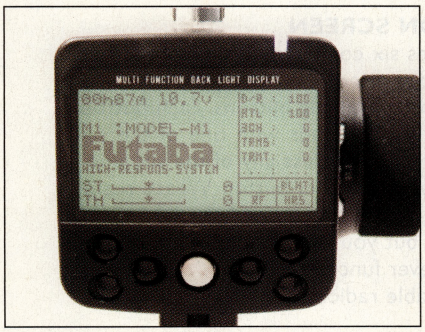


Not so with the new 3PK, which with its unconventional design, is a throwback to the glory of past Futaba radios. Everyone who has seen this radio has felt an uncontrollable urge to hold it, press its buttons and work its wheel. But does the newest Futaba deliver where the old 3PJ failed? Will its unique design be as functional as it is stunning? Can Futaba create an interface that's more user friendly than the complicated navigation of its previous radio? Read on to find out if there's a Futaba in your future.



SPEED COSTS

The big trend in racing radios is signal speed. Everyone is boasting about how fast their radio systems have become, and that they can make you a better driver. The 3PK is the latest, and according to Futaba press information, the 3PK and its new HRS (High Response Speed) mode transmit at twice the standard FM rate. Of course, to take advantage of this, you'll need to use Futaba's R203F receiver (which comes with the 3PK) and digital servos. Of course, the 3PK allows you to select standard FM and PPM modes for use with other receiver/servo combinations. And as the company that first offered PCM (pulse-code modulation) to surface radios, Futaba also endowed the 3PK with, what else, but PCM (you'll need a PCM receiver to make us of this feature).





The included Adjustable Positioning Adapter lowers the steering wheel for improved wheel/trigger balance.

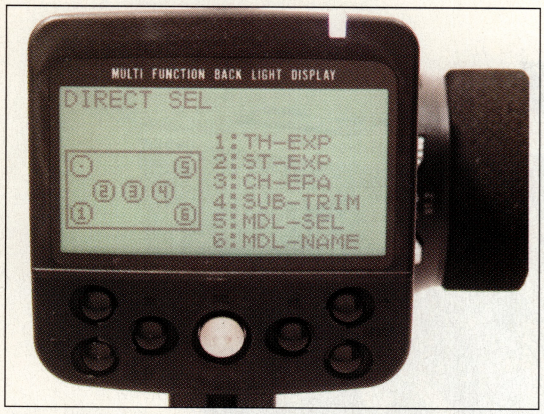
NAVIGATION

The 3PK is set up with three levels that allow even new users to enjoy the benefits of this radio's high-powered computer.

• *Level 1* is the simplest and is intended for those who are new to computer radios. In this level, you can set all of the radio's basic functions such as servo reversing, sub-trim, EPA (end-point adjustment) and exponential. You also get a taste of what the 3PK can do. Here, you can also play with the radio's multi-model memory (the basic memory can store up to 10 models) and the built-in failsafe feature (which requires the HRS/PCM receiver).

• *Level 2* is for the more advanced racer, and in addition to the functions available in Level 1, this level adds such features as steering and throttle speed, A.B.S. (anti-lock brakes), throttle acceleration (which allows the throttle servo to "jump" to a predetermined point to compensate for some carb linkages), idle-up and the 3PK's versatile timer functions. This level is also where you'll be able to assign various functions to the 3PK's mechanical dials and switches for quick access to the features you use the most frequently.

• *Level 3* is where the true potential of the 3PK becomes unleashed. When you've become an expert user, this is where you'll find such features as channel mixing (the 3PK can mix its channels to control multiple functions with one movement of the steering wheel, throttle trigger or third-channel switch) and ATL (adjustable throttle limiter), which allows you to adjust the travel of the brake "on the fly" (as long as you've assigned the ATL feature to one of the grip dials. And as if all this weren't enough, Level 3 also allows you to use such features as the "Adjuster," which electronically compensates for minor mechanical wearing of the radio's steering wheel and trigger, and the MC-Setup, which allows certain ESCs to be able to work properly with the ultra-fast speed of the HRS receiver.



DIRECT CONNECTION SCREEN

This unique menu places six commonly used functions at your fingertips. When in the direct menu, you are shown a diagram of the 3PK's six programming buttons. Each button is assigned a number that corresponds with one of the six functions listed on the screen. To access any of the six functions, you need only press the correct button. What's really great about this feature is that not only does provide a useful programming shortcut, but you can customize any of the six "hot button" to whichever function you wish, making this one of the most customizable radios on the market.

YOU CAN'T BEAT THE SYSTEM

In addition to the various menu screens already listed, the 3PK also has a system menu that allows you to adjust the radio's general settings, i.e., those that aren't related to any specific model. Here, you can set the screen's backlighting function for both when it comes on and for how long. You can also set the screen's contrast, making it easy to see in various lighting conditions. You can select the tone for the timer's buzzer (in 100 increments!) and even change the color of the radio's status LED (from either off, light blue, purple, green, orange, yellow or blue).

The 3PK also allows you to select one of four screens that will serve as the "home," or default screen whenever the radio is switched on. The radio comes preset with the "Futaba" logo display, which shows such general information as battery status, the model selected, etc. But you can also choose to have a "user name" screen as your default display. This is similar to the first screen, but instead of the Futaba logo, you can enter your name to personalize your 3PK. Should you wish to keep tabs on your lap times and run times without having to scroll, you can choose to have the timer screen as your default. And finally, you can select the radio's "servo view" display as your home screen. This unique—and very cool—function shows not only the trim locations of all three radio channels, but it also shows bar graphs that indicate the total travel of each channel. And the graphs move as you move the steering wheel, trigger or third-channel dial switch! It's as entertaining as it is useful!

HIGHLIGHTS, MIXING AND MODEL MASTERY

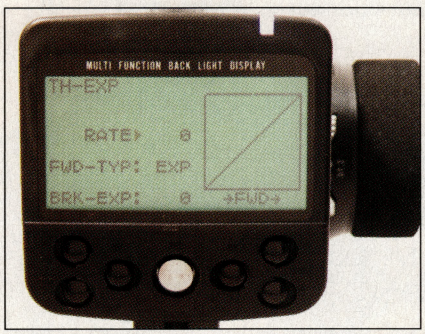
To describe all of the 3PK's features and functions would take up an entire book. Wait! It does; the radio comes with a 68 page instruction manual! So rather than reiterate the contents of the manual, we thought we'd give you the highlights.

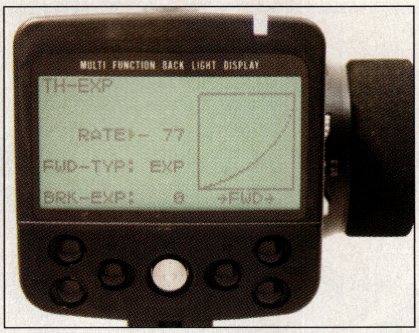
• *Channel mixing*—Yep, the 3PK is one of the few surface radios that gives you the ability to mix channels. Mixing is when you can control more than one servo with just one command. For example, if you have a 1/5-scale car that has one servo for the front brakes and another for the rear brakes, you can use the mixing feature to operate both servos by just pushing on the brake trigger as normal. You can also program the servos to operate at different travels, or you can program one to operate at a different point in the trigger's travel. There are many other uses for mixing, including operating lights that you can set to come on when the steering servo is moved.

• *Boat mode*—The 3PK is the only radio we know that comes pre-programmed with a specific mode for R/C boaters. In this function, the radio provides tilt-mixing, which changes the outboard engine's positioning dependent on rudder inputs, and adjusts the rudder when the position of the outboard engine is changed.

• *Function assignment*—The 3PK has three dials, three trimmers (levers) and three switches, and it allows you to assign a variety of functions to each. For example, you can make one of the trim dials your sub-trim, and another could become your "idle up" function (this makes the throttle servo of your gas car move to a predetermined 'high-idle' position during starting). You could also assign some of the "on-off" functions, such as ABS or any of the timers, to any of the switches.

• *Memory expansion*—Out-of-the-box, the 3PK can store 10 models' settings in its memory. But this can be expanded through use of Futaba's optional 16k CAMPac modules, which can each store settings for an additional 10 models.





The 3PK provides graphic support to many of its adjustable functions. These displays show the setting of the throttle exponential. The left display shows a zero value, while the right display shows a value of minus 77.

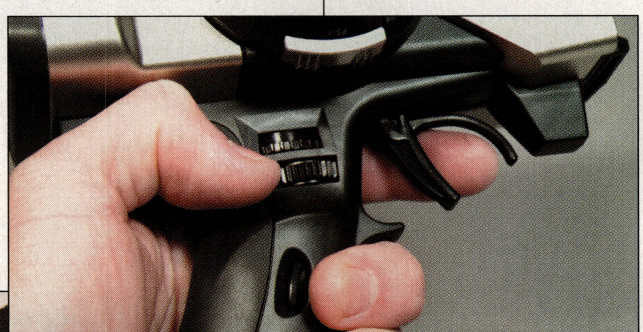
ERGONOMICS AND ACCESS

As you can see from the photos, the 3PK is visually the most distinctive radio on the market. But does it function as well as it looks? Yes! We found the transmitter to be extremely comfortable and well-balanced, especially after we had lowered the wheel using the included adapter (Advanced Positioning Adapter, to be accurate). Futaba was also one of the first companies to offer transmitters to accommodate left-handed users, and the 3PK follows suit. It's a simple matter of four screws and a plug-in harness to go from right- to left-handed operation.

Perhaps the most innovative mechanical feature of the 3PK isn't its suave new case or its rear-facing screen; no, we think it's a little push-button known as Push Switch 2. PS2, as we'll call it, is located midway down the radio's handgrip, and we have found it to extremely useful when set to activate the timing function. Most of the other computer radios have similar switches, but they're all located up high, near the dual-rate lever, and in our opinion, they're always a little difficult to operate. The 3PK's PS2 can be used with the middle finger of the throttle hand, and it makes it so much easier to time your own laps during practice without affecting your ability to operate the throttle.

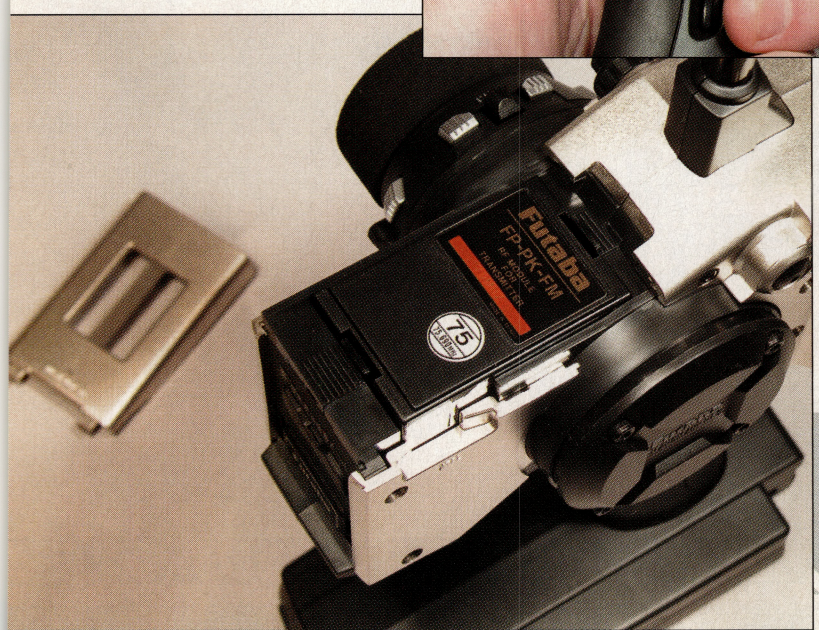
WHAT WE REALLY THINK

It's admittedly hard to get past the 3PK's stunning new looks, but once you do, you realize that Futaba has spent just as much time updating the inside as it has the outside. As a result, the 3PK is Futaba's most user-friendly computer radio to date. And although it has more features than just about any radio on the market, you won't need a degree in computer science to use it. The adoption of the level-system really simplifies the setup process, and even when the more advanced functions are enabled, the logical arrangement and simplified graphic interface makes using them far less complicated. Overall, Futaba has raised the bar in the high-end radio category.



Futaba 3PK FM PPM,
part no. LXCML6, $329.99
(varies with dealer)
Futaba 3PK FM PCM,
part no. LXCML5, $329.99
(varies with dealer)

Left: handy grip button works wonders for the timer. Below: the expandable memory bay.





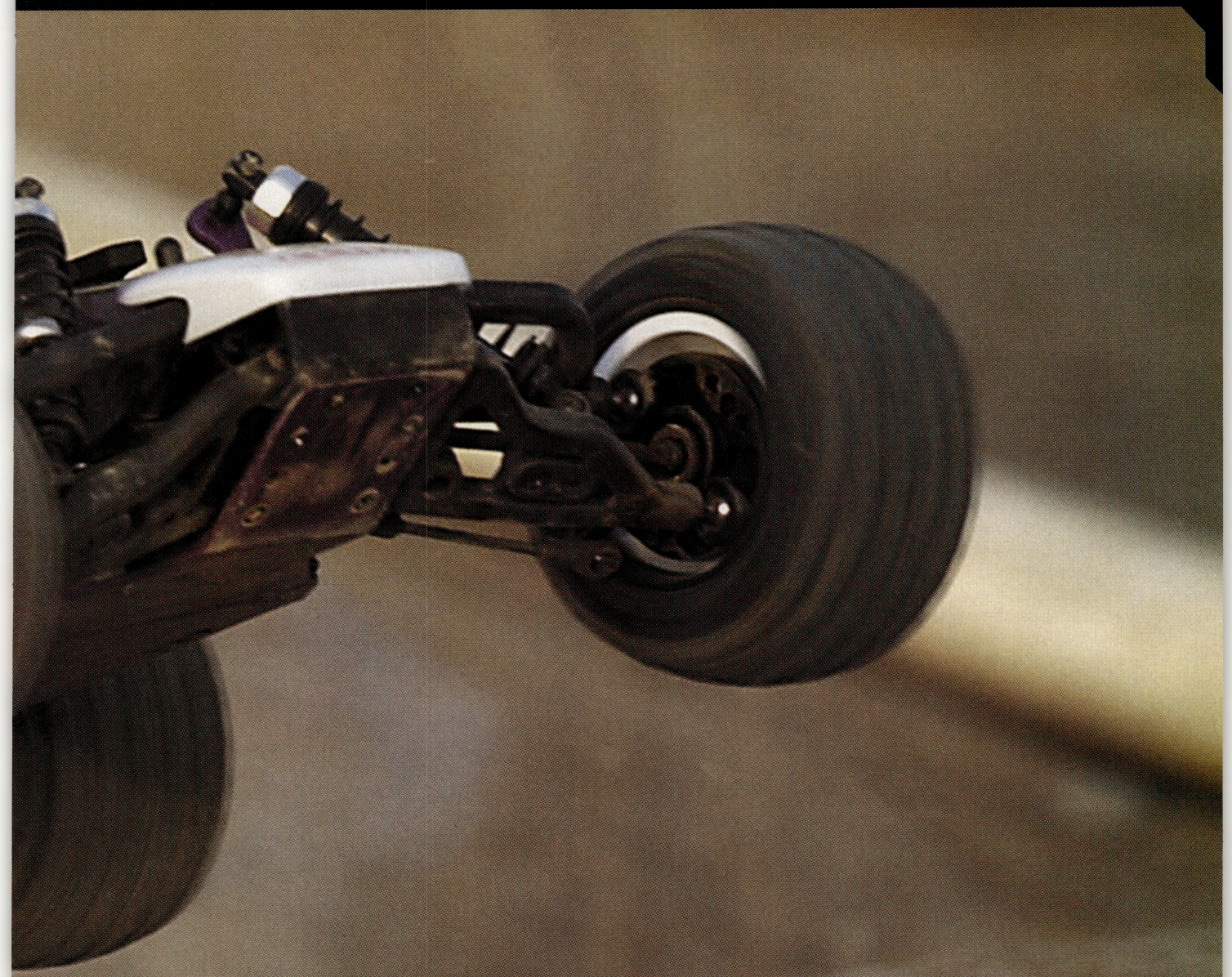
SOURCES

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



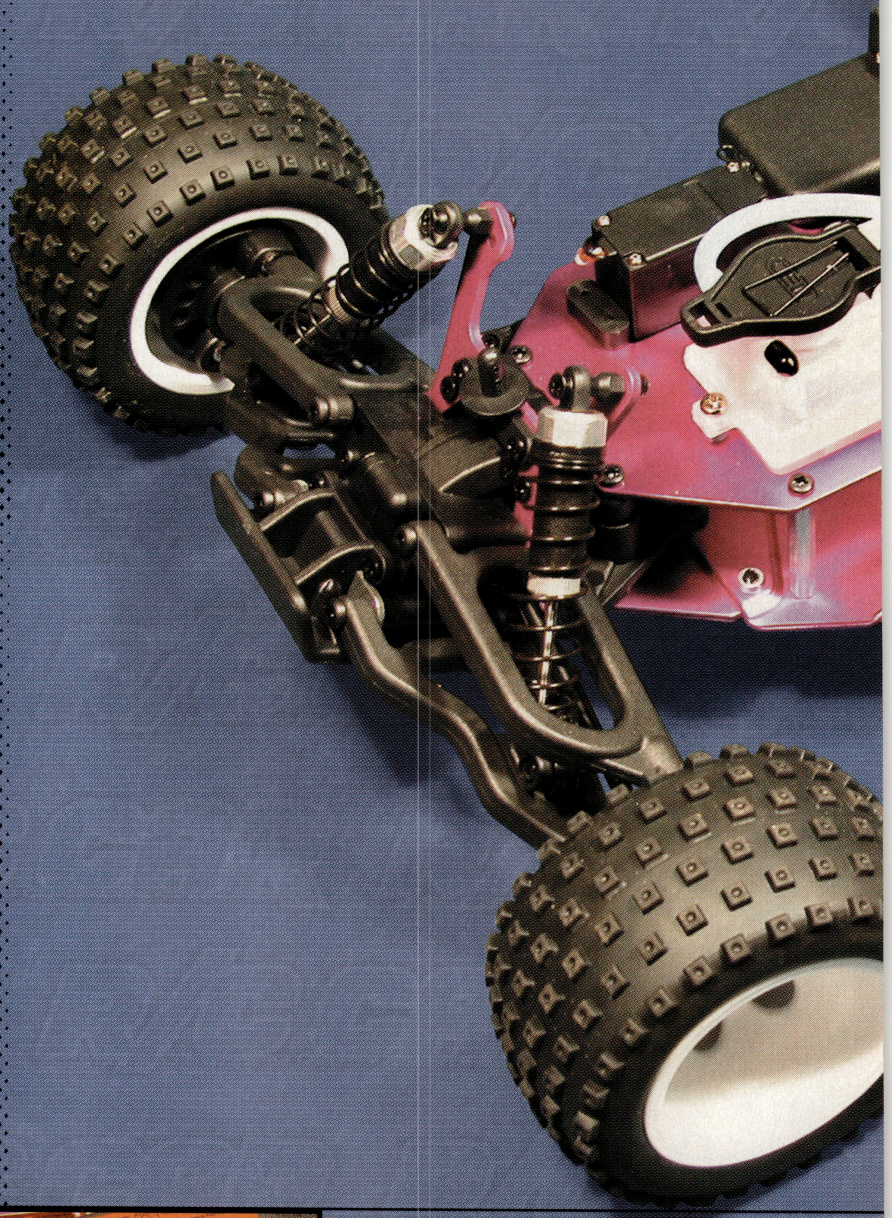
CEN ATX

HAVE IT YOUR WAY



When you're in the market for an off-road nitro vehicle, there are a lot of cars and trucks that vie for your attention. In fact, nitro off-road has become the most crowded segment of the hobby. If you want a truck, you can almost go insane with the number of available choices. However, if you want a buggy, and you want nitro, your choices become far less wide. And if you don't want the expense of a 1/8-scale buggy, things become even narrower. In fact, there are very few 1/10-scale nitro buggies, fewer than you could count on one hand. But fortunately, CEN makes one of them: the Fun Factor ATX.

OUTSTANDING FEATURES



'TIL DADDY TAKES THE T-BIRD AWAY...

You know, "We'll have fun, fun, fun..." The ATX (All Terrain Xtreme) is based on CEN's all-purpose Fun Factor 2 4WD platform.FF2 as a mini T-Maxx, because with its full-time 4WD and compliant long-travel suspension, that's exactly what it is!

Hate us if you will, but we'll never tire of purple-anodized aluminum (HPI will see to that!). Thankfully, we can get our "fix" with the FF2, as its 2.5mm aluminum lower chassis, its pair of upper deck braces and its front and rear shock towers are - pause inserted for dramatic effect - purple anodized! If you're among those who hate this particular shade, well, rest assured that the underside of the chassis will soon turn to its natural aluminum color as the anodizing is scraped away!

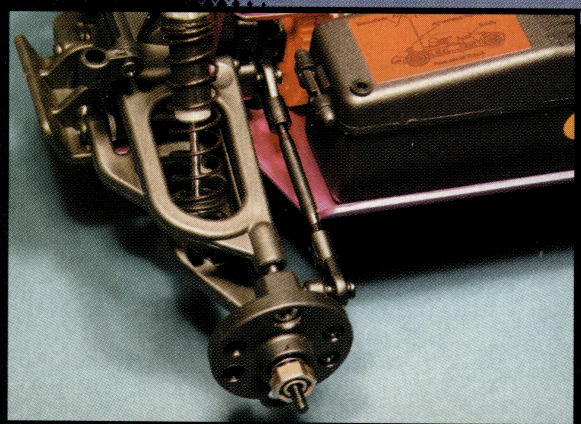
The lower chassis isn't all that stiff, but it does receive charitable aid from its bent-up sides (which form a kind of lateral backbone) and the two upper plates. Overall, however, the FF2 flexes more than it should. If this were a belt-driven car, there would undoubtedly be all sorts of problems, but as long as the center dog-bone, which sends power to the front wheels, doesn't eject, who cares? Well, we'd like a bit more rigidity so that the suspension is better isolated from the chassis, but we have to remind ourselves, and you, that this is a sport-minded machine, not a racer.

DOUBLE YOUR WISHBONES

If we had to pick one area in which the ATX surpasses most of its competition, it would be in the suspension department, for this long-travel double-wishbones setup is very nice for a vehicle in this class. Each corner of the ATX receives a pair of long, molded-nylon wishbones that provide plenty of bump-absorbing compliance. Like the T-Maxx, the outer ends of the wishbones are capped with pillow-ball-supported uprights. This design not only simplifies the suspension assemblies (as there are fewer parts), but allows you to set the ATX's width and wheel camber.

We also like that each part of each suspension assembly is identical; you need only to have one upper and one lower wishbone and one hub in your spares box to fix any suspension-related crash damage - how simple is that? As the rear hubs are similar to the front steering hubs, we benefit from having rear wheel toe-in that can be adjusted by changing the lengths of a pair of steel tie-rods.

The ATX's oil-filled shocks also mimic the basic design of the T-Maxx, as they pass through the upper wishbones on their way to the lower wishbones to which they're attached. The shocks offer a good volume of oil for sufficient damping, and they provide plenty of travel for when you're climbing or crawling over stubborn obstacles.

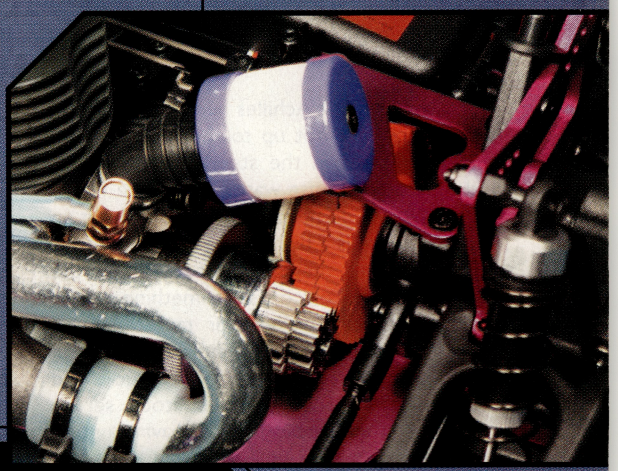


POWER MONGER

What kind of engine should a big 1/10-scale buggy such as the ATX have? It's not as large as a T-Maxx, but it's bigger than a typical 1/10-scale stadium truck. A big block would be overkill for a car of this size, but a small .12 might not have the grunt. CEN decided to go with a .16 pull-start mill, which seems to us to be a logical choice. CEN's NT-16, which by its manufacturer's rating puts out just under one horsepower while churning at 20,000 rpm, is another pleasant surprise. It's easy to start, and it moves the ATX with authority. Unlike many sport engines, the NT-16 is equipped with both

CEN ATX





a high-speed needle and a low-speed needle. If you aren't in the know, a low-speed needle allows the engine to be finely tuned to produce improved low-end response and acceleration.

And as if this weren't enough, CEN has kindly tossed in a two-speed transmission, just for good measure. With this clever little device, the ATX benefits from having a stump-pulling first gear and a taller second-gear ratio that will allow it to achieve top speeds not possible with a "middle-of-the-road" single gear ratio. The shift point of the two-speed is adjustable; allowing you to match the two-speed's performance closely with that of the engine.

HOW READY, REALLY?

The ATX, like all the CEN Fun Factors, comes nearly ready to rumble straight from the box. What duties do you have to actually perform yourself? Not much; pick up 12 AA-sized batteries (for the transmitter and receiver pack), grab some fuel (anything with less than 20-percent nitro is fine), a glow igniter and a fuel bottle, and you're ready to go. CEN's Mirage III pistol radio is pretty darned nice for a sport RTR; it doesn't have much more than the basics (but it does have dual-rate steering), but for this car, it'll do, it'll do...

CEN ATX



REPORT CARD

Test location: KZ Speedway, Sun Valley, California. (818-771-1003).

Test conditions: 1/8-scale-sized off-road course. Huge jumps, surfs-up sections and bumps and ruts. .

Speed and acceleration: A

We started with the stock factory settings, and used the now "World Champion" Sidewinder fuel (Backyard Basher 20 percent, that is!) and went to work starting up this puppy. It wanted to start right up, but the settings were off a little, after some tweaking of the needles, and a new glow plug, it started to life and ran well the rest of the test. The .16 engine was a good choice for the ATX, and made the ATX haul buns and shoot like a rocket out of the corners. Combine the .16 with the two-speed tranny, and it was very fast on KZ's long straightaway.

Electronics: C-

This was the ATX's Achilles heel; the radio and the servos were not up to the task of giving quick responses in the steering department, and throttle response was poor. Before we go any further, we do need to remember this is an RTR, and price is a big factor. When looking at the ATX overall, they put a lot of bang in the vehicle itself. So of course, something has to give so they can make their targeted price point. We would bet they went a little less on the servos to give you a better truck. And most people change out the stock servos sooner or later. For bashing and having a good time they were fine, but for racing you will need to upgrade.

Suspension: B

The lay out of the suspension is what you would expect in a modern day 1/10 scale, and the travel this thing has is nice. On the other hand, the shocks need some attention. We would switch to heavy oil right off the bat, as the stock oil is way too thin for anything past pavement. While you're at it, go over the seals and make sure they are tight and working properly. Ours leaked after 20 minutes of run time.

SPECS

Price:	$299.99 (varies with dealer)
Length:	16.5in/419mm
Width:	12.4in/315mm
Wheelbase:	11in/279mm
Track (f/r):	9.75in/248mm
Weight:	4lbs, 12oz
Chassis:	aluminum plate
Suspension:	ind. double wishbone
Drivetrain:	shaft-driven 4WD
Diff(s):	planetary gear
Damping:	plastic friction shocks
Bearings:	ball-bearings
Tires:	rubber block-tread
Wheels:	one-piece white nylon

Final Score

HIGHS: Lots of bang for the buck. Good suspension. Excellent engine that makes plenty of power. Two-speed transmission. Four-wheel-drive traction.

LOWS: The stock servos are too weak to handle a vehicle of this size, traveling as fast as the ATX does. The stock damping is too soft.

THE VERDICT: The CEN ATX has potential. It has plenty of power, the two-speed makes it plenty fast, and any person looking for something to start off with in a 1/10-scale will have some fun with the ATX.
If you're thinking of the ATX, here are some tips we found to make it easier to run.

- Trim the back part of the body. For some reason, the wing studs go through the body. This is a pain in the "you know what" for no reason. Just trim the body in front of where the holes are.
- Cut the front window out. If you make a one-inch hole in the front window area, you can get to the pull starter with out having to remove the body.
- Go over the throttle/brake links and clean them up. When you go to set it up for the first time, you will understand.
- Adjust and lube all the pivots. Our test car came out of the box on the loose side and some of the ball cups were sticky.

SOURCES

CEN, distributed by Genka Trading Corp., 1800 E. Miraloma Ave., #F, Placentia, CA 92870
• phone (714) 792-1923; fax (714) 792-1968

EVADER™ BX

1/10 SCALE READY-TO-RUN R/C ELECTRIC RACING BUGGY



NOTHING CAN TOUCH IT!

Other drivers won't know what hit them. Or how easy it was for you to pass 'em by.

The DuraTrax Evader BX, after all, is no run of the mill ready-to-run. This prebuilt 2WD electric buggy eliminates more than assembly work and the hassle of getting your hands on the right accessories. It also avoids the need to upgrade for racing-caliber performance. The best equipment comes *already built-in.*

Powerful modified motor. Electronic speed control. Full ball bearings. Oil shocks — and more. All the options you'd budget for the future, you get right away, right in the box. And it's not second-rate stuff.

Does the name "Futaba®" ring a bell? That's right — the world's premier maker of R/C systems is the brains behind the Evader BX RTR's included pistol-grip radio. Everything else about this buggy meets similar high standards...like Stress-Tech™ parts that are so reliable, DuraTrax confidently backs them with a ONE YEAR guarantee!

Go ahead. Make your day. For convenience, completeness, and strong racing potential that satisfies all ROAR specs, get the Evader BX RTR (or, if you already own a radio, the otherwise equally equipped Evader BX Prebuilt). And your challengers?

They'll be sad you did.

For more information and the location of a dealer near you, see our website at:
www.duratrax.com

or call 1-800-682-8948 and mention code number 2949J.



Battery shown not included.

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THE LEADER IN AWESOME R/C™

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- 2-Channel Pistol Grip Radio by Futaba® – already installed!
- 8 "AA" Batteries Included
- Customized, Multi-Color Body – no painting!
- FREE Start-Up Video
- ONE-YEAR Stress-Tech™ Parts Guarantee

INCLUDES 8 "AA" BATTERIES



PERFORMANCE FEATURES

- SPRINT™ ESC with Reverse
- PHOTON SPEED™ 20T Modified Motor
- RAPID-TUNE™ Aluminum Oil-Filled Shocks
- Adjustable Slipper Clutch
- Complete Ball Bearings – 16 Total
- Steel Universal Driveshafts
- Ball Differential
- Steel Turnbuckles
- Foam-Lined Tires Mounted on One-Piece 2.2 in Racing Rims
- Rear Motor Guard
- Adjustable Racing Wing

DTXD22 Evader BX RTR**
Requires: 6 or 7-cell battery and charger

DTXC0022 Evader BX Prebuilt
Requires: 2-channel radio with 1 servo, 6- or 7-cell battery & charger

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THUNDER TIGER & MRP FULL LINE OF G

EK4-S2 ARTR

Thunder Tiger

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The EK4 has stacked up an unprecedented reputation for rock throwing brute power coupled with excellent handling for a truck of this size.

Now with new goodies driven by your input such as a completely new Pro-70BX Nitro engine, a new head design, and new carburetor design for easy tuning. We didn't stop there; we redesigned the differential cases to handle even more torque along with the new engine back starting plate. Top that package off with your choice of three fully painted and detailed truck bodies. Install your favorite two-channel radio, batteries, fuel, and attach the included starter probe and head for the dirt.



No. 6216-A1 Purple 571.99



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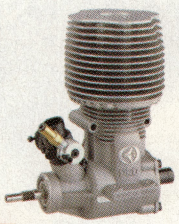
No. 6216-A3 Red 571.99

New!

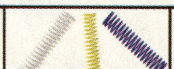
No. 9447
Thunder Tiger
Pro-70BX Engine 214.99

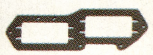


EK4-S2 Optional Parts


PD0560 Rear Shock Set ...19.99


PD0610 Steering Slider w/bb ..14.99


PD0614 1/8 RR Spring, 1.5mm Yel. 2.99
PD0751 1/8 RR Spring, 1.4mm Wht. 4.99
PD0752 1/8 RR Spring, 1.6mm Blue 4.99

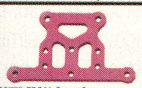

PD0770 Carbon Servo Tray 18.99


PD0762 ERGAL FR Plate
FR Trans 7.99


PD0611 Self Cooling Brake Disk 11.99


PD0612 Servo Saver Posts w/bb 17.99


PD0758 ERGAL FR Upper Arm .14.99


PD0772 ERGAL Servo Saver
Top Plate 17.99


PD0763 ERGAL RR Plate
FR Trans 9.99

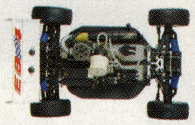
EB-4

1/8 Scale 4WD Nitro Off-Road Buggy

Thunder Tiger

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





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

EB-4

Thunder Tiger

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

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



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

DT-10

Thunder Tiger

1/10 Scale Off-Road 2WD Stadium Truck

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



No. 6707 Buggy Model ...199.99

No. 6701 F-150 Model 199.99

No. 6702 F-150 Model 199.99

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

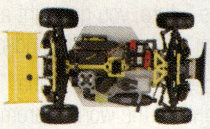
SSB

Thunder Tiger

1/10 Scale 4WD Nitro Off-Road Buggy

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





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

SSR

1/10 SSR Rally Car 4WD

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



No. 6704 Subaru Impreza

No. 6705 Peugeot

No. 6706 Citroen

TTR6704-F SSR Rally Subaru ARTR 228.99
TTR6705-F SSR Rally Peugeot ARTR 228.99
TTR6706-F SSR Rally Citroen ARTR 228.99
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TS-4e SC 1/10 4WD Electric On-Road Touring Cars

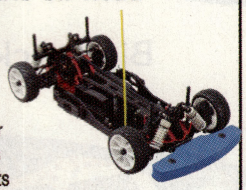




- 100% Assembled
- 2-channel radio installed
- Painted body w/decals
- Color coated springs
- Full array of option parts

TTR6521-F4 Dodge Stratus 242.99
TTR6522-F4 Ford Focus 242.99

TS-4e PRO 1/10 4WD Electric On-Road Touring Cars



- Front foam bumper
- GRP 24mm on-road touring tires
- Ball bearings, front/rear
- Aluminum body shocks
- Full array of option parts

TTR6550 TS-4e Pro Kit 264.99

1/5 On-Road Competition Motorcycle



TTR6529-F FM-1e 269.99

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



- Competition 4WD kit
- Carbon fiber top deck
- Carbon fiber front and rear shock towers
- Carbon fiber brake disc
- ERGAL 3mm competition chassis
- And many more extras

TTR6190 TS-4n Pro Kit 242.99

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

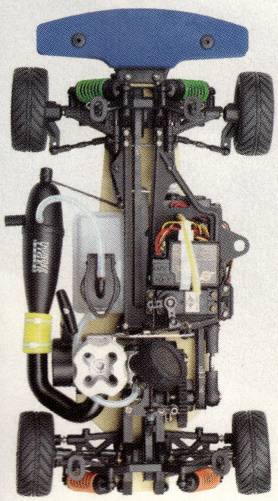




- 90% Assembled
- Requires a 2-channel radio
- Full ball bearings
- Aluminum top deck
- Aluminum front and rear shock towers
- Unpainted body with official sponsor decal sheet

TTR6134-A Volvo S-40 .....214.99
TTR6135-A Mercedes GT-I 214.99
TTR6136-A Alpha Romeo 214.99

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



- 100% Assembled
- 2-channel radio installed
- Painted body w/decals
- Strong, fiberglass rein forced composite parts
- Low center of gravity
- Double foam air-filter
- Steel hubs/dog bones
- Adj. belt tension cam
- Roll-over bar/car handle
- Color coated springs
- Full array of option parts
- Triple belt, four wheel drive train(4WD)
- Single belt, rear wheel drive train(2WD)



2-Channel Radio



Pro-12BXSP



600cc Fuel Bottle



5-Way Wrench



Glow Starter

TTR61XX TS-4n Series 311.99

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PD1393 Painted Body



Mercedes Benz
2N ■ No.6171-TF11
4N ■ No.6181-TF11
PD1099 Painted Body



Subaru Impreza WRC
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4N ■ No.6180-F45C
PD1405 Painted Body



BMW M3 GT
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4N ■ No.6180-F43C
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Opel Astra V8
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4N ■ No.6180-F47C
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Features:
- Super Suspension
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Ask your dealer about our full line of MRP products.

Batteries not inluded.

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MRP 1/12 Scale R/C Sport Cars

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TBA898S-A Porsche 911 GT1



MRP 1/12 Scale R/C sport cars line are a great gift for the junior modeler. They are completed by Thunder Tiger high level process, durable PET vacuum-form, ABS injection and equipped with high quality radio. Pick a MRP 1/12 scale car today from your local dealer and have fun immediately right out of the box.



TB1001 Battery Set w/Charger Included
9.6V 600mA, 120V AC .18 A Charger, 9V Dry Battery

MRP 1/12 Series ..65.99

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Monster

By Brian Skinner

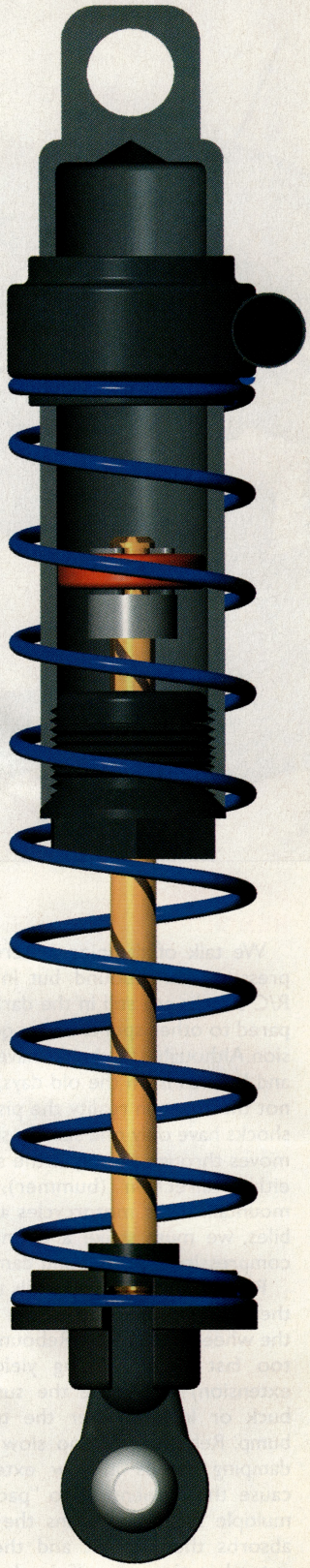
Big truck shock tech



Frank and I were talking about all the new trucks and the suspension systems that go along with them, when all of a sudden, he gets this glazed look in his eyes. As soon as I saw that, I knew I was in trouble! Then, without batting an eye, he calmly says, "Hey Skinny, I got it! Why don't you do an article on suspension for monster trucks?

School is now in session! Now class, I won't pretend to be an expert on the subject of R/C suspension, but I have dealt with suspension when I was working in the mountain bike industry, so I do know something about the topic. I also have been racing the T-Maxx and other monster trucks for some time now, so hopefully I can at least give you an idea of what to look for and how to set up those shock thingies—just take it all with a grain of salt. If you have ideas or suggestions, or think I'm out of my mind, kick down with the information. I'll put you in the hot seat.

Mashing



SHOCKS: WHAT THEY DO

The shocks on your truck have several functions:

• Conformity: Most importantly, shocks keep the wheels stuck to the ground, thus giving your truck the traction needed to go forward.

• Control: Shocks control things such as steering and body roll in the corners. They also keep your truck steady as it launches off the faces of jumps, and they soak up the landings.

• Support: Shocks support the main bulk of the truck—the chassis and all the stuff that's on it—and keep it off the ground. Keeping the chassis off the ground also helps prevent the bottom of your vehicle from contacting the ground and creating drag, which causes a loss of forward momentum. This is called bottoming out.

HOW THEY WORK

The shocks on your truck are much like the shocks on all vehicles small and large. Heck, even the space shuttle's landing gear has shocks!

Your basic shock is made up of a few parts:

• The spring supports the weight of your truck and gives resistance as your truck hits an obstacle.

• The shock body houses the oil that is used to dampen the spring movement.

• The shaft and piston are used to control spring and oil movement.

These are the basics of a shock, of course there is the spring retaining clip—this retains the spring on the shock—and the spring spacers that help pre-load the spring so you can fine tune the ride height and suspension performance of your truck. Of course, there are variations to the basic shock, but to keep it simple (this is hard enough to explain), we will deal with the basics.

So put this all together and you have a shock! Since we now know what the parts are, let's talk about the whole shock.

The spring is used for compression, and the oil and piston are used for control of the compression and more importantly, the rebound. Without the oil or piston, your truck would be a pogo stick. Since most trucks come with decent springs, let's work on the damping. Damping is achieved by the use of certain weights of oil, or shock fluid (since silicone isn't really an "oil"), and how the piston is configured. The piston has holes in it to let the oil pass through. The thicker the oil, the slower it moves past the piston. The thinner the oil, the faster the movement. You can also adjust the pistons to control the speed of the shock, but I'll assume you are using the stock piston, and go from there as it's usually much easier to change oil than to swap pistons.

BASIC SHOCK TUNING FOR TRUCKS

First, I suggest you start with heaver weight oil. Most trucks are beefy and need a heaver oil; the stock oil is usually too thin and allows the truck to wallow and bottom too much. I would start with a 60-70wt oil. This is middle of the road as far as oil weight goes and should be good for you to start with. When filling the shocks, be sure that you remove as much of the old oil as possible, and when you refill them, leave the shocks un-capped long enough for the air bubbles to work themselves out.

After you've set your shocks and have them installed, you'll need to check the ride height. For the most part, you'll want your truck to "squat" a little when you set it down. This is called "sag." You'll want your truck to use less than a third of its travel when sitting.

This sag is really negative travel and it's very important to the performance of the suspension.

To set the ride height and sag, you'll use the spring clips to increase or decrease the pre-load on your shocks' springs. Remember that in all things shocks, more (clips) means more height and less sag.

What this sag, or negative travel, does is to allow your truck to hit a bump and allows the wheels to drop a little while the chassis is moving away from the ground. This negative travel will give your suspension time to recover from the impact-and-rebound cycle.

After you have determined the sag, it is time to test drive. While you're out driving, you'll want to test for how the truck feels and reacts to obstacles. You'll also want to check how the truck's rebound feels off bumps and jumps.

Monster Mashing



SETTING REBOUND DAMPING

We talk of damping in terms of compression and rebound, but in reality, our R/C shocks are still in the dark ages compared to other sports that require suspension. Although R/C shocks have made leaps and bounds from the old days, they're just not there yet. In reality the pistons in R/C shocks have only one setting, so the piston moves through the oil at the same rate in either direction (bummer). So unlike mountain bikes, motorcycles and automobiles, we must strike a balance between compression and rebound damping.

Rebound damping controls the speed of the spring's extension of the shock after the wheel hits a bump. Rebound that is set too fast (less damping yields a faster extension) will cause the suspension to buck or kick-up after the truck hits a bump. Rebound set too slow (too much damping causes a slow extension) will cause the suspension to "pack-up" from multiple hits. This means the suspension absorbs the first hit and the does not extend in time to sufficiently absorb the next hit.

HOW TO CHECK REBOUND DAMPING

1) During your test drive, take note of the rebound speed of the shock.

2) If the suspension kicks or bucks up after a bump, your rebound is too fast.

3) If the suspension seems harsh in a repetitive hit situation, where the wheel does not track well on uneven ground, your rebound might be too slow.

4) For rebound that is too fast, you need to change to a heavier shock oil or pistons that have smaller holes to eliminate the kickback after a bump.

5) For rebound that is too slow, you will need a lighter shock oil or pistons that have larger holes to allow the suspension to soak up repetitive hits.

CHECKING COMPRESSION DAMPING

If your favorite loop is not very rough, you should not be reaching full travel (bottoming out), as not all bumps require it. If your suspension is set to react too sensitively on smoother terrain, the results on rougher terrain will be poor. This results in an inefficient use of the travel as well as frequent bottoming out, which can be detrimental to the shock.

The method above is designed as a general setting. Basically, from a long-term driving perspective, the suspension system should bottom out several times during a five to 10 minute session on average, and mainly off decent-sized jumps, whoop sections and drop-offs (it's okay!), taking into account the type of terrain you're driving on, which is subjective and cannot easily be quantified. This is the final tuning stage, which comes down to your personal preferences.

CONCLUSION

As a reminder to you all: this is a rudimentary breakdown of shocks and how they work, and it's geared to the new person interested in this sort of thing. There are so many methods and ideas of how to set up shocks—tweaking and tuning—that such an article would take up a book! I just wanted to provide a starting point to those who might be new to the topic and wanted some idea of how it all works. I hope this helped you. Remember: it's not the jump that's hard, it's the landing!

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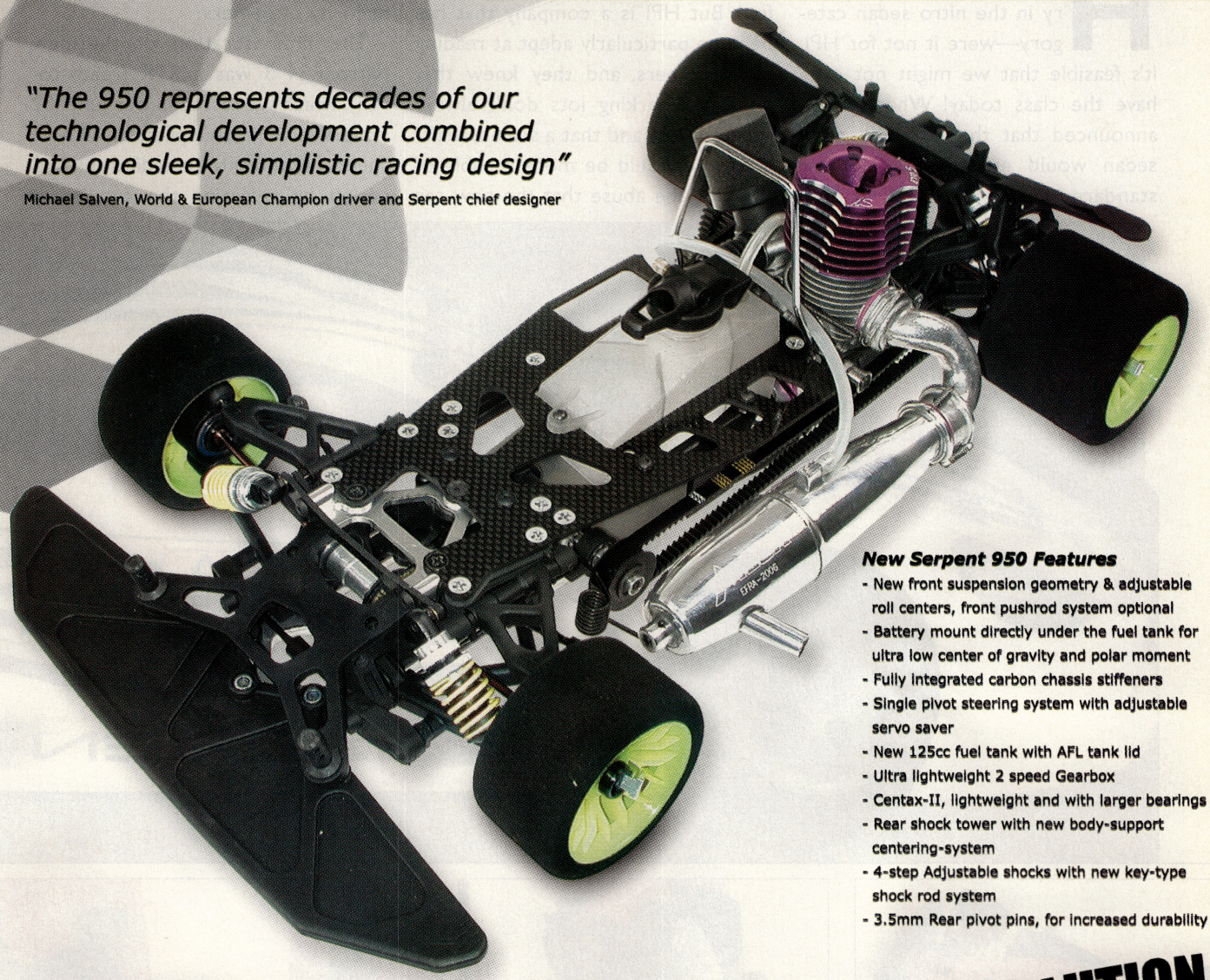

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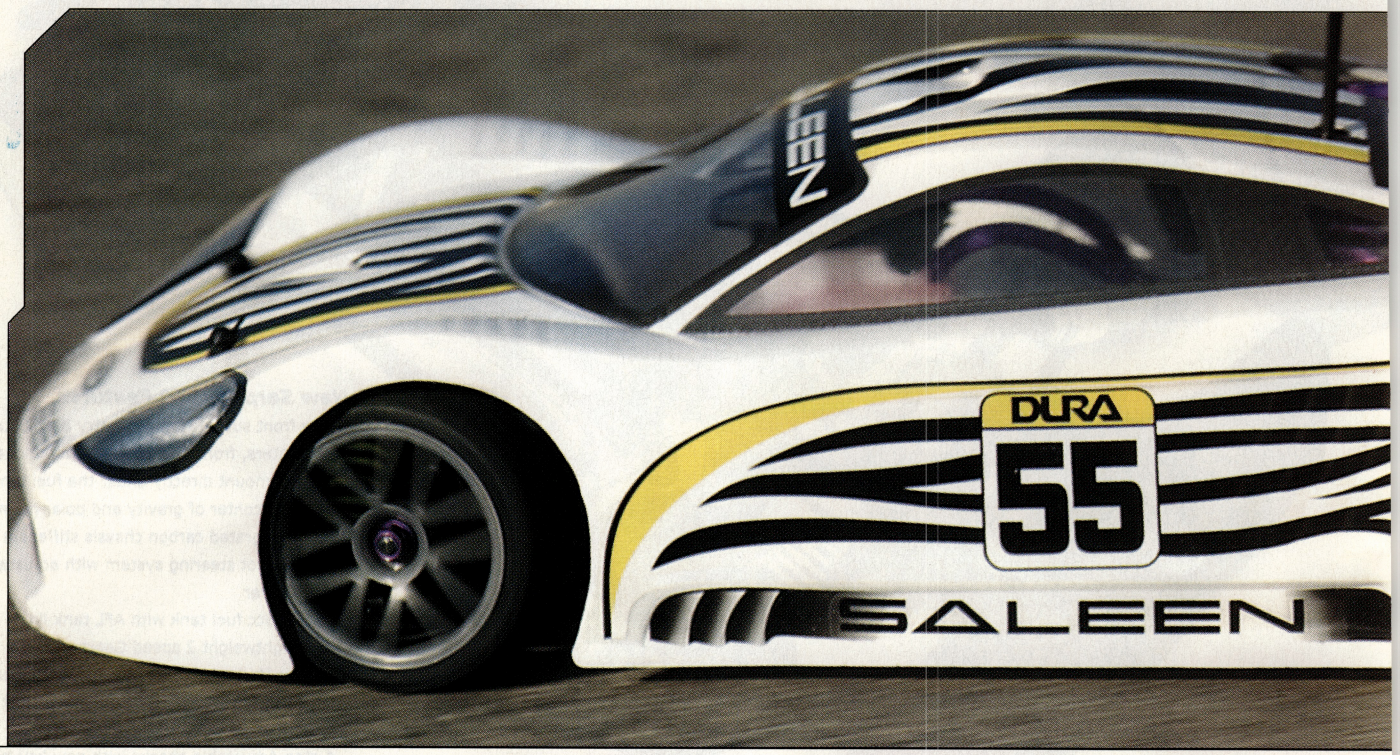
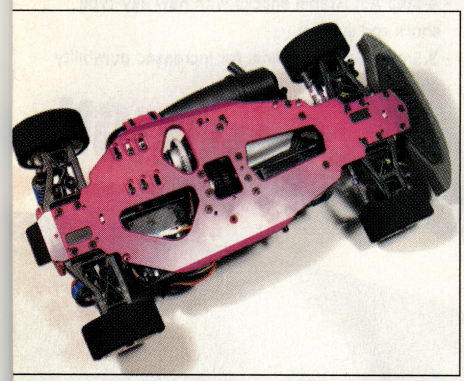
Second Opinion: HPI Nitro

The "other" shaft car

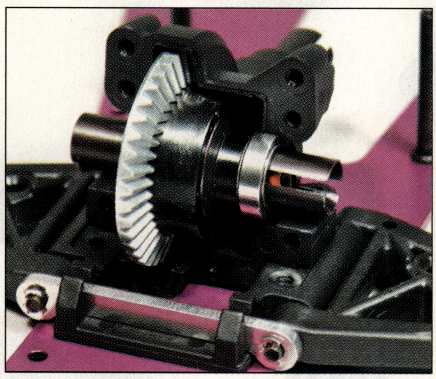
HPI has a longstanding history in the nitro sedan category—were it not for HPI, it's feasible that we might not even have the class today! When it was announced that the new HPI nitro sedan would eschew the industry standard belt-drive configuration for—gasp!—shaft drive, purists cried foul. But HPI is a company that has become particularly adept at reading its customers, and they knew that belts and parking lots don't always mix too well, and that a sealed, shaft-drive car would be more capable of handling the abuse that the new car would receive in the hands of the majority of owners.

The first iteration of the new Nitro RS4 3 was a RTR (ready-to-run), which we tested in our June '02 issue. We were unimpressed with its speed. HPI quickly remedied this situation by releasing the car in kit

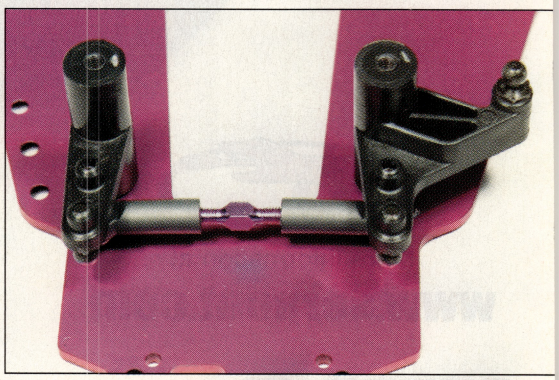




The 73914 Super Chassis replaced the stock stamped-aluminum chassis. The new plate is thicker, and it's been machined. Larger cutouts reduce weight, and the leading, trailing and side edges have been beveled to reduce scraping. We also like the huge flywheel cutout, which is needed because the engine sits so high on its mounts.



As the Type SS's drivetrain is derived from the Nitro MT truck, it's only natural that most of the parts that fit the MT, like this A958 Ball Diff Set, will work in the sedan. We replaced the front and rear gear diffs—which aren't sealed and can't be tuned with silicone fluid—with these lightweight, adjustable ball diffs. Now we can tune each diff with a simple turn of an adjustment screw.



To make the steering more aggressive (or less aggressive; the idea is that you can tune it), we fashioned a new drag-link for the steering bellcranks using two A318 rod ends, two A132 pivot balls and an M3x24 titanium turnbuckle (from the 72109 titanium turnbuckle set). We set the link to be 1mm longer than the stock plastic link. This, coupled with a slight amount of front wheel toe-out (about a half-degree), will make the car turn in more aggressively.

RS4 3 Type SS

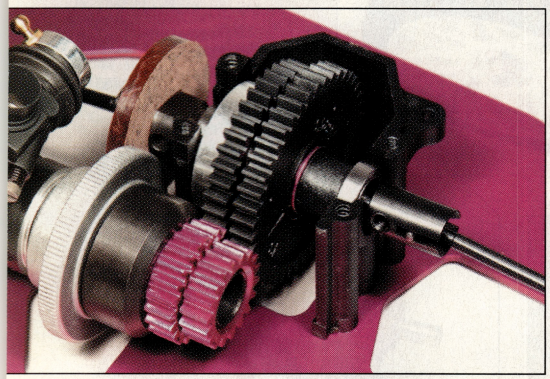
form, with an all-new, more powerful engine and the coup-de-grace, a two-speed! This new kit, called the Type SS, made our hearts race where the RTR had barely caused a rise. This was truly how this car was meant to be.

In this month's "Second Opinion," we'll be taking another look at the Type SS. We'll also be modifying the car using a whole bunch of great accessories that are offered by HPI. The best thing is that virtually all of the hop-ups will help performance either by stiffening, lightening or by adding speed. Sounds good to us!

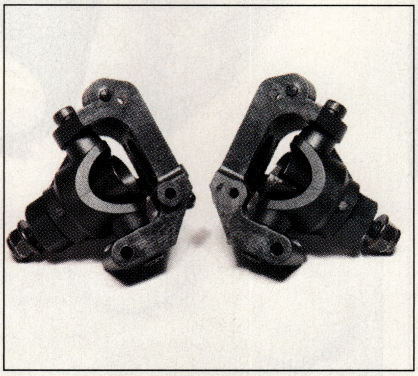


TYPE SS SHOPPING LIST

Qty. Part
(1) 73056 Graphite Upper Deck Set
(1) 73047 Front Shock Tower
(1) 73048 Rear Shock Tower
(1) 76979 19T Pinion
(1) 76983 23T Pinion
(1) A445 39T Spur Adapter Type
(1) 76843 43T Spur (std. Type SS part)
(2) 72423 Composite Threaded Shock Set
(4) 6817 Shock Parts Set (self-lubricating material, also less play)
(1) 72228 Stainless Steel Suspension Shaft Set w/brace
(1) 73914 Super Chassis
(1) Z543 Cap Head Screw Set M3x8 (for droop limiting in arms)
(1) A885 Racing Clutch
(1) Z679 Aluminum Wheel Nuts
(1) A844 Fiber Brake Disk
(1) 72111 Shim Set
(1) 72525 Racing Fuel Tank (better fuel line routing)
(1) 72036 Hex Clamp Hubs
(2) A301 Ball Ends 4.3 x 12.5mm (8 pcs. per package)
(1) A318 Rod Ends 5.8 x 18mm (for Ackerman link)
(1) A132 Flanged Ball (for Ackerman link)
(1) Z569 (for Ackerman link)
(1) 72112 Firm Shock Bladders
(1) 72109 Pro 3 Turnbuckle Set (you'll need the seven M3x24 Turnbuckles, four upper links, two steering rods and one Ackerman link)
(1) A371 Body Post Set
(2) A958 Ball Diff Set
(1) 72175 High Performance Air Filter



As we planned to run our Type SS on the immense KZ Speedway circuit (a 1/5-scale-sized course located in Sun Valley, California), we geared our car to the sky by retaining the stock pinions but switching to smaller spur gears: 39 and 43 teeth to be exact. Don't be afraid to experiment with such gearing changes, even if you're not running on such a huge track. The SS engine can handle the load; just keep an eye on head temperature.



You'll want to give the front suspension a bit more droop (downward extension), but to do this, you'll need to modify the front uprights as shown here. The upright on the left is stock, and the one on the right has been modified using a Dremel Tool. You'll want to remove the circular protrusion that would otherwise contact the suspension arm and limit travel.



Suspension mods include the addition of HPI's 72423 Composite Threaded Shock Set. Honestly, the stock molded shocks are just fine, but these are made from a harder composite and they have those handy threaded preload adjusters. Our car also has the 73047 graphite front shock tower, which adds two outward holes in which to mount the shocks.

TECH TIPS FROM THE TEAM

Use the Z543 cap screws to limit droop. Install them into the holes in the lower suspension arms. Use whichever shock length is necessary to attain the desired amount of droop.

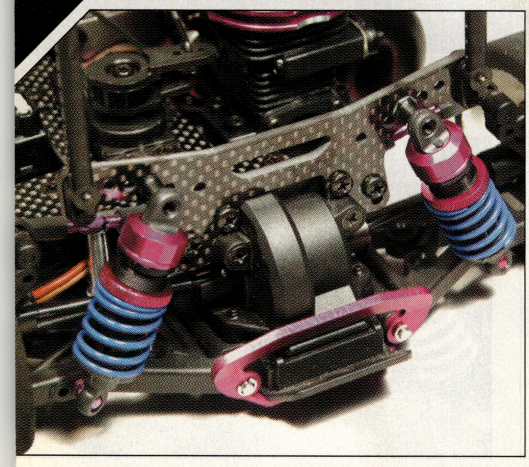
- Try using the 51063 Proceed rear springs for the front shocks in conjunction with 50-70wt shock fluid.
- Remove the molded roll-bar to save weight and lower the CG.
- Dremel some material from the mounting ears of the 72525 fuel tank to lower it further. Use 6823 O-rings if possible, or use thing slices of fuel line to lower the tank further.
- To save more weight, Dremel out the top of the center gearbox (be careful that you don't weaken the structure).
- If using ball diffs, use the optional carbide diff balls.
- Use the "super glue trick" to remove any slop in the ball ends or rod ends. Alternatively, you can use some leftover parts bags stretched over the balls to reduce play (between the ball and the ball cup. Use shims to reduce play in the suspension if found.
- Set the ride height as low as possible (between 4 to 6mm) without excessive bottoming. If the surface is bumpy, increase ride height and droop.
- Use shorter upper links (via link locations) when using foam tires (for more camber gain). Also, use more camber with foams (one to three degrees or whatever it takes to get even wear).

THE GOOD

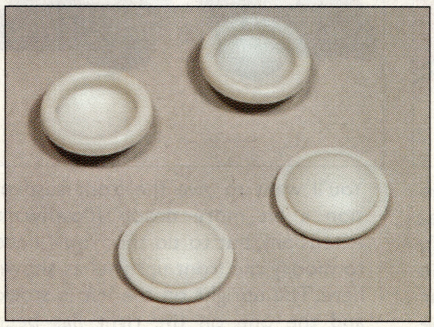
We had mixed feelings about the RTR version of this car. It was undergeared and not all that fast, and during our testing at least, it didn't like to straighten out after left-handed turns. The SS kit, however, was like a completely different car when we tested it back in the June '02 issue. Not only was the new Nitro Star 12R SS engine a powerful surprise, but with a powerful servo at the helm, we learned that the RTR chassis was not really the culprit; it was the anemic steering servo.

We have praise for the Type SS's benign handling characteristics. The chassis feels firmer than that of the RTR; the car straightens out better after cornering and it's more com-

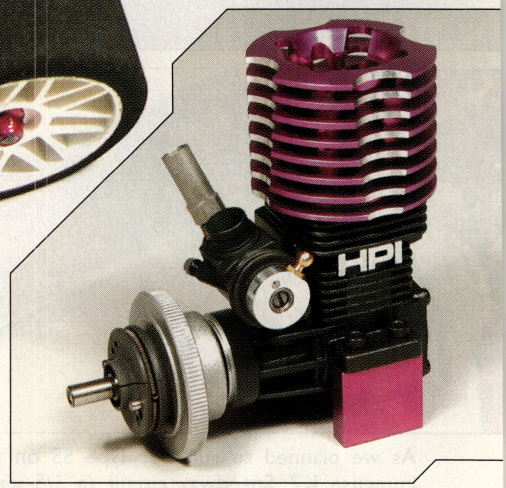




The rear suspension is graced by the 73048 graphite rear tower, which also has two additional shock-mounting holes. With this tower, you can also use the A371 body-post set to save weight and move the posts outward for better body support. Our car also has the optional 72228 stainless-steel suspension-shaft set, which also comes with a purple-anodized rear brace.



HPI's 72112 firm shock bladders keep the air and oil separated, but they aren't like most soft bladders that cause inconsistent damping under faster shock-shaft speeds.



HPI offers a non-pull-start version of the 12R SS engine that also comes with a slide-valve carb. The only thing missing is a set of lower engine mounts and a smaller flywheel. Do you need to replace the stock pull-start engine? No. In fact, you can get a new backplate, modify the crank and eliminate the pull-starter yourself.

Type SS



posed under braking. The open-style gear diffs are the same as those in the RTR, but overall, the car feels more nimble.

For a car that has been designed to thrive in typical parking-lot conditions, i.e., dusty asphalt and tons of tiny pebbles, HPI has made a wise decision to endow the Nitro RS4 3 with the rugged shaft-driven 4WD system from its Nitro MT off-road truck. The gear boxes are sealed, and all of the drivetrain parts are sufficiently beefy so they should be able to handle the abuse from heavy-handed drivers.

THE BAD

The Type SS is one of those cars that suffers from a bit of identity crisis. HPI doesn't market it as a racer, but based upon feedback from our readers and visitors to our website, there's some confusion as to where the SS slots. For example, we get many letters in which we are asked "Which should I get, the Type SS or the Serpent 705?" This is, of course, just an example, but there are people who consider the Type SS to be in the high-end racing category.

It isn't. Why? The drivetrain is from an off-road truck, and in comparison with that of, say, the Nitro TC3, it comes across as less precise and not as efficient. The suspension geometry is good, but it shows its limits in high-bite conditions.

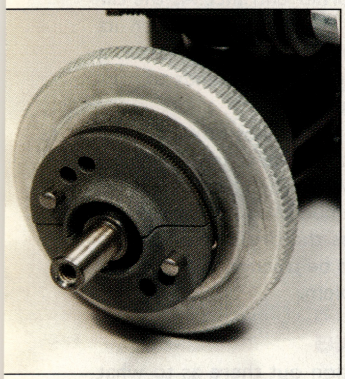
THE VERDICT

We think that HPI thrust the Type SS onto the market to quell unrest from those critical of the Nitro RS4 3 RTR and its ho-hum performance. And in addressing the RTR's shortcomings, the Type SS kit was a huge success. We really like this car as a high-performance fun car. If you build it well, install good radio gear and find the right setup, you can be successful at your club track. Above that level of competition, you'll be at a disadvantage. But again, as a parking lot racer, the Type SS has everything: a truly good engine, a two-speed, solid design and class-leading durability. Just don't confuse it with higher-priced thoroughbreds.

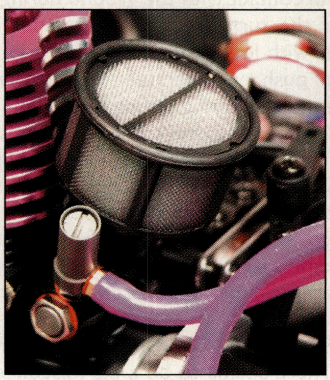
SOURCES

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

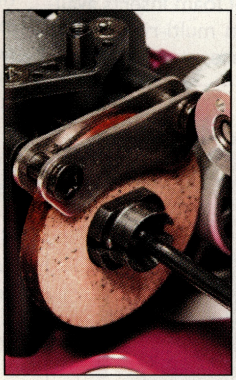
HPI Racing, 70 Icon Street, Foothill Ranch, CA 92610 • phone (949) 753-1099; fax (949) 753-1098



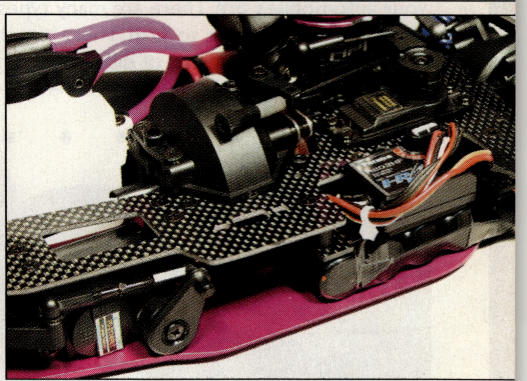
The stock two-shoe clutch works well, but this A885 Racing Clutch provides a wider range of tuning options. It also provides crisper acceleration with less wear when compared with the stock setup.



Changing from the dinky stock air filter to the optional 72175 High Performance Air Filter is essential. This filter is made for HPI by Motor Saver Filters, and it features an innovative mesh cage that protects the foam element from becoming packed with dirt.



We replaced the stock plastic brake disc with the optional A844 Fiber Brake Disc, which is more resistant to fading and provides increased stopping force.



Probably one of the best things you can do to your SS is to install HPI's new 73056 Graphite Upper Deck. This replaces quite a few molded pieces and saves some weight. But more importantly, it stiffens the chassis better and creates a lower CG by placing the five-cell pack (the only type that will fit) and receiver closer to the ground.

OFF-ROAD TUNING BASICS

5 must-know seup tips

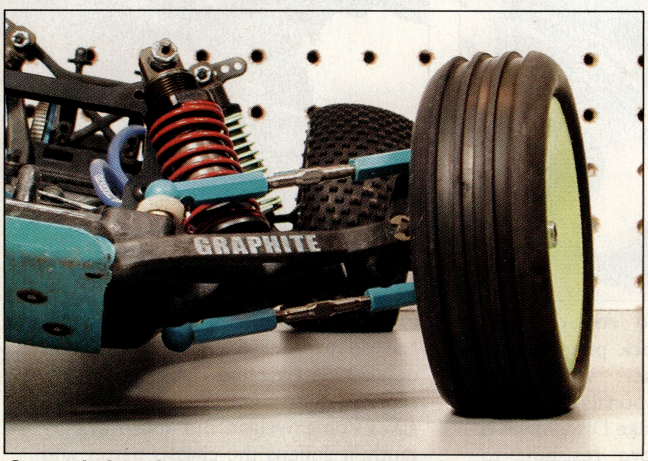
Let's face it; most of us know jack-squat about car setup and tuning when we purchase our first kit. And unless we have the benefit of an expert friend to walk us through some fundamentals, it's a very steep and long learning curve to get to the point where we can tune a car so it suits the track conditions and our driving style. Consider us your expert friend; we'll get you going with the following basic tuning topics.

TIRES AND INSERTS

Few things are as important as the parts of your vehicle that touch the ground. Depending on the type of vehicle you own and the type of surface on which it's run, tires can account for over 75-percent of your car's performance!

There are two major factors involved in choosing the right tire: tread pattern and rubber compound. The tread provides the actual mechanical grip. For off-road, the spikes, blocks or ribs of the tire are what dig into the dirt to gain grip. The type of rubber the tire's molded from provides adhesiveness. Softer, stickier rubber grips harder surfaces that can't be penetrated by the tread, but when the tire has taller tread, soft rubber can't provide adequate support. Therefore, when conditions call for a taller tread, you'll find these tires are often molded from firmer rubber. As a rule of thumb, you should use soft tires with short tread for hard-packed surfaces, and firmer tires with taller spikes for looser dirt.

The next part of the performance equation is the tire insert, which essentially performs the same job as the air pressure inside your automobile's tire. There are many types of foam inserts available, ranging from soft to firm. There are even multi-ring inserts that are made up of foams of different firmnesses.



Caster helps place the tire more upright when the vehicle corners, thus allowing more of the tire's contact patch to remain against the ground for more traction.

As a rule, softer foam works best for very bumpy tracks that don't have many big jumps. When you're using a very soft tire, you may want to use a firmer insert to provide proper support to the tire's sidewalls and its contact patch. Multi-stage inserts provide a compromise; they usually have soft outer rings to help cope with bumps, and firmer inner rings that help deal with the forces of landing from large jumps.

CASTER AND CAMBER

First, some definitions: caster refers to the angle of the steering kingpin. Take the wheel off your vehicle and look at the angle at which the steering block is leaned; this is caster. Camber is the angle of the wheels and tires when viewed from the front or back. If the tops of the wheels lean inward, toward the chassis, this is negative camber. If they lean outward, this is positive camber.

Caster helps determine how much of the tire's contact patch remains in touch with the ground throughout the various phases of a turn. A greater amount of caster generally keeps more of the tire in contact with the ground during corner entrance. As the car exits the turn, greater caster tends to stand the tire up on its edge, with less contact area and grip. Less caster usually causes a bit of push, or understeer, when entering turns, but tends to provide more steering during the middle and exit.

Camber is caster's cousin, as it also determines how much of the tire contacts the ground. More negative camber (more inward lean) gives the tire more contact area when the chassis leans, as when the vehicle enters a turn. More camber also helps the vehicle go through ruts and bumps better, as the tire is less likely to become snagged. If your vehicle seems to be traction rolling, more negative camber will usually fix the problem.

SPRINGS, OIL AND DAMPING

There seems to be a big misconception out there as to what spring really do. Let's get this out of the way right off the bat: the spring does not get stiffer the more it is compressed; all that happens is that the vehicle's ride-height is increased. Vice-versa when the spring compression is reduced. The springs on your shocks do three things: they support the weight of the chassis and everything on it, they help push the tires back down when a bump moves them upward, and they control how far the chassis leans during cornering. Stiffer springs make your vehicle more stable; it will dive (under braking), squat (under acceleration) and lean less



when equipped with stiffer springs. Softer springs are better in bumpy conditions, as they provide less resistance to the suspension's upward movement, allowing it to cope with the uneven surface.

As with most chassis tuning, you'll be most successful when you can find the right balance. For example, if your track is very bumpy, you'll probably want to use softer springs. However, if the track has several large jumps, you may want to try a slightly firmer spring to help prevent the suspension from bottoming out too harshly.

Shock oil - or fluid, as most of it is silicone nowadays - also plays a major role in your suspension's performance. Basically, the fluid controls the speed at which the suspension can move. Thicker fluid provides stable handling at high speeds, and helps keep the vehicle from bottoming out on big jumps. However, fluid that's too thick can cause the vehicle to bounce and lose traction on bumpy surfaces. Thin fluid is great for rough conditions, but can cause instability at speed and poor performance on jumps. Again, finding the right shock fluid is a matter of compromise, and in general, the thickness of the fluid should match the stiffness of the springs. If you're using stiff springs, you'll want to use thicker oil. With soft springs, thinner oil is usually the way to go.

GEARING

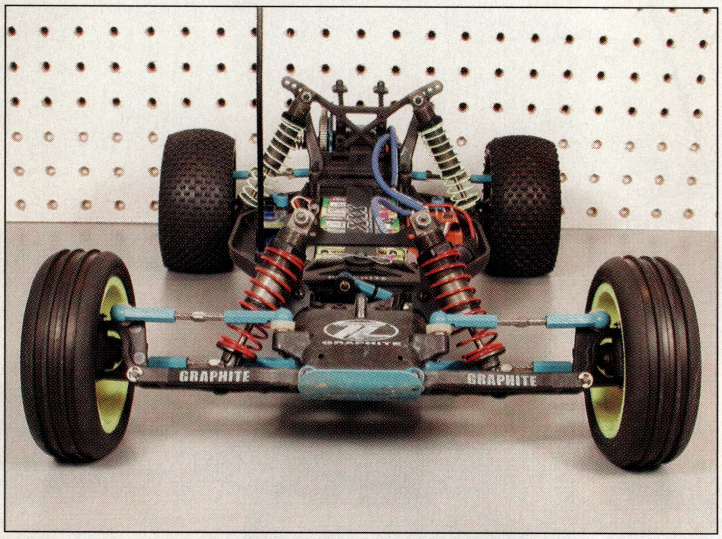
The term "often overlooked" is, well "often overused." However, in this case, it applies. Gearing is the way that we can make the most out of the horsepower we have on tap. Poor gearing choices can lead to sluggish acceleration, disappointing top speed, burned-out motors and all sorts of other problems.

Here's a rule of thumb when gearing for a particular track. You generally want your vehicle to pull (accelerate) nearly the entire length of the track's longest straightaway. If it accelerates too quickly and reaches top speed at only halfway down the straight, consider going at least one tooth larger on the pinion gear. If on the other hand the vehicle never reaches its top speed, you'll want to subtract one or more teeth from the pinion gear. Ideally, the vehicle should be accelerating for all but the last 10 or so feet of the straight, as this slight "topping out" period will help settle, or prepare, the chassis for the upcoming turn.

There are other considerations as well: using a pinion gear that's too large can strain the motor or engine and make it overheat. There's also the issue of run time (even with nitro); a pinion or clutch bell that's too large will consume more fuel and more battery capacity, thus shortening your run time.

RIDE HEIGHT

Finally, we get to a very underused tuning tool: ride height. Ride height is the distance between the bottom of your chassis and the ground. If your vehicle is too high off the ground, it will often lose traction and become unstable in the turns. Too low and



Ride height is a critical yet overlooked adjustment. When most of us speak about ride height, we talk in terms of the chassis, suspension arms or driveshafts relation to the ground. A typical description for the front of this buggy's suspension is "arms level." A little lower and we'd call it "slightly below level." We also use the same terms to describe the angle of the driveshafts.

the vehicle will scrape the ground and it won't handle jumps and bumps very well.

Generally, most off-road vehicles - buggies and trucks - perform best when set with their suspension arms roughly level with the ground. (Always check your ride height with your vehicle in its ready-to-run form). To check ride height, drop the vehicle from a height of about eight to 10 inches and allow its suspension to settle, then view the positions of the arms.

As a rule, you should set the ride height so that the chassis is level with the ground when viewed from the side. But you can also use ride height to fine-tune the front and rear traction. Raising the rear of the vehicle will generally provide more steering, while lowering it will usually decrease steering and provide additional rear traction.

CONCLUSION

Ours is a hobby of real-world physics and results, and it's absolutely amazing to think that our little models can have so much tuning capability. There are very few people who can claim to know all there is to know about tuning, and even they don't know it all! So don't get discouraged or overwhelmed when your vehicle isn't working the way it should; use this article as a basic foundation and you'll be on your way to becoming a setup expert.



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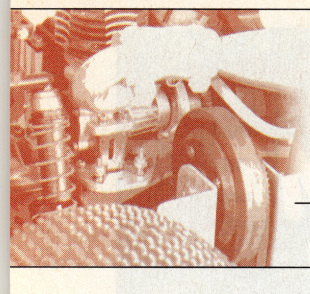
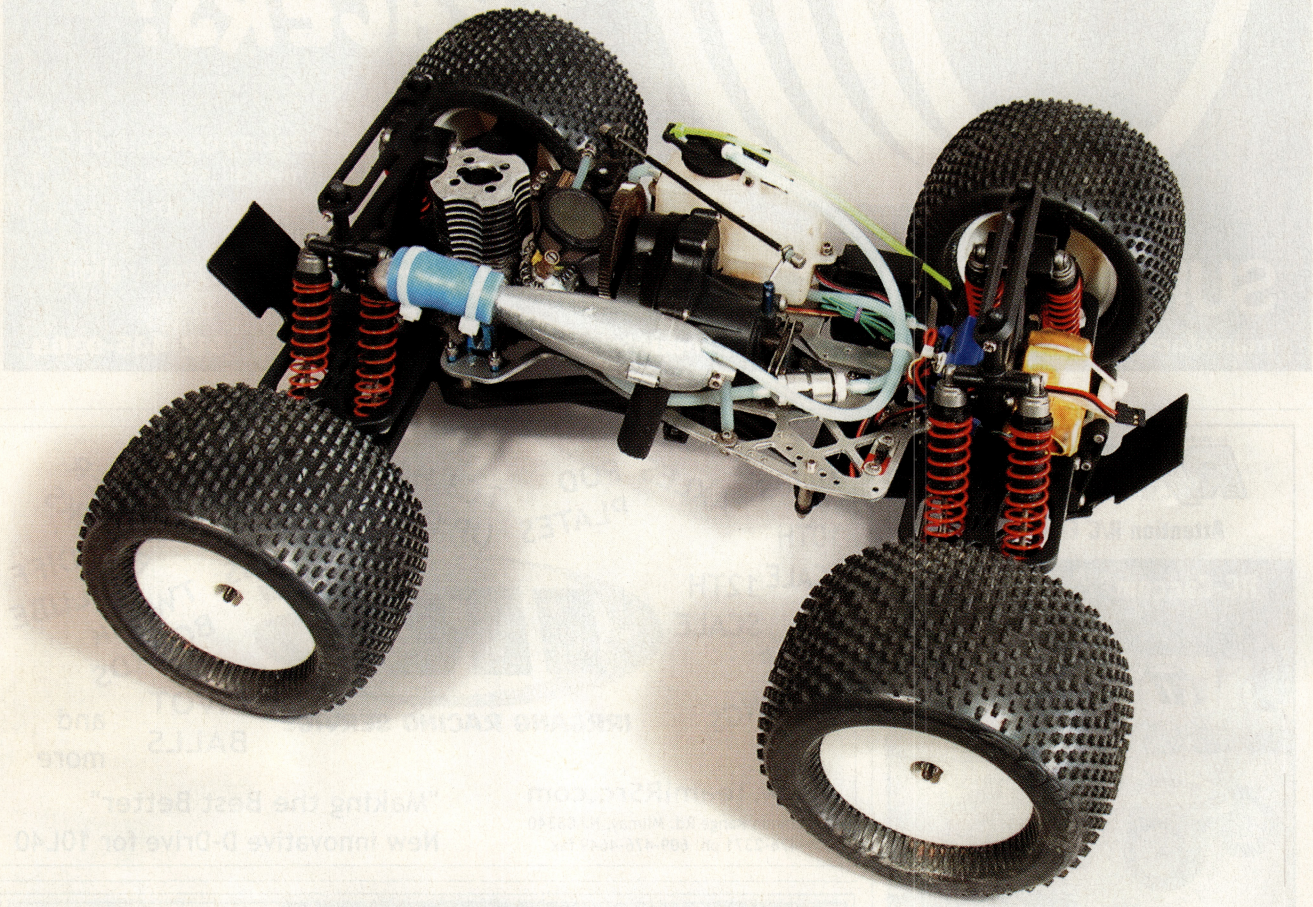


Bump-Start

By Brian Skinner

From Florida with love

It seems that lately Florida is becoming a hotbed of R/C activity. We keep getting a lot of products from the orange capital of the world! Danny Beers from Prohobby is—like a lot of us—a retired off-road racer who feels too beat up from all his years of racing to do more off-roading. So what's an ex-throttle twister to do? Well, if you're Danny, you start an off-road R/C company and make parts for the T-Maxx and other monster trucks.



Danny has an illustrious background in off-road racing, and when it was time to move on (to stop beating up the body), he saw R/C off-road racing as a way of filling that void. Thus Prohobby was born. As Danny now races R/C so often, he was seeing a need for more racer-friendly parts. His company is making some cool parts, and this Pro T-Maxx starter box setup is just one of the many goodies you can find at Prohobby.

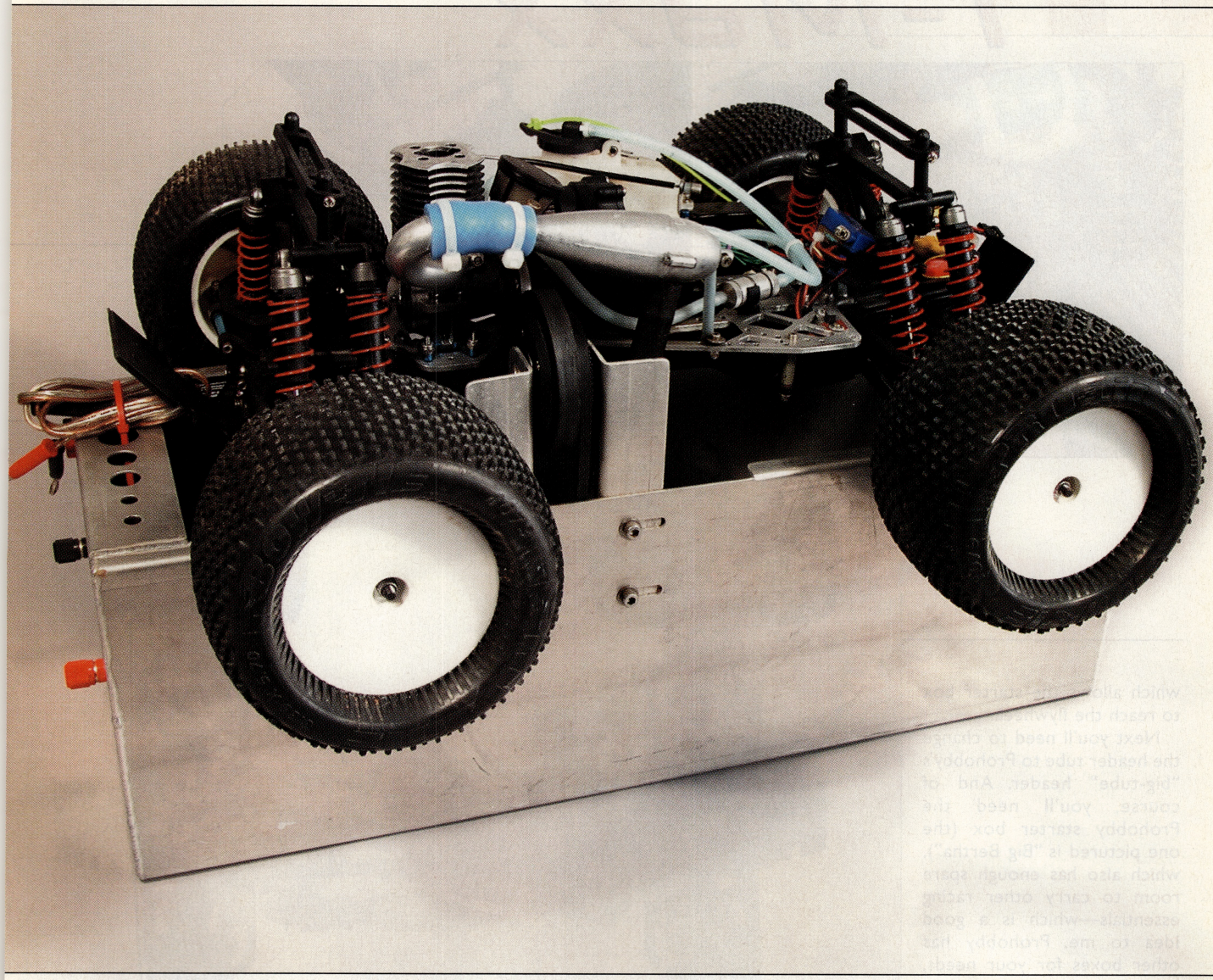
WHY DO I WANT A STARTER BOX?

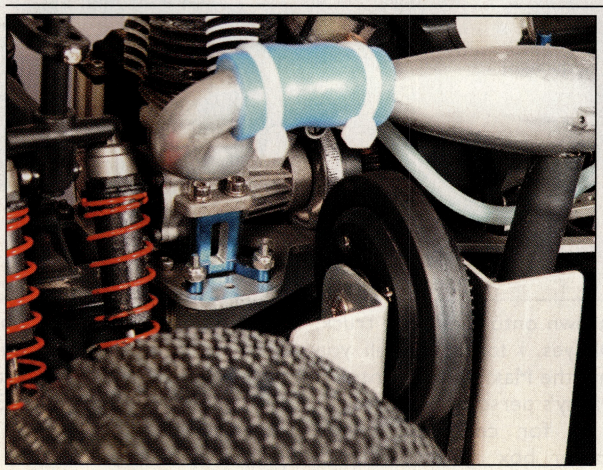
As you may know, the T-Maxx can have either an on-board electric starter (the EZ-Start), or if its engine has been changed, a pull-starter. Both systems are effective and convenient, but it's possible to be "stranded" when your EZ-Start battery dies, and we have all broken pull-starter cords at one time or another (not to mention the occasional blister!). Danny took a clue from the 1/8-scale guys, saw the beauty of the starter box, and decided that using a starter box for a monster truck would be great—and he's right!

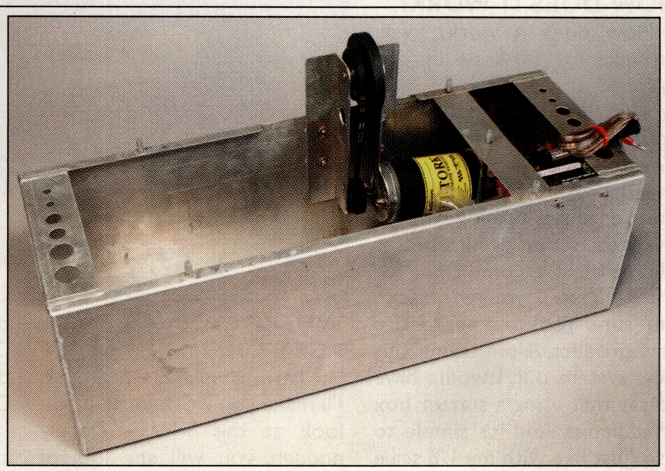
MAKING THE CHANGE

If you're interested in this setup, you will need to swap out some things on your T-Maxx, but don't worry, as the parts that Prohobby supplies for the conversion are of outstanding quality and they're trick looking. You will need Prohobby's 4mm-thick chassis, which has been machined down to 3mm in areas and hogged out to make it strong and light. Plus, the chassis has its patented drop-in point,

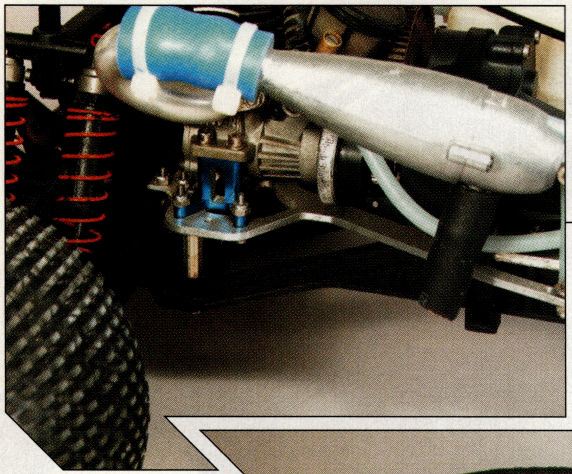
T-Maxx

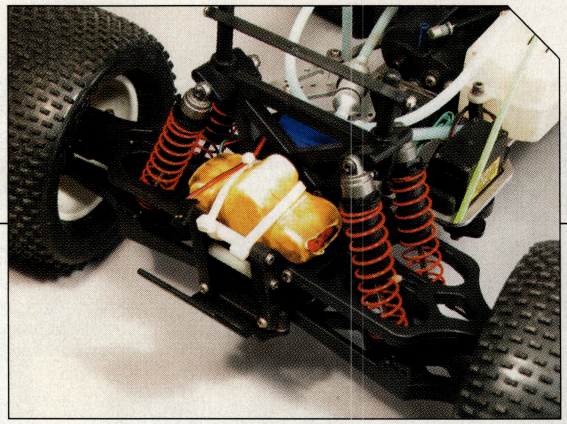


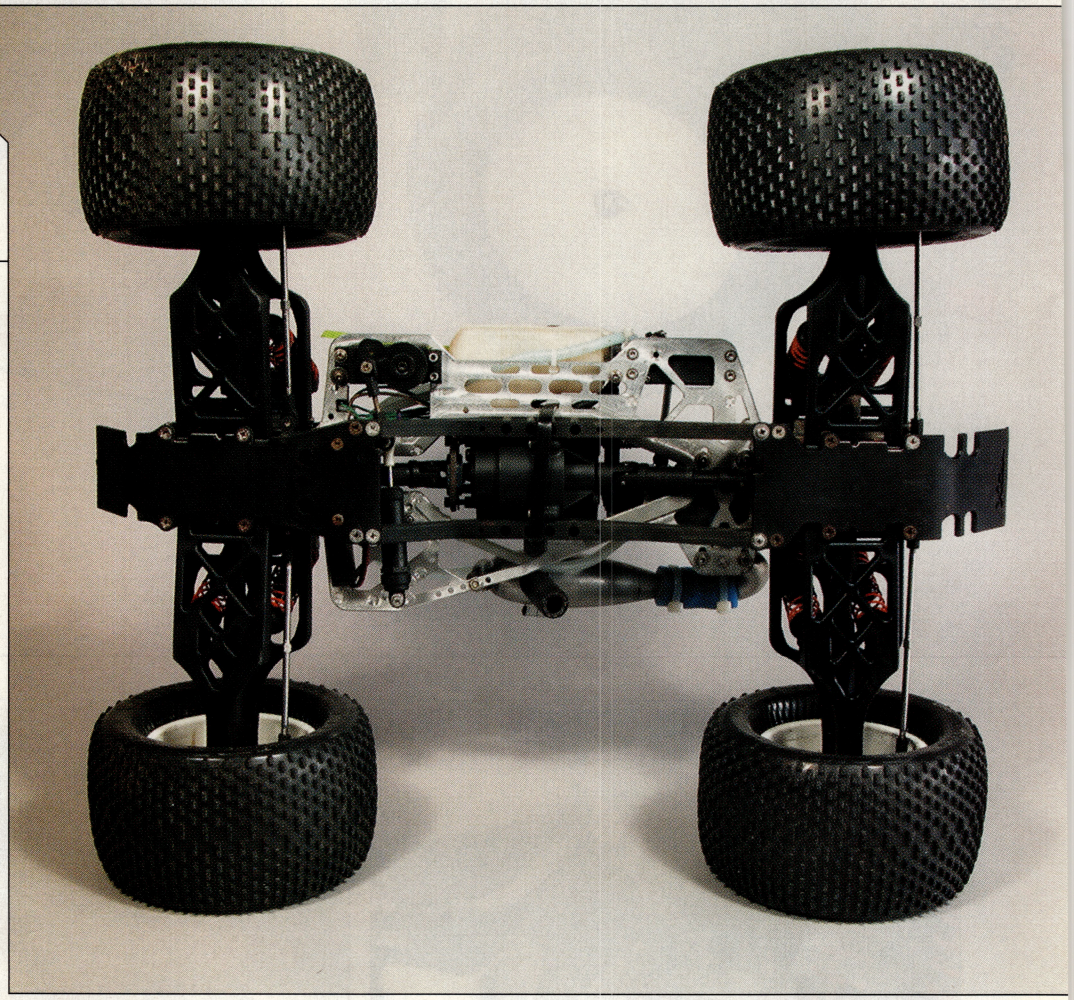




Bump-Start T-Maxx







which allows the starter box to reach the flywheel.

Next you'll need to change the header tube to Prohobby's "big-tube" header. And of course, you'll need the Prohobby starter box (the one pictured is "Big Bertha"), which also has enough spare room to carry other racing essentials—which is a good idea to me. Prohobby has other boxes for your needs, too!

HOW DOES IT WORK?

How does it work? Well, just like my 1/8-scale buggy's system, the Prohobby unit works GOOD; you just set your truck on the box, push down on your truck (and to the right a little) and BLING! Your engine is turning over. To me, this is one of the better ideas that have come along for the T-Maxx. If you're a racer, I'm sure you can appreciate this product. After trying this new system out, I would have to say that using a starter box is addictive. And it's simple to use (just like with my 1/8 scale buggy).

WHERE CAN I GET ONE?

I hate to spill the beans, so I'll make you work for it. If you look at this T-Maxx closely enough, you will see lots of trick setups that Prohobby has thrown onto their race truck. Oh yes, I forgot to tell you that the Maxx in the photos is Danny's personal team truck.

As for cost, the whole starter box system will run you around $250-300, and I think it's a good deal for what you get. If you like this cool starter box race setup, call Prohobby at (407) 897-3336 or email them at *performancedanny@hotmail.com*

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Ten Ways to make your Nitro Faster

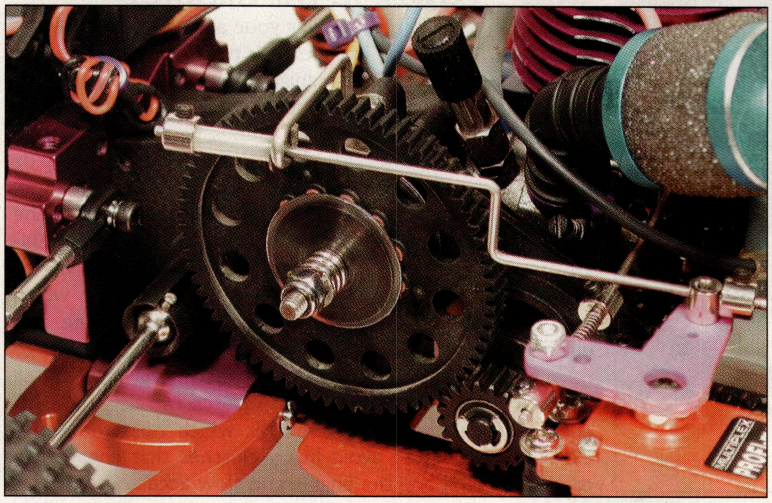
Maximum miles-per-hour!

Most people choose nitro R/C for one reason—speed! But what can you do if you're not satisfied with your model's performance? You could buy a newer, faster vehicle, but that's an expensive solution. Look, you've already invested in your model, and it's not all that difficult to improve its performance with just a little bit of money (as opposed to the price of a new kit) and a small amount of wrenching time. Here are ten things you can do to give your nitro model more spank. You can follow one step to gain a little speed, or do 'em all to go ballistic!



1 HIGH OCTANE

This might seem like a no-brainer, but you can gain horsepower by using a fuel that has a higher blend of nitro. For example, if you're using ten or 15 percent fuel, consider switching to 20 or 25 percent fuel. The added nitro should yield a speed boost that you can notice. How much nitro is too much? Well, many manufacturers recommend fuel with no more than 20 percent nitro when using a small-block engine (below .18). Although many racers use 30 percent fuel, some experts believe that this shortens the life of the engine. Big blocks are generally more tolerant of higher nitro content, as are high-end racing engines. Sport engines tend to last longer with less nitro. And when switching to a fuel with more nitro, you many have to richen your engine slightly.

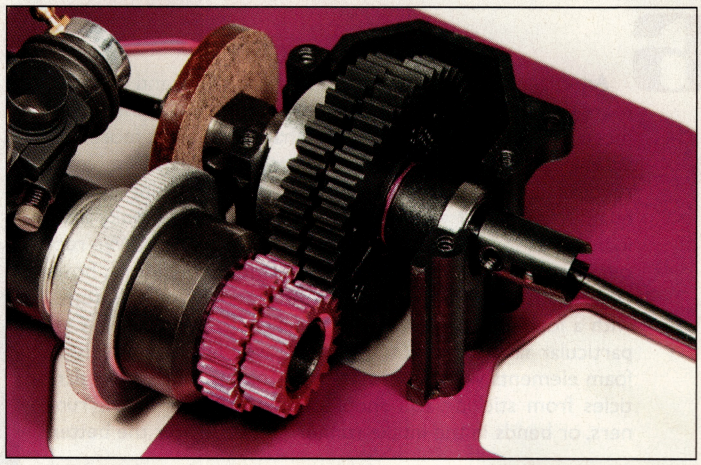


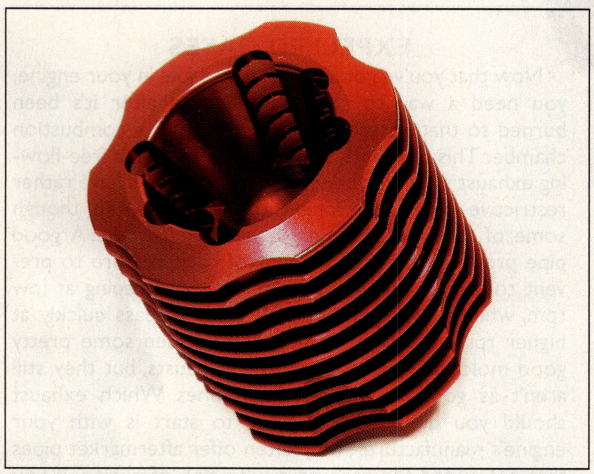
2 PULLING TEETH

Here's a relatively cheap speed fix. Most nitro cars come with gearing that's rather conservative. So if it's speed you crave, consider purchasing a larger clutch bell (one with a larger number of teeth). You'll be very surprised by how much faster your vehicle can go with an increase of just one or two teeth. Be aware that as you increase the size of the clutch bell, you'll be sacrificing some acceleration. Avoid a change of more than two teeth, however, as it's possible to damage your engine if you over-gear it.

3 FOUR ON THE FLOOR

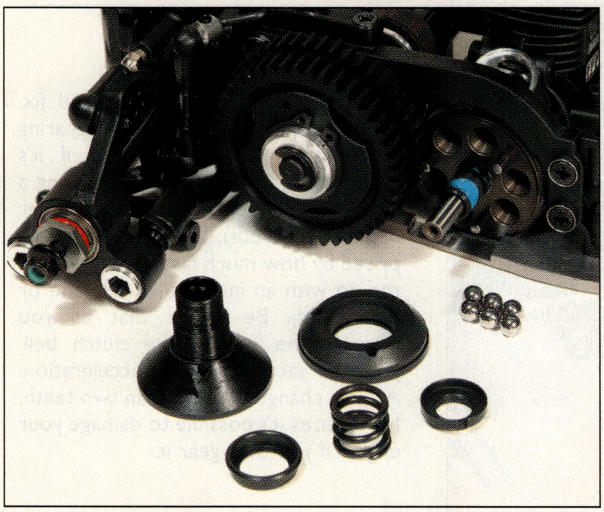
Want more speed without having to give up acceleration? Then a two-speed is the only way to go (without having to shoe-horn in a big-block!). Two-speeds have two separate ratios that provide the best of both worlds. Most on-road cars and some monster trucks can be fitted with automatic shifting two-speeds. The clutch-based two speeds are the best, but they are usually more expensive than the more conventional finger-type two-speeds.





4 KEEP A COOL HEAD

Our nitro engines are air and liquid cooled. What?! Liquid cooled? Where's the radiator? It's inside the combustion chamber. Nitro engines rely on a certain amount of unburned fuel to extract heat as the fuel passes through the combustion chamber. Without this liquid cooling, no amount of air-cooling could keep the engine from overheating. So it stands to reason that anything that lowers the operating temperature of the engine will decrease the amount of liquid cooling needed for safe operation. Translation: cooler engines can be run leaner! The best way to achieve this is to increase the amount of air that can reach the engine (by cutting vent holes in the body) and by installing a larger heat-sink cylinder head.

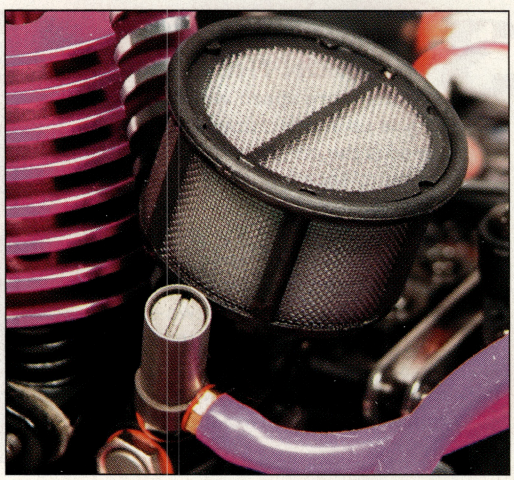


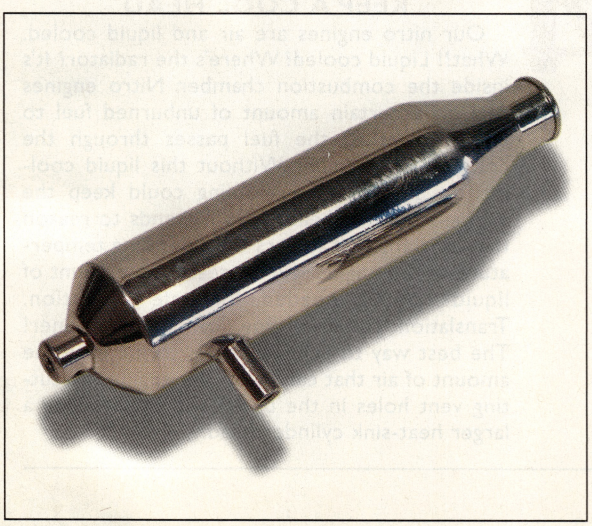
5 POWER TO THE GROUND

No matter how much power your engine makes, it won't mean much if it never finds its way to the wheels. The first link in the power transfer chain is the clutch—the often overlooked, seldom understood clutch. First and most obvious, your clutch shouldn't slip. If it does, you're wasting a lot of valuable horsepower. You can tell if the clutch is slipping by listening to the engine; if the engine rpm rises without an equal increase in speed, the clutch is probably slipping. The clutch also has a tremendous effect on how well your vehicle accelerates. Most importantly, the clutch should match the engine's powerband with the type of surface on which you're running your vehicle. A lighter clutch, i.e., one that engages at a higher rpm, generally allows the engine to remain in the "sweet spot" of its powerband. A "light" clutch is one that has lightweight shoes. A clutch can also be "lightened" through the use of springs, which hold the shoes closed longer. Try to avoid heavy clutches that engage too early. These will bog the engine and slow acceleration.

6 BREATHE RIGHT

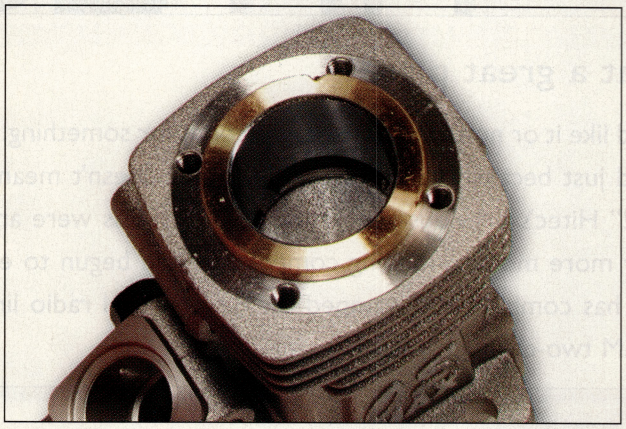
An engine relies on an intake mixture of air and fuel. The more of both you can pack into the combustion chamber, the more power you'll get. It's not all that hard to get more fuel to the engine, but to get sufficient air into the mixture requires an intake system that can effectively bring in large quantities of air. If your engine has one of those dinky little foam "dots" as an air filter, change it to a larger one. We recommend large-sized foam filters for most conditions; however, when it's very, very dusty, the paper-style filters (ones with a foam outer sleeve) are less likely to get clogged. Our particular favorites are the Motor Saver filters, which have foam elements within a mesh "cage" that prevents small particles from sticking. You should also avoid long intake runners, or bends in the intake runner. The straighter the better.





7 EXPELLED GASES

Now that you've got a lot of air and fuel in your engine, you need a way to clear the mixture after it's been burned so that a fresh charge can enter the combustion chamber. This is why it's so important to have a free-flowing exhaust system. Many sport kits and RTRs have rather restrictive pipes that inhibit the engine—even though some of them resemble an actual "tuned" pipe. A good pipe provides the right amount of backpressure to prevent too much unburned mixture from escaping at low rpm, while allowing the burned gases to pass quickly at higher rpm to increase speed. We've seen some pretty good molded plastic (composite) exhausts, but they still aren't as good as the aluminum ones. Which exhaust should you buy? A good place to start is with your engine's manufacturer; they often offer aftermarket pipes that are suited for each particular size of engine. If you own an RTR and are using the stock engine, check the kit manufacturer's option list for aluminum tuned pipes.



8

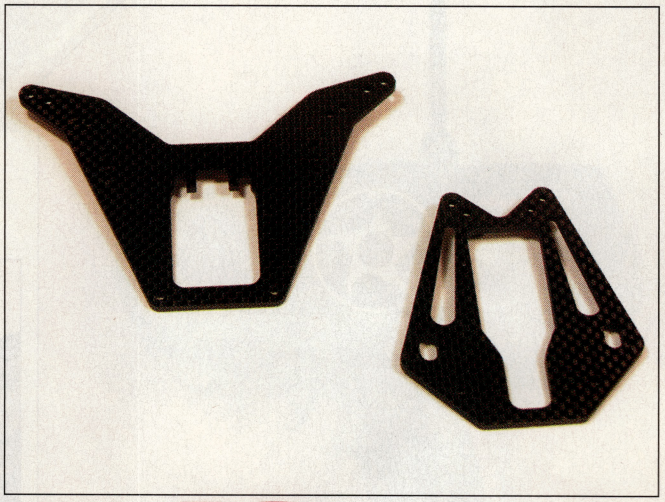
A NEW LEASE ON LIFE

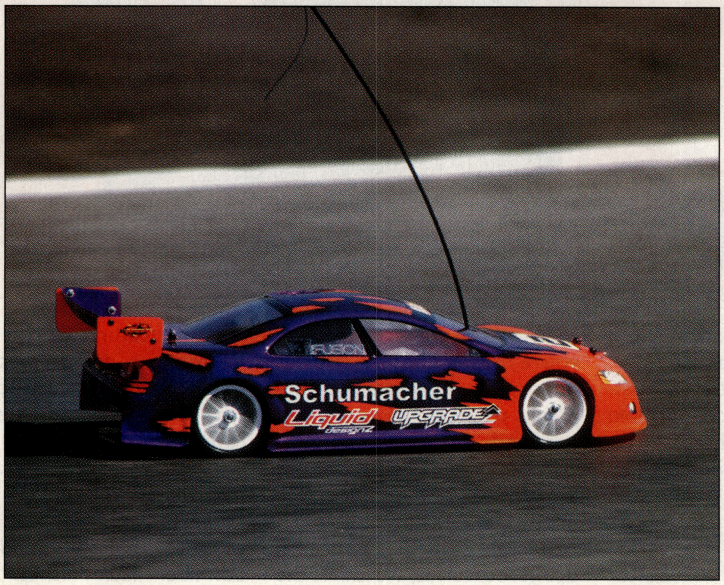
As you know, a mixture of fuel and air is sent to the engine's combustion chamber, where it gets compressed by rising piston before being ignited. Higher compression is better, and in order to maintain the engine's compression, the piston must seal well against the sleeve. When the piston and sleeve become worn, they leak and reduce compression. This is a gradual deterioration, so you might not be aware that your engine isn't what it used to be. Do yourself a favor and pick up a new piston and sleeve—you may be shocked by how much faster your engine will become.

9

VISIT JENNY CRAIG

To move your vehicle along, the engine has to overcome the weight of the vehicle, the force of gravity and the weight of the drivetrain parts. You can't do much about gravity, but you can shed weight from the chassis by installing lightweight hardware, using smaller electronics and drilling and milling any excess material that's not structurally critical. It's equally important to lose weight in the drivetrain. Many companies offer lightweight aluminum or molded gears to replace the heavy stock steel parts. For trucks such as the T-Maxx, many racers eliminate the reverse gears entirely, as this makes the entire drivetrain lighter. You can also replace steel driveshafts with lightweight aluminum shafts such as MIP CVDs.





10

SLICE THE AIR

This tip pertains mostly to on-road nitro cars. If you want to go faster, you'll need a body that provides the best combination of low drag and stability. As your car moves, it is slowed by the friction created by air molecules. The faster it travels, the greater the friction that must be overcome by the engine. A body that provides low drag will enable your car to travel faster using the same horsepower. Generally, bodies that present a very small frontal area are better at punching through the air. Blunt-nosed bodies, such as BMWs, aren't as good as sleeker shells such as a Dodge Stratus at high-speed runs. If you're interested solely in speed, try a low-slung sports car body such as a GTP or GT1.

HITEC

Great looks at a great price

We live in an image-conscious world, and like it or not, appearance does count for something, even if good looks are only skin-deep. And just because you're just starting out doesn't mean you want a radio that screams "beginner!" Hitec's previous-generation Lynx systems were among the best performers in their classes; however, other more modern-looking competitors had begun to erode Lynx sales. Hitec understood this shortcoming, and has completely re-vamped their entry-level radio lineup, beginning at the lowest-cost model, this Aggressor AM two-channel system.





REMODELED AND RE-INVENTED

In designing the Aggressor, Hitec retained all that we loved about the Lynx AM—glitch-free operation and quality construction—and has wrapped it within a case that could very well have been that of new high-end FM system. The biggest change, and improvement, is that the Aggressor feels better balanced and more comfortable in the hand. First, the batteries are laid flat to provide a wide, stable base for the transmitter, which will easily stand on its own when you put it down on your pit table. This also better balances the transmitter while you're driving. The new grip has improved ergonomics, and thanks to interchangeable rubber pads—optional, colored "thin" and "thick" pads are available—the Aggressor will fit any sized hand.

Being rather superficial beings ourselves, we think the coolest feature of the new Aggressor is its "tuning cover," i.e., the removable plastic door that covers the radio's servo-reversing switches. Hitec offers several optional covers, ranging from blue, red and a clear cover that can be painted, to covers with "camo" and "carbon fiber" faux finishes.

AGGRESSOR

BASIC FEATURES, BASIC FUNCTION

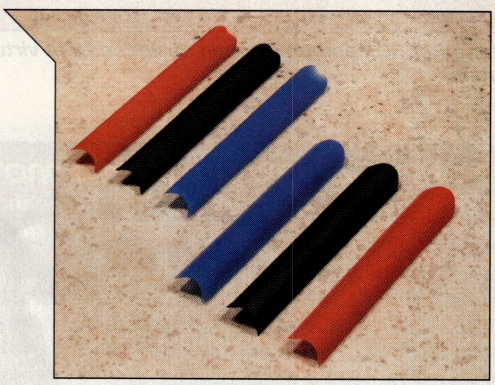
The Aggressor AM is a very basic radio (a more feature-laden FM version will also be available), which means that if you're looking for such things as EPA (end-point adjustment) or sub-trim, search elsewhere. But as a first radio, the Aggressor has all the basics including trim knobs and reversing switches for the steering and throttle channels. There's also a dual-rate dial for the steering channel, which allows you to change the travel of the steering servo, even while driving.

BECOMING THE AGGRESSOR

The Aggressor feels terrific in the hands; the balance is just right, the trigger is large enough for big fingers, but not too roomy for younger racers.

Unlike most of its competition, the Aggressor's steering wheel is foam covered for a superior tactile feel and comfort. It's also placed in good relation to the grip and trigger. The interchangeable grip pads are molded of a very soft silicone rubber that conforms well to your hand. People with bigger hands will like the thick pad, while the thinner pad will allow people with smaller mitts to get a good grip. And although it's merely an appearance item, the replaceable tuning cover offers an innovative way to customize your Aggressor. Aside from the colored covers that can be installed, you can custom-paint the clear cover to match your car's paint scheme.





WHAT WE REALLY THINK

While there are a lot of sport-level AM systems out there, few if any are better looking than the new Aggressor. Although it lacks one important feature—end-point adjustments for the throttle channel that are fast becoming standard in this class—the Aggressor is a price leader. We suppose that if you own a gas car (which could use the throttle EPA), you can move up in class slightly for the FM version of the Aggressor. For electric cars, however, the AM Aggressor has all the features you'll need to get going. Otherwise, we loved the new look of the Aggressor, and its customizable features.

Aggressor AM with 2 HS-311 servos, part no. 125271 (27mHz); 125751 (75mHz), price $54.99 (varies with dealer)
Aggressor AM with 1 HS-311 servo and ESC, part no. 125753, $84.99
Aggressor AM with 1 HS-311 servo, part no. 125752, $49.99
Thick grip pad set (blue, black and red), part no. 54310
Thin grip pad set (blue, black and red), part no. 54309
Tuning cover set (blue, red and clear), part no. 54306
Camouflage tuning cover, part no. 54307
Silver carbon tuning cover, part no. 54308

SOURCES

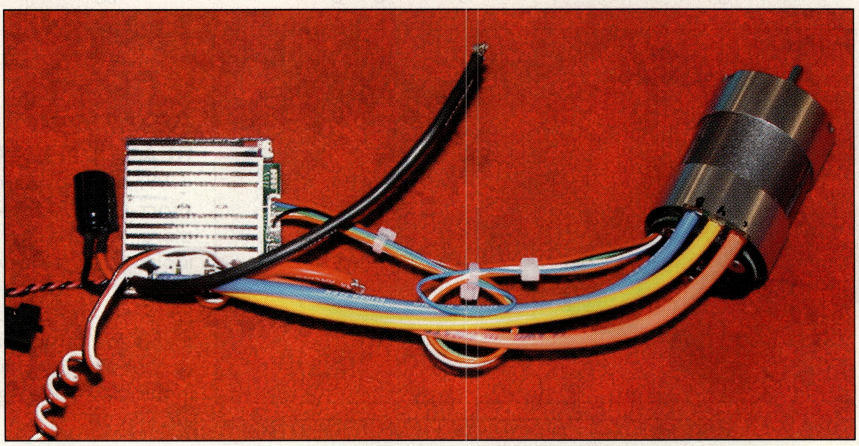
Hitec, 12115 Paine St., Poway, CA 92064 • phone (858) 748-6948; fax (858) 748-1767

First Test: NOVAK SUPER SPORT BRUSHLESS MOTOR

Will brushless technology meet our expectations?

We were recently invited along with other representatives of the R/C media for a test drive of Novak's forthcoming Super Sport brushless motor system. Novak held a press day of sorts at SoCal Raceway in Huntington Beach, California. We brought along a 1/10-scale touring car, Novak supplied its brushless motor and speed control, and we hit the track. Although it was a little difficult to judge the motor's top speed on the rather tight confines of the SoCal indoor road-course, it was very clear that the SS motor, which is the first of three brushless systems to be released, had the acceleration and torque to rival most modified motors (this is significant because the SS is the "stock" equivalent of the forthcoming brushless line-up). The speed, from what we could tell, was also very impressive.

The most important element of this brushless technology is that there aren't any brushes to wear, burn and need replacing; there's no comm to cut, and the permanent magnets are extremely resistant to weakening. Our Tamiya 414MII averaged about eight minutes per run (a testimony to the efficiency of the motor) and the motor came off the track well under 170 degrees, according to our infrared temp gauge. We also ran successive packs without providing the motor system with much cool-down time; it never balked. And the motor also had much less cogging, so it allowed the car to roll off-power even more smoothly than with a modified motor. In fact, it's nearly impossible to detect any magnetic resistance when spinning the motor's shaft by hand.



The Super Sport motor and ESC combo has been designed to fit virtually any standard R/C application.

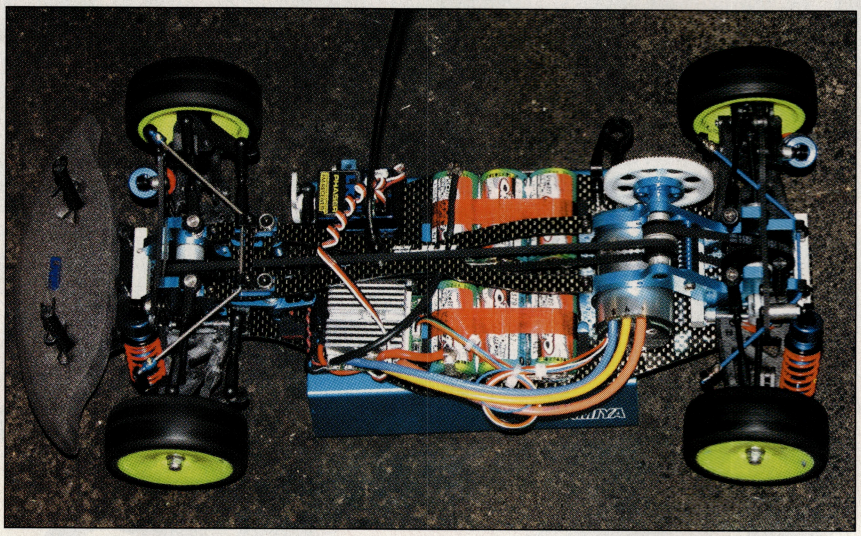
INSIDE THE SUPER SPORT

The Novak system itself was pretty impressive. Although the speed control was still in its pre-production form (it had no case save a folded section of Lexan), its size is finalized – it's about the same size as Novak's own Rooster series of ESCs; it easily fit within the tight confines of our Tamiya's chassis. According the Novak's Tyree Phillips, who gave a brief seminar on the SS system, the ESC will work with 4-7 cells and offer several user-selectable throttle profiles, which will be accessed using a series of LEDs and a pushbutton similar to that of the new GT-7 racing ESC. It will also have a replaceable input harness, direct-solder wiring tabs and an industry-first transmitter-check mode.

STACKING UP TO BRUSHED MOTORS

Brushless motors aren't anything new, although Novak's is the first brushless system conceived for car use from the get-go, and they are usually rated by the following terms.

- **Kv**—This is the motor's voltage constant and is expressed in rpm/volts; this indicates how fast the motor will turn with a given voltage. According to Novak, the SS motor's Kv rating is 6,400rpm per volt. So if the motor is run with a typical 7.2-volt six-cell pack, its rpm would be 46,080. By comparison, a typical 10-turn brushed motor's Kv rating is 5,400rpm per volt. In other words, given the same voltage, the SS brushless motor will spin faster.
- **Kt**—This is the motor's torque constant and it is expressed in inch-ounce of torque per each amp of current. The Super Sport's Kt rating is 0.45 oz/in of torque per amp. By contrast, a typical 10-turn brushed motor's Kt rating is 0.33 oz/in per amp drawn. If the SS were drawing 5 amps from the battery, is would produce 2.25 oz/in of torque.



The Novak brushless motor system installed in our Tamiya 414MII. Everything fit well, even within the limited space of this chassis.



Bob Novak was also on hand to help answer technical questions.

The motor itself is virtually maintenance-free, as it is completely closed-off from the elements, and there's no need to ever open it, as there is nothing that will require servicing. What's also great is that the SS is sized similarly as a typical 540 motor, so it will bolt right into virtually any 1/12- and 1/10-scale car or truck. Tyree also went into detail about the difference between the Novak system, which uses sensors to detect the position of the rotor at all times, and the sensorless systems currently on the market, which have some particular drawbacks for car use, such as "assuming" that the rotor is doing exactly what the ESC has told it to do, when factors such as load may cause otherwise.

WHAT'S THE VERDICT?

We were very impressed with the Super Sport brushless motor system; although only a full test of the production system will tell the true tale, this early test has confirmed that this is the first system that has been made specifically for car use. The throttle response is virtually indistinguishable from that of a standard racing ESC, and the size of the controller – which is much smaller than the airplane-type brushless controllers we've seen – will make installation much easier. The SS will be followed by a truck-specific, high-torque system, and then by an all-out modified motor system. Novak has set the retail price for the SS system (motor and ESC) at $395.00; definitely not cheap, but then again, leading-edge technology never is.

SOURCES

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

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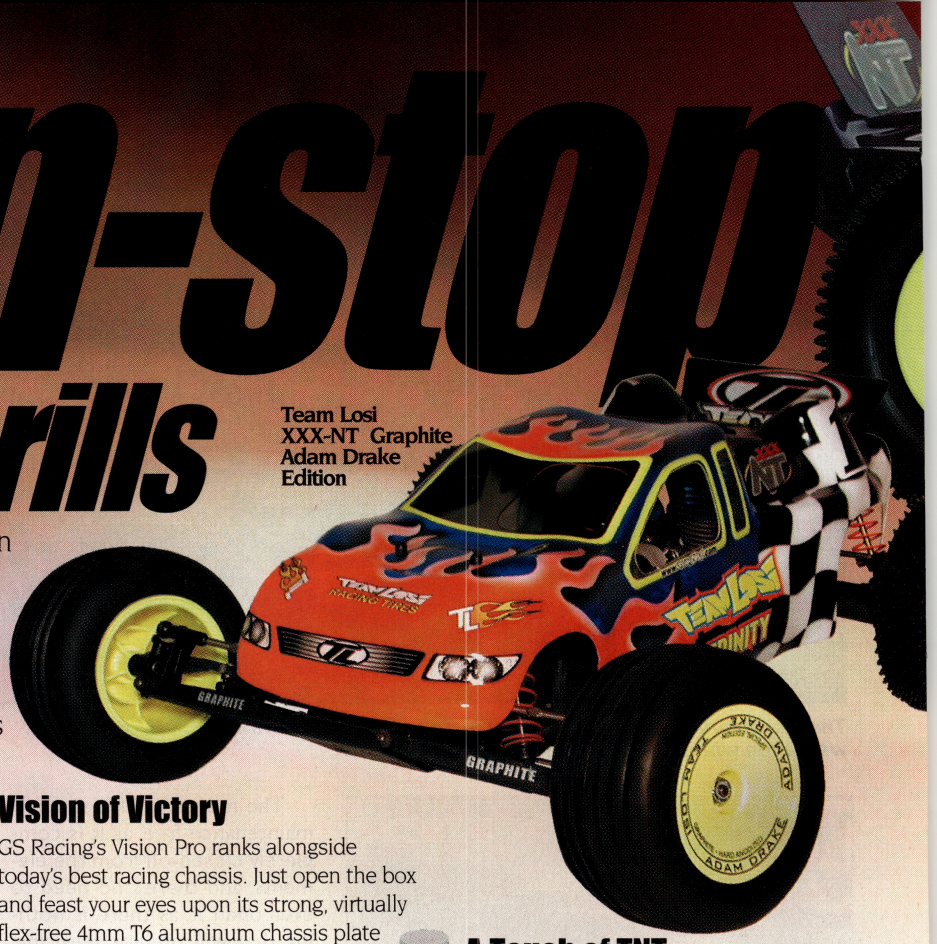

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		List	Our Price
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ACCESSORIES FOR VISION PRO:			
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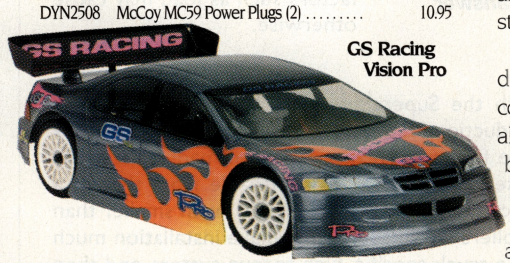
DYN1415	5-Cell 1000mAh Ni-MH RX Flat	44.95	35.95
DYN2370	Blue Thunder™ Race Formula 20%, Quart	11.95	10.95
DYN2508	McCoy MC59 Power Plugs (2)		10.95



GS Racing Vision Pro

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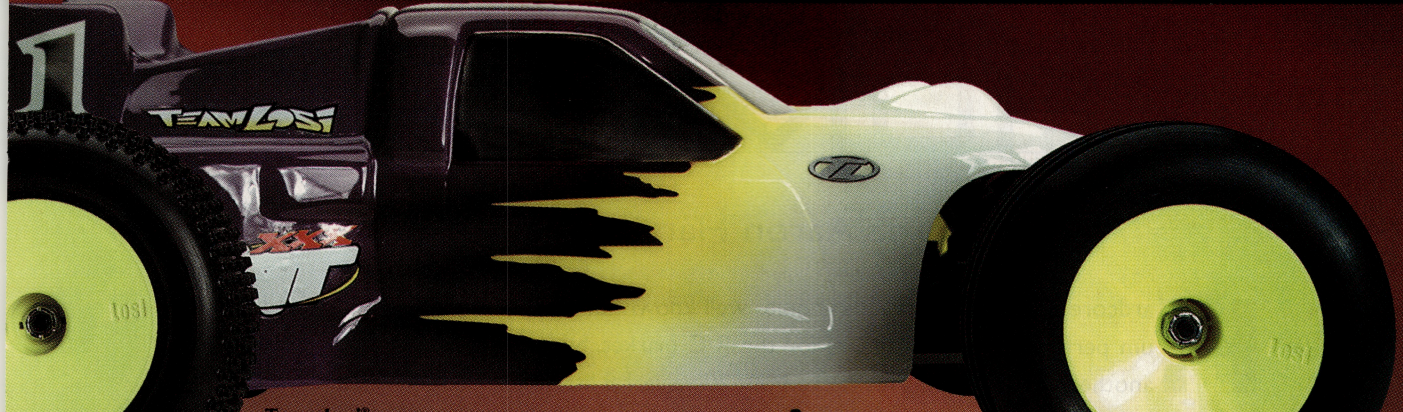

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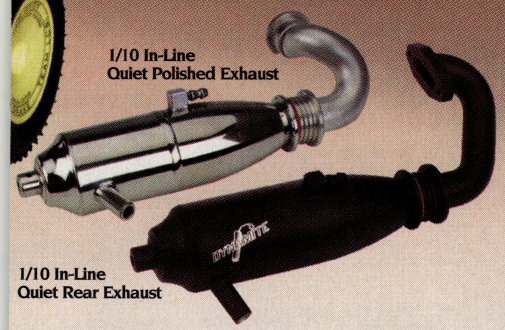

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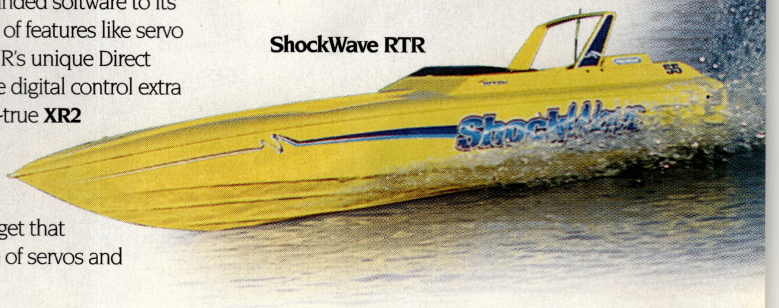
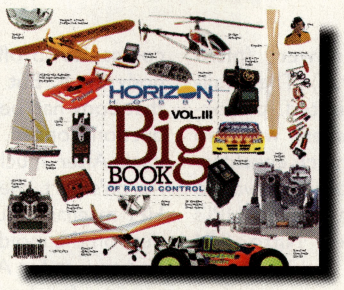


ShockWave RTR



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HOMEBUILT

Hardcore's Aaron Harris loves VWs!

Hardcore Racing Components is quite well known for its CNC billet aluminum and titanium performance components for the R/C market, but company prez Aaron Harris has another hobby: building his tricked-out 20-valve 1.8 liter turbocharged Volkswagen GTI. In fact, whenever we visit his office, Aaron often seems more excited to show us his GTI's latest mods than his hottest new R/C part! Aaron also attends a lot of full-sized car shows, and he has figured out that it's become a status-symbol of sorts for the import crowd to feature R/C models of their full-sized car. With this in mind, Aaron set about combining his two hobbies.



CHASSIS HUNT

In his typical fashion, Aaron sought to make his R/C version as interesting—and unique—as his full-sized Veedub. First, he wanted to keep the car as scale as possible, which meant that a typical 1/10-scale touring car would be too large to accurately replicate the compact Golf. His goal was to find a chassis that was stiff, had a short wheelbase and plenty of healthy horsepower (nitro power, of course). The availability of unlimited performance enhancement was also essential. After much consideration, the final decision was to build the R/C car around HPI's now-discontinued Nitro RS4 Mini.

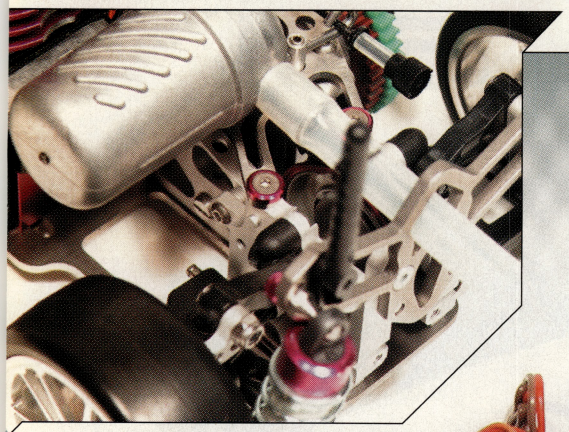
BODY ISSUES

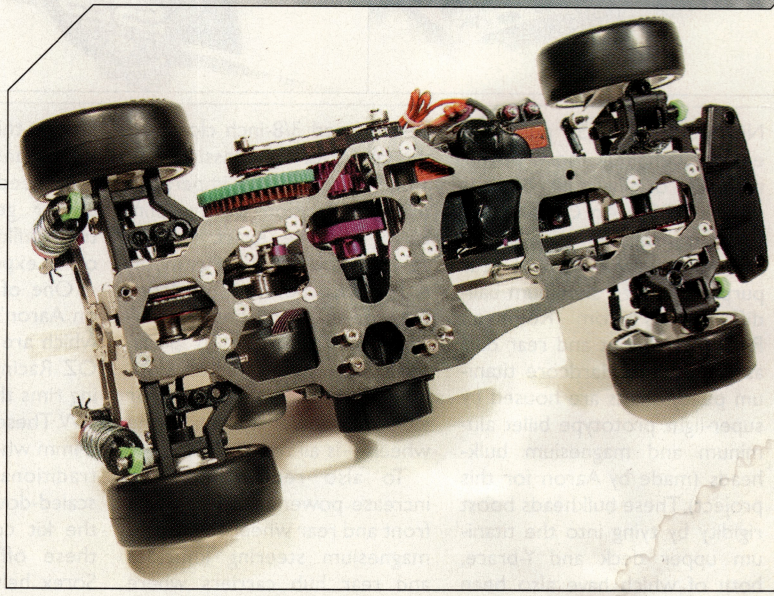
Another reason that Aaron chose the NRS4 Mini was that HPI was one of the very few companies to offer a VW Golf body shell. But unfortunately, that body had been out of production longer than the car itself. After much prodding on Aaron's part, the good folks at HPI magnanimously agreed to dust off the mold and pull a few bodies just for Aaron's project car (one for show, and, knowing Aaron's driving style, a few "beaters"). The finished product is as stunning as the full-sized car on which it's based. Aaron was able to get tiny vinyl-cut replicas of the car's graphics, including the "Hardcore Racing Components" windshield band. Using fake carbon-fiber vinyl, Aaron was also able to duplicate the look of his real car's carbon-fiber hood!

HARDCORE TITANIUM

The biggest obstacle that had to be addressed was the chas-

MINI RS4 GTI



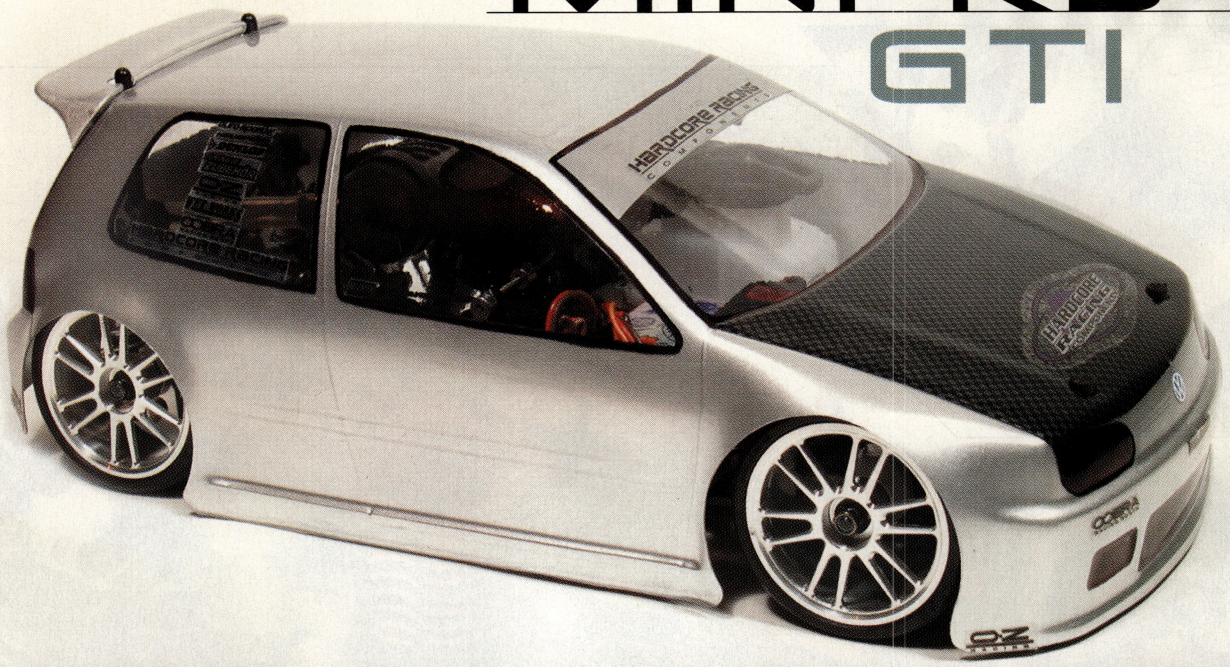


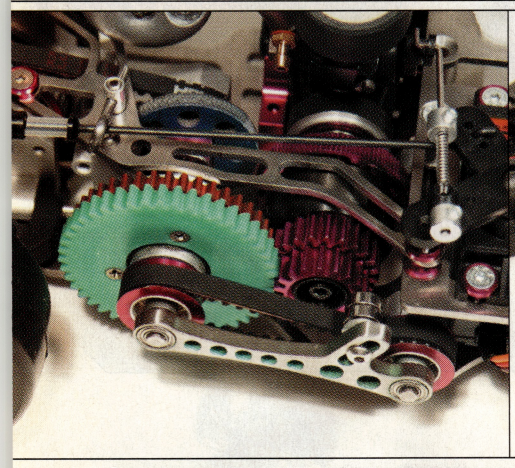
sis—the heart of the car, where it all starts. It had to be right: too stiff and the car becomes overly sensitive and twitchy, too soft and you've got a sluggish car with less responsiveness. Given his company's product line, Aaron's solution came as no surprise—titanium, 6al4v titanium to be exact. By utilizing the fantastic capabilities of this material, Aaron was able to design a "skeletalized" pattern, machined right through the 2.5mm, fully countersunk chassis. The final design distributes the load and stress equally across the entire chassis, while simultaneously allowing for increased clearance for the drive belts and gear pulleys. Aaron estimates that 80 percent of the chassis was removed, with close attention paid to improving access to the flywheel and additional clearance for the two speed. Airflow to the engine was also increased significantly. Even after the removal of this much material, the end result is a chassis that's not too stiff and not too soft. Keep in mind that the chassis of the Mini is shorter than that of a normal 1/10-scale touring car, so the chassis design is perhaps more critical for good performance.

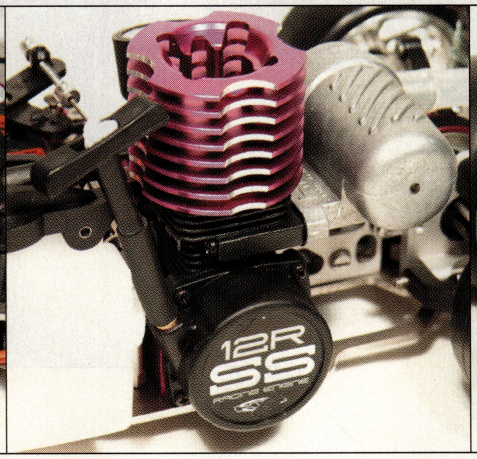
TAKING SHAPE

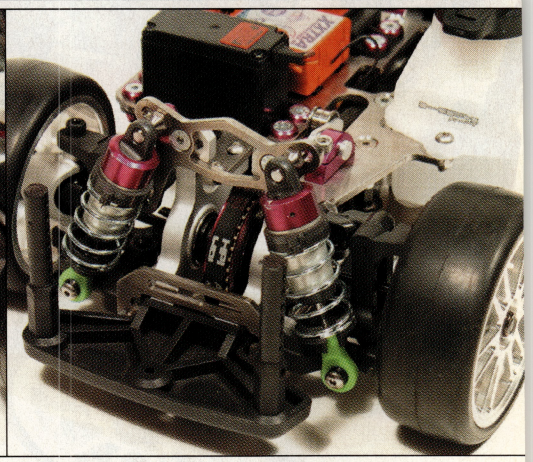
The Hardcore titanium Mini chassis displays incredible torsional rigidity, ideal for efficient energy transfer from an HPI

HOMEBUILT MINI RS4 GTI









Nitro Start 12R SS pull start engine (definitely more power than was originally planned for the Mini RS4). An OFNA two-speed transmission then routes the power to front and rear purple-anodized aluminum ball-diff pulleys from Robinson Racing. The front and rear diffs as well as the Hardcore titanium pulley shafts are housed by super-light prototype billet aluminum and magnesium bulkheads (made by Aaron for this project). These bulkheads boost rigidity by tying into the titanium upper deck and Y-brace, both of which have also been skeletalized for weight reduction.

To improve the balance of the car, the throttle and steering servos and fuel tank have been moved 3/8-inch closer to the center of the chassis. Being a belt-driven car, it's imperative that the tension of the Mini RS4's belts be exact, and to achieve this fine adjustment, Aaron incorporated Hardcore titanium side and front belt-tensioners. With these in place, both belt bounce and skipping—the biggest cause for inefficient power transfer to the wheels—is all but eliminated.

To also reduce flex and increase power transfer to the front and rear wheels, ultra light magnesium steering knuckles and rear hub carriers where also custom-made. With all this "heavy metal" on tap, what then is up with plastic A-arms and front hub carriers? Aaron liked the fact that they flex and give a little, as this improves the feel of the car, and if something is hit at high speed, the arm and the hub carrier get cooked—not the trick bulkheads or any of the other expensive pieces.

One of the coolest features on Aaron's Mini is the wheels, which are exact replicas of the OZ Racing Super Leggera racing rims that are on his full size VW. These are also larger-sized 24mm wheels (the size used for traditional sedans), not the scaled-down "mousey" wheels the kit comes with. Covering these off-the-hook rims are Sorex belted slicks with medium inserts.

Not only does Aaron's Mini have great traction, but it also has some serious speed. Remember, this thing is geared just like a full size 1/10-scale touring car, but with shorter belts so the power comes on "right now." Getting the power to the wheels are one-of-a-kind titanium dogbone driveshafts; they save weight and reduce rotational mass—a must for any real race ride. To complete the suspension, Aaron's Mini sports Hardcore titanium front and rear shock towers and ball studs. With wider offsets, these towers provide an improved shock angle compared with stock. The shocks are optional aluminum dampers from HPI, and have custom valving and spring rates made just for this project. Finally, a complete Hardcore titanium screw set holds the entire chassis together.





TEUTONIC TERROR

With all the attention to detail on the Mini RS4, Aaron Harris' full-size VW GTI exhibits perhaps even more custom touches and high-performance add-ons. In fact, this car just gives us the chills! How about a 300 horsepower 1.8 liter four-cylinder, 20-valve turbocharged engine mated to a manual-shift six-speed gearbox? The VW's mill has just about every racing mod imaginable, including a pair of five-pound nitrous-oxide bottles, a race-tuned chip from Neuspeed, a three-inch Eurosport stainless-steel exhaust system and a custom-built turbo system.









Inside the cabin are Cobra graphite and carbon-fiber race seats fitted with TRW five-point cam-lock racing harnesses, each tied to a custom-made 7075 T6 aluminum roll cage that sports a polished mirror finish. The seats are anchored to the car's structure via a full titanium frame system with the Hardcore Racing Components logo laser-cut right through it. Even the logo on the Cobra blue-suede racing steering wheel is custom-made (by Aaron) of titanium, as are the rear hatch logo and gas lid cover. Even the 18-inch OZ Racing Super Laggera rims are made out of titanium and aluminum. Stopping power is provided by HP racing brakes that feature blue billet-aluminum calipers with immense 300mm cross-drilled and slotted rotors.

Other features include a custom carbon-fiber hood, titanium floor mats and pedals, and a full set of Weitec Damping adjustable coil-over race shocks (brought in specially from Germany). Also onboard are front and rear anti-roll bars from Neuspeed. The finishing touch to Aaron's monster GTI is a custom-fitted Euro-style body kit installed by the world-famous Wet Works Garage.

SOURCES

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HPI CHALLENGE

By Frank McKinney

Sedan racers turn Japanese

Ah, Japan—home of the ninja, shoguns, udon noodles and this year, the fourth annual 2002 HPI Challenge World Finals! Held in the parking lot of the Pal Pal amusement park in Hamamatsu, Japan, about 200 racers showed up for the two-day race. Seven racers from Hungary, Scotland, Austria and Greece made up the Euro contingent, while the US racers were Dereck Butterfield of Southern California, Tim Potter and Timm Wooley from Florida, Michael Collins from Ohio and Todd Marshall from Washington, D.C. I joined the US racers as a sort of 'race liaison,' and Greg Hill from HPI Europe accompanied the European racers.









LOCAL COLOR

After a few weeks scrambling to get everything together for the trip, the racers were ready to go, and after some long flights, finally met at a hotel in Nagoya, Japan on Thursday, November 7. The next morning we were off to visit a huge public aquarium and do some souvenir shopping while waiting for the rest of the foreign visitors. The aquarium was great, highlighting the dependency the Japanese and many Asian cultures have on the ocean. The small shopping mall near the had an interesting bookstore/souvenir shop, a toy store packed with "Hello Kitty," Gundam and Pooh toys (among many others) and a fun food court which had a life-size Colonel Sanders statue wearing a Santa suit!

By the end of Friday, all the overseas drivers were present after picking up one racer from Korea, two from Taiwan and three from Malaysia. Gathering on to the tour bus, we headed to HPI Japan to pick up loaner radios (only 27 and 40 band

WORLD FINALS



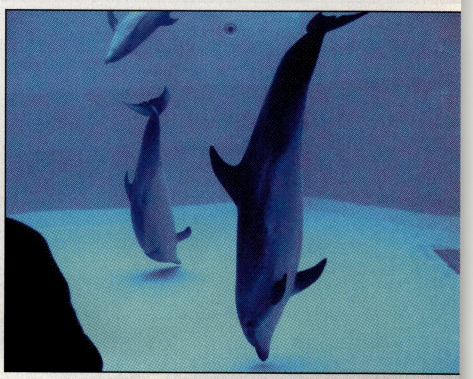
who had qualified tenth in Nitro and sixth in Super Nitro, Michael Collins, eigth in Micro Beetle Cup (an exhibition class) and second in Electric Touring Expert, and Attila Svadja, seventh in Nitro Touring. Unfortunately for the other foreign racers, they had had trouble in their respective classes and couldn't make the A-main, although there a few of them scattered in the B and C mains.

After the first two qualifying rounds on Saturday, racers who stayed behind were treated to a Savage 21 exhibition and trials competition (try balancing a Savage on a seesaw!), after which the overseas racers were treated to a pizza party at HPI Japan while watching videotapes of the All-Japan Nationals and other races from 2002.

On Sunday afternoon, the main events started after some driving exhibitions from Hara, Murai, Yoshioka and surprise guest Andreas Myrberg from Sweden. Because they are all HPI team racers,







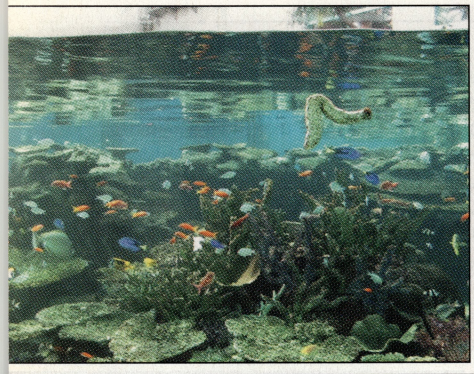
radios are legal), take a short tour of the building, and meet Atsushi Hara, Masayuki Murai and Daisuke Yoshioka, the three top racers for HPI Japan. After arriving at the hotel and grabbing dinner, some racers went right to sleep, while others wrenched on their cars.

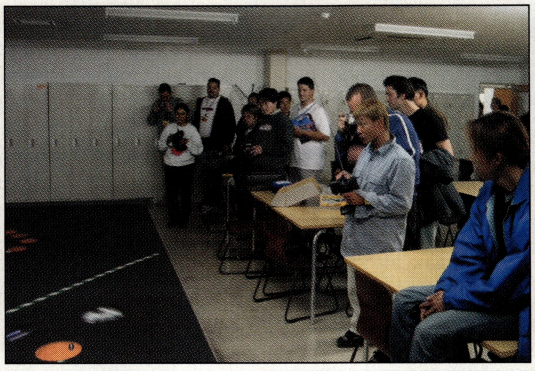
Saturday morning, the bus arrived at 7:30 to take everyone to the track, where racers scarfed down a 7-11 breakfast and settled in at their very breezy pit tables to start charging the handout batteries and glue their spec tires. The controlled practice had to be removed from the schedule because the drivers' stand canopy was blown over; however, with spec batteries, motors, tires, wheels and inserts, plus no practice, every racer was in the same exact situation and would just have to adjust their setups as they went through the qualifying rounds.

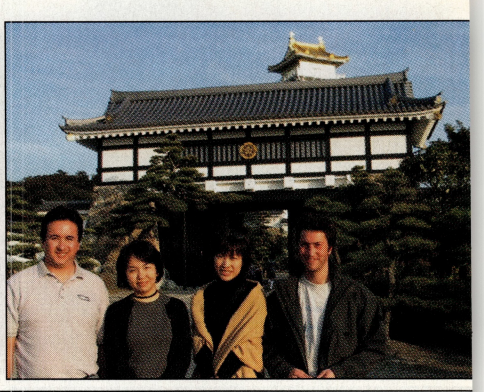
RACING ISSUES

Qualifying proceeded smoothly throughout all three rounds, however the TQ spots were all held by Japanese drivers. Hopes for the overseas racers hinged on Todd Marshall,

HPI CHALLENGE
WORLD FINALS











Squid, anyone?









everyone around the track watched intently as they scooted their way around the track, playing with each other to get the fastest line around each corner.

THE MAINS GET UNDERWAY

The first main event was the Micro Beetle Cup class, which was an exhibition class but featured stiff competition all weekend long. After a couple of A-main computer glitches and restarts that saw US racer Michael Collins unfortunately lose a well-fought lead, it was a 12-year-



The pace cars.

HPI CHALLENGE
WORLD FINALS

old kid who took home the win in the 15-car A main! In the 10-minute Nitro Touring A-main, Todd Marshall from D.C. drove valiantly, at times battling intently with other racers, but a loose screw halted his car before the halfway mark. Todd's next chance was in the 10-minute Super Nitro A-main, where he started in sixth, and after some tight driving, finished in the fifth place position—a respectable position and only 1 second behind fourth place.

In the remaining electric classes, there were no triple A mains (which will change for future World Finals), so it was all or nothing from the get-go. With Michael Collins starting in the second spot and Scottish racer Kris Ritchie in the fourth spot for the Electric Sport A-main, the overseas racers gathered around to watch. Michael had another tough run after yet another race restart because of the computer, and Kris ended up in in sixth place. In the Electric Expert A-main, Austrian Werner Puchas started in ninth, but muscled his way up to fourth place, just a second behind third!

BLING BLING

The awards ceremony, held shortly after the races, was fun to watch. Energetic race announcer "Bomber" Yamamoto interviewed race winners, and every B and lower main winner received a hefty metal trophy, while the top three in each A main took home HPI kits and trophies! After every trophy had been given out, a few games of "Jan Ken Pon" were played (we know this as "Rock, Paper, Scissors") and HPI representatives gave away HPI kits, VCRs, footbaths (very popular in Japan) and more. The last kit given away was by Atsushi Hara himself, and a lucky 10-year-old won Hara's own totally decked-out Pro 3 Hara Edition, complete with radio gear, battery, motor and custom painted body!

CAN'T GET ENOUGH OF JAPAN

The weekend wasn't over for the overseas racers, however, as Monday was













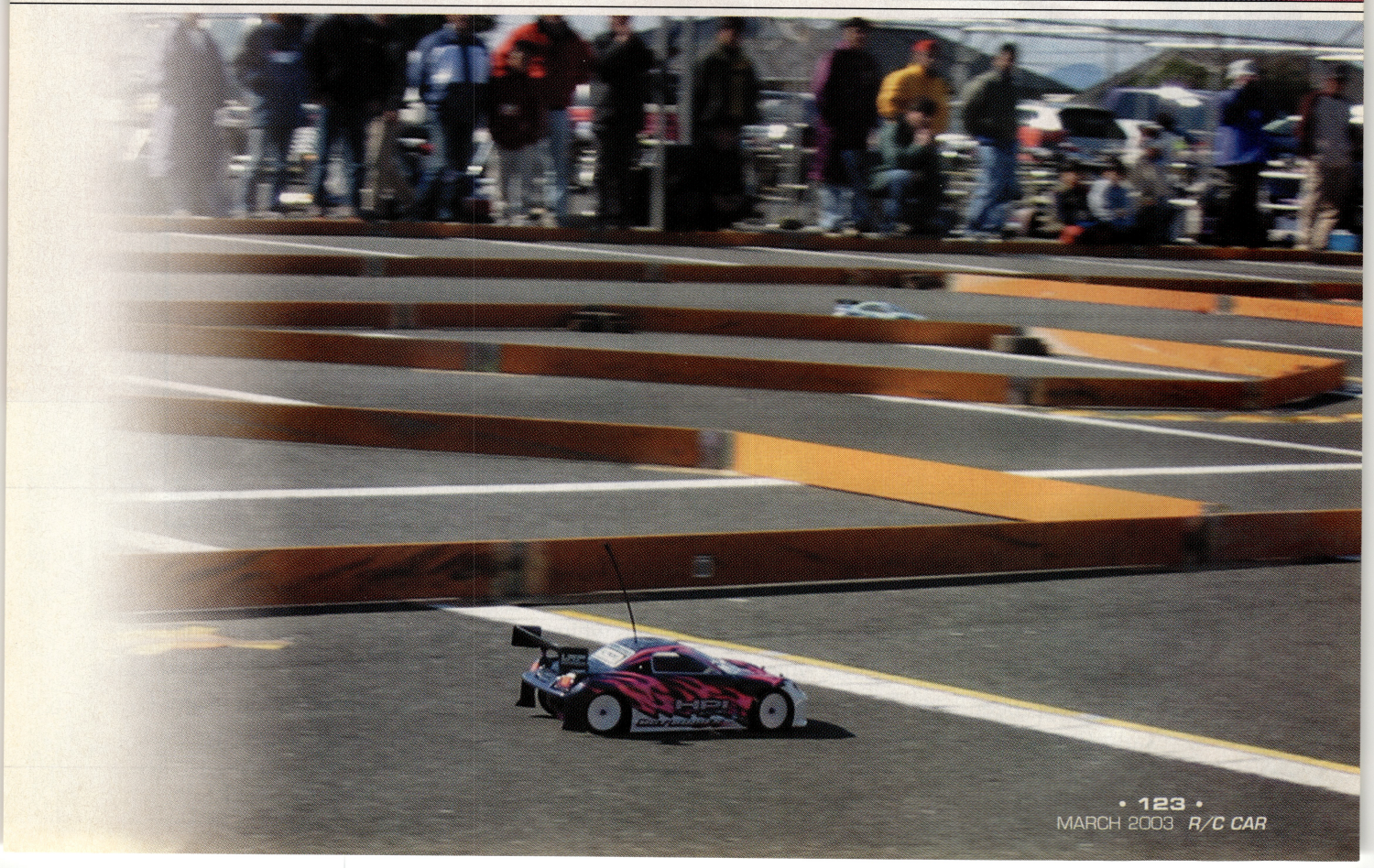
Team USA.



the VIP Tour! A ferry ride across Nagoya Bay to the city of Ise led to the 2,000-year old Ise Shrine, a traditional Shinto holy area. A traditional Japanese noodle lunch right outside the shrine grounds was in a small shopping area, then it was off to Ise Warring States War Village, where the group saw a ninja show, visited the fantastic Azuchi Castle and walked around a replica of a 16th century shogun village. After getting back to our hotel in Nagoya, a visit to a local billiards hall was in order (after a final dinner at McDonald's, of course) and many of the racers said their goodbyes at this point. The next day was the last day for the US racers to be in the country and they took the opportunity to hit some area hobby shops to stock up on radio equipment, parts and model kits. R/C shopping trips have been a popular pastime at past VIP tours!

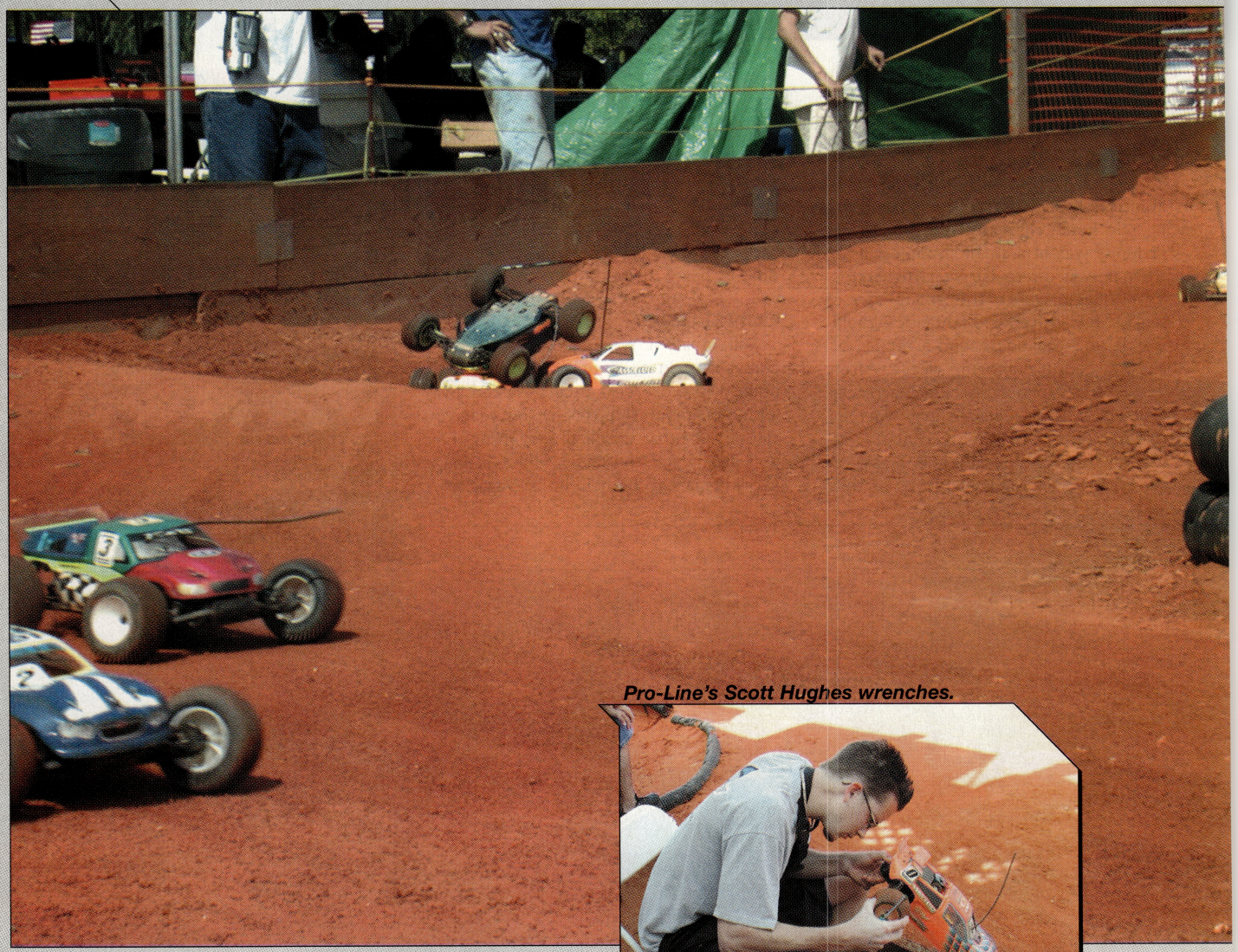
CONCLUSION

All in all, it was a terrific and very enjoyable trip to a new country. While none of the overseas racers walked away with a championship trophy this year, you can be sure that they'll all be getting their cars ready for the 2003 HPI Challenge World Finals, to be held in Las Vegas!



2002 ROAR Gas Off-

Nitro trucks in action



Pro-Line's Scott Hughes wrenches.

The suspects: Adam Drake and Richard Saxton. The Location: Miami, Florida. I've been given the assignment to hunt these two down. I get up, blow dry my hair, put on my white slacks, light green T-shirt and white sport coat, slip on the Ray Ban sunglasses and jump into my Fiero, which has been converted to look like a Ferrari Testarossa.... "Beep-beep-beep," my alarm goes off. It's 7 a.m. and it was just a dream, whew! I'm in Miami and it's time to go to Miami R/C Raceway for the 2002 ROAR Gas Off-Road Nationals.

ROAD NATIONALS

THE TRACK

Miami R/C Raceway, which is fairly new, was given the honor of hosting the 2002 ROAR Gas Off-Road Nationals. The large outdoor track featured the typical red/orange clay type dirt seen at most Florida off-road tracks. When wet, this surface offers killer traction; when dry, it's loose—very loose. The layout was wide open, with some technical sections. The "make it or break it" section would have to be the double-double section in front of the drivers stand. Here you could easily lose two seconds a lap.

QUALIFYING

During qualifying, the usual suspects were running well, but it was Team Losi/Orion driver Ryan Cavalieri who took the top position over 90 other drivers. Billy Easton qualified second, with Adam Drake rounding out the top three positions. As always, only eight drivers were guaranteed positions in the A main, while the final two drivers would have to bump up from the lower mains. Rick Hohwart and Richie Parkhurst bumped up from the B-main to complete the 10-truck field.

MAIN EVENT ACTION

At the beginning of the 45-minute main, it was evident that Losi's Ryan Cavalieri and Associated's Billy Easton had the dominant trucks. After the first round of pits, Adam Drake flamed out, and as it turned out, had broken his fuel tank. For the rest of the race, Adam had to pit every two minutes to compensate, which took its toll and kept him out of contention for the trophy. Jeremy Kortz's Kyosho truck was very quick on the track, but with too many little mistakes, Jeremy could not finish better than seventh. Rick Hohwart, who is known more for racing electric than gas, did very well, finishing fifth overall, proving that Rick can drive just about anything. Kinwald, who finished fourth, looked very good, but just didn't have the lap times to keep up with Billy and Ryan. For almost 35 minutes of the 45-minute A-main, Ryan

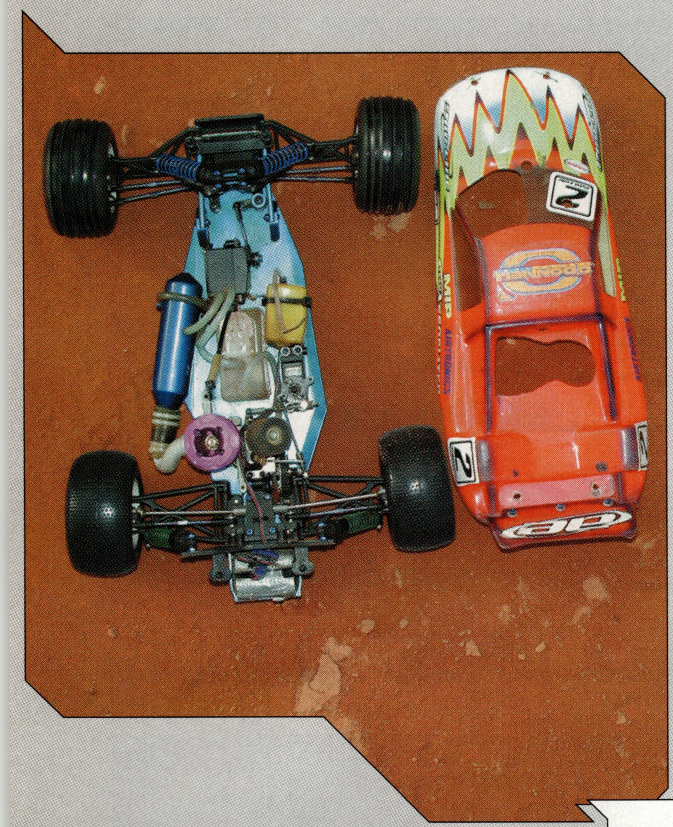


The crew works feverishly to get the track in shape for Saturday's racing after a storm doused the red clay.



South Beach in Miami. You have to love the view!

2002 ROAR nationals





Team Associated's Billy Easton (right, shown with Associate's Curtis Husting) won his second consecutive ROAR championship.

and Billy were within a few seconds of each other. But during the last ten minutes, it seemed as though Ryan lost some traction and little by little Billy pulled away. With two minutes to go, the Associated camp had a scare, as Billy crashed and a rod-end popped off. But by that point, Billy had a lap on Ryan. Billy limped it into the pits for repairs, which gave Ryan a chance to get his lap back, but it still wasn't enough time to catch Billy. Billy claimed the National Championship for the second year in a row, with Ryan Cavalieri a close second and Richard Saxton rounding out the top three.

Congratulations to Billy Easton, Team Associated and to the Miami R/C Raceway for hosting a great Gas Off-Road National.



The top ten finishers.



Team Orion and the Dirt Girls.

2002 ROAR 1/10 Nitro Truck A-main

Fin	Qual	Name	Truck	Front Tires	Rear Tires	Engine	Fuel
1	2	Billy Easton	AE	PL	PL	Mugen/O'Don	O'Donnell
2	1	Ryan Cavalieri	Losi	Losi	PL	Orion Wasp	Orion
3	4	Richard Saxton	AE	PL	PL	O'Donnell/RB	O'Donnell
4	5	Brian Kinwald	Losi	Losi	Losi	Trinity/Picco	Trinity
5	9	Rick Hohwart	Losi	Losi	PL	Orion Wasp	Orion
6	7	Phillip Atondo	Losi	Losi	PL	Orion Wasp	Orion
7	6	Jeremy Kortz	Kyo	PL	PL	Mugen MT12	Sidewinder
8	10	Richie Parkhurst	Kyo	PL	PL	OS	O'Donnell
9	8	Andrew Smolnik	AE	PL	PL	Orion Wasp	O'Donnell
10	3	Adam Drake	Losi	Losi	PL	Trinity	Trinity

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BATTERY BASICS

10 commonly asked questions

We receive all sorts of letters and emails from our readers. And most of them are technical questions. The topic of batteries arises often, so we decided to compile some of the most common questions you have about batteries here in this article.



Most sport batteries come as preassembled stick packs (top). Most matched packs come unassembled (bottom).

WHAT KIND OF BATTERY SHOULD I GET?

The batteries we use for our R/C models are sub-C sized cells that are either NiCd (Nickel-Cadmium) or NiMH (Nickel Metal-Hydride). The most common pack configuration is six cells. This is the "industry standard" pack size, and you'll find that almost all cars, trucks, speed controls and chargers are based around the typical six-cell pack.

Aside from their chemical makeup (NiCd or NiMH), cells are different from one another by their capacity, which determines how much energy can be stored in the cell and as a result, how long the cell will last before being completely discharged. Generally, NiCd cells are the least expensive and will usually have the highest voltage (voltage is what dictates the cell's 'punch,' or how well it can accelerate your car). NiMH cells usually have higher capacity (longer run times), but they're more expensive and often don't have the voltage of NiCd cells.

If you run strictly for fun, you'll find that you can get the most bang for your buck by purchasing good quality NiCd packs. If, however, you aspire to race, you may be better off investing in a few NiMH packs.

WHAT IS A "MATCHED" PACK?

Each individual cell can be rated using several criteria. The information most commonly used to rate a cell is its voltage (taken as an average as the cell is discharged from a fully charged state) and its discharge time (how many seconds it took to discharge). Battery matchers go through thousands of cells, putting each one through a rigorous cycling process in which the cells are charged and discharged (often several times). During this cycling, the matcher uses sophisticated machines to record each cell's performance. He then groups cells together based on how well they perform. His goal is to find cells that perform equally.



Peak chargers are the only reliable way to charge your packs without risk of damaging them by overheating. This one is made by LRP.

These cells are then placed into packs of six for sale as matched packs.

Why go through all this trouble? Packs of cells are only as good as the weakest cell. So it's possible to have five great cells in your pack along with one dud. Unfortunately, the dud cell is the one that will bring the others down and ruin the performance of the pack. Of course, all this labor involved in cell matching means that these packs are more expensive than non-matched packs, but the performance gains are usually worth the cost. Most manufacturers offer various grades of matched packs, and some of them are quite reasonably priced.

WHAT'S THE BEST TYPE OF CHARGER?

There are dozens of chargers available today. There are two main categories of chargers: timed and peak-detection. Timed chargers shut off only after the preset duration is reached. So if you set the timer for 20 minutes, a timed charger will keep charging for 20 minutes - regardless of whether or not the pack has taken on as much juice as it possibly can. In other words, it's very easy to accidentally place a partially charged pack on a timed charger and damage your expensive pack by overcharging it.

A peak-detection charger is by far the better choice. These chargers have tiny "brains" inside them that can monitor what's going on inside your battery. Rechargeable cells readily accept voltage when they are empty or partially charged, but when they near the limits of their capacity, their voltage level flattens out and then drops slightly. Peak chargers "read" this voltage drop-off and shut themselves off, thus ensuring a full charge and eliminating the risk of overcharging.

HOW DO I CHARGE MY PACKS?

When it comes to charging procedure, everyone seems to have a different opinion as to what rate to use (rate refers to the amperage of the charger's output). Here are the basic rules of thumb: NiCd cells can usually handle higher charge rates. When a higher rate is used, the cells' voltage is usually raised (at least initially), so your car will feel quicker. But a higher charge rate also tends to have a negative effect on the cells' capacity, so although voltage may be higher, your run times will likely be diminished.

On the other hand, NiMH cells are a bit more sensitive to higher rates and excessive heating. This is why it's usually recommended that you charge these cells at a lower amp rate. Generally, try to charge your NiCd cells at between 4 to 5 amps. NiMH cells should be charged at no more than 4 amps (the most important thing to remember about NiMH cells is that you should avoid overheating them at all cost).

You've probably heard stories about racers who charge their cells - even their NiMH cells - at rates as high as 7 or 8 amps. Yes, these stories are true, and these drivers often get improved voltage from their packs, but these are often expert or pro drivers who understand the risk involved and are willing to take the chance of cooking their batteries for the extra performance. Unless you're sponsored or independently wealthy, stick with the lower rates and your cells will last you a long time.

CAN I RUN MY BATTERY MORE THAN ONCE PER DAY?

There has been much debate over how many times a pack should be run in one day. Ideally, you would have enough packs so that each would be run once each day, but very few of us have this luxury. Our advice is that you should never recharge a pack until it has cooled to room temperature. And we discourage the use of ice or other cooling "cheats." However a small fan is okay.

Other than this rule, our only recommendation is that you avoid running one pack more than three times in a single day. And if possible, try to space the runs as widely as possible to give the cells as much recovery time as possible.

HOW DO I DISCHARGE MY BATTERIES?

You may have heard the term "cell memory" at some point. What this means is that rechargeable cells that aren't fully cycled, i.e., fully charged and then discharged completely (usually to a no less than 0.9 volts per cell) will develop a memory effect that will reduce their performance during subsequent runs. In essence, if you only discharge your pack halfway, then charge it up again, its voltage would drop significantly at around the midway of your next run. Fortunately, modern NiCd and NiMH cells are far less

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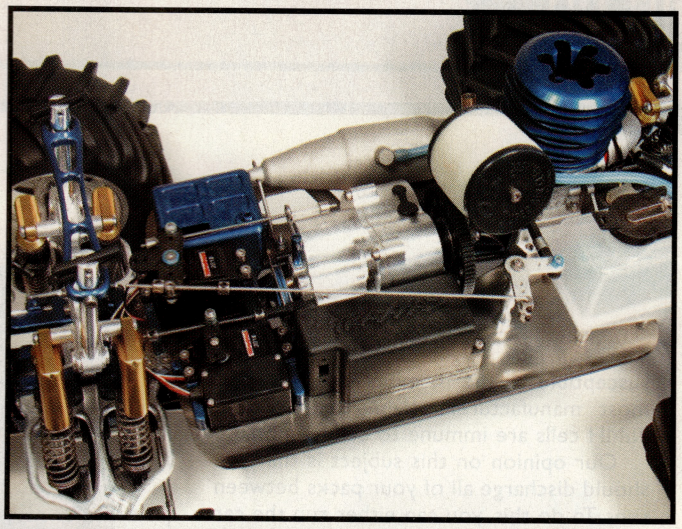

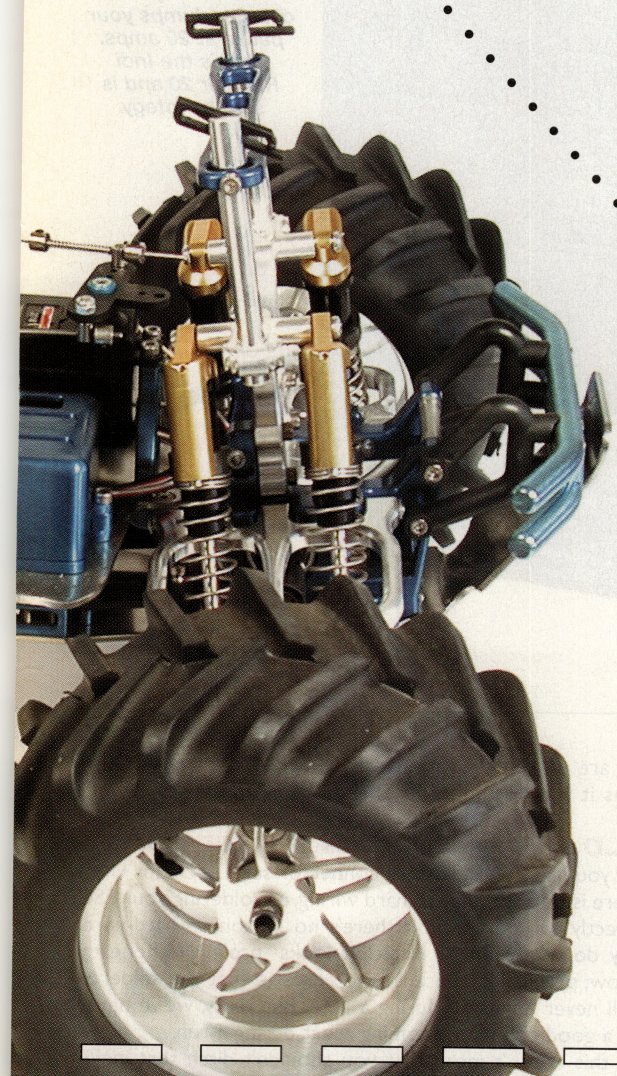

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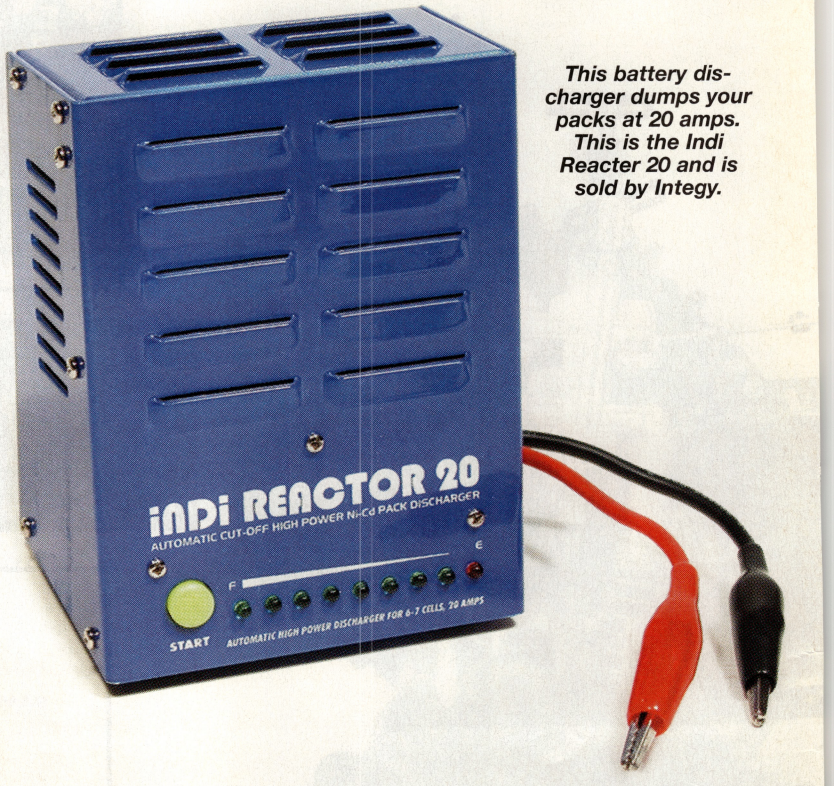
susceptible to the memory effect. In fact, most manufacturers claim that modern NiMH cells are immune to cell memory.

Our opinion on this subject is that you should discharge all of your packs between runs. To do this, you can either run the car until it slows noticeably, or you can use a special discharge device, such as one made from 12-volt automotive lightbulbs. Never, ever run your car until it slows to a crawl or worse, a complete halt. This could damage your cells by draining them too much; pull off the track when you notice a dramatic slowing.

There are many types of dischargers on the market; some discharge at rates as high as 20 amps or more, and some slowly drain your pack at just an amp or less. Ideally, it's a good idea to discharge your cells at around 10 to 20 amps, as this more closely approximates the load that is placed on the cells during a run.



This battery discharger dumps your packs at 20 amps. This is the Indi Reacter 20 and is sold by Integy.

HOW DO I STORE MY BATTERIES?

In the section on discharging, did you notice that we wrote that you should discharge your packs "between runs"? Note that we didn't recommend draining your packs after every run. Although it is common practice to "dump" NiCd packs to 0.9 volts per cell and store them in this condition, many manufacturers recommend that you store your NiMH packs with some voltage in them. Usually, a 50-percent charge is sufficient. If you plan on using your packs once a week or even more frequently, how you store them isn't all that critical. However, if your packs will be sitting for an extended period, carefully follow the manufacturer's instructions on storage.

HOW DO I BUILD A MATCHED PACK?

Virtually every matched pack comes in the form of unassembled cells that you must build yourself. The pack is assembled in "series," which means that you start with one cell's positive tab and work your way through the pack, connecting the cells until you're left with the negative tab of the sixth and final cell. In other words, the first cell's negative tab is connected to the positive tab of the second cell, whose negative tab goes to the positive tab of the third cell. You get the idea.

Building a pack requires a good soldering iron (of at least 40 watts and with a wide tip), 60/40 rosin-core solder (never use acid core), and battery bars (available at your hobby shop). Tin the cell tabs first (scuffing them with find sandpaper or a Scotchbrite pad first makes the solder adhere better), then pre-build the pack in its final configuration. And because the cells are extremely sensitive to overheating, a hot iron is a must, as it will do the job in the shortest amount of time.

SHOULD I HARD-WIRE MY BATTERIES?

No. If you use a good battery connector such as Deans Ultra Plugs, there is no advantage to hard wiring, or soldering your ESC leads directly to your pack. If there's no reason to hard-wire, then why do we all do it? Habit? It looks "pro"? We honestly don't know; perhaps it's because we perceive that the soldered wires will never come off during a race. But really, we've never heard of a good connector coming apart during a run.

Now, this doesn't mean that you shouldn't ditch that inefficient JST (Tamiya-style) connector that may have come preinstalled on your pre-built pack. And if you have bullet-style connectors on your motor wires, get rid of those while you're at it (it is okay to hard-wire those wires to your motor).

WHY IS MY CAR SO SLOW?

We saved this one for last because, well, it has the saddest answer. If your car just doesn't have the speed and acceleration it did when new, there can be only two reasons: a burned-out motor or a bad battery. Eventually, your packs will no longer be able to perform well. Some packs can be re-matched, but most well used cells simply poop-out, and you'll need to recycle them. Do not, and we repeat, do not put your old NiCds in the trash! They are very bad for the environment. Hobby shops and manufacturers have recycling programs, so check with them to learn how to dispose of your old cells.

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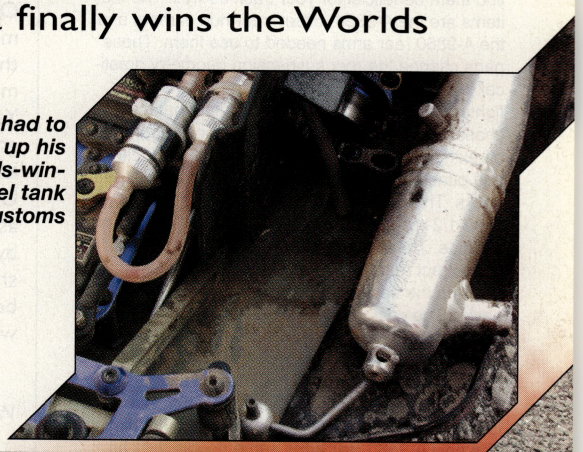
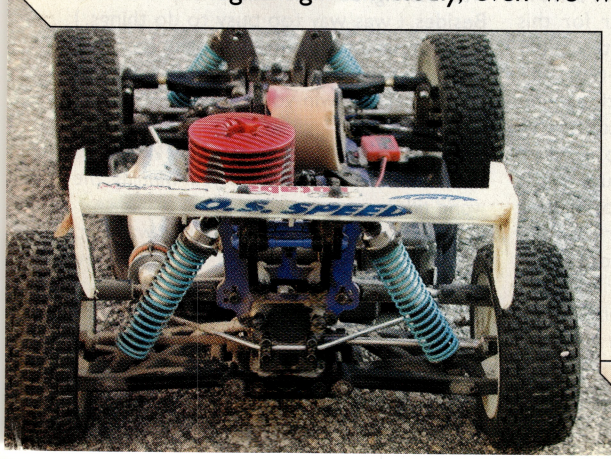
Team Kyosho's Greg Degani, America's first-ever IFMAR 1/8-scale off-road world champion!



Greg had to give up his Worlds-winning fuel tank at customs



There are certain forms of R/C racing in which American drivers are clearly dominant—namely 1/10-scale off-road—and there are a few categories where we have historically come up short—1/8-scale off-road, to be exact. During the 2000 IFMAR worlds in Las Vegas, it looked as if Mark Pavidis would finally break America's losing streak, but it was not to be; Japanese nitro buggy icon Yuichi Kanai rained on our parade. The most recent worlds, held in Uruguay, were different from the start; early reports of possible American domination reached us from the beginning. Admittedly, even we were skeptical—after all, we've heard this before. But when Sunday's dust had settled, there was no denying that Team Kyosho's Greg Degani had finally brought America this coveted title that had eluded us for so long.



As Greg is a local, we were able to meet him literally within two hours following his arrival at LAX, when we knew that, although he'd be tired, the events of his greatest R/C racing achievement would still be fresh in his mind.

TEAM LOSI TECH-TALK

Tech Tips #14

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

ADVERTISEMENT



Name: Greg Degani, aka The Toe, The Woodscrew
Hometown: Simi Valley, California
Occupation: Professional R/C driver. Greg also works at a Jewelers shop that is owned by his grandparents
Sponsors: Kyosho, Sidewinder Fuels, O.S. Engines, Pro-Line and Futaba

R/C Car: *So what was it like just after you won the title? Was it like a circus around you?*

Greg Degani: After the main? Yeah, there must have been 400 to 500 spectators there on the day of the A-main event. Or it felt like it anyway! There were way more people there watching the event than in the U.S. In the U.S. you just have mostly the racers there, no spectators. Yeah, a lot of people, kids asking for autographs; I took a lot of photos with the kids. They seemed to be into that in Uruguay. Other countries' racers were asking for autographs, people just walking by were even asking. I signed a LOT of T-shirts; camera crews filmed me; I was being interviewed by the foreign press—it was crazy.

RCC: *How long have you been racing? When did you start in the 1/8 scale class?*

GD: I've been racing buggies for five years. I went to one event here in the U.S., and for my second race I went to Portugal for the 1/8-scale world finals [in '98].

RCC: *Wait! Your second time EVER racing a 1/8 scale was at the worlds?*

GD: Yep! Got 44th. Then I went to the worlds in Vegas [in '00] and got fifth. Now two years later I won the worlds. Of course I did some major racing in between, so I am definitely improving!

R/C *Well, obviously!*
GD: [*Laughs*]

RCC: *Tell us about your Kyosho; did you do anything special? Any factory secrets we need to know about?*

GD: Basically, my 7.5 was set up the same as when I race at "The Dirt" in Hemet [a local racetrack in southern California]. Really, just my standard setup I race with. I did go heavier on my shock oil; I normally run 40 front and 25wt rear, but went to 40 front and 30wt rear for this track because with the high-bite conditions, and so it wouldn't bottom-out. Oh, I went to LSD front [Kyosho's optional limited-slip diff] and ran 7000wt center diff oil and 1000wt rear dif oil. I also went up a gear, from 13-46 to 14-46 because of the size of the track; you would not believe the size of this track! Way bigger than any track I have raced. My 7.5 looked the size of a dime on the back section.

RCC: *How about that O.S. engine? It's been a long time since O.S. won a 1/8 scale Championship.*

GD: Yeah, I think like 10 years? The V01B is an awesome engine. It was stock other than my O'Donnell head and their [O.S.'s] new glow plug, which is not out yet. It's a new plug they have been working on, and it works well. My engine was running around 210 [Fahrenheit] for most of the races. I went through four engines for this event. It's typical: most of the other top guys went through the same amount. On Monday it rained generously and I was sucking mud through my engine! It still was working, but I changed it just in case. I ran my regular engine, the one I use all the time, for the next day of racing. I switched it to my new engine because it was so old, but it was working well. Then another new one for the big day! Can't be too careful, you know.

RCC: *What was it like down there in Uruguay? You know... the nightlife, sightseeing?*

GD: It rained the first day we were all there, but after that it was nice, around 60-80 degrees, partly cloudy. It's a resort town, you know. It is off-season now, so not much was going on, but the beaches are close by and it is a very beautiful area.

RCC: *What about the food? I can see that like me, you like food. Tell us about that.*

GD: [*Laughing*] Well, since it's the off-season, not much was open. There was a McDonald's down the street from where I was staying, so that was pretty much it. Besides, I was way too busy to do things, I spent most of my time wrenching on my buggy, getting ready for my races, I went down there to win you know!

RCC: *Let's get back to the main. What was it like? What contributed to you winning the world title?*

GD: It was a huge track, and it was fast. The jumps were difficult because you couldn't see the faces of them. They were positioned so far out there you could not tell how the jumps were holding up; some of them had big divots in them and that

NEW WORLD ORDER

would mess you up if you hit them. Plus, the jumps were built wrong; they don't build their jumps well, like we do here. Other countries do not make their tracks as aggressive as we do here. In fact, this track was more to the U.S. teams' advantage, because it was way more aggressive that the Euros are used to racing on. I was driving consistently; I did not take chances like some of the guys did. If you crashed, you got stuck there for like ten seconds. I think it was Saxton. He was really driving hard to get back into the top when he hit the bumpy section and flipped. He broke anyway, but it took the turn marshal like 20 seconds to get to his car. Being consistent helped, plus I had no problems with pitting. My pit man was awesome, and things just came together for me. I want to add that the top ten people, including myself, kept our cars together. That really matters in 1/8-scale racing such as this. Being consistent and not pounding your car.

RCC: *What was the deal with the turn marshals?*

GD: It was kind of funny, but the turn marshals were kids that were paid to marshal. I think some of them didn't have shoes on, and they were afraid of the buggies. Sometimes, a racer would crash in a pack, and the turn marshal would stand there and wait for everyone to go by before he went in to flip the car. I took this into account when I was in the main, and did my best not to crash—I think it paid off.

R/C: *How about tires? I see on your 7.5 that you have the prototype Pro-Lines.*

GD: Yeah, those were the new 'Mug-Shot' tires. Pro-Line will come out with them. I think this month. They worked great! Just look at those puppies; they are hardly worn. I could have gone another hour with them. I used them in the main. Chad Bradley used them in a qualifier and they worked great! I used the [Pro-Line] Crime Fighters for the qualifiers because I know they worked great and they would last for a ten-minute race. I knew they would burn up in an hour-long race, so I tried the prototypes for the main. Most of the other racers were on bald tires for the last part of the main.

RCC: *Any advice for the newcomer?*

GD: Yes, get the Kyosho 7.5 and the O.S. engine and save yourself the headaches!

RCC: *That's it?*

GD: And practice a lot! That's what I did! I race at a lot of big events, so I go from big event to big event, and the practice and the racing is enough. So if you can attend big level events, that will help a lot. I did go down there [to Uruguay] a month before the worlds and practiced. I even did an hour practice race with a pit guy and everything! I think that helped. I think I had the most time on the track, and it paid off.

RCC: *I think we're done. Anything else you'd like to add?*

GD: Yes, I would like to say that the U.S. team was awesome! I think we really showed the world that we are a force to reckon with. In years past, the Euros kind of laughed at us, much like they did in the early days of motocross. Now we dominate. I think this will happen for 1/8 scale, too. I think we will do better and better. Look at the standings for this year: we were solid in the top third of the finishing. Plus, after qualifying, the U.S. was in the top five positions. It was Saxton, Pavidis, Billy Easton, Kris Moore and I. That's a big jump from two years ago. I think they [the Euros and the Japanese] will have to be stepping-up!

RCC: *Now that you're the World Champion, what are you going to do now?*

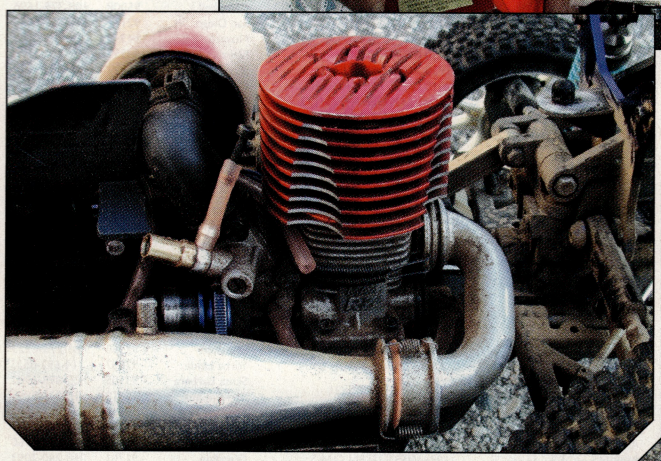
GD: [*Chuckles*] Oh man! Back to work, back to reality. I think I'll take a month or two off and relax!

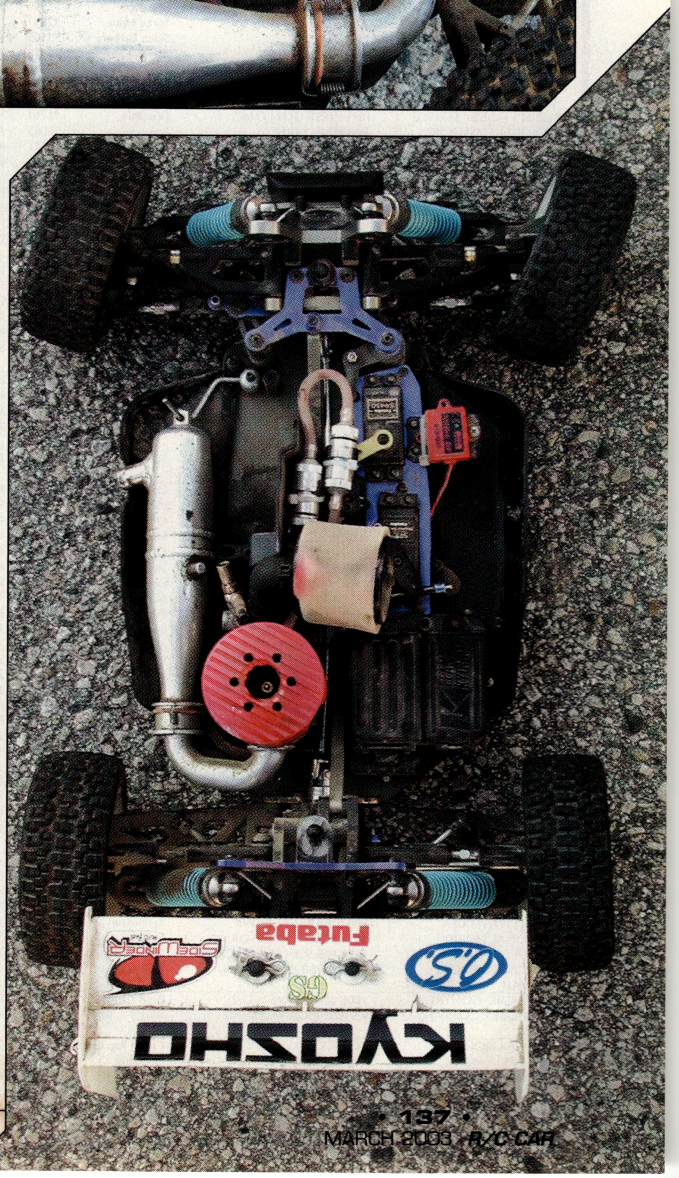
RCC: *So you're done?*

GD: Done! I want to take a moment and thank everybody. I especially want to thank my sponsors for all the support and assistance. And I want to thank all you racers out there who took the time to keep track of how the U.S. guys were doing down there via the websites. Without all of you, I would not be World Champion!

So there you have it! Our new poster boy for the R/C industry. Greg is a great guy and we think he will carry the crown well. Congratulations to Greg and the USA team. You made us proud!


Greg and his proud grandparents.





R/C CAR "PREFERRED" HOBBY SHOP

THE RADIO CONTROL CAR MAGAZINE

ALABAMA				
BRYANS HOBBY SHOP	2837 ROSS CLARK CIR	Dothan	36302	334-793-2439
HOBBYTOWN USA RACEWAY	450 SCHILLINGER RD S.	Mobile	36608	334-633-8446
OAK MOUNTAIN HOBBIES	2238 PELHAM PARKWAY	Pelham	35124	205-989-4882
RC HI TECH RACEWAY	3303 MERIDIAN ST	Huntsville	35811	256-539-1347
ARKANSAS				
HOBBYTOWN USA	400 N. BOWMAN/STE B-5	Little Rock	72211	501-223-5155
HOBBYTOWN USA	9220 HWY 71 SOUTH	Fort Smith	72916	501-649-9220
K & S HOBBY SHOP	809 N. 62-65 HWY	Harrison	72601	870-365-0597
ARIZONA				
COMPETITION HOBBIES	3930 W. COSTCO DR.	Tucson	85741	520-297-8162
HOBBY DEPOT	216 WEST SOUTHERN AVE	Tempe	85282	602-968-1880
HOBBYTOWN USA	915 E. BASELINE RD	Gilbert	85233	480-892-0405
HOBBYTOWN USA	5030 E. RAY RD #11	Phoenix	85044	480-598-5282
HOBBYTOWN USA	102 E. 22ND ST	Tucson	85713	520-882-8888
HOBBYTOWN USA	4500 N. ORACLE RD, #202	Tucson	85705	520-888-9777
SCOTTSDALE R/C RACEWAY	3023 N. SCOTTSDALE RD	Scottsdale	85051	480-945-2186
CALIFORNIA				
ARC RACING	41083 SANDLEWOOD CIR/ D	Murrieta	92562	909-304-0580
B.C.T. HOBBY & CRAFT	620 B SAN BENITO ST	Hollister	95023	831-636-7550
BEE GEE HOBBIES	234 GOLF CLUB RD	Pleasant Hill	94523	925-798-5133
CASTLE HOBBIES	14918 CAMDEN AVE	San Jose	95124	408-377-3771
COVINA HOBBY SHOP	140 N. CITRUS	Covina	91724	626-331-1910
CYCLE ART RACING	2211 N. PLEASANT WAY	Fresno	93705	559-233-3665
D & J HOBBIES	96 SAN THOMAS AQUINO RD	Campbell	95008	408-379-1696
DISCOUNT HOBBY WHSE	4444 CONVOY ST	San Diego	92111	619-560-9633
DOLLHOUSE TRAINS & MORE	300 ENTRADA DR	Novato	94949	414-883-0388
EXTREME MOTOSPORTS	1230 JUAREZ ST	Napa	94559	707-251-9876
FRANCISCIAN HOBBIES	1920-A OCEAN AVE	San Francisco	94127	415-584-3919
GIZMO'S HOBBY	2010 WEST BURBANK BL	Burbank	91506	818-842-8200
HOBBIES TOYS & MORE	17600 COLLIER AVE/ H172	Lake Elsinore	92530	909-245-1147
HOBBY CENTRAL	13461 COMMUNITY RD	Poway	92064	858-513-0373
HOBBY SHACK	18480 BANDILIER CIR	Fountain Valley	92728	714-964-0827
HOBBY WORLD	6148 BOLLINGER RD	San Jose	95129	408-873-2109
HOBBYTOWN	727 CENTER DR #106	San Marcos	92069	760-739-0672
HOBBYTOWN USA	2500 E.IMPERIAL HWY #130	Brea	92821	714-990-9652
HOBBYTOWN USA	4420-A TREAT BLVD	Concord	94521	925-685-3802
HOBBYTOWN USA	3069 WEST BULLARD AVE	Fresno	93711	559-435-3342
HOT ROD HOBBIES	25845 SAN FERNANDO RD	Santa Clarita	91350	805-255-2404
JAKES PERFORMANCE HOBBY	6650 COMMERCE BLVD #21	Cotati	94928	707-586-3375
JAX HOBBIES	17421 BROOKHURST/107	Fountain Valley	92708	714-378-8924
KIT & CABOODLE	550 EL CERRITO PLAZA	El Cerrito	94530	510-524-9942
KRAZY KEVIN'S	1223 3RD ST #D	Chula Vista	91911	619-422-2724
LPRP	24771 NORTHERN DANCER	Moreno Valley	92551	909-488-9021
MARTY'S HOBBIES	1728 N. MOORPARK RD	Thousand Oaks	91360	805-497-3664
MODESTO HOBBIES	1300 SYLVAN AVE #C7	Modesto	95355	209-529-7310
PALMDALE HOBBIES	2127 E. PALMDALE BLVD	Palmdale	93550	661-273-6229
PEAK PERFORMANCE	22601 LaPALMA AVE. #104.	Yorba Linda	92887	714-692-8533
PIT STOP R/C HOBBIES	3554 STATE ST.	Santa Barbara	93105	805-898-3902
R/C COUNTRY HOBBIES	6011 FOLSOM BLVD	Sacramento	95819	916-731-5868
R/C TECH	1618 SULLIVAN STSTE 105	Daly City	94015	650-992-7600
RACERS HAVEN	7401 WHITE LANE #12	Bakersfield	93309	805-835-0441
RIPON RC SPEEDWAY	701 N. ACACIA	Ripon	95366	209-599-5160
ROBIN'S HOBBY SERVICE	1844 WEST GLEN OAKS	Glendale	91201	818-240-2093
SAVAGE MOTORSPORTS	948 MAIN STREET	Ramona	92065	760-788-7733
SHELDON'S HOBBIES	2135 OLD OAKLAND RD	San Jose	95131	408-943-0872
SHOWTIME R/C SPEEDWAY	3805 CHESTER AVE.	Bakersfield	93301	661-328-1481
SMITH BROTHERS HOBBY	8941 RESEDA BLVD	Northridge	91324	818-885-8636
SO CAL R/C RACEWAY	19118 BROOKHURST ST	Huntington Beach	92646	714-963-7484
SPEED WORLD RWY & HOBBY	1704 CHILTON DR	Roseville	95747	916-783-8864
THE HOBBY PLACE	10600 W. PICO BLVD	Los Angeles	90064	310-836-2000
VISALIA HOBBIES	2137 W.WHITENDALE AVE	Visalia	93277	559-734-8072
COLORADO				
COLPAR HOBBIES	804 S. HAVANA ST	Aurora	80012	303-341-0414
CUSTOM HOBBIES	2813 E. PLATTE AVE	Colorado Springs	80909	719-634-7400
HOBBYTOWN USA	4348 S. COLLEGE	Fort Collins	80525	970-226-3900
HOBBYTOWN USA	6815 WEST 88TH AVE	Westminster	80021	303-431-0482
HOBBYTOWN USA	800 SOUTH HOVER RD	Longmont	80501	970-226-3900
MHOR R/C RACEWAY	15540 E. BATAVIA DR.	Aurora	80011	303-343-0151
CONNECTICUT				
DANBURY HOBBY CENTER	366 MAIN ST	Danbury	06810	203-743-9052
NEW ENGLAND HOBBY SPY	71 HILLIARD ST	Manchester	06040	860-646-0610
PIT STOP HOBBIES	43 GRASSEY PLAIN ST	Bethel	06801	203-778-9249
RC MADNESS TRACK & HOBBY	640 ENFIELD	Enfield	06082	860-741-6501
DELAWARE				
HOBBY STOP SPEEDWAY	RD 4 BOX 100 RT 13	Seaford	19973	302-629-3944
FLORIDA				
ACE HOBBIES	2127 S. RIDGEWOOD AVE	Daytona Beach	32119	904-761-9780
ATOMIC HOBBIES	13205 S.W. 137 AVESTE 103	Miami	33186	305-235-3232
BOB'S HOBBY CENTER	7333 LAKE UNDERHILL RD	Orlando	32822	407-277-1248
CENTRAL FLORIDA HOBBIES	5600 W. COLONIAL DR #310	Orlando	32808	407-295-9256
COLONIAL PHOTO & HOBBY	634 N. MILLS AVE	Orlando	32803	407-841-1485
CROWN HOBBIES	7439 S.W. 24TH ST	South Miami	33155	305-264-3964
G & C HOBBIES	1228 HYPOLUXO RD	Lantana	33462	561-547-3812
HOBBIE WAREHOUSE INC.	1237 AIRPORT RD S.	Naples	34104	941-262-2701
HOBBY CENTRAL	UNIVERSITY MALL	Pensacola	32504	850-471-9800
HOBBY NUT INC.	12679 DIXIE HWY	South Miami	33156	305-235-9584
HOBBYTOWN USA	12608 S.W. 88TH ST	Miami	33186	305-273-7803
JACKS HOBBIES	131 N.E. 17TH PLACE	Ocala	34470	352-351-2224
MONSTER HOBBIES	616 S.E. 10TH ST	Deerfield Beach	33441	561-392-5447
MORRIS KOHL'S RACEWAY & HOBBY	1202 W.WATERS	Tampa	33604	813-931-1626
PHIL'S HOBBY SHOP	6050 PARK BLVD	Pinellas Park	33781	727-545-1251
R.C. HOBBIES	6800 N. UNIVERSITY DR	Tamarac	33321	954-721-5720
ROB'S HOBBY WORLD	8602 S.W. ST RD 200	Ocala	34481	352-854-2799
SCOTT'S HOBBIES	26690 61ST RD	Branford	32008	904-935-0758
SPACE COAST HOBBIES	2135 PALM BAY RD NE	Palm Bay	32905	321-722-3696
SUPERIOR HOBBIES	1478 E. SEMORAN BLVD	Casselberry	32707	407-834-9299
TAVERNIER BIKE & HOBBIES	91910 OVERSEAS HWY	Tavernier	33070	305-852-2859
TEAM AUTO HAUS	424 BLANDING BLVD.	Orange Park	32073	904-276-5432
WARWICK CUSTOM HOBBIES	7676 PETERS RD	Plantation	33324	954-370-0708
GEORGIA				
ALLISON PERFORMANCE HOB.	12 GREENVILLE ST	Newnan	30263	770-254-9557
BIG DADDY HOBBIES	420 HOSEA RD.	Lawrenceville	30045	770-963-0254
HOBBY MART	6889 PEACHTREE INDUST. /STE H	Peachtree Corners	30092	770-840-8495
HOBBYTOWN USA	6770 VETERANS PKWY/STE 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
R/C TOYS FOR BOYS	2220 COBB PARKWAY N.	Kennesaw	30152	678-797-0406
HAWAII				
ACE RADIO CONTROL	1005 LEHUA AVE	Pearl City	96782	808-456-1279
THE HOBBY COMPANY	98-1005 MOANALUA RD	Aiea	96701	808-487-2473
IOWA				
BOX KAR HOBBIES	3649 FIRST AVE S.E.	Cedar Rapids	52402	319-362-1291
FAGAN'S	2327 CENTRAL AVE	Dubuque	52001	319-588-0846
HOBBY CHEST	209 E. MAIN	Ottumwa	52501	641-683-4436
HOBBY HAVEN	7672 HICKMAN RD	Urbandale	50322	515-276-8785
HOBBY SHOP	1700 S. FIRST AVESTE 17	Iowa City	52240	319-338-1788
HOBBYTOWN USA	2406 E. 53RD ST	Davenport	52807	319-355-2071
HOBBYTOWN USA	2737 16TH AVE S.W.	Cedar Rapids	52404	319-364-3289
HOBBYTOWN USA	620 LINCOLN WAY #6	Ames	50010	515-232-9060
WILD BILLS R/C HOBBIES	901 W. JONES	Knoxville	50138	515-842-5973
IDAHO				
BOISE HOBBIES	4516 OVERLAND RD	Boise	83705	208-363-9555
DAPCO HOBBIES	2211 GARRETT WAY	Pocatello	83201	208-233-8163
HOBBYTOWN USA	1870 W. PULLMAN RD	Moscow	83843	208-882-9369
HOBBYTOWN USA	3317 N. COLE RD	Boise	83704	208-376-1942
MONSTER HOBBIES	9551 N. HWY 95 SUITE E	Hayden	83835	208-772-0422
THE TOY SHOP	837 POLELINE RD	Twin Falls	83301	208-734-2725
ILLINOIS				
ALLEN'S R/C CARS	3115 LEACH RD.	Rochester	62563	217-498-7345
AL'S HOBBY SHOP INC.	121 ADDISON, BOX 449	Elmhurst	60126	630-832-4908
CORNER HOBBY	308 NORTH VIRGINIA AVE	Swansea	62220	618-277-6030
DEPOT HOBBY SHOP	180 SOUTH SEMINARY ST	Galesburg	61401	309-342-9323
HIS N HERS HOBBIES	1206 TOWANDA PLAZA #2	Bloomington	61707	309-827-0204
HOBBY LAND	616 N. MAIN	Bloomington	61701	309-828-1442
HOBBYTOWN USA	1000 LAKE ST	Oak Park	60301	708-445-8056
HOBBYTOWN USA	1772 S. RANDALL 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
HOBBYTOWN USA,Oak Mill Mall	7900 N. MILWAUKEE AVE	Niles	60714	847-470-9577
LA GRANGE HOBBIES	25 S. LA GRANGE RD	Mc Cook	60525	708-354-1220
LEISURE HOURS HOBBIES	2712 N. PLAINFIELD RD	Joliet	60436	815-439-1477
PAT'S HOBBIES & CRAFTS INC.	5730 W. 95TH ST	Oak Lawn	60453	708-424-6131
RADIO ACTIVE RACEWAY	751 N. BOLINGBROOK DR #15	Bolingbrook	60440	630-759-7557
STANTON HOBBY SHOP	4718 N. MILWAUKEE AVE	Chicago	60630	773-283-6446
THE GREAT ESCAPE	4507 RAY ST.	Crystal Lake	60012	815-459-8111
VENTURE HOBBIES	23 HUNTINGTON LANE	Wheeling	60090	847-537-8669
INDIANA				
B & R HOBBIES	9014 CRAWFORDSVILLE RD	Indianapolis	46234	317-297-4257
BREMEN HOBBIES	308 N. BOWEN AVE	Bremen	46506	219-546-3807
CUSTOM MADE HOBBIES	1600 MORNINGSTAR LN.	Decatur	46733	260-724-3040
DUNELAND HOBBIES	2556 PORTAGE MALL	Portage	46368	219-763-1610
G & G HOBBIES	105 E. MAIN ST	Griffith	46319	219-924-6686
GRANGER HOBBY STOP	12131 STATE RD 23 UNIT L	Granger	46530	219-243-2390
HAPPY HOBBIES	1398 EASTERN BLVD	Jeffersonville	47129	812-282-0060
HOBBY TOWN USA	139 N. BURKHARDT RD	Evansville	47715	812-477-7200
HOBBYLAND INC.	2564 MIRACLE LANE	Mishawaka	46545	219-255-1722
HOBBYTOWN USA	6336 E. 82ND ST	Indianapolis	46250	317-845-4106
HOBBYTOWN USA	1858 E. 80TH PLAZA	Merrillville	46410	219-736-0255
JOE'S HOBBY BARN	1950 E. SPRINGHILL DR	Terre Haute	47802	812-299-5773
P & T HOBBIES AND RWY	2412 N. POORFARM RD	Bedford	47421	812-849-6666
PHILS HOBBY SHOP	3112 N. CLINTON	Ft. Wayne	46805	219-471-1340
PHILS HOBBY SHOP	1722 LAKE AVE.	Ft. Wayne	46805	260-426-5056
R & D HOBBIES	4217 FRANKLIN ST	Michigan City	46360	219-879-7563
RIDER'S FORT WAYNE	4724 COLDWATER RD.	Ft. Wayne	46825	260-496-8811
KANSAS				
HOBBY HAVEN	10560 METCALF	Overland Park	66212	816-942-2205
HOBBYTOWN USA	2108 W. 27TH ST	Lawrence	66047	785-865-0883
HOBBYTOWN USA	8229 EAST KELLOGG	Wichita	67207	316-683-7222
HOBBYTOWN USA	9270 METCALF	Shawnee Mission	66212	913-649-7979
MIKES R/C	121 S.E. 29TH ST	Topeka	66605	785-266-5767
R/C SUPERDOME & T.Q. SHOP	14 E.AVE A	Hutchinson	67501	316-665-6633
KENTUCKY				
BLUEGRASS HOBBIES	274 LAMPTON LN.	Columbia	42728	270-384-9131
HOBBYTOWN USA	12615 SHELBYVILLE RD	Middletown	40243	502-245-5755
PIT STOP HOBBIES	1927 IRVIN COBB DR	Paducah	42003	502-527-8216
SCALE REPRODUCTION	3073 BRECKINRIDGE LANE	Louisville	40220	502-459-5849
STRICK 9 & HOBBIES	615 S. 12th STREET #H	Murray	42071	270-753-5444
LOUISIANA				
HARES ART-N-HOBBY	4529 LEE ST	Alexandria	71302	318-443-2755
MASSACHUSETTS				
BARN SPEED HOBBIES	109 CENTER ST	Lee	01238	413-243-2651
BIG BOYS TOYS	33 FATHER DE VALLES BLVD	Fall River	02723	508-677-9400
DAVE'S HOBBIES	281 CABOT ST	Beverly	01915	978-921-1559
HENRY'S HOBBY HOUSE INC.	67 W. BOYLSTON ST	West Boylston	01583	508-835-6165
HOBBY WORLD	171 GROVE ST	Adams	01220	413-743-7223
HOG HEAVEN HOBBIES	3 ARNOLD RD"P.O. BOX 416	Fiskdale	01518	508-347-9350
MARYLAND				
DOUG'S HOBBY	24404 THREE NOTCH RD.	Hollywood	20636	301-373-6674
GPA HOBBIES	2431 CROFTON LANE STE 6	Crofton	21114	301-858-0004
HOBBY CITY	15751 COLUMBIA PIKE	Burtonsville	20866	301-421-5977
HOBBYTOWN USA	1305 W. 7TH AVE #28	Frederick	21702	301-694-7395
HOBBYTOWN USA	CHESAPEAKE SQR SHP CTR	Glen Burnie	21061	410-590-4950
HUNT VALLEY HOBBIES	10824 YORK RD	Hunt Valley	21030	410-666-1098
STONELEIGH HOBBY INC.	6717 YORK RD	Baltimore	21212	410-377-4447
S&J HOBBIES	10476 CAMPUS WAYS	Largo	20774	301-324-6680
THE TRACK	16806 OAKMONT AVE	Gaithersburg	20877	301-417-9630
MAINE				
R/C SPEEDWAY & HOBBIES	87 MAIN ST	Fairfield	04937	207-453-4588
VICTORY LANE HOBBIES	306 ROUTE 236	Eliot	03903	207-439-3278
MICHIGAN				
ACTION HOBBIES	211 EAST MAIN	Niles	49120	616-687-8550
ANYTHING GOES	5108 ROCHESTER RD	Troy	48085	248-740-2277
CAPITOL CITIES HOBBIES INC.	15357 HALL RD	Macomb	48044	810-532-0050
DIRT BURNER RACING	3295 HAGGERTY RD	Commerce	48390	248-926-1140
EAST BAY HOBBIES	364 W. HOUGHTON LAKE DR.	Prudenville	48651	989-366-5306
HOBBIES & TOYS	106 WEST MAIN ST	Gaylord	49735	989-732-3963
HOBBYTOWN USA	2252 S. MAIN ST	Ann Arbor	48103	734-996-2444
HOBBYTOWN USA	12821 S. SAGINAW	Grand Blanc	48439	810-695-9088
HOUSE OF HOBBIES	2763 N. 120TH AVE	Holland	49424	616-355-2064
HYPER R/C	12005 N. SAGINAW ST.	Mt. Morris	48458	810-686-3991
JOE'S HOBBY CENTER	35151 GRAND RIVER RD	Farmington	48335	248-477-6266
KECK HARDWARE & HOBBY	2132 WEST RD	Trenton	48183	734-676-2282
LARRY'S PERFORMANCE R/C'S	43665 UTICA RD	Sterling Heights	48314	810-997-4840
NANKIN HDWRE & HOBBY	35101 FORD RD	Westland	48185	734-722-5700
P & D HOBBY SHOP	31280 GROESBECK HWY	Fraser	48026	810-296-6116
PASTIME HOBBIES	2700 PINE GROVE RD #16	Port Huron	48060	810-982-2874
PROP SHOP HOBBIES, INC.	23326 VAN DYKE	Warren	48089	810-757-7160
R & L HOBBIES & RACING	9782 PORTAGE RD	Portage	49002	616-323-3686
R/C NITRO ZONE	213 WEST MAIN STSTE #9	Brighton	48116	810-225-9586
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Nor-Cal Speedway, 519 Bush St., Woodland, CA 95695 (530) 668-5678

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

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

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

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

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

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

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

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

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

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

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

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

COLORADO

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

CONNECTICUT

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

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

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

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

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

DELAWARE

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

FLORIDA

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GEORGIA

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

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

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

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

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

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

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

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

HAWAII

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

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

IDAHO

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

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







ILLINOIS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

INDIANA

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

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

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

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

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

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

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

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

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

IOWA

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

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

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

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

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

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

KANSAS

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

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

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

KENTUCKY

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

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

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

LOUISIANA

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

MAINE

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

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

MARYLAND

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

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

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

MASSACHUSETTS

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

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

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

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

MICHIGAN

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

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

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

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

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

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

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

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

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

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

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

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

MINNESOTA

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

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

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

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

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

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

MISSISSIPPI

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

Small Cars Unlimited, 820 Cooper Rd., Jackson, MS 398212, (601) 372-FAST

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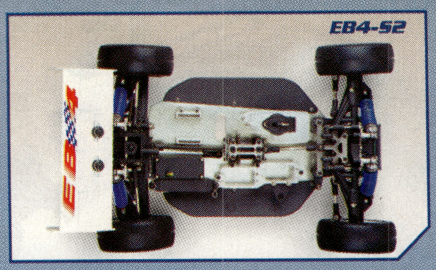



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MISSOURI

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

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

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

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

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

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

NEBRASKA

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

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

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

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

NEVADA

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

NEW MEXICO

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

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

NEW YORK

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

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

NEW JERSEY

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

Alpine Lounge, Blackhorse Pike Turnersville, NJ

NEW HAMPSHIRE

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

NORTH CAROLINA

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

OKLAHOMA

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

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

OHIO

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

OREGON

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

PENNSLYVANIA

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

RHODE ISLAND

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

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

SOUTH CAROLINA

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

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

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

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

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

SOUTH DAKOTA

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

TENNESSEE

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

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

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

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

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

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

TEXAS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

VIRGINIA

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

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

Linville Hobbies Raceway, www.linvillehobbies.com

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

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

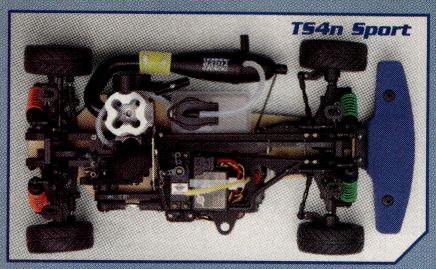
Shamroc Raceway, 106 Cheviot Pl., Stephens City, VA 22655; Scott Janow, (540) 869-3551

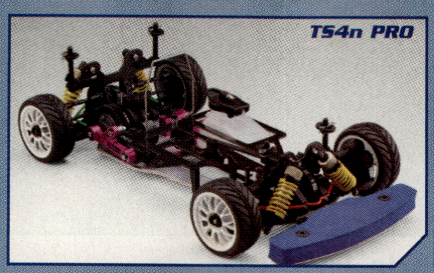
Star/Car Raceway, Debbie's R/C World, 200 Commerce Parkway, Virginia Beach, VA 23454, (757) 340-6681

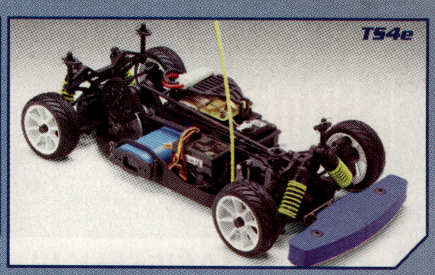
The Toteyard, 6494 Toteyard Dr., Dayton, VA 22821 (540) 828-3476 *toteyard.com.home*

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









WASHINGTON

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

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

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

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

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

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

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

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

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

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

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

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

WEST VIRGINIA

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

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

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

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

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

WISCONSIN

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

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

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

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

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

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

WYOMING

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

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

CANADA

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

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

Circuit Teleguide Off Rd. Granby, 450 De LaGrande Ligne St. Paul D' Abbotsford Quebec, Canada (450) 776-3730

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

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

R/C Speedway Niagra, 253 East West Line, Niagra on the Lake, Ont, Canada Los 1J0

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BY RICHARD TRUJILLO

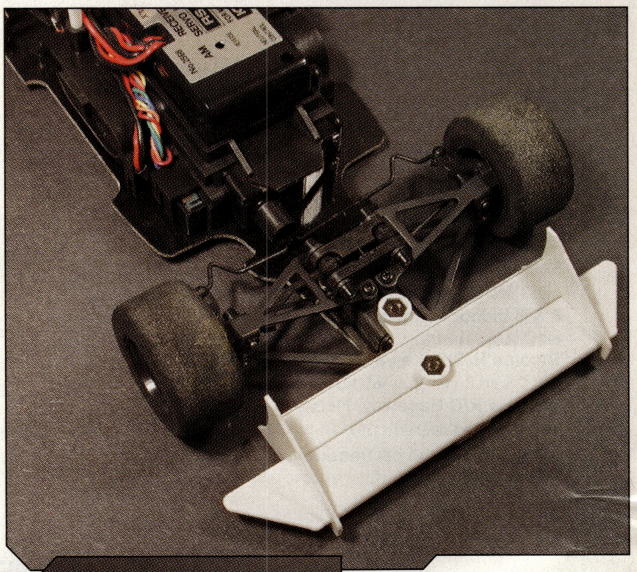
Kyosho Williams Honda FW-11B 1/18 scale Formula One

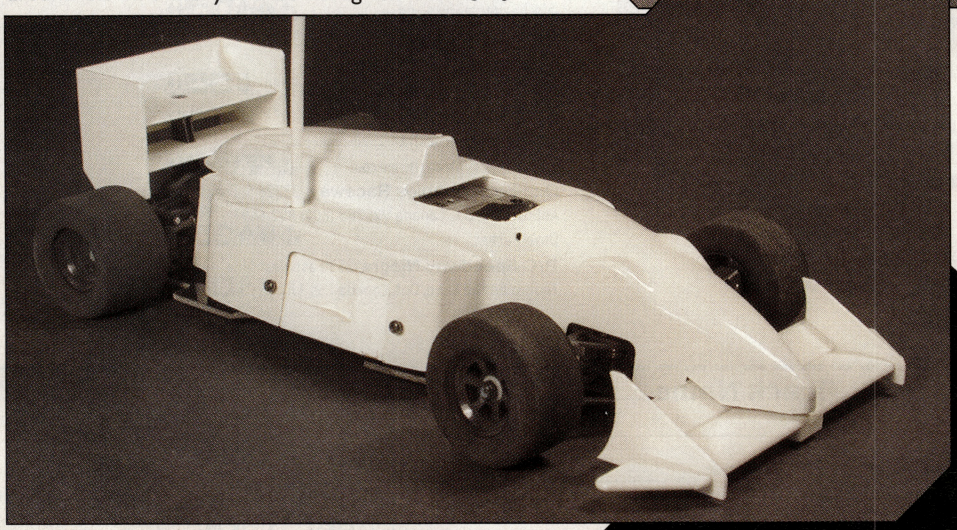
As many of you know by now, my daytime job is being the team manager for Team Losi. I have been working for them for almost nine years, and I've had the opportunity to meet many racers who have been around since the beginning of R/C. One such person is Ron Rossetti. Since this is a vintage column, I was going to write about Ron himself (just kidding, Ron) but instead, I'll write about his cool Kyosho 1/18-scale Williams Honda FW-11B. Ron found this kit in his garage and brought it in so I could check it out. Kyosho released this kit back in '88, and Ron tells me that several of the racers at the Ranch Pit Shop Raceway bought these with the intent of racing them for fun. They didn't really get around to it, but Ron hung on to his kit.

Kyosho claimed on the box that the car "...is an exact scale reproduction. Even the arms and geometry of the four-wheel independent suspension are true scale! (Use of scale details licensed by designer.)" To add to the realistic look, the car featured pressed metal suspension arms in front and rear. Some additional features were:

- Sponge tires front and rear for good traction on carpet or asphalt
- Scale front air dam and rear wing for realistic appearance
- High performance LeMans DM20 Motor
- Final Drive ratio selectable. Choice of four ratios
- Glass-reinforced polyester chassis
- Differential

Unfortunately, the kit did not take off like the current HPI Micros. In fact, I've had a tough time finding information about this kit. After several types of searches on eBay, I could not come up with a value on what appears to be a pretty rare kit. Although Ron likes this kit, he has decided to sell it on eBay and let the collectors decide what it is worth. It will be listed around the time that you are reading this issue.

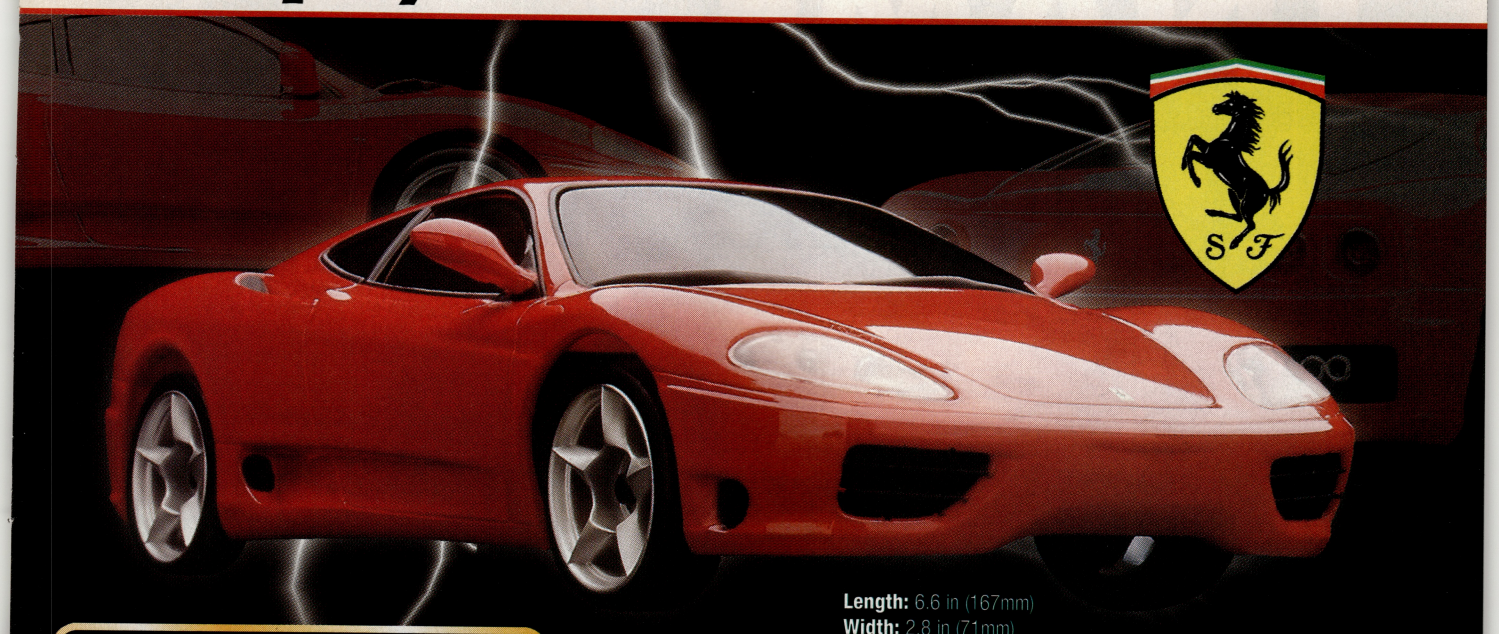




TREASURE HUNTING

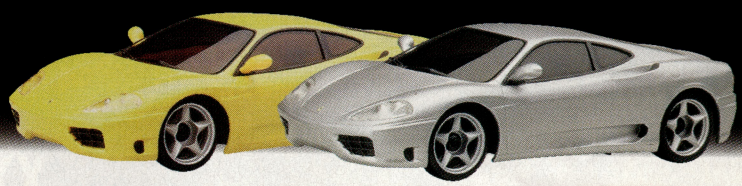
Most of my vintage cars and parts have been accumulated via the internet. Ebay and *Tamiyaclub.com* have been a great source for these kits and parts, but I also occasionally check out the local swap meets and flea markets. Recently, I went to the local swap meet to just look around. I happened to come across a guy who was selling all kinds of junk. In one box, I noticed two Futaba Magnum Jr. transmitters sticking out. Both were broken, but I realized that in the same box there were parts to a Sand Scorcher! I started digging through it and found a complete transmission, partial front suspension, and the best part, a new clear radio box for the chassis. Although it was scuffed up a bit from storage, it had never been used and was in almost perfect condition. I picked up all the parts for $12. I went straight home, cleaned up the parts, took some pictures and listed them on eBay. Seven days later, I sold everything for $194! A very nice profit! I believe the saying goes, "One man's junk is another man's treasure."

A spicy little Italian number.



RC MINIMIZED RACING CAR **MINI-Z** *Racer* ™

Length: 6.6 in (167mm)
Width: 2.8 in (71mm)
Wheelbase: 3.5 in (90mm)
Required: 4 "AAA" batteries for the car, 8 "AA" batteries for the radio



Ferrari 360 Modena

Even standing still, the Ferrari 360 Modena looks fast. And now you can put yourself at the controls of a Mini-Z replica of this Italian classic, and experience the thrill of driving one...anywhere you want!

Mini-Z Racers are the small, sophisticated R/C machines that can go wherever you go. Indoors or out, on a floor or table, even in a space no larger than 3′ by 6′. You enjoy all the action of a 1:10 or larger on-roader — and they're as easy as they are exciting.

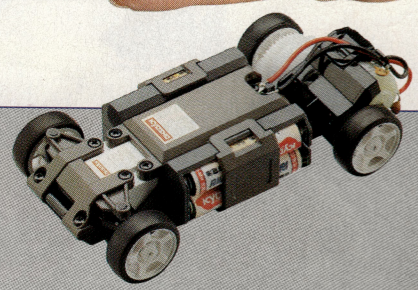
Each model comes fully assembled, with everything you need (except batteries) to start running. There's nothing to glue or paint. An FA-130 motor is already in place. And the electronics and radio gear — including 2-channel transmitter, high-frequency speed control and special miniature servo — are pre-installed.

And when you start racing, you'll be impressed by the performance of your palm-sized powerhouse. Two-wheel drive, forward and reverse gears, fully proportional steering, realistic suspension action — all topped off with a true-to-scale Ferrari body — make this Mini-Z Racer a R/Cer's delight. But don't take our word for it: test drive the Mini-Z Ferrari 360 Modena at your local hobby shop. You can also get the full story on Mini-Z Racers and a list of dealers on the web at **www.kyosho.com**, or obtain a brochure by calling 1-800-682-8948 and mentioning code number 2947H.



The Kyosho Perfex™ Digital Proportional 2-Channel Radio is the perfect system for Mini-Z Racers, and includes a micro steering servo and high-frequency electronic speed control.





- ***Coil-over spring shock on front upper A-arm for realistic suspension action***
- ***High-grip rubber slick tires on stylish wheels***
- ***Rear T-bar that adjusts the wheelbase, and provides maximum traction, even on uneven surfaces***
- ***FA-130 electric motor that delivers strong power output, with adjustable mounting positions to increase traction or add stability***

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1 NAME 4 WINNERS



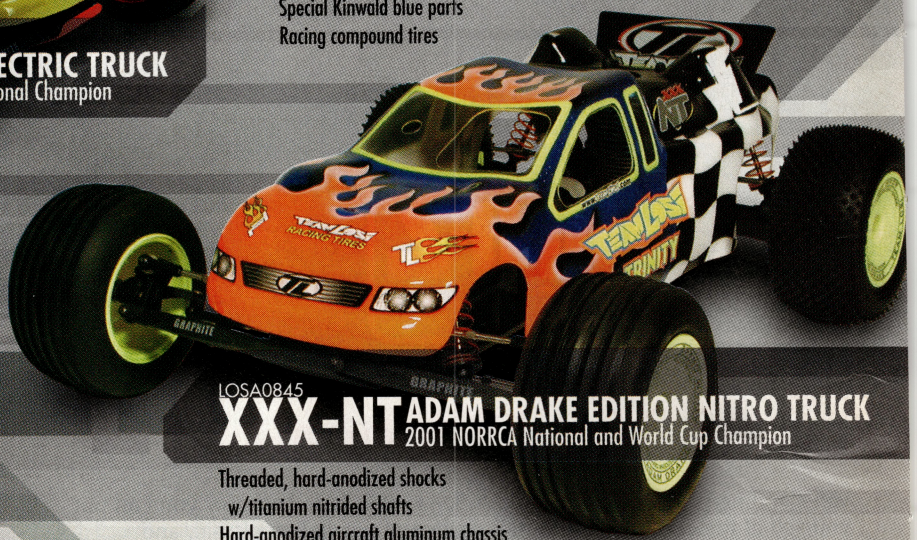
LOSA0029
XXX KINWALD EDITION BUGGY
2002 ROAR Off-Road 2WD Modified National Champ

Graphite/composite chassis and suspension components
Threaded, hard-anodized shocks w/titanium nitrided shafts
Machined titanium turnbuckles
MIP CVD drive shafts
Ball bearings throughout
Special Kinwald blue parts
Racing compound tires



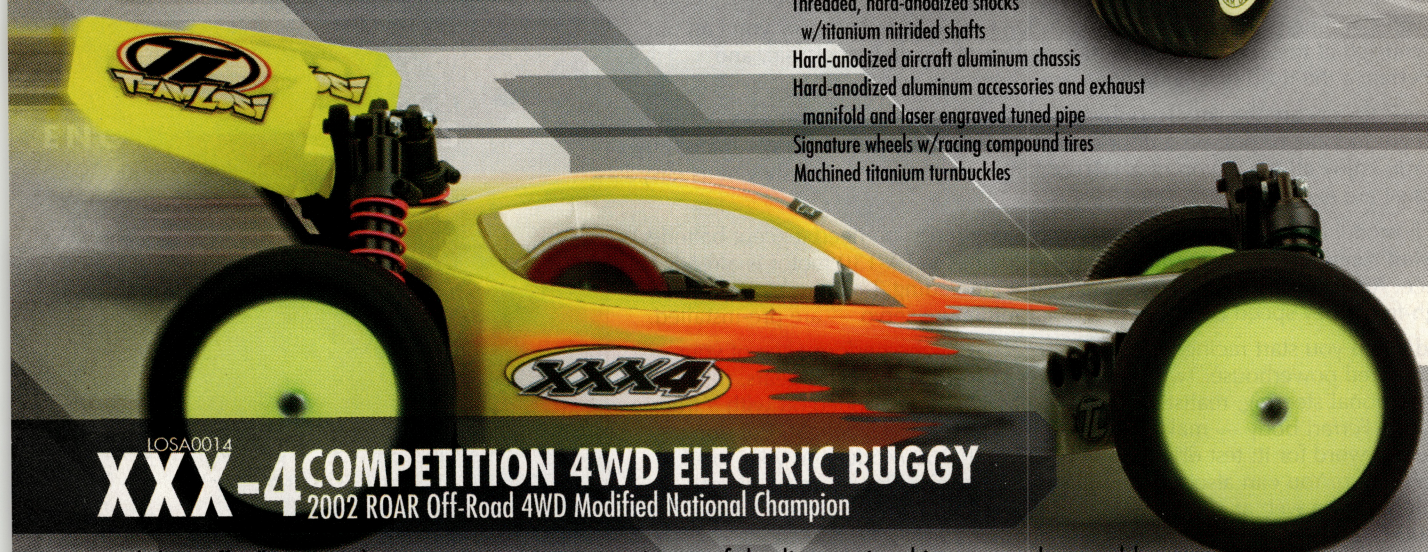
LOSA0075
XXX-T MATT FRANCIS EDITION ELECTRIC TRUCK
2002 ROAR Off-Road Modified Truck National Champion

Graphite/composite chassis and suspension components
Threaded, hard-anodized shocks w/titanium nitrided shafts
Hard-anodized top shaft
MIP CVD drive shafts
Machined titanium turnbuckles
Special Matt Francis red parts
Ball bearings throughout
Racing compound tires



LOSA0845
XXX-NT ADAM DRAKE EDITION NITRO TRUCK
2001 NORRCA National and World Cup Champion

Threaded, hard-anodized shocks w/titanium nitrided shafts
Hard-anodized aircraft aluminum chassis
Hard-anodized aluminum accessories and exhaust manifold and laser engraved tuned pipe
Signature wheels w/racing compound tires
Machined titanium turnbuckles



LOSA0014
XXX-4 COMPETITION 4WD ELECTRIC BUGGY
2002 ROAR Off-Road 4WD Modified National Champion

Interlocking Stiffezell composite chassis
Low maintenance, sealed, single-belt drive train
Easy access differentials
4WD performance w/2WD simplicity
Heavy duty adjustable slipper clutch
Adjustable, hard-anodized shocks
MIP CVDs front and rear
Ball bearings throughout
Racing compound tires

Team Losi's top-of-the-line racing kits are so thoroughly equipped, you don't need hop-up parts. Every kit is the result of hundreds of testing and development hours by Team Losi's top drivers as they raced and won in competitions around the globe. Each component has been chosen or developed to meet or exceed the most demanding requirements.

Look for these wherever Team Losi performance is sold.

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RACING TIRES











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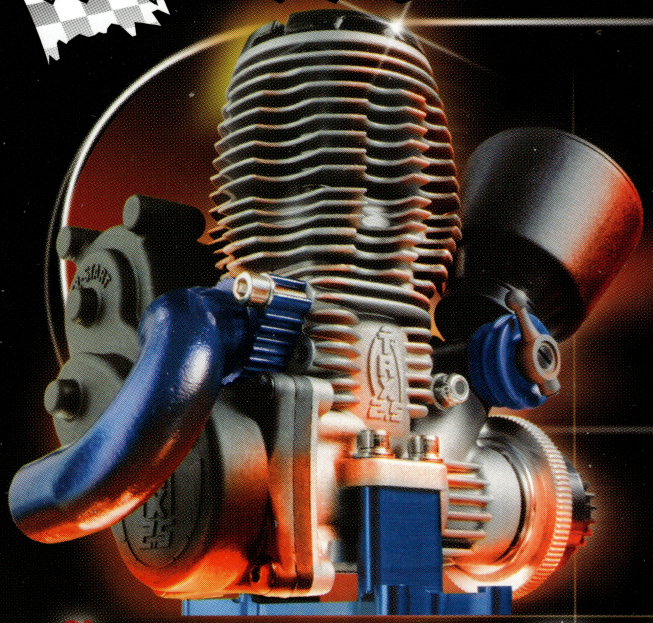
See the full line on our Web site at www.teamlosi.com.

Team Losi®
ENGINEERING WINS

TRAXXAS®

The POWER of TRX 2.5

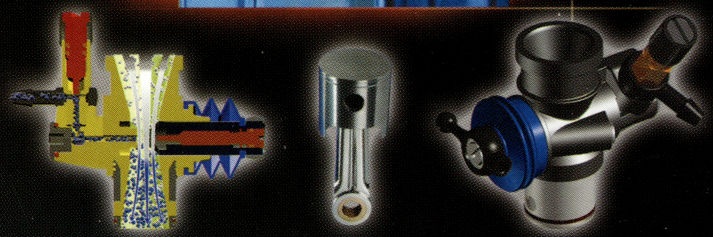
Elevating Ready-to-Run to Ready-to-Race®



All New Design

Traxxas TRX 2.5 engine is all new from the ground up! It's the result of over 2 years of engineering and testing. The TRX 2.5 delivers the power and technology of the world's finest high-performance racing engines, and truly elevates Ready-to-Run to Ready-to-Race®!





All-new Composite Slide Carburetor Provides Superior Fuel Atomization

- Precision molding provides a smoother, better-flowing inlet tract than cast or machined carburetors
- The carburetor, air-filter, and crankcase are integrated to provide smooth continuous airflow with minimal turbulence

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- Most powerful engine in its class
- Innovative slide carburetor
- Easy to start, easy to tune
- Push button electric starting with the all new EZ-Start system
- Engineered from the ground up for the most power and reliability possible
- Backed by the best service and support in the hobby industry

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The Traxxas EZ-Start™ system for the TRX 2.5 racing engine. Simply plug it in, push the button, and the EZ-Start System automatically heats the glow plug spins the engine.

- Regulated output supplies constant voltage to heat the glow plug, regardless of battery condition or starter motor load.
- Glow plug status indicator signals failed glow plugs.

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T-MAXX

- New WideMaxx™ Suspension!
- Autoshifting 2-Speed, Forward & Reverse
- TQ-3™ 3-Channel Radio System
- EZ-Start Electric Starter
- ProGraphix™ Painted Body

The Best-Selling 1/10 Nitro Truck Ever!



SportMAXX

- WideMaxx™ Suspension!
- EZ-Start Electric Starter
- ProGraphix™ Painted Body
- Fully Upgradeable to T-Maxx Specs
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Light, Quick, Agile!



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

Nitro All-Wheel-Drive Supercar!



Pre-glued Tires!

Nitro Rustler

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

Nitro 2WD Stadium Truck



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