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HI-TORQUE'S

R/C CAR

THE RADIO CONTROL CAR MAGAZINE

APRIL 2000



READY TO RUN!

THE FUTURE OF R/C

GUIDE TO THE HOTTEST RACING RADIOS!

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WHAT YOU NEED TO KNOW

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ALL THE FEATURES. The GT RTR features an all-new heavy-duty alloy chassis that virtually eliminates chassis flex problems. Also included is the powerful new Team Associated .15 engine, which produces massive horsepower and has proven to be one of the most reliable, tunable powerplants we've ever tested.



The GT RTR comes with all the features that have made the GT the industry standard; tuned pipe and manifold, oil-filled, blue-anodized aluminum shocks, molded composite suspension arms, fully adjustable caster, camber, shock position, and wheelbase, fliptop quick-fill fuel tank, and easy-to-use recoil pull starter.



Best of all, the GT RTR shares the majority of its components with our existing RC10GT kits, including most Factory Team hop-up components, so replacement parts are probably already in stock at your favorite hobby dealer.

YOUR BEST BUY. All this quality for a price comparable or lower than most Ready-To-Run nitro trucks. That's why we say Team Associated's new RC10GT RTR is far more than just another Ready-To-Run... it's the BEST Ready-To-Run!

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R/C CAR
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On the cover: Team Associate's new RC10GT RTR tears up the sand wash behind our office. Tamiya's new Mad Bison is one bad bull! Photos by John Howell. **On this page:** DuraTrax's new Nitro Quake didn't let much stand in its way during our photo shoot! Photo by John Howell.

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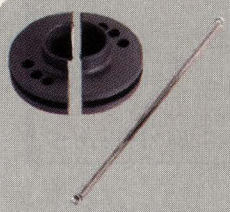
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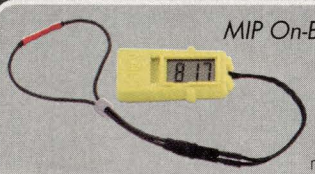
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MIP Headsinks were specifically designed for 1/10th scale racing. They come predecked from the factory, and include a top of the line #8 McCoy plug. MIP's ultra light weight aluminum Buttsink can be used to eliminate the pull starter, or just simply to replace the standard engine back plate. Both the Headsink and Buttsink are designed with large spacious cooling fins to dissipate the tremendous heat created from gas engines.

MIP's 21 years of racing experience has lead to the hottest race proven upgrades for 1/10th scale off-road vehicles and touring cars.

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drivers' stand

by Frank Masi

Ready-to-runs: get used to 'em

We are in the throws of change, but I don't think we realize it yet. The model airplane industry does. Or at least, it does now. You see, years ago the model airplane market fell off rather drastically.

Younger modelers didn't really have the time to build complicated airplanes from plans, and the older modelers, well, let's just say they contributed to a rising rate of attrition in the hobby. The problem was that the manufacturers were slow to react to declining sales and the shifting of the market. What they failed to realize at the time was that new products were needed to fit within the modern lifestyle. I know you're tired of hearing about how busy we all have become, but it's true. And not only with work; we have more distractions today—the Internet is a big one—than ever before. We have become a society of crammers—we cram as much stuff into our lives as we can in the belief that we are fulfilling ourselves. But be honest, how many step-aerobic classes and all-night chat room sessions do we really need?

What the airplane industry did to fight back was increase and improve the ARF (almost ready-to-fly) market, creating kits that went together quickly and were sophisticated enough to challenge more experienced pilots—prior to this movement, most ARFs had been aimed at beginning fliers. Now, modelers could enjoy participating in their beloved hobby without sacrificing too much precious time.

The same thing is happening to our hobby. I believe that the "word" is finally beginning to leak to the mainstream world. The people who buy all those Tyco and Nikko and Radio Shack R/C toys, or some of them at least, have begun to realize that there's a place they can go to indulge in R/C fun of a more serious nature: the hobby shop. But as with the airplane market, there appears to be a growing contingent of potential hobbyists who become discouraged at the sight of a box full of unbuilt R/C car. We know building can be a fun and educational pastime, but we're exceptional beings.

This is why you have been reading more and more about RTRs, or ready-to-run vehicles. Maybe you're sick of hearing about them, but I'm telling you right now that they are here to stay. In fact, expect to see more of them soon! One thing that convinces me of this fact is that the quality of the vehicles being offered in RTR trim has increased drastically. Not too long ago, the only non-toy RTRs you could buy were only marginally better than those sold alongside Malibu Barbie and the Power Rangers. Today, you can purchase a pre-built HPI Nitro RS4 or Associated RC10GT and actually have something that is of the same quality as those you'd see at a track.



Ready-to-run (RTR) vehicles such as the DuraTrax Axis are examples of how much the category has improved over the past two years.

Over the last few months, we've tested a host of RTR vehicles, ranging from an electric touring car right on up to a fire-breathing 1/8-scale off-road buggy, and I can look you straight in the eye and tell you that these cars and trucks are no jokes; they categorically do what they're supposed to do, which is to provide hobby-quality performance and durability without tedious assembly.

Where does the RTR movement leave you? Don't worry, the entire world isn't going to come pre-built. Rest assured that the more sophisticated and (of course) expensive vehicles will continue to be available in kit form. Despite their current attention to the burgeoning RTR segment, most manufacturers still know that most of us are hobbyists at heart. And as such, we enjoy a good wrench-turning, skinned-knuckles and sweaty-brow time. But be warned: more RTRs are on the way, and they are going to continue to get better and better. Maybe you'll be swayed, maybe not. But one thing is for certain, and that is that RTRs will bring more newcomers into the hobby than ever before. ◆



With the release of its RTR GT gas truck, Associated has paved the way for other manufacturers to produce RTRs that can hold their own on a racetrack as well as in the backyard.

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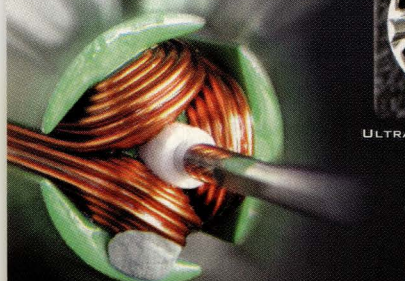
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The results are in, Team Orion drivers swept the top spots at the IFMAR Worlds in Finland. Jukka Steenari is the new 1999 IFMAR 4wd World Champion, Jimmy Jacobson took 2nd place, Temu Leino 4th place and Teppo Kaupinen 5th.

Team Orion's Daren Westman and Oscar Jansen were on hand to tune the new TOP Advanced Technology based Chrome Modified Motors. Increased power and efficiency gave Team Orion drivers the edge in the fierce competition.

All of the Team Orion drivers used V-Max Plus RDS RC2000 batteries matched at 30amps using our RDS (Race Discharge Simulation). For complete results and a information on the winning set-ups, visit our web site at www.team-orion.com.

OFFICIAL RESULTS

1999 IFMAR OFF-ROAD WORLD CHAMPIONSHIPS
TEAM ORION TAKES 1ST, 2ND, 4TH, 5TH

	Driver	Motor	Battery
1.	Jukka Steenari	Team Orion Chrome 9x2	Team Orion V-Max Plus Sanyo
2.	Jimmy Jacobson	Team Orion Chrome 9x2	Team Orion V-Max Plus Sanyo
3.	Brian Kinwald	Trinity	Trinity
4.	Teemu Leino	Team Orion Chrome 9x2	Team Orion V-Max Plus Sanyo
5.	Teppo Kauppinen	Team Orion Chrome 9x2	Team Orion V-Max Plus Sanyo
6.	Mark Francis	Trinity	Trinity
7.	Mark Pavidis	Reedy	Reedy
8.	Scott Brown	Trinity	Trinity
9.	Brian Dunbar	GM	GM
10.	Matt Francis	Trinity	Trinity

Chrome Motor Features:

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- *Color Coded Heat Sinks*
- *Straight Shank Armature*
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news flash!

What's new and noteworthy in the world of R/C!
Compiled by the editors of R/C Car

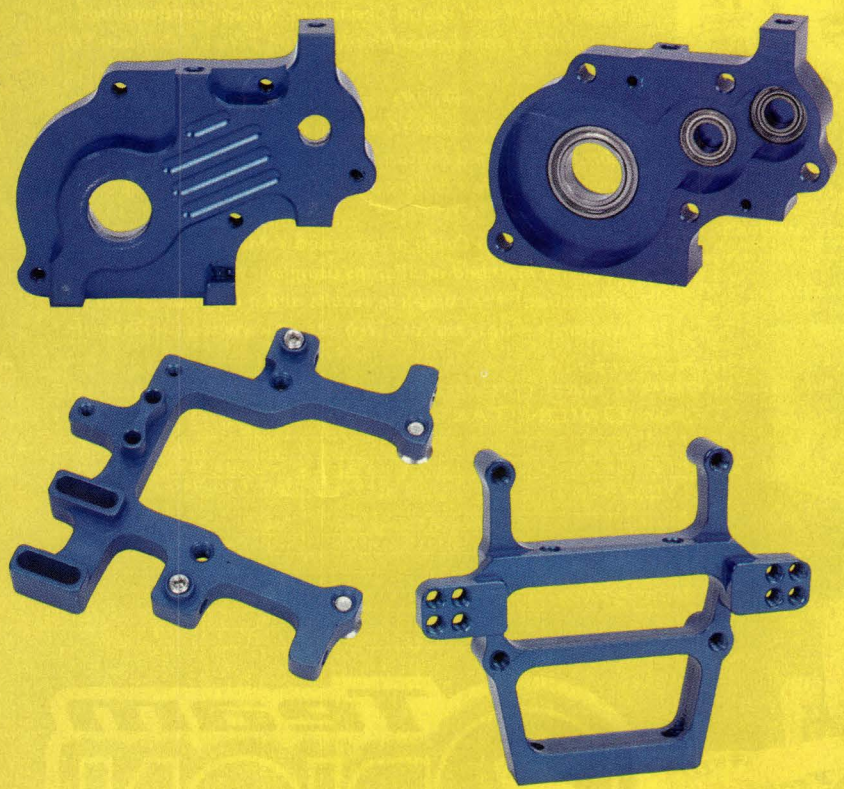


Hotshoes tires come in their brand-new TAC Compound (comparable to Pro-Line M3 or Losi Silver compound). We plan on extensively testing with these tires very soon to see how they stack up against the competition! For more information on availability, contact Hotshoes at P.O. Box 1277, Mississauga, Station B, Ontario, L4W 2G4 Canada; (905) 569-1528 fax.



Hotshoes Releases All-New Racing Tires

Want to get a new set of tires for your R/C car? Try these new Hotshoes racing tires, available for 2WD and 4WD buggies and touring cars (there's no word yet on truck tire availability). The



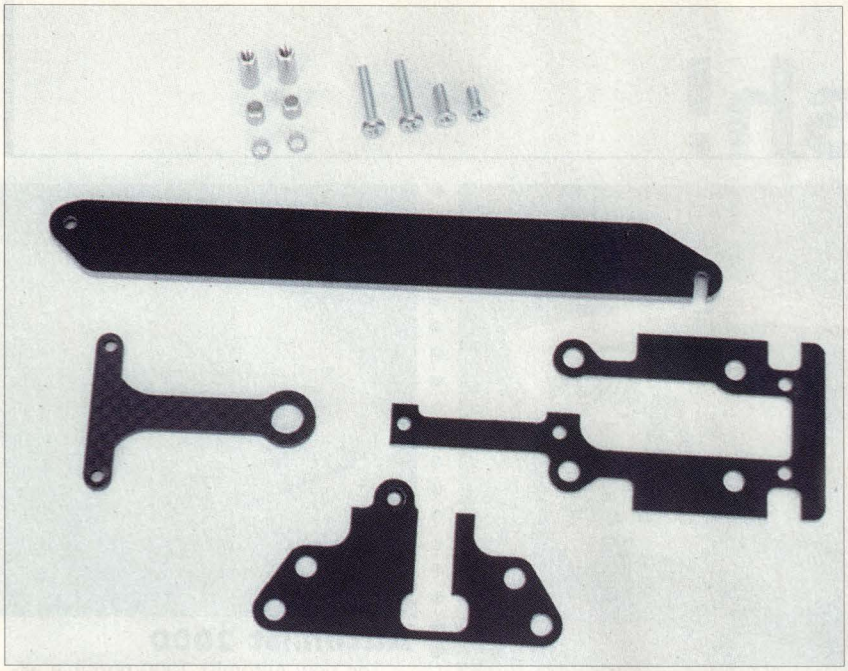
R&D Racing RC10GT Hop-Ups

Check out R&D Racing's new line of alloy hop-ups for the RC10GT. Included are a new rear bulkhead (part# RC10GT002) which is a direct replacement for the stock piece with no changes in geometry. The alloy rear bulkhead is stronger than stock, and looks great! The rear bulkhead retails for $39.95.

The new A-arm/motor mount incorporates both the engine mount and A-arm mount into one piece, thus eliminating the flex problem between the gearbox and motor. This increases the life of the spur gear and makes the handling of the truck more predictable. In addition, the one-piece design eliminates failures with rear suspension mounts as well as chassis wear due to loose fasteners (set screws eliminate the need for frequently failing e-clips). The oversize motor mounts also allow for extra adjustments and greater gear selections—a nice bonus! The piece comes in two versions; part# RC10GT001 (zero-degree toe-in: $59.95) and part# RC10GT003 (three-degree toe-in: $64.95)

Finally, one of the hottest looking mods from R&D is this alloy precision gearbox (part# RC10GT004). The case is a direct Stealth replacement, and it is machined from 6061-T6 aluminum. Top of the line Boca Ultra Seal Bearings are installed, and the case uses dowel pins for precision case alignment. All necessary hardware is included, but you have to provide your own gears.

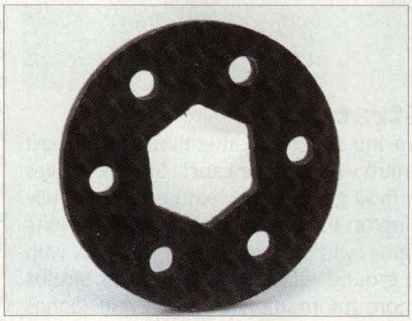
For more information, contact R&D Racing at (805) 685-4444 or at (800) 453-1688.



Hot Mods From Penguin R/C

New from Penguin R/C is this Yokomo MR4-TC Racing Upgrade kit, consisting of a graphite transponder mount, fiberglass battery strap and one-piece fiberglass bulkhead spacers (for ease of maintenance). The kit (part #P1111) comes with all the necessary hardware to complete the conversion. The new battery strap is held in place by two 3x16mm panhead screws, which should help hold your cells securely in place no matter what Dukes of Hazzard-style driving situation your car should encounter. List price is $23.99 ($6.99 for the transponder mount separately—part #P1110).

Also new from Penguin R/C is this Performance Brake Disc for Team Associated's RC10GT. The new woven graphite disc (part #P5700) is 2.25mm larger in diameter than the stock piece which improves braking, and it is textured



to provide quicker break-in. The disc lists for $3.99. The GT brake disc is one in a series of Performance Brake Discs from Penguin. Others will soon be available for the Tamiya TG10, HPI's Nitro RS4, and the Traxxas Nitro 4-TEC.

For more information on these products from Penguin R/C, contact them at 1230-P N. Jefferson Street, Anaheim, CA 92807 • (714) 630-9015; (714) 630-6250 fax.



O.S. Engines Pull-Start 4-Stroke Car Engine

Now the high performance and lower noise levels of four-stroke power for R/C cars is also available with a heavy-duty, easy-operating recoil starter! The FS-26S-CX engine from O.S. (part# OSMG2094) features more realistic car engine sounds than two-stroke engines, it boasts better fuel economy over a two-stroke, and when coupled with a fan unit, it produces lots of low-end torque for road-course racers such as Kyosho's SuperTen series of kits. Like its predecessor, the FS-26S-CX features reinforced valve springs that resist "floating" at high rpm, a 1AB carburetor, a specially designed camshaft, and black alumite coating on the crankcase and rocker cover. The engine (retail price $399.99) comes with a #F glow plug and features a two-year warranty. For more information contact Great Planes Model Distributors at 2904 Research Rd., Champaign, IL 61826-9021 • (217) 398-6300; (217) 398-0008 fax.



Take-Off Echo Wheels for Touring Cars

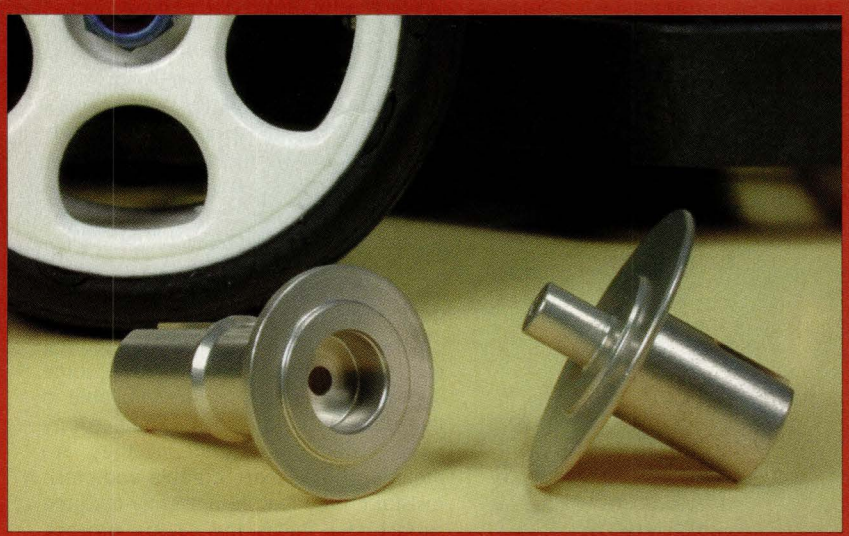
These new lightweight, 24mm touring car wheels from Take-Off have some very nice features; they are available in five different colors to help match any paint scheme, the material they are molded from is extra durable and crash resistant, they feature a slightly textured surface that helps the CA-ing process, and they come with a standard offset and accept the industry standard hex drives. The wheels retail for $9.95 for a complete set of four. For more information on the Take-Off line of products, contact Take-Off's distributor, Schumacher USA Inc., at 6302 Benjamin Rd. Suite 404, Tampa, FL 33634 • (813) 889-9691; (813) 889-9593 fax.

news flash!



Kyosho Landmax Lancia Stratos

Those of you who are interested in Rally racing better pay attention! This newest addition to Kyosho's Landmax series of 4WD nitro vehicles, the Lancia Stratos, arrives 60 percent pre-assembled, it comes with side mud guards, and features special rally tires which make it versatile enough for running on flat dirt tracks as well as parking lots. At the heart of this beast is a GS-21R engine with pull-start, and three diffs with ten ball-bearings help get the power to the ground efficiently. The Lancia Stratos (part# KYOC0541) retails for $649.99. For more information contact Great Planes Model Distributors at 2904 Research Rd., Champaign, IL 61826-9021 • (217) 398-6300; (217) 398-0008 fax.



IRS TC3 Lite Drives

These Associated TC3 lightweight outdrives from IRS are precision-made from 7075-T6 aircraft grade aluminum which is lighter and stronger than 6061-T6 aluminum. The IRS Lite Drives are also hard-anodized which helps reduce slot wear from driveshaft rubbing. IRS Lite Drives outdrives (part #IRS140) provide less overall rotating mass as they are almost half the weight of the stock kit outdrives! A pair of Lite Drives retails for $30. Stock and mod racers pay attention—these are a must for your TC3! For more information, contact IRS at 18 Cannon Range Rd., Milmay, NJ 08340; (609) 476-2371.



Automist 2000

The new Automist 2000 portable airbrush compressor provides low noise levels while maintaining high-performance standards. This powerful (45+ psi unrestricted), completely self-contained, portable unit only weighs 6.5 pounds which allows it to go almost anywhere. The Automist 2000 has a built-in air chamber to provide high-quality compressed air without the pulsation normally seen in pumps this size, plus it includes an air filtration system and moisture trap. An optional pressure regulator is also available.



The unit is designed for ultra-quiet operation. It produces less than 50 db (about the same noise level as your microwave oven), which makes for unobtrusive use at home, school, or work! The Automist 2000 only needs periodic cleaning of the exterior—otherwise the pump is maintenance free. Your airbrush and tubing can be stored in the built-in storage compartment (see above). The unit works with Badger, Iwata, Model Master, Paasche, Testors, and many other airbrush systems. The Automist 2000 retails for $129.95 (compressor only). For more information on this product and other accessories available, contact SHS Companies at Box 1496, Rockwall, TX 75087; (972) 771-4588.

How Do You Improve The World's #1 Selling RTR Nitro Trucks? Lower The Price.

Now you can own the world's #1 selling RTR™ nitro trucks for about the same price as no-name, low-tech imports. At Traxxas, we take pride in carefully handbuilding more quality Ready-To-Run models than anyone else. Not only do our years of experience help us to make the world's best Ready-To-Runs, but they also yield cost savings that we can pass along to you. Of course, when you're shopping for a ready-to-run truck, price is only part of the story. Traxxas Ready-To-Runs are #1 because they deliver performance, innovation, and customer service you won't find anywhere else.

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We're here now, and years from now, to answer your questions, provide technical support, performance upgrades, and replacement parts.

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Traxxas U. K., P. O. Box 1128 Winterbourne, Bristol, BS36-2SH, England. Ph. 44-117-956-1002 Fax 44-117-956-1121. Internet: www.traxxas.com. Specifications subject to change.

news flash!



New Futaba Entry-Level AM Radio System

Ideal for operating entry-level cars, boats, and planes, Futaba's new 2ER two-stick digital proportional AM radio system replaces the 2DR and features a stylish new case. The fine trims are easily accessible on the front panel for convenience, and the short sticks allow for a full-range of movement by smaller hands. The 2ER (part# FUTJ47) comes with servo reversing, utilizes Surface Mount Technology (SMT), and comes with two S3003 servos and a R122JE receiver. The radio has a low retail price of $69.99. For more information contact Great Planes Model Distributors at 2904 Research Rd., Champaign, IL 61826-9021 • (217) 398-6300; (217) 398-0008 fax.



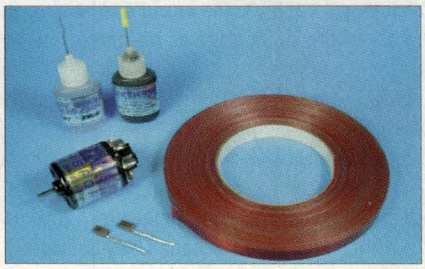
Trinity Spring Post Wrench 2

Need to do a little maintenance on your motor? Trinity's Spring Post Wrench 2 allows you to easily unscrew the spring post for taking apart your endbell for cleaning. This new version of Trinity's popular original Spring Post Wrench comes with the same blue plastic handle as their Team Kinwald "Blue Drivers." The new Spring Post Wrench 2, (part #TK4528) retails for $15.99 and features a precision machined socket for a better fit on the endbell spring post. For more information, contact Trinity Products Inc., at 36 Meridian Rd., Edison, NJ 08820; (732) 635-1600 • (732) 635-1640 fax.

Hurricane Motorsports

Check out these hot new items from Hurricane Motorsports...

Kryptonite Battery Strapping Tape—according to Hurricane Motorsports, this strapping tape is simply the best available! It's super strong, and is sure to hold your cells in place on your road course or oval car. The tape (part# HMBT1) retails for $5.99 a roll.



Blue Thunder Comm Drops—these new comm drops from Hurricane for both mod and stock motors reduce friction, increase rpm, torque, and power, improve current flow, and they work great in helping break in your brushes. The comm drops (part# HMCD1) retail for $6.00 a bottle.

Gold Series Stock Brush—this new brush is made from Hurricane Motorsports' very own compound. It features a high silver content, but it remains easy on the commutator. According to Hurricane, it outperforms and outlasts the competition! It features a serrated brush face for quick break-in. The new brushes (part# HMGB1) retails for $5.00 a pair.

Spectrum Bushing Oil—this specially formulated bushing oil is impregnated with Teflon and graphite for that "extra slick" solution. The new Spectrum oil drops (part# HMBO) is a must-have for stock class racers. The oil retails for $5.00 a bottle.



Chrome Illusion Stock Motor—Hurricane's new rebuildable stock motor is stocked with features (pardon the pun)! This hand-tuned motor comes with an included dyno sheet, HMGB1 Gold Series Brushes, a balanced armature, and the motor magnets have been zapped for the ultimate in power! The Chrome Illusion motor (part# HMPM) retails for $32.00.

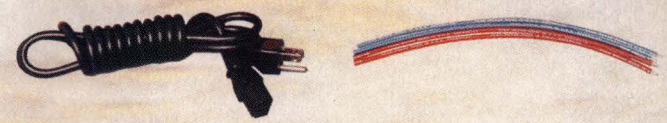
For more information, contact Hurricane Motorsports at (608) 243-9430. ◆

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- 0.1-0.4 amp adjustable trickle charge mode
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- Automated battery analysis and conditioning
- Detailed charge history
- Fully protected
- Internal heat sink and fan

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Novak's new switching power supply, the N-Power, converts AC to DC using smaller and lighter components without the excess heat and weight associated with non-switching power supplies. Part of the N-Power's draw is its compact, lightweight design, and its ability to power any 2 DC chargers at the same time– including Novak's own Millennium and Rhino. The purple anodized case is well ventilated, and with the internal cooling fan, operation stays cool and efficient. Get N-Powered today!

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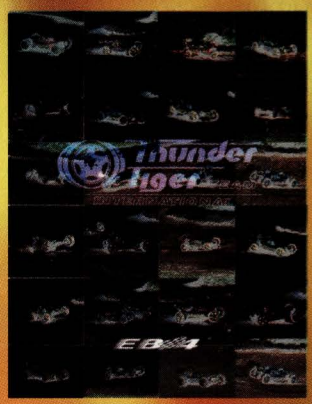
1999 Silver State Nitro Challenge, Champion
1999 ROAR Off-Road USA Champion
1999 NORRCA Off-Road National Champion
1999 Manufacturers' Off-Road Nitro Challenge, Champion



THE NEW THUNDER TIGER EB-4. Is King Saxton faster in his new ride? You bet! With a year of R&D done on the most grueling tracks around the world, we have perfected the prototype EB-4 for production. What you get is the lightest dry running chassis (3300 grams without fuel) on the market. It also has the lightest sealed differentials with adjustable inner gear mesh which translate to the lightest rotational mass in an 1/8 drivetrain. Yup, you can out-drag and out-brake anyone to the first corner with EB-4's powerful dual metal disc brake system. What about its handling? In Saxton's words, "my steering is sick." With the true Ackerman steering and adjustable caster system, you can dial in as little as 18° and as much as 25°. Saxton's car doesn't just turn on a dime. It turns on a penny. In the standard kit, there are also three different rear toe-in blocks to fine tune rear traction. For even more handling adjustments, the standard kit's wheelbase can be adjusted from 325mm to 330mm. What's an 1/8 scale without a trick suspension? The EB-4 has extra long, grey anodized, ultra smooth shocks to provide the longest suspension travel on the market. In addition, the rear suspension has a standard 2° anti-dive to tackle the roughest of terrain. With all the standard performance features, the EB-4 can make you much faster. All you have to do is "sell that ride of yours and get the fastest car in America." KING SAXTON ALREADY HAS.

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Adios, so-called "torque" servos! Multiplex has the REAL power!



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When speed and power matter! 1/8-scale on- or off-road, PROFI Speed is FASTER on short inputs than "non-thinking" servos! Lock-to-lock: 0.09 second!

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JUMBO
Forget costly twin-servo installations—use a single JUMBO to steer your 1/4- 1/5-scale car! 297 in./oz. of torque at a low price!





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135 in./oz. of torque to bring your speeding 1/5-scale to a screeching halt! Don't take chances with wimpy servos—go Multiplex!

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- **Multiplex Sweeps all trophies in GT & 1,3-5 in sedan 1/5 scale ROAR Nationals!**
- **Congratulations to Rick Hohwart for lapping the A-main on his way to dual 1/5-scale national championships using Multiplex servos *exclusively!***

check the specs!

	Profi 3BB*	Micro Speed	Micro mc/V2	Profi Speed	Profi mc/V2	Power	Jumbo
Speed	0.16	0.06	0.15	0.09	0.12	0.19	0.20
Torque (in./oz.)	60	42	56	62	75	135	297
Holding Power (in./oz.)	180	165	126	186	225	405	891
Price	$60.11	$99.95	$99.95	$99.95	$99.95	$135.50	$159.95

* Profi 3BB is NOT digital or programmable
All mc/V2 servos listed have two ball bearings and metal gears
Power mc/V2 and Jumbo mc/V2 can be run on six cells.

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Visit us on the world wide web at www.MultiplexRC.com

feedback

Send your letters to: Feedback, P.O. Box 958, Valencia, CA 91380-9058

Spec-racing resurgence

I recently read your "Drivers' Stand" entitled "Out of the Frying Pan..." in the January 2000 issue. I totally agree with you on the subject of this article. Even before I read the article, I was in the process of starting a spec class at my local track. I live in the San Fernando Valley, and I race on Friday nights at the Tire Shredders club. The racing is really fun and I have a good time. Although I have the money to buy quality equipment, I know a lot of kids and parents who would like to give on-road racing a try but cannot afford it. So my solution was to start a spec class based on the MRC/Academy SP3 1/12-scale chassis. I too believe this is a quality racer, even with bearings as the only upgrade. I figured that if a new racer is starting with absolutely nothing, he or she could get everything needed to race for around $200. That includes a sport radio, ESC, battery, charger and chassis. To me, and others I have spoken with, that doesn't sound too bad.

The whole class revolves around the SP3 chassis. Everyone must run this inexpensive chassis with the kit motor and kit gearing. The only hop-up allowed is ball bearings. Also, the only battery allowed is a 1500mAh or below pack, which at my local hobby shop is only about $10-15. Any other electrics are fine. The only problem I can think of is that the kit foam tires may not hook up well on the dusty asphalt of a parking lot, although I have just found out that MRC does have new rubber radials with foam inserts you can put on the SP3. That should work pretty well.

Well, I hope that you like my idea about this class. I would really appreciate any feedback or suggestions to get this class going.

Phil Valera
Chatsworth, CA

Proposed rules for Extreme 380: 1/12-scale spec class

Chassis: .....MRC SP3 Extreme chassis only
Stock steel axle only
Only hop-up allowed is ball-bearings
Wheels: .....Any 1/12-scale wheel with foam or rubber tires
Motor: .....Stock Mabuchi 380 only
Battery: .....Any battery with 1500mAH capacity or less. Stick packs only—no saddle packs allowed. Any type of connector
Body: .....Any 1/12-scale body is allowed
Electrics: ....Any type/brand of ESC, servo and receiver.
Gearing: .....Stock kit pinion and spur only (or equivalent size).
Weight: .....26 ounce minimum.
Duration: ...5- or 6-minute qualifiers and mains

Should we tell him?

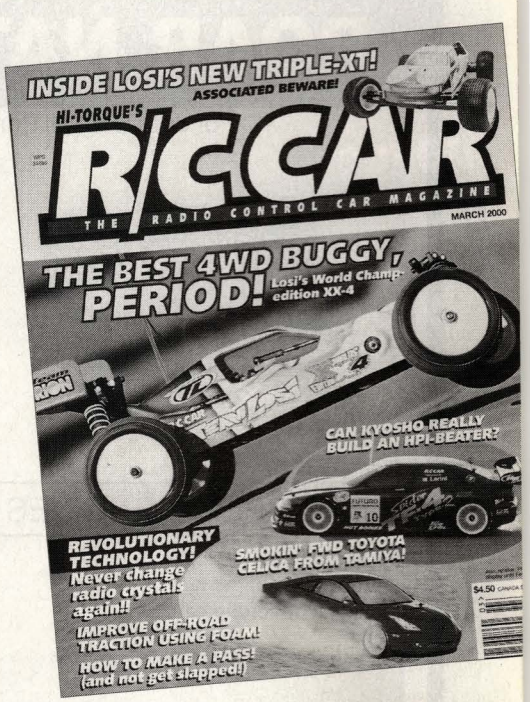
My friends and I want to know if there really is an RC10GT2 coming from Team Associated. I recently bought a GT with a Dynamite 12SPD engine (with the help of your August issue). I was wondering if there is a better head for this engine, and can you buy a butt-sink for it? And what is the difference between the fat-stinger CVEC pipe and the double-stinger pipe? Which is better? And finally, is it me or is the Reedy Rage stock motor and the Orion Edge the same thing?

Nick Smith
Houston, TX

Well Nick, as for your RC10GT2 question, all we can say at this time is... well, we can't say anything, actually, but stay tuned! If you want to check out engine hop-ups, give MIP a call at (626) 339-9008, as well as Steve O'Donnel Racing at (310) 944-6821. Either company might have what you're looking for regarding engine bolt-ons, or at least can point you in the right direction towards what you want. The new CVEC pipe with the "dual" exhaust is basically just a redesign of the original pipe. Apparently, the new "dual" pipe doesn't collect dirt or clog as easily as the larger single hole exhaust. And as for your last question, while they may in fact look similar, the Orion and Reedy motors are in fact two different motors. Hope this helped!

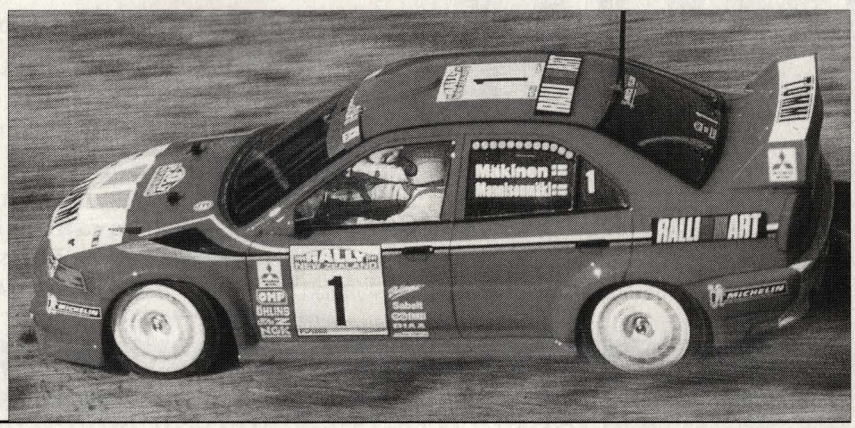
Battery pack blues

Are you going to test Tamiya's new TB-01 rally car with its awesome Mitsubishi Lancer Evolution VI body in the near future? When will it be available? If you already tested it, how does it perform? Is it better than the HPI rally car? If you already checked it out in Tamiya's website you will notice the new blue battery pack. Is that blue battery pack available in stores? If it is, is it more expensive than 3000mAh battery packs? I am asking these questions because I want to buy the rally car with the same blue battery pack and the same Adspec radio, however I want your advice first before I buy it.



Juan M. Ragragio
Manila, Philippines

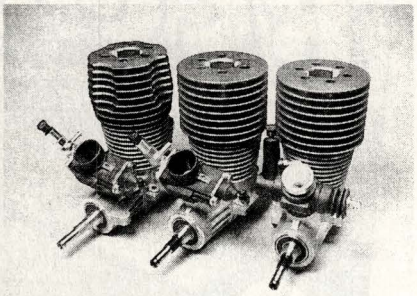
Hey Juan, as we opened your letter, the UPS man delivered our sample of Tamiya's brand-new TB-01 rally car with the awesome Lancia body you spoke of! Look for a complete test on the TB-01 in our next issue. As for the photo you saw on their web site, the blue pack in question is the new 2400mAh nicad pack. Regarding pricing, we don't know yet what the pack will cost (versus a 3000mAh pack), but it should be available by the time you read this. Also, we've tested Tamiya cars equipped with the Adspec radio system, and it works great. ◆



PARIS RACING

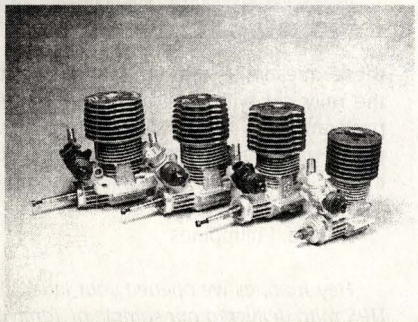
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For details on all Paris championship products, go to http://www.parisracing.com



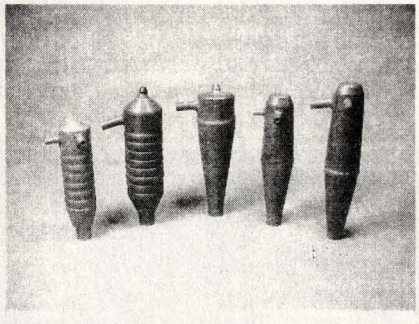
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available with an all new
traditional or Torque carb.



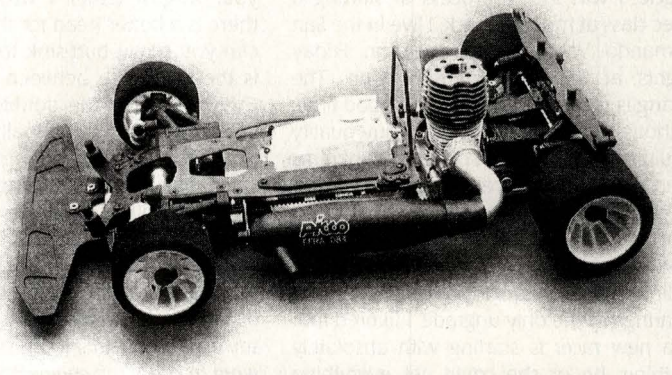
PARIS NOVAROSSI ENGINES

.12, .15, and .21 Nova's for all on
and offroad applications!
Check out the new KILLER CX-12



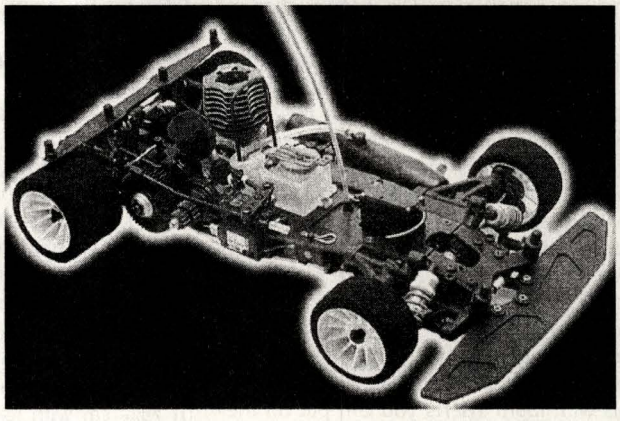
PARIS PIPES

Paris pipes available for every application.
News flash - TurboRing 1/8 pipes coming this summer!



PARIS PICCO 1/8 SCALE INTEGRA

PARIS-PERFORMANCE
PARIS-RELIABILITY
PARIS-POWER



PARIS PICCO 1/10 SCALE INTEGRA

The Paris/Picco Team make a **clean sweep** at the '98 ROAR 1/8 Gas On-Road Nats: 1st & TQ - Mike Swauger, 2nd - Scott Kimbrow, 3rd - Sal Difazio, 5th - Jim Adkins. They all used Paris spec Picco cars with Paris modified P21KSR engines, NovaRossi 086 shot-blasted and Paris hard coated pipe, Nova 7 cold plugs, Action tires, Paris Lola Body and BlueThunder professional formula fuel.

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racers write

by Jimmy Babcock

I haven't been doing a lot of racing lately because the race season is over at the time of this writing. The new race season is just around the corner, and by the time you read this it will be in full swing. The first race that I will be attending of the 2000 season will be the Reedy Race of Champions. This race is always a huge event with the nation's fastest racers in attendance, and I am fortunate enough to be in the invitational class with the likes of Brian Kinwald, Matt Francis and Mark Pavidis. It should be an exciting race and I will have a full race report in next month's column, so stay tuned!

The next race on the 2000 schedule is a race that is in its first year of existence. I am proud to say that I will be attending the first annual Biff Racing "Charity Challenge" Race in New Caney, Texas. The reason that this race is so important to me is the fact that all proceeds from the event will be given to Shriners Children's Hospital. This race will take place on February 3 through 6 at K&M Racing, Inc. in New Caney, Texas. Full updates will be coming in future issues of *R/C Car*.

Finally, the last race to fill out the first two months of the year will be the Florida Winter Champs. To me this is the most fun race that I get the opportunity to go to throughout the year. Just like the Reedy Race, all the factory drivers will be in attendance, which always makes for some exciting action on and off the track.

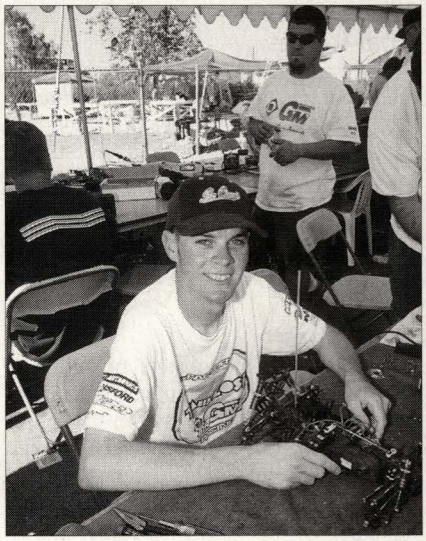
Team JB takes wing

Because I have this phenomenal opportunity to talk to all of you racers out there, I would like to take a little time to talk about some up-and-coming new racers that I'm sure you will be hearing about in future issue of this magazine. I believe in helping new racers achieve their goals in R/C racing, especially since someone did the same for me early in my racing career. To me, racing is more than winning nationals or being the fastest guy on the track; its about helping people as best as I can to make them as fast as possible. Sure, I don't have all the answers but what I do know I try to put to good use.

That's why I started Team J.B. here at Hot Rod Hobbies. Team J.B currently consists of five up-and-coming new racers whom I have taken under my wing and guided in their setup, driving and conduct. Scott Renolds, Jake Thome, Bill Hagen, Robert Ibon and Jaime Ibon are the five guys who currently make up Team J.B. Some of these guys have not been racing all that long and have already achieved so much its amazing. For example, Scott Renolds recently won two expert national titles at the '99 NORRCA National. Jake Thome got second place in two of the three classes he raced in at the same event. Bill Hagen finished up in the mains at the nationals and has the best winning percentage of any local Hot Rod Hobbies racer (except me!). Robert and Jaime Ibon are finishing well at all our local races and have made great contacts at most of the major R/C manufacturers including Team Losi, Lunsford and Orion. You see, Robert and Jamie are graphic designers who currently design for major motocross companies and have caught the eye of several top R/C companies. You will be seeing a lot of new logos for R/C companies coming to hobby shop shelves via Ibon Graphics, including the new Team Losi Logo! I want to thank these guys because believe it or not they do a lot for me as well. Sometimes after racing for nine long years it is hard to stay motivated and these guys definitely give me a lot of motivation through their love of racing R/C cars.

Mind your manners

In closing I would like to talk about a subject that is very significant to me, since I run the club races here at Hot Rod Hobbies. It is driver etiquette. We have had a big problem with racers not doing what they are required to at the track as part of common courtesy toward their fellow racers. When you sign up to race at a track there are only a few things that you are responsible for during the day's racing. I am writing this to help everyone get through a race day with no problems and to also help the race directors out so that their job is easier. Trust me when I say that running a club race is not a walk in the park when racers don't cooperate with the few little tasks asked of them.



First, please try and be ready on time for your race! When I say ready I am talking about a few things. The heat sheets are posted to inform everyone of their frequency, race number and car number. By not checking these items you are only costing everyone time which makes for a even longer day at the track. If I had a quarter for every time someone came up for their race with the wrong number or frequency I would be a millionaire.

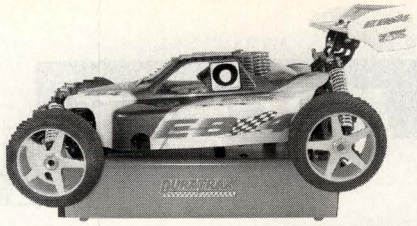
Second, drivers' stand behavior and yelling at the turn marshals. Drivers must remember that the marshals are there to help them! Just think if they weren't there and you had to get your own car—how much time would that cost you? Plus, you were the one who crashed, and they shouldn't be punished by verbal slander.

Finally and most important to me: turn marshaling. All drivers, as you know, are required to marshal after their race, right? Well, how come the announcer must continuously call for them all day long? It's very simple, really; after your race is over, set your vehicle down and come out and marshal right away. I mean come on, you have plenty of time before you race again and if you don't just ask for some time nicely and more often than not the race director will pardon you. Also, try to stay on the track the whole race and don't leave until the last car crosses the finish line. If everyone followed the simple rules of proper race etiquette, it would make for a better race day for everyone involved.

—Jimmy Babcock ◆

Product Test

DuraTrax Starter Box



The easy way to fire nitro engines

What it does

The Starter Box is designed to start the engines of most popular 1/8-scale off-road cars and trucks. The box works when the vehicle is placed on top and the starter switch is depressed (by bearing down on the rear of the vehicle). A rubber wheel is activated, and when the wheel contacts the engine's flywheel, the engine is turned over.

What it has

• A rugged-looking steel box that is painted bright orange. You won't misplace this starter box, trust us!

• A belt-driven starter wheel. The wheel is powered by a 750-size electric motor (included). The wheel is supported by ball bearings for added reliability and precision. The entire wheel/motor assembly can be reversed to suit just about any engine/chassis configuration.

• A heavy-duty on/off switch that can be height-adjusted to activate the starter wheel as early or as late as you wish.

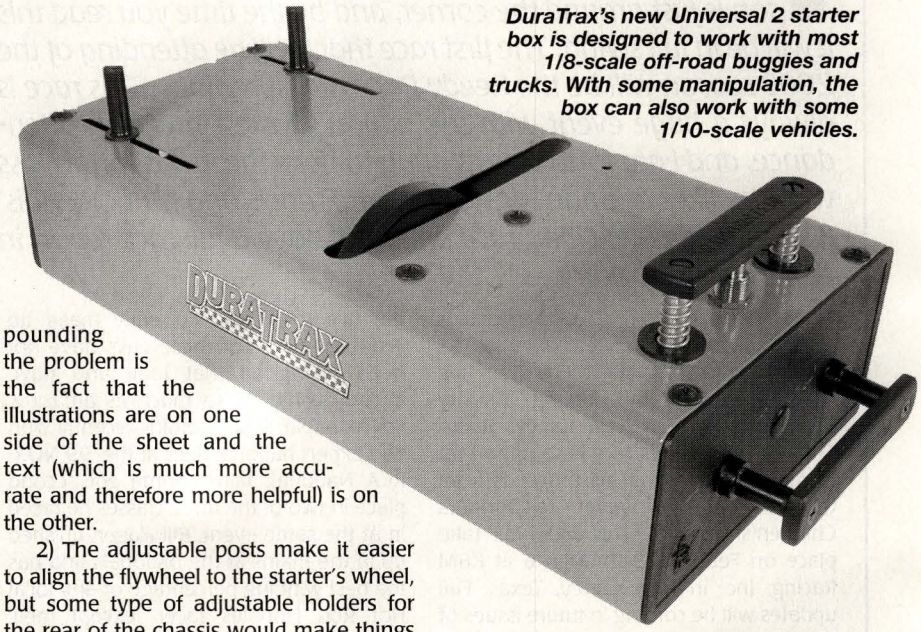
• A pair of adjustable alignment posts atop the box allow you to custom-set the box to your particular car or truck. This makes it easier to align the starter's rubber wheel with your engine's flywheel.

• All necessary wiring is included. You get a wiring harness that is used to connect the switch to the motor, as well as a pair of long input leads that can be connected to the included alligator clips for easy connection to a 12-volt automotive battery.

What we don't like

1) Plain and simple, the instructions are terrible. They appear to be intended for an earlier version of the starter box, as the illustrations show some different features than those of the actual starter. Compounding the problem is the fact that the illustrations are on one side of the sheet and the text (which is much more accurate and therefore more helpful) is on the other.

2) The adjustable posts make it easier to align the flywheel to the starter's wheel, but some type of adjustable holders for the rear of the chassis would make things even easier.



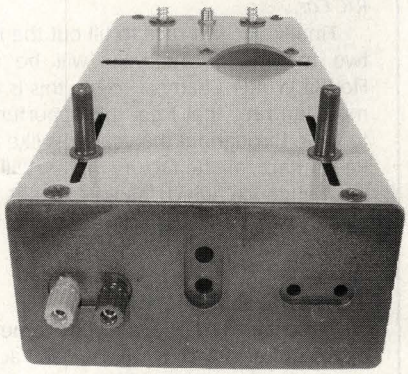
DuraTrax's new Universal 2 starter box is designed to work with most 1/8-scale off-road buggies and trucks. With some manipulation, the box can also work with some 1/10-scale vehicles.

What we like

1) The starter box is made of quality materials. It will last you for a long, long time. Plus, we liked the bright orange paint.

2) The box itself is commodious enough to easily fit an internal 12V gel-cel battery (you can find these at most hobby shops), making it easy to convert the starter into a fully self-contained starting device.

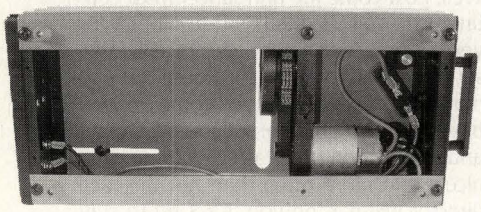
3) The reversible wheel/motor mechanism adds versatility and allows the box to work with nearly any 1/8-scale off-road vehicle in existence. The box is also narrow enough so that it may work with many types of 1/10-scale cars and trucks with in-line engines.



Input jacks in the end of the box allow you to install the included 12V power cables. The cables are equipped with large alligator clips for use with 12V automotive or marine batteries.

What we really think

As starter boxes go, the DuraTrax Starter Box is a durable and effective means of firing your glow engines. Although not as powerful as the 12V motors found in some other larger boxes, the DuraTrax's 750-size motor seems to feel as strong as the twin 540-size motors found in other 1/10-scale boxes such as those from Serpent and Dynamite. Overall, this is a nice item that will complement your nitro-racing arsenal—just have an experienced friend build it for you. ◆



With its lower cover removed, you can see the wheel/pulley assembly and 750-sized electric motor. Also, there appears to be ample space in which to install a gel-cel battery to create a self-contained starter box. The motor can be reversed to accomodate a wide variety of engine/chassis configurations.

info

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

Part no.: DTXP5600

Price: $139.99

Recommended for: use with 1/8-scale off-road cars and trucks with non pull-start in-line glow engines.

Rating: ⊛⊛⊛●●

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Hard Drive

Race Secrets

COOL RACER, FRIDAY, GOT SPEED?

GOT SPEED?

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

YO JOEY,

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

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

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

Later,
Cool Racer



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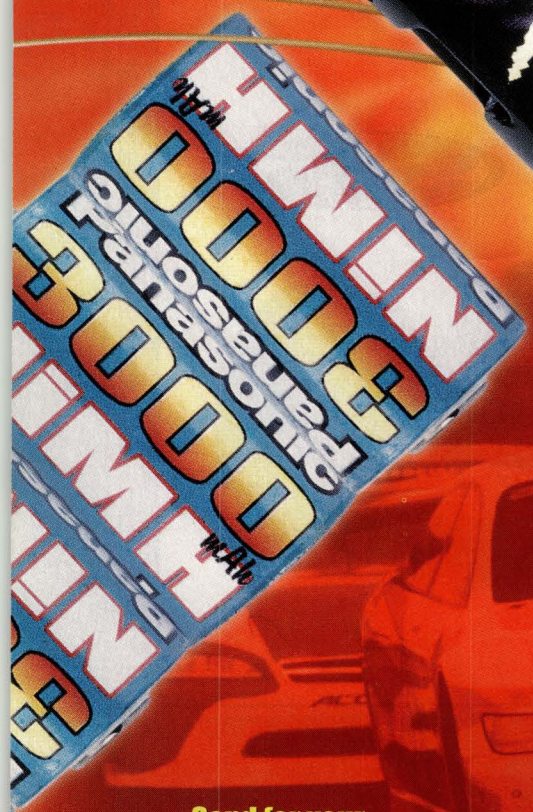
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UNLEASH THE FURY OF YOUR 3000's!

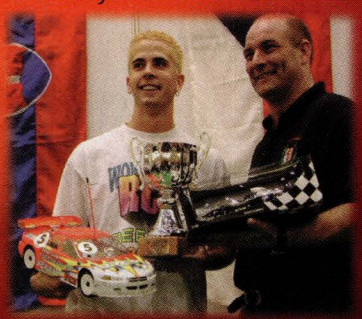
Reedy introduces the Fury "MW" series winds, the first motors specifically created to MAXIMIZE THE POWER OF THE NEW 3000 Ni-MH CELLS. These triple-wind armatures utilize a single large strand combined with two smaller strands to give you the best of both worlds... the high torque and power of double winds with the smoothness and efficiency of quad/quint winds. Ask Billy Easton, 1999 International Scale Touring Car World Cup Champion, whose winning TC3 was equipped with Reedy's Fury MW wind motor and Reedy R3K 3000 Mi-MH World Cells.

MILLENNIUM MW WIND





Billy Easton
'99 ISTC World Cup Champion
- Reedy Fury MW 12 Triple
- Reedy R3K World Cells



MILLENNIUM MW WIND

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- #422 Fury MW Armature 13T

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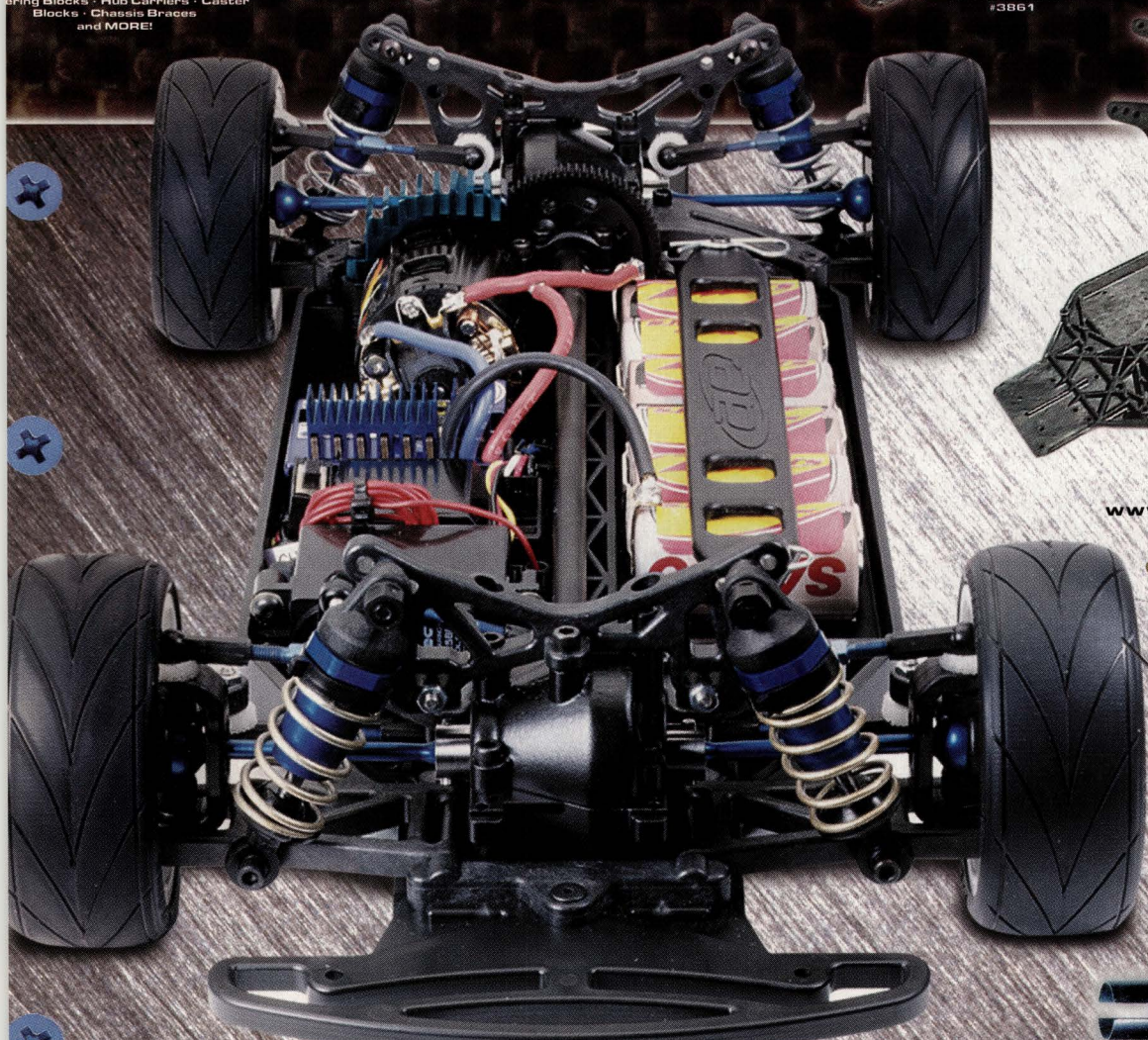
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HOW TO GET STARTED IN R/C

Part 1: Electric cars & trucks

by Jimmy Babcock



Here's a sample of some of the things you need to get a good start in R/C racing!

I was asked by the editors of R/C Car to compile some information on what equipment is required to start you off in the field of radio control car racing. As most of you may or may not know, I am the shop manager and race director at Hot Rod Hobbies, and have quite a bit of experience in the R/C industry and hobby shop business. I have been racing R/C cars and working in the industry for nine years now, and have seen and learned a lot on the subject. I have also sold tons and tons of R/C equipment over the past few years via my employment at a hobby shop and have gained extensive knowledge of what it takes to get involved and started in the hobby.

First steps

With all that said, let's move along to the topic at hand—getting you, the new racer, into this great hobby! When a customer first walks into my shop and inquires about the cars and pricing, my first question is always the same one, "What are you planning on doing with your new car?" There are several reasons why I ask this question, but the main one is to find out if they plan on racing the vehicle or just playing in the yard with it. The answer to this question helps me find the car that is right for them. For example, if they are planning on just playing in the yard, they certainly don't need to spend big bucks on a full-blown race model with all the hop-ups included. If they hint to me that they may want to start racing, only then do I point them in the direction of the competitive race models.

To me, it's all about getting the customer the best car and price for their application. This is true for both electric and gas-powered cars alike. Let's be real: if you are planning on simply buying a car for some backyard bashing, you do not need to spend hundreds and hundreds on the best cars available. But I do warn everyone that if you have just the faintest clue that you may want to race in the future, do yourself a favor and buy the better car, because it will cost you a lot more in the long run if you buy cheap and try to upgrade later! The best advice that I can give to a new and interested buyer is to ask as many questions as you can and try and go to the track and watch some racing first-hand before making any decisions or purchases.

You may not want to race at first, but after watching a race program first-hand, your mind may change quickly! Plus, while walking around the track, you can solicit a bunch of free info from racers who are totally impartial to any particular brand. You can actually get some honest answers without any sales pitch involved.

Hobby shop vs. toy store

The information contained in this article will mainly be focused on off-road racing, since that is the mainstay here at our hobby shop, but most of the info will be fairly universal and will apply to you no matter what branch of R/C you choose. I will begin by discussing some of the equipment needed for electric R/C racing. Again, you must decide what you plan on doing with your car. If you simply want a car just to play in the yard, you can usually get into the hobby for around $300. I know a lot of you are already discouraged by the price, but let me give you some legitimate reasons behind this figure. Sure, you can go to Radio Shack or Toys R Us and get a car for a lot cheaper, but what happens when you finally break it (and you will)? Usually you can't get any replacement parts for those types of "disposable" cars. Bottom line: you spend over $100 on one of those cars and the first curb you hit you are out all your money.

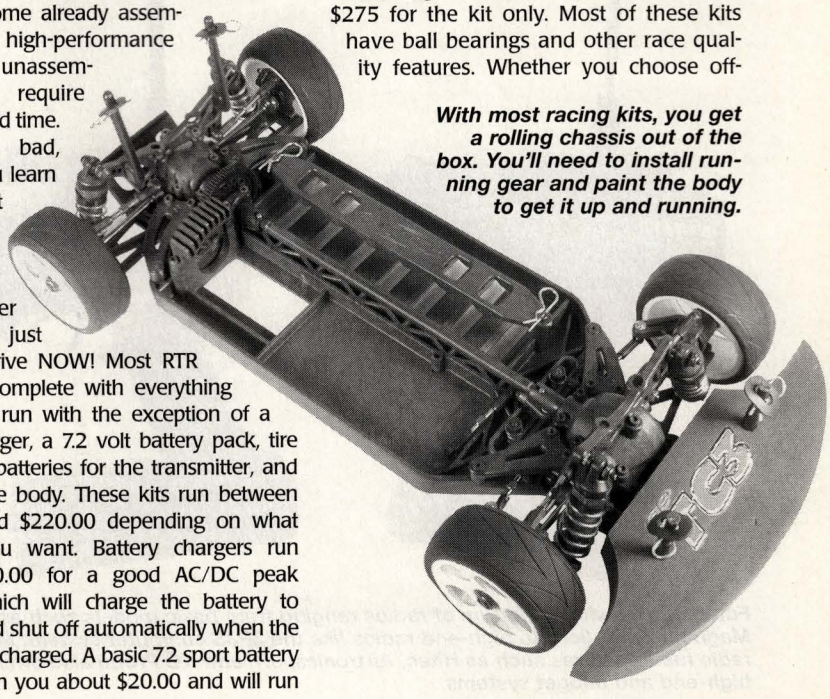


With the cars we sell, i.e., hobby-grade kits, there are replacements for each and every part. In most cases, anything you break on the whole car can be fixed for just a few dollars. Point number two: performance and handling. The cars that are sold at most hobby shops are high-performance machines that require continuous maintenance. They are not toys, but more like real racing machines that can be tuned and modified for better handling. Kids and adults alike can learn about mechanics and how to dial-in for better performance. Believe it or not, most hobby-grade R/C cars have tons of adjustments that can be used to gain better handling on all different types of terrain.

Traxxas is one of the companies that is great when it comes to sport-level R/C kits. Our biggest sellers here at our shop are the Traxxas ready-to-run (RTR) kits. These are the $300 kits I was referring to earlier. These kits are great for the beginner for the simple fact that they come already assembled. Most high-performance kits come unassembled and require hours of build time. This isn't bad, because you learn more about your car, but is not good for the younger racer who just wants to drive NOW! Most RTR kits come complete with everything required to run with the exception of a battery charger, a 7.2 volt battery pack, tire glue, 8 AA batteries for the transmitter, and paint for the body. These kits run between $180.00 and $220.00 depending on what features you want. Battery chargers run around $50.00 for a good AC/DC peak charger, which will charge the battery to capacity and shut off automatically when the pack is fully charged. A basic 7.2 sport battery pack will run you about $20.00 and will run the car for approximately seven to nine minutes. Sure, you can buy better chargers and batteries to make your vehicle run longer and run faster for a little more money, but for the backyard racer these basic components will suffice to start. Tire glue will cost approximately $4-5 and paint is usually around $3.50 a can. So with these RTR kits and the few additional supplies, you can be ready for action for around $300.

So you wanna race?

Now on to the full-blown race R/C car! If you have made up your mind that you don't want to mess around and that you want to go directly into racing, pay attention now and this info should help you decide what you want. Most racer kits that are available at hobby shops come unassembled and require a lot more effort that the RTR kits. First of all, the kits come with just the car itself. What I mean when I say "just the car" is that no other electronic components are included. All you get is a rolling chassis. These kits for electric racing usually run around $175 to $275 for the kit only. Most of these kits have ball bearings and other race quality features. Whether you choose off-



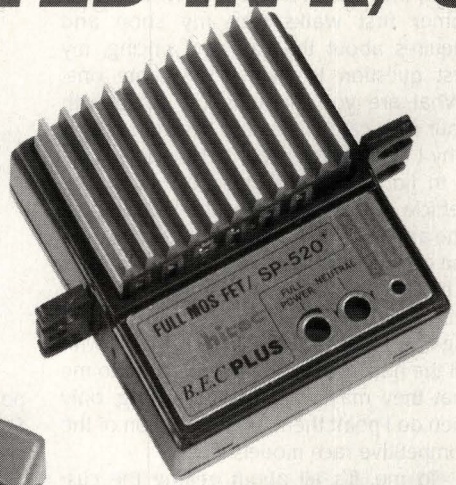
With most racing kits, you get a rolling chassis out of the box. You'll need to install running gear and paint the body to get it up and running.

HOW TO GET STARTED IN R/C

road, on-road, paved oval or dirt oval, all the following equipment will be required to become race ready. Most of the car kits in all four categories are between the price range above, give or take a few bucks.

After you've chosen the car you want, your next decision will be what kind of radio control unit you want. Choosing the right radio can also be tricky, but if you ask a lot of question about all the features of each, your decision will become easier. To be fairly basic, radios come in either AM or FM. AM radios run anywhere from $60 to $120, whereas FM radios are in the range of $150 plus. To explain radios in simple form, FM radios send a clearer signal than AM radios, which will cut down on the threat of any interfering signals (glitches). Kind of like your car radio, FM channels come in clearer than do the AM stations most of the time. Same thing in R/C racing. I'm not saying that AM radios are bad; most racers across the world use AM radios, but FM sends better signals which doesn't hurt. The choice is yours as far as radios, so once again ask as many questions as you can. Most radios come with a servo for steering and a receiver to pick up the signal from your transmitter.

Your next choice will be the speed control. A speed control does exactly what it's name implies. It regulates how much power the motor is getting via the radio control. For example, when you pull the trigger on your radio half way (or half throttle), your speed control will allow the motor to go half speed as well. A basic electronic speed control (ESC) will cost about $55 but you can spend up to $140 if you want an ESC with more capabilities, e.g., higher frequency, programmable performance, better efficiency. Also, if you plan on running modified motors, which I will explain next, you will need to check the specifications on each speed control, as some speedos will not handle faster motors and may burn up.





ESCs also come in a wide variety of shapes, sizes, and are suited for many different applications. This Novak Cyclone TC (left) is an example of one of the high-end units the market has to offer. The Hitec ESC on the right is best suited for beginners looking to get into the hobby that wants an ESC they can pop in their car and go without having to spend an arm and a leg.

Next on the list is motor selection. Most of you who are beginners will automatically start in the novice class which is restricted to stock motors only. Stock motors are basic bushing-equipped motors that are limited in speed for competition reasons, whereas modified motors are quite a bit faster and are unlimited as far as what you can do to them. With mod motors you can basically do whatever you want to make them as fast as you like, but I definitely do not recommend them to beginners until they gain a bit more driving skill. Stock motors run about $30, and a typical modified motor will be approximately $50. Also needed, but usually not included in most kits, is a pinion gear. This is the gear that goes on the motor to connect the motor to the drive train of the vehicle. These run about $4 and are available in several sizes that can be changed very easily for different gearing options.





Futaba has a wide spectrum of radios ranging from basic models such as the Magnum Sport (left) to high-end radios like the 3PJS computer system. Most other radio manufactures such as Hitec, Airtronics, JR, and KO Propo also offer both high-end and budget systems.





Motors are another place where beginners need to pay attention. Don't go into your local hobby shop asking for the fastest motor you can put into you car if you've never driven an R/C car yet! Start out with a good stock motor and work your way up until you develop the skills needed to get around an R/C track without crashing too much first!

Budget chargers such as this new MRC Super Brain AC/DC charger will peak charge sport packs and even racing packs with ease. If you're serious about racing though, a high-end charging station allows you more control over the charging, and with some chargers, even the discharging of your packs.



Battery packs come in a variety of applications such as sport packs like this Orion V-Maxx assembled pack, or in racing trim as individual cells that need to be assembled into a pack.



Chargers are next on the list. A basic AC/DC peak charger will cost about $50 as mentioned earlier in this article. In my opinion, it is not necessary to buy a real expensive charger as long as you buy a peak charger. They basically all do the same thing but the expensive chargers do have a few more extra features that you may want to look into before buying. Also some of the more expensive chargers require a power supply to operate them which will add more zeros to your total. Battery packs are a very vital part of the R/C industry, since there are so many battery companies bidding for your business. Batteries are real simple, no matter what company you go with. Basically the more you spend on a battery, the more power and run time you will have. To start, it would be a good idea to get a few battery packs so that while you are running you can be charging as well, which will allow you to run more and sit around less. Batteries start at $20 and can get up to the $70 range.

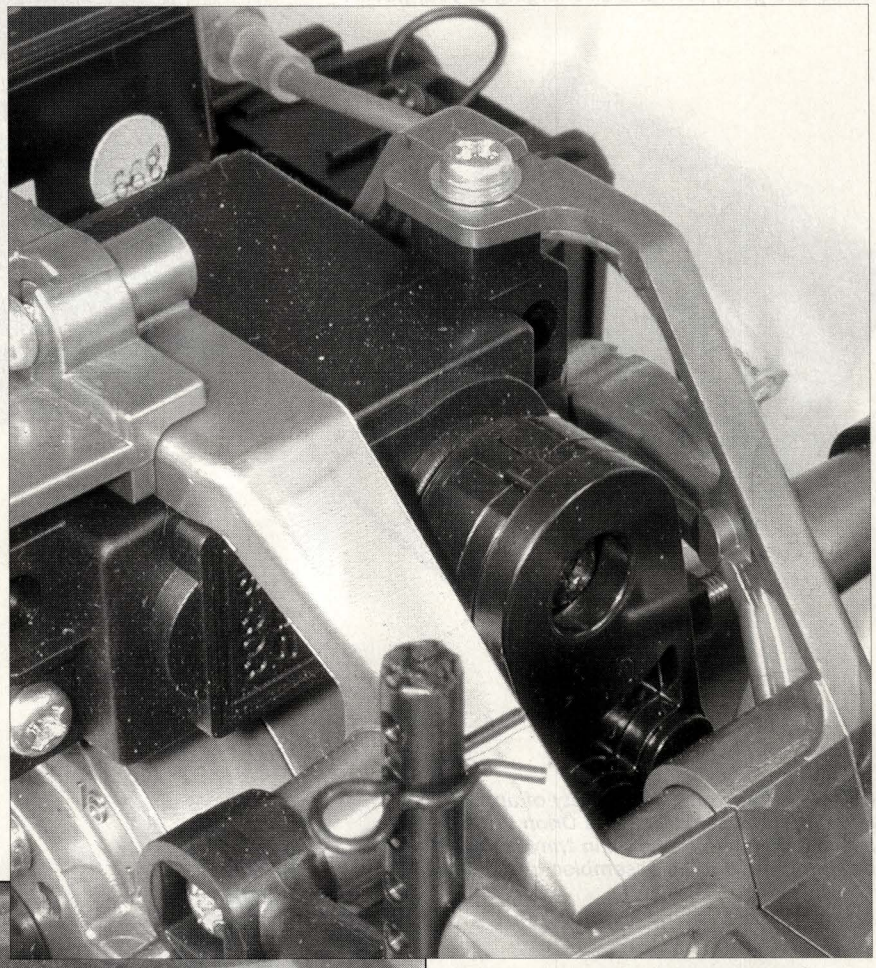
Servos are a very important part of your R/C racer. As stated before, you do get one or two servos included with your radio system but these servos are what we call stock servos and are not the best, because they come with stock plastic gears inside which have a tendency to strip out very easily. I would recommend buying a metal-geared servo as soon as possible to enhance the performance of your car, and also to cut back on the headaches you will suffer from having to replace the stock servo every couple

HOW TO GET STARTED IN R/C

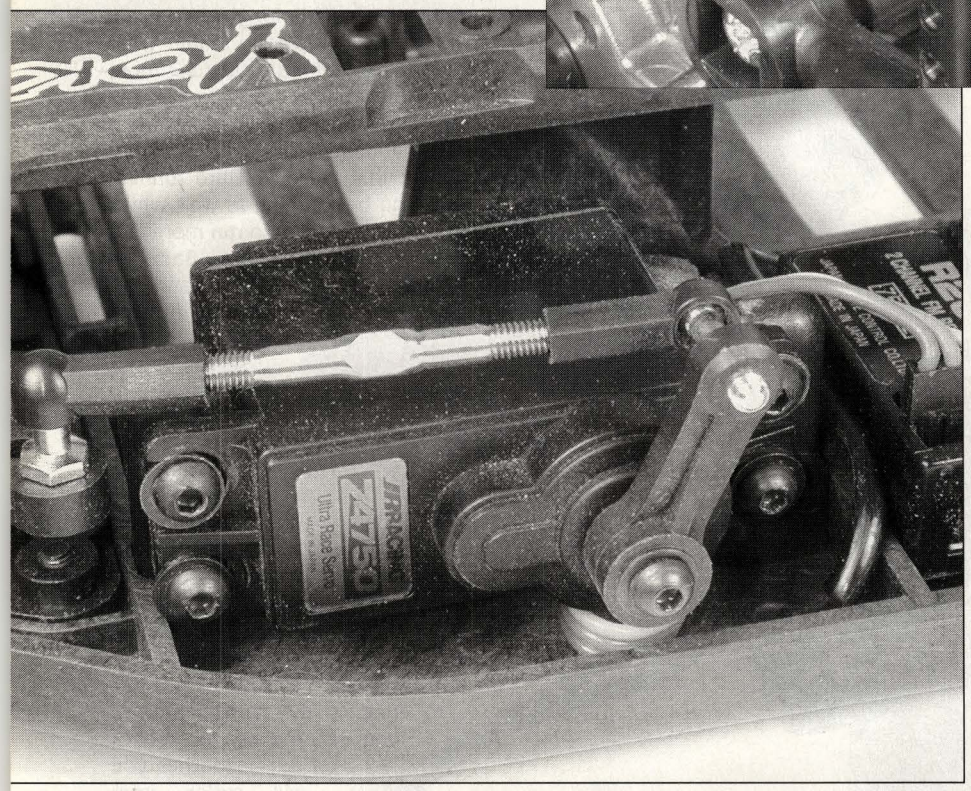
of runs. Also these metal-geared servos are a bit quicker as far as steering than their stock counterparts. A decent metal geared servo will cost around $50 and could reach the $100 range depending on the quality you want.

All that's left is a few extra accessories that you will need to complete your racing kit. First, you will need some tire glue to bond your tires to the wheel. Without the glue, your wheel could spin inside your tire resulting in no acceleration. Second, you need at least one can of Lexan paint for your body or cover, which usually comes clear. Multiple cans can be bought if you want more than one color in your paint scheme. Most racers come with a bunch of decals to highlight your paint job. Remember that paint should be applied to the inside of the body and decals applied to the outside. Finally, you will need 8 AA batteries for the transmitter unit in order to power it.

That does it for all the stuff required to race a professional-type R/C car. Keep in mind that there are dozens of companies that make the same items and it is your responsibility to ask the salesman to explain the features of everything you are purchasing in order to receive the best possible equipment for you! Remember that the above mentioned comments refer to electric powered R/C racing cars, and for gas powered cars you will need different components which will be discussed later.



Budget servos don't have a ton of speed or torque, but they make up for the lack in power with their low retail price. While these servos aren't the most powerful, they will work well in certain entry-level off-road buggies and touring cars.



If you want to race you'll need a servo that has both a decent transit speed (faster servo), and one that has more torque (to turn bigger tires faster and easier). While they may cost twice as much as a standard budget servo (and maybe a little bit more in certain cases), this is a case of you get what you pay for!

Well that does it for the electric segment of this article. I also want to mention while I'm at it that electric R/C racing is definitely recommended over gas power R/C racing for beginners to the sport. There is nothing wrong with gas powered vehicles, but they are a whole different breed of car that requires extensive knowledge of gas engines to be successful. I would definitely start with electric and then gradually transfer to gas if you so desire. Both electric and gas have their own advantages, and it is up to you to figure out which direction you will go. Hope all this information helps, and I am glad that I could be of some assistance to all you new racers out there because we definitely need you and want you to come and join in on all the fun! ◆



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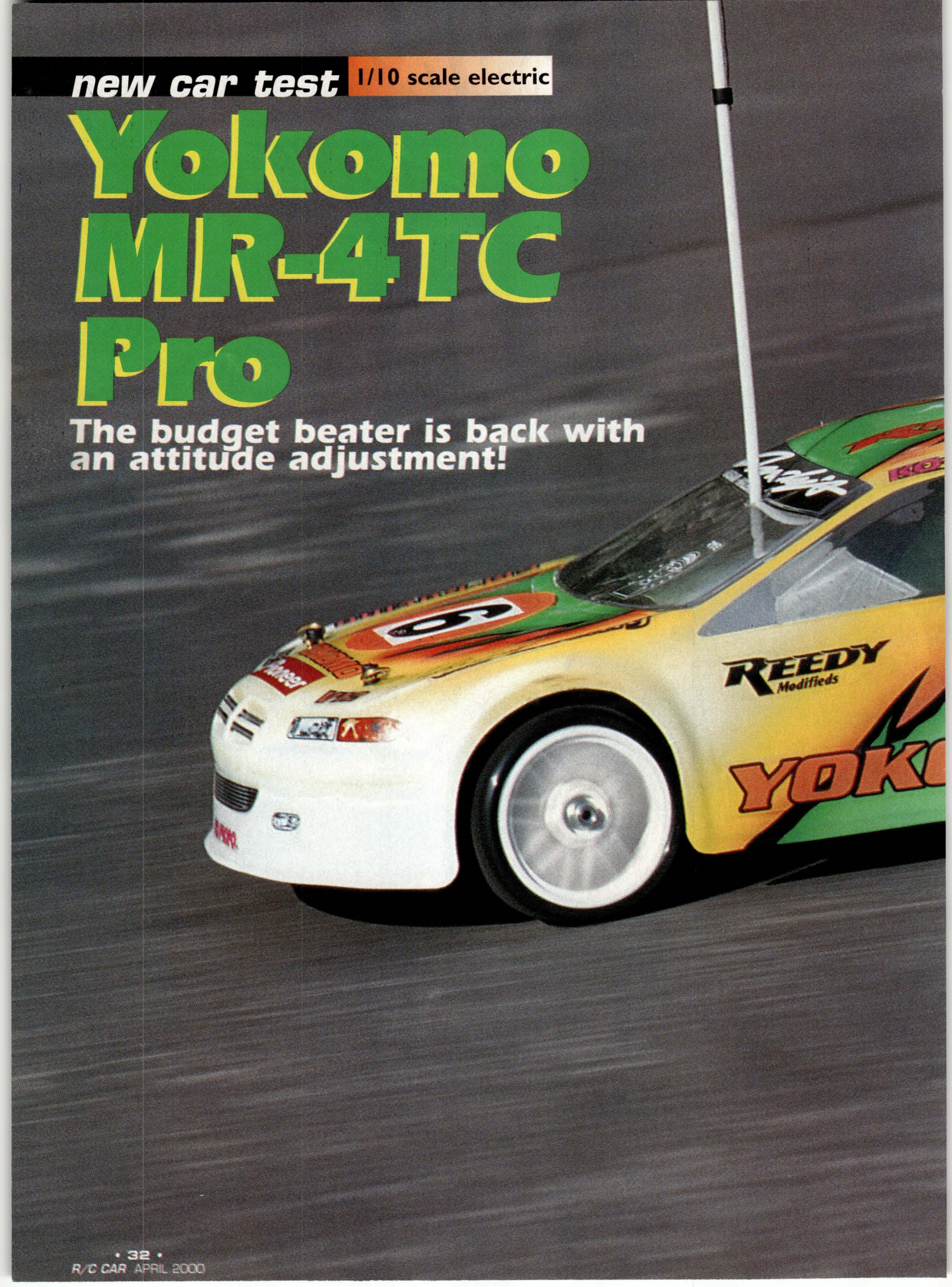
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Yokomo MR-4TC Pro

The budget beater is back with an attitude adjustment!





Those who are familiar with the touring car scene are well aware that Yokomo scored a major hit last year with the release of their MR-4TC. The car was intended to be a budget-style racer by way of incorporating an inexpensive plastic molded tub chassis into its design instead of the everyday graphite plate setup that almost everyone else was using. The car featured such raceworthy items as adjustable ball-diffs, a twin belt ball-bearing supported drivetrain, and oil-filled shocks. The car also featured a low street price of around $150-160, which really helped turn people's heads!

Interestingly enough, even though it was aimed towards the budget-minded crowd, it raced extremely well out of the box. As a matter of fact, Yokomo didn't foresee just how popular the car would become with the so-called "high-end" racers. Even Yokomo's team drivers were pleasantly surprised with how dialed the car was– Barry Baker and Masami Hirosaka completed a one-two sweep with their MR-4TCs at the hotly contested International Reedy Race Touring Car Championship against some of the most advanced touring car designs on the market. The budget-based car has since gone on to win numerous other races as well.

So how do you top such success? Well, you give the fans what they want–a pro version. Seeing that the car was so well received by racers, Yokomo felt it was time to release an all-out pro version of the winning car complete with all the goodies.

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So what does the MR-4TC Pro offer?

Instead of going over each and every feature of the car (for an in-depth look at the original MR-4TC, see *R/C Car*, September '99), we're going to give you a look at what the new version offers.

• First and foremost, the MR-4TC Pro comes equipped with a new low-CG graphite composite main chassis. This helps reduce overall weight while adding rigidity. The chassis also positions the cells lower to help enhance the car's handling abilities.

• An all-new lightweight upper deck with adjustable bump-steer comes standard. The deck has two holes in its center—by placing an alloy post in either hole, you can adjust the car's "flex point." If you want the car to be as flex-free as possible, you can run two posts instead of one.

• One of the most popular hop-ups for the original MR-4TC was the aluminum motor mount. This piece provided additional cooling for the motor, and it also helped hold the motor setting (crucial to proper pinion/spur gear mesh) more accurately.

• The original car had a completely sealed chassis, so the motor didn't receive any cooling air from underneath the chassis as on other touring cars. The MR-4TC Pro now comes with a lower motor heat sink to provide additional cooling along with the previously mentioned aluminum motor mount.

• A lightweight aluminum main gear adapter replaces the standard unit. The new alloy piece is lighter, provides less rotating mass, and will last longer than the standard piece.

• Low-friction belts spin smoother, which provides a more efficient drivetrain. The new belts are more stretch-resistant, and should last longer than the originals.

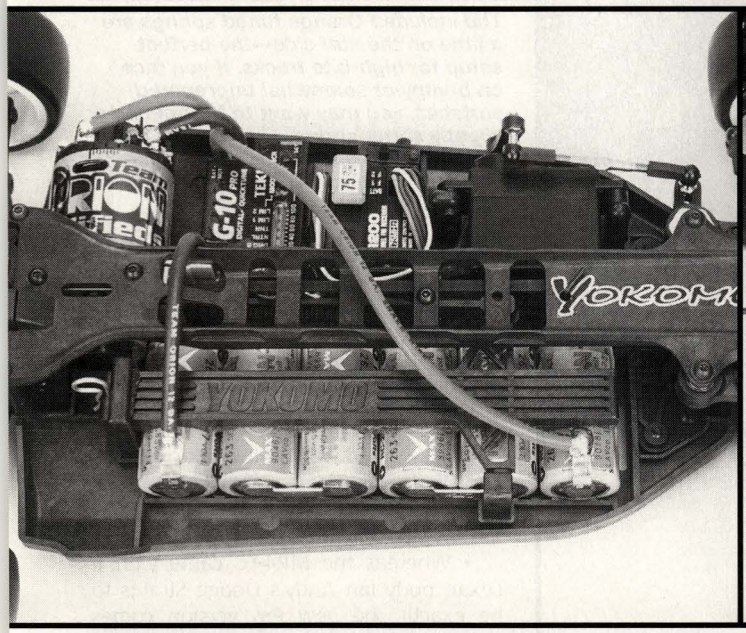
• Low-friction constant-velocity lightweight universals are lighter, so they spin faster, which means quicker acceleration.

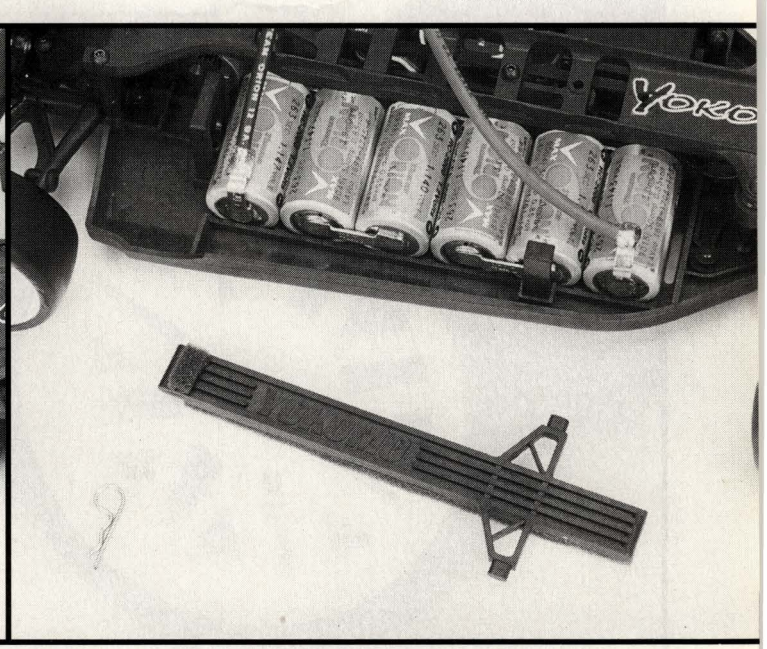
• New lightweight steering posts help reduce overall weight. While not a crucial hop-up, every bit of weight savings helps.



Test Gear

- Team Orion V•Max 30A 2000 cells
- Team Orion Pilot Modified motor (10x2)
- JR Propo 4750 servo
- Tekin G10 Pro ESC
- Protoform Dodge Stratus body





This handy battery "strap" makes it easy to access the batteries. Remove one body clip, slide the piece forward, and that's it! It also holds the cells very firmly in place in the event of an on-track mishap... not that we have any experience to pull from...

• Aluminum shocks with threaded shock bodies, on the other hand, are considered a desired hop-up. The new aluminum shock bodies are ultra-smooth, and are easy to tune thanks to the threads in the body. Basically, threaded shock bodies greatly aid when it comes to tuning chassis tweak. The shock pre-load can be altered incrementally to suit any setup need.

• Yokomo's 1450 Orange tuned springs have proven to work best on most track conditions, so they were included as standard items.

• Lunsford titanium turnbuckles are the best in the business, so it comes as no surprise to find them in the kit. They're much lighter and stronger than steel, and they're worth every ounce!

• Full ball bearings (including the steering) help the drivetrain and steering work as smoothly as possible.

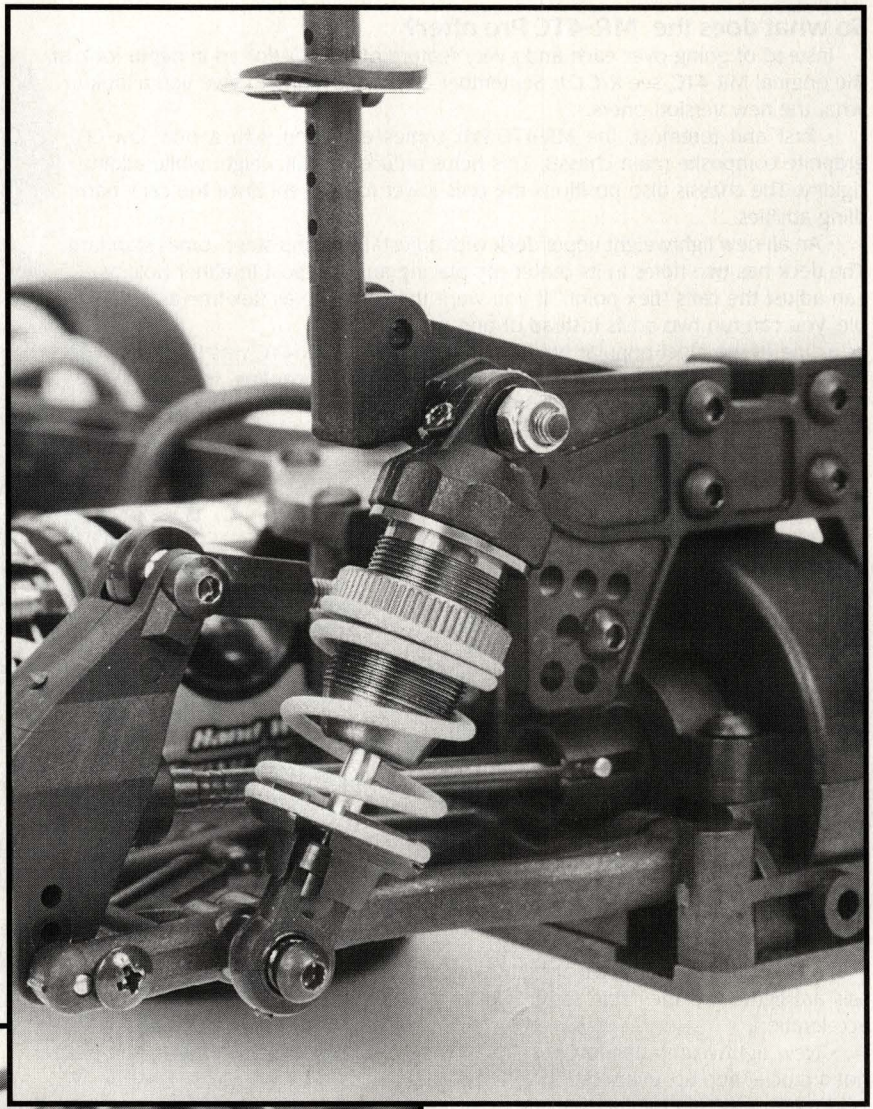
• Socket head hex screws replace the standard Phillips head hardware—nice touch.

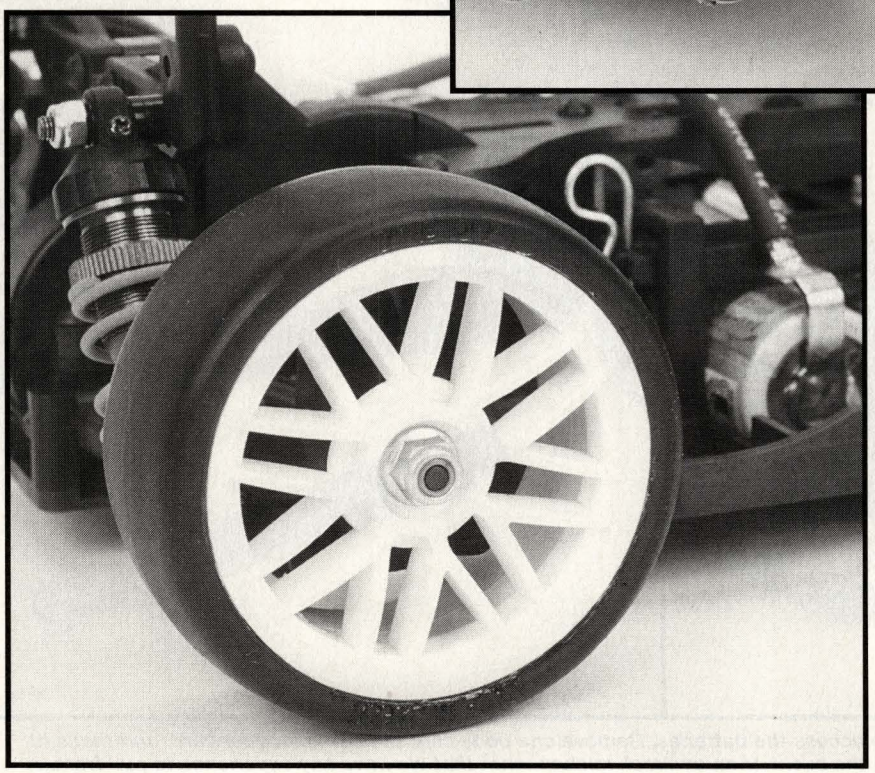
What we like

• Race-oriented consumers will easily appreciate what the MR-4TC Pro has to offer. It comes with all the options that most MR-4TC owners would add on sooner than later.

• The price is right—with a street price of around $209.99, this hop-up filled racer is quite the bargain.

• It works right out of the box even better than its predecessor. The original MR-4TC worked well on the track in stock trim—this version works even better.



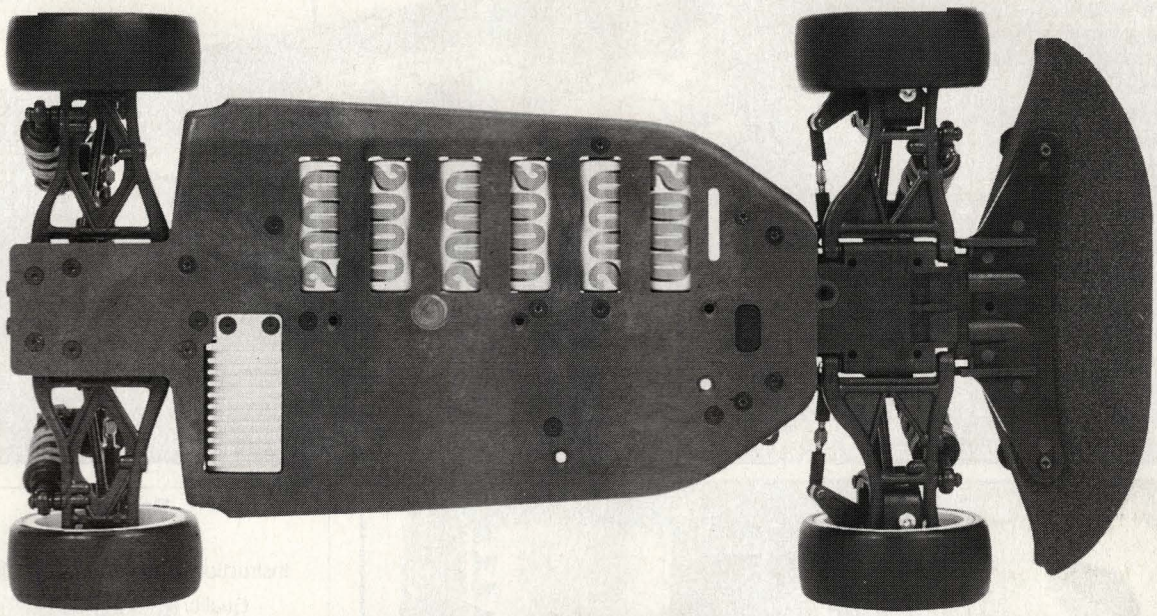


The included Orange tuned springs are a little on the stiff side—the perfect setup for high-bite tracks. If you race on bumpy or somewhat unprepared surfaces, you may want to try running a slightly softer spring. The threaded aluminum shock bodies are a nice touch, and make tuning the car a much easier process.

Yokomo makes some of the best tires in the business! After we wore out the set included with the kit, we mounted up a new set of Take-Off tires and gave them a try at our local track. Overall wear was good, as was on-track performance on medium- to high-bite tracks.

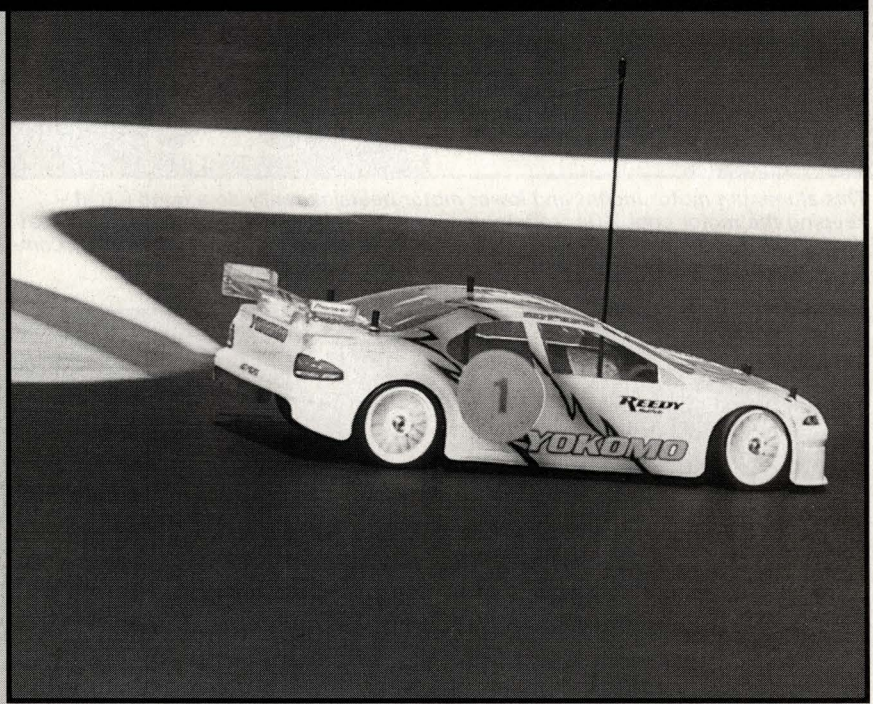
What we don't like

• Whereas the MR4-TC came with a Lexan body (an Andy's Dodge Stratus to be exact!), the new Pro version comes sans body; a mild disappointment, but it's one we'll get over.



One of the most significant changes to the MR-4TC Pro is the addition of a new graphite composite chassis with slots cut out for the batteries. Also new is the lower aluminum motor heatsink—this along with the aluminum motor mount helps keep the motor very cool!

Test Notes



● When you review over 50 R/C kits per year, it helps to think of each one as completely new and different—doing so makes everything seem fresh and innovative. Forget that we reviewed the MR-4TC a scant six months ago—the Pro is a new car in our book! And we really do feel that Yokomo has made substantial changes to its MR-4TC. With this in mind, we began our testing with the goal of gauging the results of these changes.

The Pro has been designed as a stiffer, lower car than the regular 4TC. This is apparent in its new low-CG chassis with its adjustable stiffness and in the springs that Yokomo included in the kit—they are super-stiff. We assumed that the Pro wouldn't work well on our bumpy test track, but we were pleasantly surprised by how well it worked once we dialed-in more chassis flex. Softer springs would help stability on tracks that aren't pool-table smooth, but the ability to alter the flexing characteristics of the new chassis is helpful.

The Pro is super-responsive in the turns. We found that lap times could be substantially improved by using the transmitter's dual-rate function to reduce steering throw in both directions. As we dialed-out steering, the Pro became faster through the corners. Most racers think that more steering is better, but in reality, most cars turn too much, which actually slows you down. On-power steering with a mod motor proved a bit twitchy, but control was never an issue thanks to the stiff kit springs, which A) never allowed the chassis to roll much if at all, and B) contributed to greater stability during corner exits.

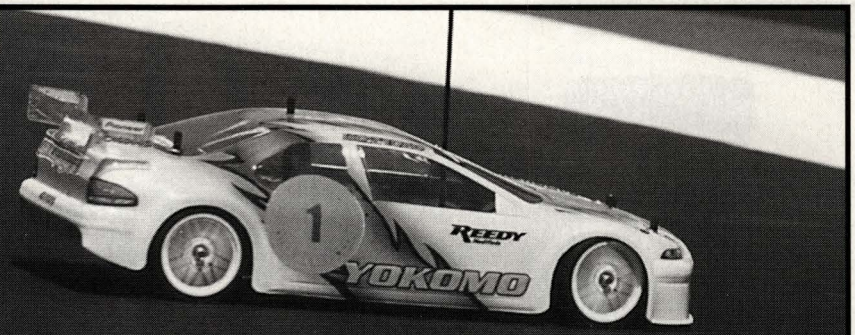
The changes that Yokomo has made to the Pro's drive train have created a noticeable difference in acceleration and run time. With the new low-friction belts and lightweight driveshafts, acceleration and throttle response is improved. And because the old car's belt covers have been eliminated, and because of the new motor heatsink (which works very well—other manufacturers should take note), the motor and batteries remain cooler. Translation: longer run time and more power at the end of the run. ●

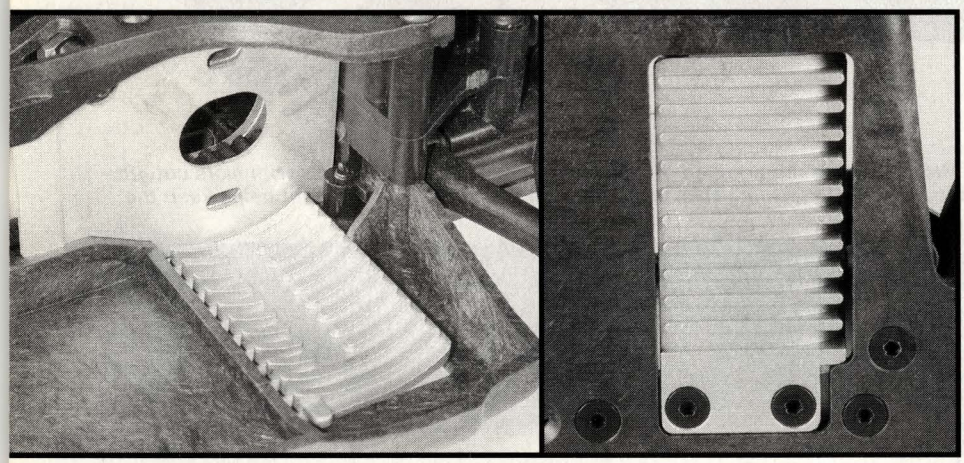
new car test

YOKOMO MR-4TC PRO

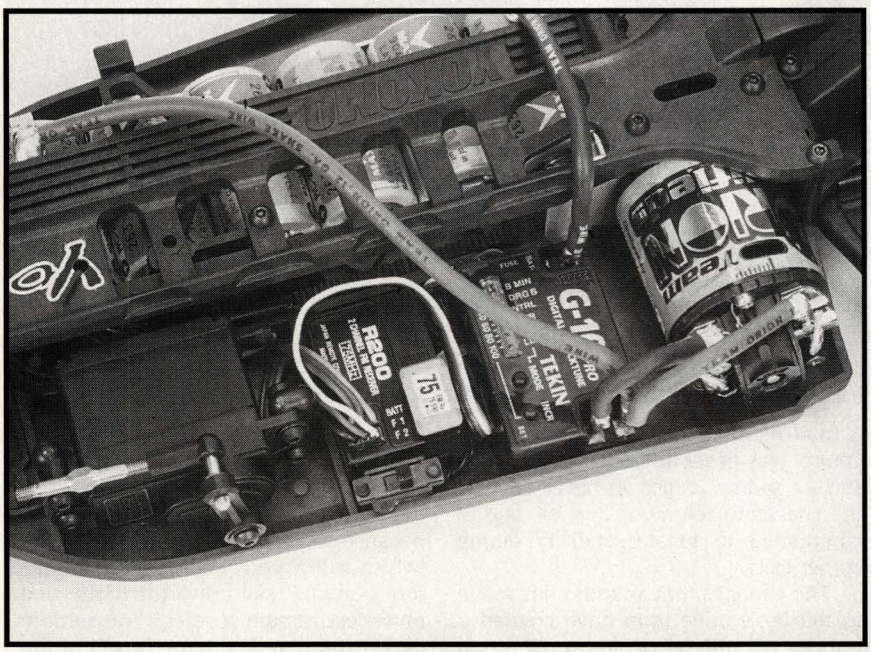
Type: 1/10-scale electric-powered 4WD touring car
Manufacturer: Yokomo USA, 17951 Skypark Circle, Ste. K, Irvine, CA 92614 • (949) 252-8663; (949) 252-8657 (fax)
Price: $380 (est. street price $209.99)
What you get: A complete rolling chassis. You must purchase a two-channel radio system w/steering servo, electronic speed control, 6-cell battery and charger, a Lexan body, and paint for the body.

Length 13.4 in/342mm
Width 10.1 in/258mm
Wheelbase 7.4 in/189mm
Weight (RTR) 3.3 lb/1500g

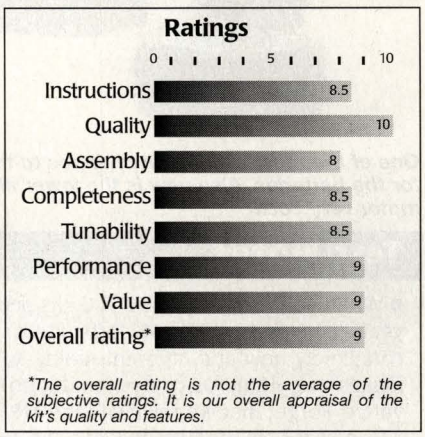




This aluminum motor mount and lower motor heatsink really do a good job at keeping the motor cool. After running a few packs through the car we noticed that the lower heatsink was hot, then felt the motor—it remained relatively cool by comparison. Both heatsinks do a very good job!



The car seems to be very balanced with all the electronics on one side, offset by the batteries on the other.



**The overall rating is not the average of the subjective ratings. It is our overall appraisal of the kit's quality and features.*

• Changing pinion gears takes a little time (you need to remove five screws to gain access to the gear train).

What we really think

• The MR-4TC Pro takes off where the original 4TC left off—and then some. For the money, this is a car that is going to be hard to beat. It has already proven that it has what it takes to win on a local, national, and even international level. We found it to be every bit as easy to build and set up as its predecessor, and it's easy to drive fast lap times with this car. We really think that the MR-4TC Pro is poised to become one of the most popular releases this year. We expect to see it in many racers' pits in the near future. ◆

SOURCES

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The competition's tougher, the stakes are higher — and that's why the MP-6 and MP-6 International are the best Infernos ever to scorch the competition.

The features that helped the MP-5 earn an unprecedented 4th straight IFMAR 1/8 Scale 4WD Nitro Championship have been carried over in to the MP-6, and combined with fresh new ideas for nitro; together, they put the heat on the other guy — and turn it just a little bit higher.

Proven components from the MP-5 include the big 46T composite spur gear, protective receiver box, ground-grabbing X-pattern tires and Turbo oil shocks, as well as the 2-piece clutch, wing and wing mount, 125cc fuel tank and plastic side guards.

The servo saver's the same too... but the front knuckle arm kingpins on the MP-6 are set at 6°, which lightens the servo load for faster response and quicker cornering. The clutch bell is one piece, machined for more durability. There's more front kick-up for less "digging in" on landings. Soft and hard springs to mix or match with medium springs. Single rear link "I" suspension arms w/adjustable upper arms. Single stainless steel disc brakes front and rear. Smaller, more efficient bevel gears. A built-in transponder mount. An anodized chassis. A new body — and more ways to make the other guy sweat.

In fact, the MP-6 is so well equipped that only one buggy can go it one better: the MP-6 International. All you need are the wheels, tires & wing. The MP-6 supplies: dual stainless steel brakes; front, rear and center universals; a ball bearing servo saver; turnbuckles; a hardened steel spur gear; hardened, 3mm aluminum shock towers and chassis and Teflon® oil shocks. There's even more — but you can see them at your local hobby shop.

For the location of the store nearest you, please call 1-800-682-8948, and mention code number 2927C.

Inferno Takes 7 of 10 Top Spots in Ohio!

The Inferno dominated the A-Main at the CRCRC Off-Road Indoor Gas Championships held in Hillard, Ohio on February 6.

Peter Head of Ontario, Canada, won and Dave Henry TQ'd in a field of 66 drivers. The Inferno swept the top three spots and 6th through 9th positions — 7 of the top 10 A-main spots!

Finished	Qualified	Laps	Time	Name	Buggy
1	4	103	30:04.12	Peter Head	Kyosho Inferno MP-6 International
2	3	103	30:09.84	Kevin Wilson	Kyosho Inferno MP-6 International
3	1	101	30:20.92	Dave Henry	Kyosho Inferno MP-6 International
4	0	100	30:07.47	Allan Richards	Mugen Super Athlete
5	8	99	30:16.13	Tim Long	Mugen MBX-4
6	5	98	30:15.82	Lee Morrison	Kyosho Inferno MP-5
7	9	96	30:06.81	Tyrone Wright	Kyosho Inferno MP-6 International
8	6	93	30:07.17	Tony Hopper	Kyosho Inferno MP-6 International
9	2	69	21:39.71	Doug Von-Mosh	Kyosho Inferno MP-6 International
10	7	25	8:17.59	Kris Moore	Mugen MBX-4

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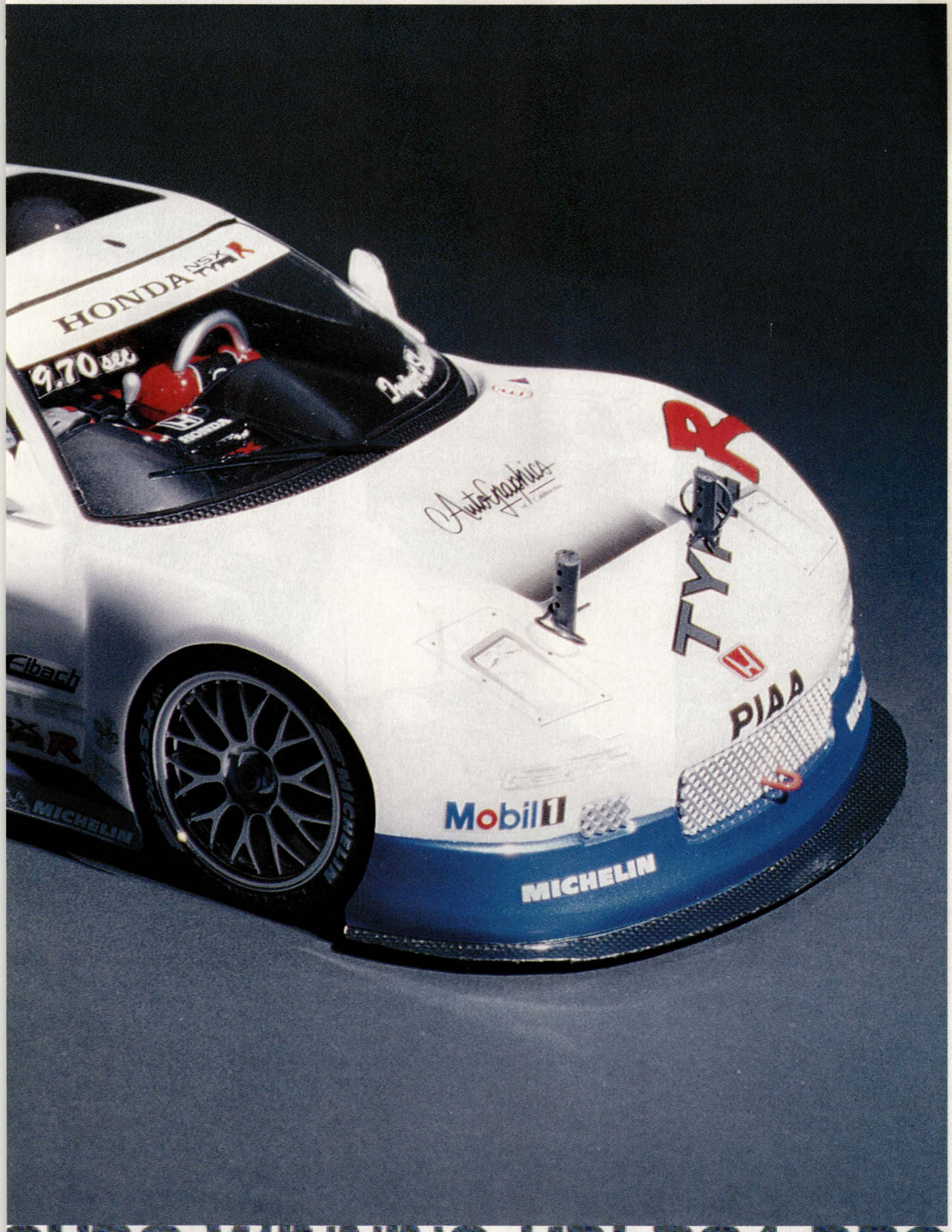
www.kyosho.com



At the recent HPI World Challenge at Honda's USA headquarters in Torrance, California, Ian Aquino rose above the rest of the competitors in the Concours competition with his stunning NSX replica. There were many cars that caught the judges eye, but it was Ian's work that kept them coming back for another look. As you can see here, the car is a nice piece of work! After the competition was over (and Ian had a chance to relax), we took him and his girlfriend Jennifer aside for a quick photo shoot to document the winning car for the race coverage. It was then that we thought–"Hey, why not give the readers a more in-depth look than just a single picture of him and his car."

So we decided that to best appreciate the work that went into this machine you'd need a truly hands-on look at what the car looks like from front to back, as well as inside and out. Hopefully Ian's car will inspire all you Concours stylists out there to come up with your own competition winner. Remember, ingenuity is the key when it comes to creating the perfect Concours winner, and we think you'll agree that Ian's work is worthy of the win!

INSIDE IAN AQUINO'S CONC

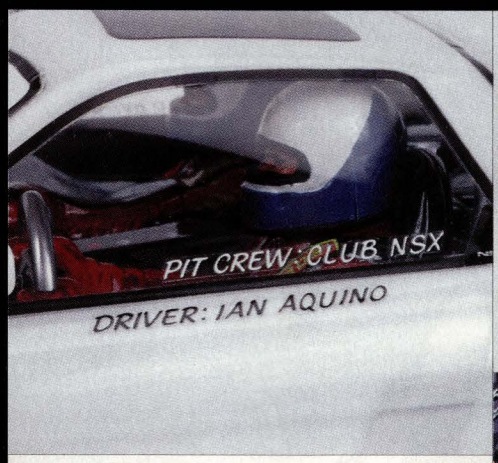


OURS-WINNING HPI RS4 PRO

INSIDE IAN AQUINO'S CONCOURS-WINNING HPI RS4 PRO

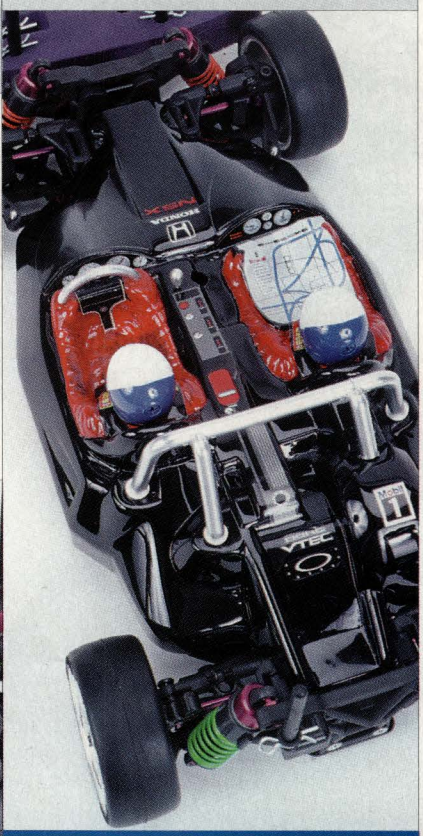
Here are some of the items Ian used to create his Concours winner, along with a few items used to accent the RS4 Pro kit underneath it all.

- A standard 190mm HPI NSX body set was used as the starting point.
- For the interior, Ian chose to use HPI's new Rally interior set, complete with co-pilot.
- HPI graphite decal sheets were used to accent the grilles.
- HPI's wheel decals were used to help give the tires a more authentic look.
- Autographics lettering decals add a "race" look to the car.
- Tamiya decals, side mirrors, and front windshield wiper help compliment the stock body set.
- Parma mask templates were used to help create perfect lines.
- Pro-Line disc brakes were added to the stock HPI wheels to help create a more realistic-looking package.
- A Kawada touring wing replaces the stock Lexan unit that comes with the body set.
- HPI chrome mesh wheels look like the real deal.
- Eagle Racing colored aluminum wheel nuts help add that extra touch.
- BoLink Instant Tint mask keeps you guessing at what's inside!
- The plastic mesh used to make the grilles is from Michael's Art Store.
- The license plate on the rear of the car was printed off Ian's computer.
- A red-coated paperclip was used to make a front and rear towhooks.
- A cushion pin was used to make the shift knob.
- The spray can paint job consists of Pactra Pearl White, White, Silver, and Blue Lexan spray, while Blue, White, Flesh, and Matte Black Model paint was used on the interior. Aluminum Model Masters paint was also used on the interior rollba, front and rear grilles, and the wing..













Ian Aquino



Age: 22
Hometown: Rowland Heights, CA
Been into R/C since: 1989
Other hobbies: Computers/creating web sites—check out his site at http://members.xoom.com/taobracing

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Gas trucks are as popular as pro wrestling. Or at least it seems so. Everyone loves 'em. They are hugely popular with off-road racers, yet they are also among the largest segment of R/C kits purchased by sport drivers and fun-runners. At our local track, it's the gas trucks that garner the most attention from those not yet involved in the hobby.

Yet to some, the enthusiasm dies on the vine once they take a gander inside the kit box—all those bags filled with little tiny parts, uhh...no thanks. Rather than accept these lost customers, Associated has decided to take action. The new RTR (ready-to-run) RC10GT is the first-ever racing truck to come pre-built from the factory. But "pre-built" doesn't adequately describe the RTR; the shocks have been filled properly with quality silicone shock oil, the Stealth ball differential has been set for you, and a Hitec Lynx radio system has been installed and set by the factory. All you have to do to run or race the RTR GT is to install eight AA batteries in the transmitter, four into the on-board battery holder, buy a glow-plug igniter, fuel, a fuel bottle, and lace-up your driving gloves. The body has even been painted for you (you can add more decals if you wish, but it's not essential).

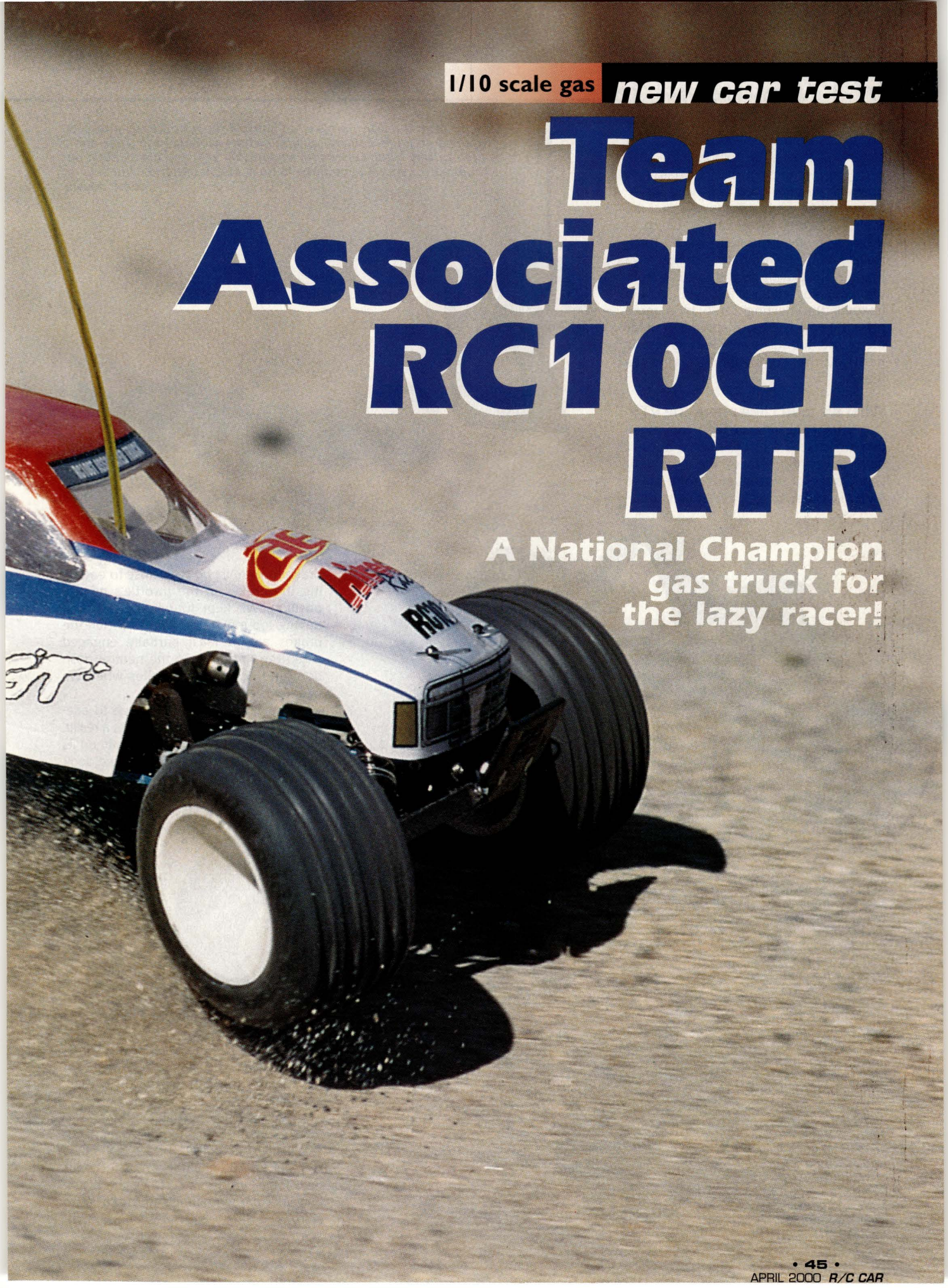
Did you guys really race the RTR?

Yup. We raced the RTR to prove a point: that this is essentially the same truck that has won numerous national championships at the highest level. The bottom line is that aside from having bushings instead of bearings, and a pull-start engine and different muffler, this truck is identical to what Associated has been selling to racers in kit form.

1/10 scale gas **new car test**

Team Associated RC10GT RTR

A National Champion gas truck for the lazy racer!



We club-raced our RTR, as the track owner had no problem allowing our larger .15 engine to compete (he also plans on selling a lot of RTR GTs!). And how did we fare? Well, we made the A-Main, and all we had to do was buy the "right" rear tires for our track, which in this case were Pro-Line M3 Truck Holeshots. Aside from this change, we left the RTR exactly as it had come from the box. For competition, you should upgrade the steering servo to a more powerful one, and that's about it. And for the record, the RTR's engine is as fast as most of the competition .12s we've tested.

What we didn't like about the RTR

• The brake linkage was too sensitive. Because the throttle servo doesn't have much brake-travel, there's a very short range of movement for the brake lever. In order to get full brakes, the brake lever must be very close to engaging the brakes in the throttle's neutral position. We kept foundering between having too much drag-brakes (when the brakes are at least partially engaged when the throttle is in the neutral position) and not enough brakes when we needed them.

• The body isn't wide enough to adequately cover the exhaust pipe. As a result, the body is pushed out significantly on its left side, giving the truck a "tweaked" look that we could do without.

Straight from the box, here's what you get for your measly sub-$300 expense—a multi-national championship-winning race truck and a high-quality Hitec Lynx radio system. Oh yes, and it's all been put together for you. All you have to do is install batteries and slap on some decals.





With the exception of a few minor tweaks, this is exactly how the RTR looks when you pull it from the box. Here's what's different between the RTR and the regular GT kit: the RTR has bronze bushings instead of ball-bearings (the tranny's idler gear is bearing-supported), has a new plate-style chassis (that will soon become the chassis of choice for racers), a different tuned-pipe that seems to favor the high end, and blue-anodized (non hard-coated) shocks).

What we liked about the RTR

• The truck is very well set straight from the box. The shocks are bled correctly, the throttle and brake linkage is pretty close, and the suspension settings, e.g., ride-height, camber and toe-in, are spot-on.

• We really like the new chassis. Forget that it's stiffer; the plate design makes it much easier to clean the truck. Oh yeah, it's blue, man!

• The Associated engine is a powerhouse. Our test engine started and ran excellently. The pull-start does feel a little stiff, but an ABC engine such as this does take longer to break-in. Once the piston and liner are worn-in, it's much easier to start.

• It's a GT!

The man behind the RTR

● Ready-to-runs aren't a new concept, but for Associated, undertaking the RTR GT project was a monumental decision for a company that has made its reputation by producing race-winning cars and trucks. We spoke with Gene Husting, one of the owners of Associated, about the new RTR and Associated's decision to enter this new market.

R/C Car: *Rumor has it that the RTR was your pet project. Why did Associated decide to enter the ready-to-run market?*

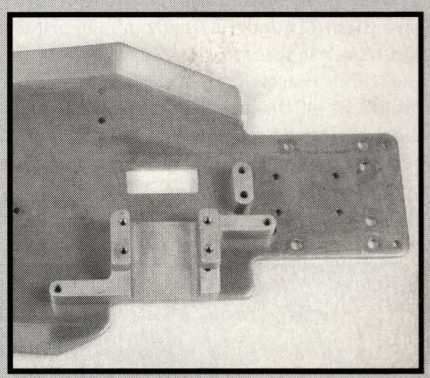
Gene Husting: We [at Associated] all agreed that we were losing market share of our bushing kits [Associated's sport-level kits] to companies making RTRs such as Traxxas, Horizon and Great Planes. We knew we needed to go in this direction, but we didn't have the knowledge to move ahead. Two years ago at the Chicago Hobby Show I was introduced to Mr. Aling Lai [the president of Thunder Tiger]. What we really needed in order to do an RTR was an engine. Horizon and Great Planes couldn't supply us with enough engines to meet our demands, so we talked to Mr. Lai about making an engine we could put into our kits at the volume we needed. He said that he could also make an RTR for us that would be priced competitively with what's on the market now.

R/C Car: *How did you decide which features of the regular RC10GT to keep and which to change for the RTR?*



Gene Husting of Associated Electrics is welcomed to Thunder Tiger's Taiwan headquarters by president Aling Lai.

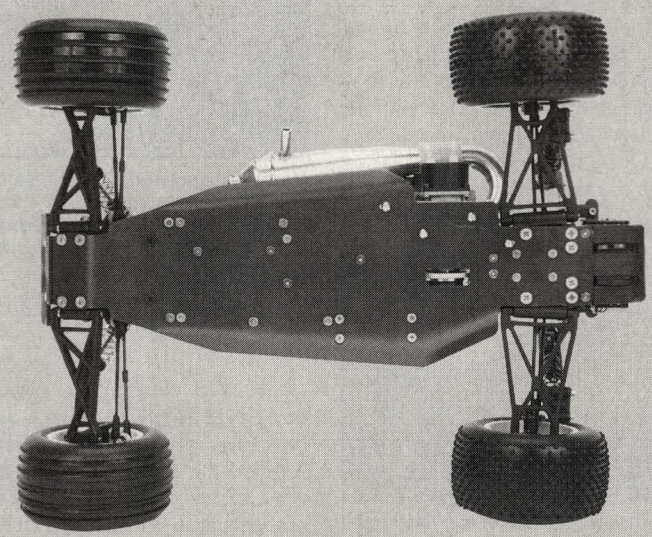
GH: In order for us to do the RTR project, and for them [Thunder Tiger] to make it, we had to change the chassis. Our normal RC10GT chassis is really very difficult to make, and on top of that, it isn't stiff enough. The new chassis is more stiff and it's thicker. They [TT] asked us if we wanted it in blue, and we of course said yes! Other than about six parts (which dealers can of course order from Associated), all the parts of the RTR are interchangeable with those of our regular gas truck.



No, you don't have to build the GT yourself. We took ours apart to show you the new engine mount. The new one-piece mount adds greater strength to the rear section of the chassis. The new Factory Team chassis will have a one-piece mount that will run right under the gearbox as well.

R/C Car: *So the new chassis will also be on the upcoming Factory Team version of the RC10GT?*

GH: The new Factory Team chassis will be quite similar to that of the RTR, but there will be another brace that picks up the two transmission mounting screws to further stiffen the rear of the chassis. Also, the bottom engine-mounting screw holes will be milled-out for a smoother bottom. And you'll be able to really crank on the screws more.



Blue-plate special: the new chassis is stronger and cheaper to make. How can you lose? The raised sides add rigidity. The chassis is also much easier to clean, as gunk can be flushed right over the sides. Associated will soon offer a Factory Team version of this chassis that will feature several differences, including a fully countersunk underside and a revised engine mount/brace.



The RTR GT assembly line in China. Associated was very impressed by the quality and attention to detail of this plant and its workers.

R/C Car: *Where are the RTRs assembled?*

GH: All of the engines and metal parts are made in Taiwan at Thunder Tiger's factory. The actual assembly of the trucks, and some of the injection molding of the parts, is done in China. The critical injection molding, including the whole tranny, is straight from Associated in the U.S. We gave them [Thunder Tiger] our blueprints and material specs for the arms, mounts and other parts. They sent us the first "pulls" of all the parts, and we inspected them and made any changes we felt were necessary to maintain quality. 99.9 percent of the parts are just like ours—just as good.



Thunder Tiger has state-of-the-art CNC machinery at its Taiwan factory. All of the RTR's engine parts and its metal chassis parts are produced here.

R/C Car: *How has it been working with Thunder Tiger?*

GH: The bottom line is that we would never have been able to produce a ready-to-run here—it would have ended up costing $800. We went to the same place that most everyone uses to make their RTRs, but we went with a company that we believe is the best at what they do. We (Associated) have the right to approve or disapprove of all parts that go on the RTR.

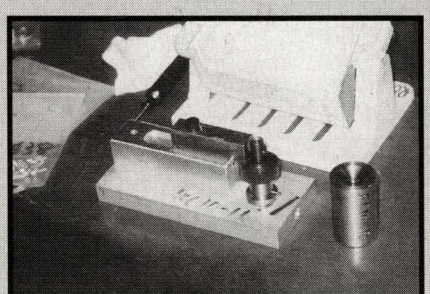
About two months ago I went to the Tokyo Hobby Show in Japan with Mr. Lai. From there we went to China. I was present during the initial assembly run. The people there were very impressive in how thorough they were. I made movies and showed them to everyone back at Associated. Thunder Tiger has been great. If we had to do it all again, we'd do it in a heartbeat.



In China, two women are responsible for filling the RTR's oil shocks. A special fixture is used to hold four shocks at a time and allow for all the air to exit the oil prior to bleeding. Notice the Coke bottle filled with shock oil!

R/C Car: *Tell us about the new .15 engine.*

GH: When Thunder Tiger asked us about doing an engine, I said I wanted the engine done our way—that we could show them how to make a better engine. Mr. Lai was great; he asked questions and learned some things from us. We wanted to make a true 90-degree ported engine. Look into the exhaust port of an O.S. engine; it looks like about 40 percent of the exhaust port is plugged. Look into an Italian engine such as a Novarossi, and none of the port is blocked. In Japan and Taiwan they moved the ports so that they could keep the wrist-pin in place without having to install clips. On our engine, clips are used to keep the wrist pin from falling out through the ports.



To ensure the proper assembly and setting of each part of the RTR GT, the Chinese assembly plant developed special tooling. This fixture is used to aid in the assembly of the differential, and it makes sure that each diff is set according to Associated's specs.



This Chinese technician is performing the final assembly of the RTR's transmission. All of the transmission parts are straight from Associated's factory in the U.S.—the same parts that are packaged in each GT kit shipped by Associated.

After the engine was done, Mr. Lai called me and said that he ran it on the test stand and something strange happened. He said that the engine was producing the wrong numbers. He tested a Thunder Tiger .15 and that engine produced the "right" numbers. He said our engine's numbers were 15-20 percent higher. Mr. Lai said that this was good and bad—good for us (Associated) but bad for Thunder Tiger. He said that starting today, they are going to change all their engines to our way.



Here, pre-painted bodies are trimmed and the decals applied. The bodies are molded and painted at another assembly station before being sent here for final preparation.

R/C Car: Why did Associated decide to go with a .15 instead of a .12?

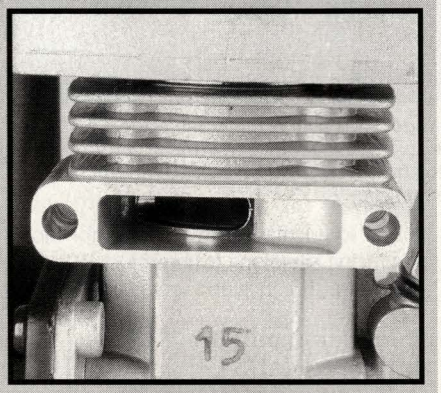
GH: We didn't really even consider doing a .12. The RTR crowd is used to .15s. Most guys running up and down the street will find the .15 is more than fast. If they want to try racing, most club tracks will probably let them run. This (the RTR) isn't for the guys who go racing. This is for the bushing-kit customers who don't want to build. Racers can get .12-size engine mounts and flywheel and make the switch if they want to.



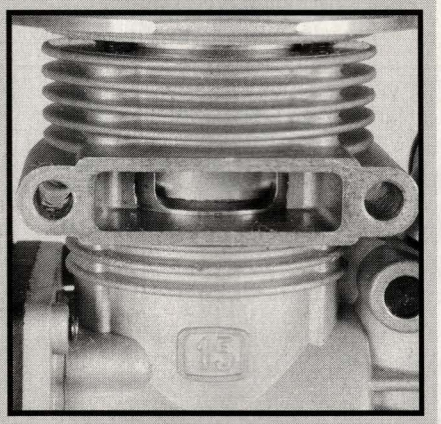
Mr. Lai (seated) of Thunder Tiger goes over the assembly steps of the RTR GT with the management staff of the Chinese assembly plant.

R/C Car: *Why did Associated decide to work with Hitec on the RTR GT project?*

GH: Again, it was two years ago in Chicago, and the people at Hitec wanted to know if we would test some of their products. They sent Cliff [Lett, Associated's chief designer] a couple of radios. Out front on our street is the ideal place to test ESCs and radios—there's an eight-foot pipe buried right under the middle of our street. Our radio range there is very, very short compared to everywhere else—we can go 50 percent further behind our building than in front! We tested the receiver first. We tried it in our TC3 test car. We went down the street and turned back without any glitching whatsoever. Right away the receiver passed the test. We said 'Lets' go farther.' We went 30 feet farther—farther than any other receiver we've ever tested in that spot. This opened our eyes to Hitec. We jumped at the chance to work with them on the RTR.



The exhaust port of a typical Taiwanese or Japanese engine is partially blocked-off to prevent the piston's wrist-pin from falling out.



The exhaust port of the Associated engine is not blocked (clips are used to secure the wrist-pin), so the engine can breathe better and make more power (15-20 percent more in Thunder Tiger's testing).

R/C Car: *Will we see additional RTR kits from Associated in the future?*

GH: [*Laughs*] If this one sells! Right now, the RTRs come in the door and leave just as fast. Everyone is asking for more of them. If this continues, and we don't run into any major problems—the RTR does what we think it's going to do—then yes, we probably will expand the line.

R/C Car: *Thanks for the time, Gene, and good luck to you and the rest of the guys at Associated!* ●

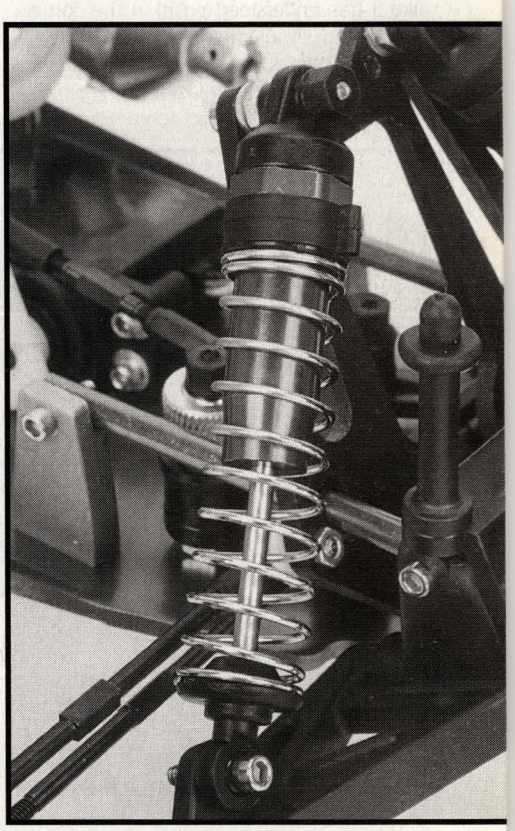


TA-TT: with input from Associated, Thunder Tiger re-vamped one of its .15 engines just for the RTR GT. With the changes made, the Associated engine out-powers its Thunder Tiger progenitor by 15-20 percent. It will hold its own against most racing .12s.

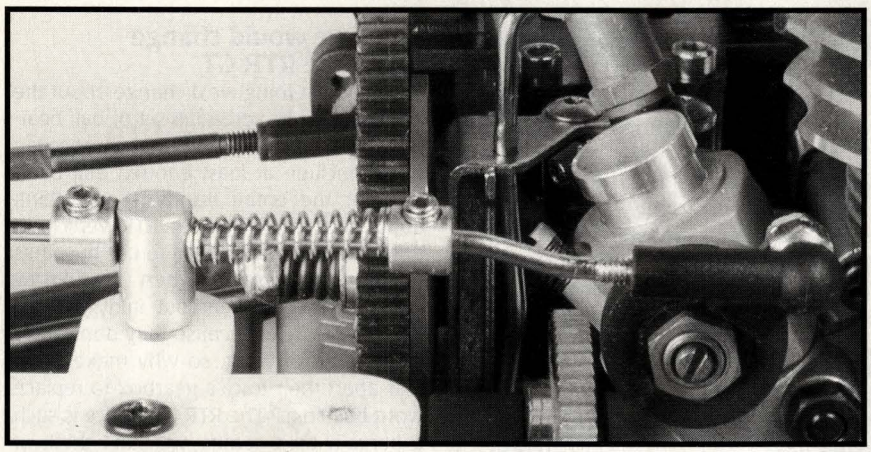
What we would change about the RTR GT

• The first thing we'd change about the GT would be to add a full set of ball bearings. We kind of wish that Associated would include at least enough ball bearings for the entire tranny. If you think about the premise of an RTR vehicle, it doesn't really make sense to use bushings in the transmission when you know they're going to wear out fairly quickly. People buy RTRs because they don't want to do a lot of work, so why make them tear apart their truck's gearbox to replace worn bushings? The RTR GT's price is such a bargain as it comes, we can't think of many people who would mind forking over a few extra dollars for a bearing-equipped version.

• If we had our druthers, we'd make the engine's carb settings a bit less sensitive. Novice engine tuners will find that the range of the engine's being "in tune" and "way off" is pretty small. We found it easy to go too far in one direction when tuning the engine. Once the proper settings are found (and they are pretty close out of the box, depend-



Still the same: the new blue shocks look cool, and match the chassis. But the anodizing doesn't last that long, especially in areas where the spring rubs against the shock body. Fortunately, these are Associated shocks, so their action is as smooth as you'd expect. You could easily race with these shocks.



The factory-installed throttle and brake linkage does the job, but we added a slight Z-bend to our GT's throttle linkage to allow for full brake travel without binding. The original linkage travels from the carb to the servo-horn at an angle, which causes the aluminum upright to gouge the linkage.

ing on the type of fuel you use), the engine remains in tune quite well.

• We would install a more powerful steering servo. The RTR's basic Hitec servos get the job done, but if you race your RTR GT on a track, you'll find that the steering servo is a bit weak and will cause the truck to feel like it has understeer (push) in the corners. Associated should take a cue from what Duratrax has done with its 1/8-scale Axis RTR buggy (see review last month), which is to upgrade its steering servo to a Hitec 605BB for increased strength. But for most non-racing situations (where most RTR GTs will be run), the included servos are fine.

Should you buy the RTR or the regular GT?

This is a tough question to answer, but we've distilled everything down for you. Just answer these questions to see which category you fit into.

BUY THE RTR VERSION IF:

(1) You've never built a nitro R/C kit before, and you aren't quite sure how all that throttle and brake linkage really works.

(2) You like nitro trucks, but don't want to spend a lot of money on racing-type features that you'll probably never use, such as hard-anodized shocks, a racing-style tuned pipe, etc.

(3) You think that you would like to try racing someday, but mainly you just want to run your gas truck for the fun of it.

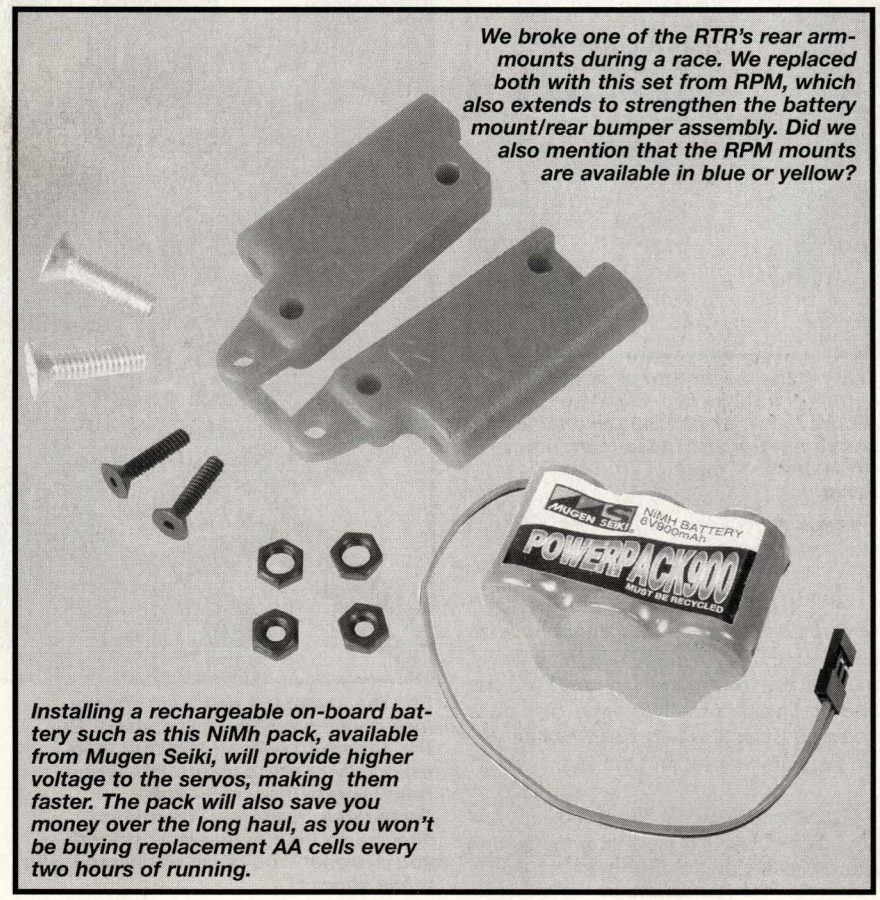
(4) You're chronically lazy and don't want to build anything.

BUY THE KIT VERSION IF:

(1) Racing is your thing, and you don't do anything with your gas truck except drive it on a track.

(2) You already own suitable radio gear and/or a .12 or .15 glow engine. Why buy extra stuff when you don't have to?

(3) You actually enjoy building from a kit, or you are such a perfectionist that you believe that no one else can do as good a job as you.



We broke one of the RTR's rear arm-mounts during a race. We replaced both with this set from RPM, which also extends to strengthen the battery mount/rear bumper assembly. Did we also mention that the RPM mounts are available in blue or yellow?

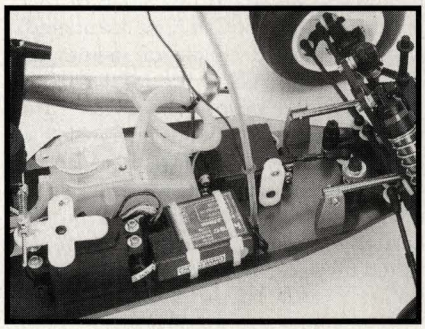
Installing a rechargeable on-board battery such as this NiMh pack, available from Mugen Seiki, will provide higher voltage to the servos, making them faster. The pack will also save you money over the long haul, as you won't be buying replacement AA cells every two hours of running.

Tips for running the RTR RC10GT

• Use ten percent nitro fuel. You can use fuel with a higher nitro content such as 20 percent (the highest recommended by Associated), but reserve this for after break-in has occurred.

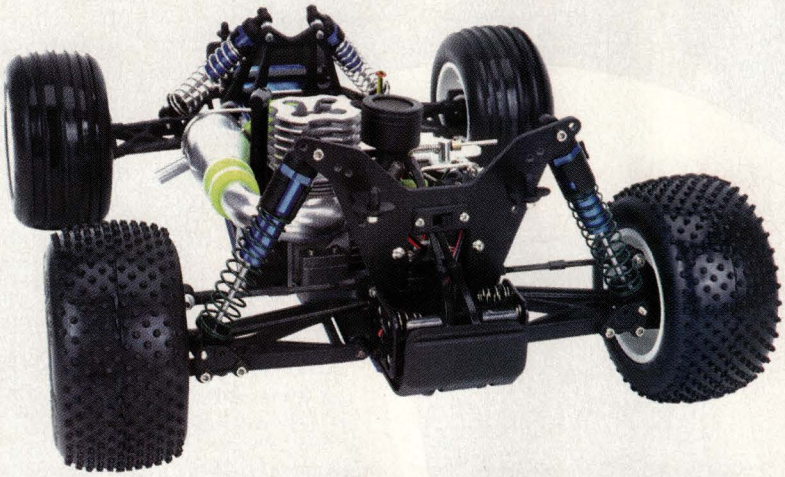
• When you pull your GT from the box, don't mess with the carb's settings. These have been factory pre-set and are pretty close to being ideal for initial startup and break-in. Only after you get the engine fired and warmed should you even attempt to change the settings.

• Make sure that the engine's idle-speed is controlled by the carb's idle-stop screw and NOT by the radio's throttle trim. You'll know this if the engine's idle lowers when you apply the brakes—it shouldn't change if set properly. ◆



The Hitec radio system has been thoughtfully installed for you. The standard-issue servos can handle most backyard situations, but you may find that a slightly beefier steering servo is in order—especially if you run your RTR on a track.

TEAM ASSOCIATED RC10GT RTR



Type: Ready-to-run 1/10-scale nitro off-road truck
Manufacturer: Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626 • phone (714) 850-9342; fax (714) 850-1744
Price: $479.95
What you get: Everything! All you need to buy is fuel, a glow-starter and a fuel bottle, and 12 AA batteries.

Length 17.7 in./450mm
Wheelbase 10.5 in./267mm
Width 12.4 in./314mm
Weight (RTR) . . . . . 67.6oz.

(4) You want the very best stuff on your gas truck, such as the aforementioned pipe, shocks and miscellaneous gear that comes on the Team version of the GT.

Whichever version you buy—kit or RTR—once the truck is complete and running, there's very little difference between them. Differences in engines aside, with the addition of a full ball-bearing set, the right tires for your track and proper tuning, the RTR can be as competitive as the full-race GT.

What we really think

Making an RTR version of its best-selling RC10GT is a huge risk for Associated. Its image, years in the making, is certainly on the line. As a company famous for building race-winning machinery, Associated has a lot to lose if the RTR fails, but it also has a lot to gain if it succeeds. We think it will. We believe that the RTR GT signals a new era of R/C, one in which high-performance race machine and ready-to-run aren't exclusive terms. ◆

SOURCES

Blue Thunder Fuel, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • (217) 355-9511
Hitec, 12115 Paine St., Poway, CA92064 • phone (858) 748-6948; fax (858) 748-1767
Mugen Seiki USA, 15311 Barranca Pky., Irvine, CA 92618 • (714) 453-8995; (714) 453-8997 fax
RPM, 14978 Sierra Bonita Ln., Chino, CA 91710 • (909) 393-0366; (909) 393-0465 fax

Superb Quality

RC10-GT Steel Combo



Precision machined one-at-a-time from a single piece of steel and then hardened this 65T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365

Associated Titanium Stealth Top Shaft



CNC Machined from a single piece of titanium, this super hard, super light top shaft will fit any Stealth transmission. No serious racer should do without this part. RRP 1512

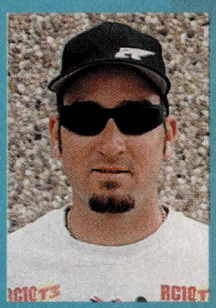
Intelligent Innovation

RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this gear is lightened and then hardened for super quiet precision and extra long life. Jamin' tranny grease is included. RRP 2213

Thoughtful Design



1999 World Cup and National Champion

"I only care about performance, and that's why I run Robinson Racing gears and slipper clutches exclusively."

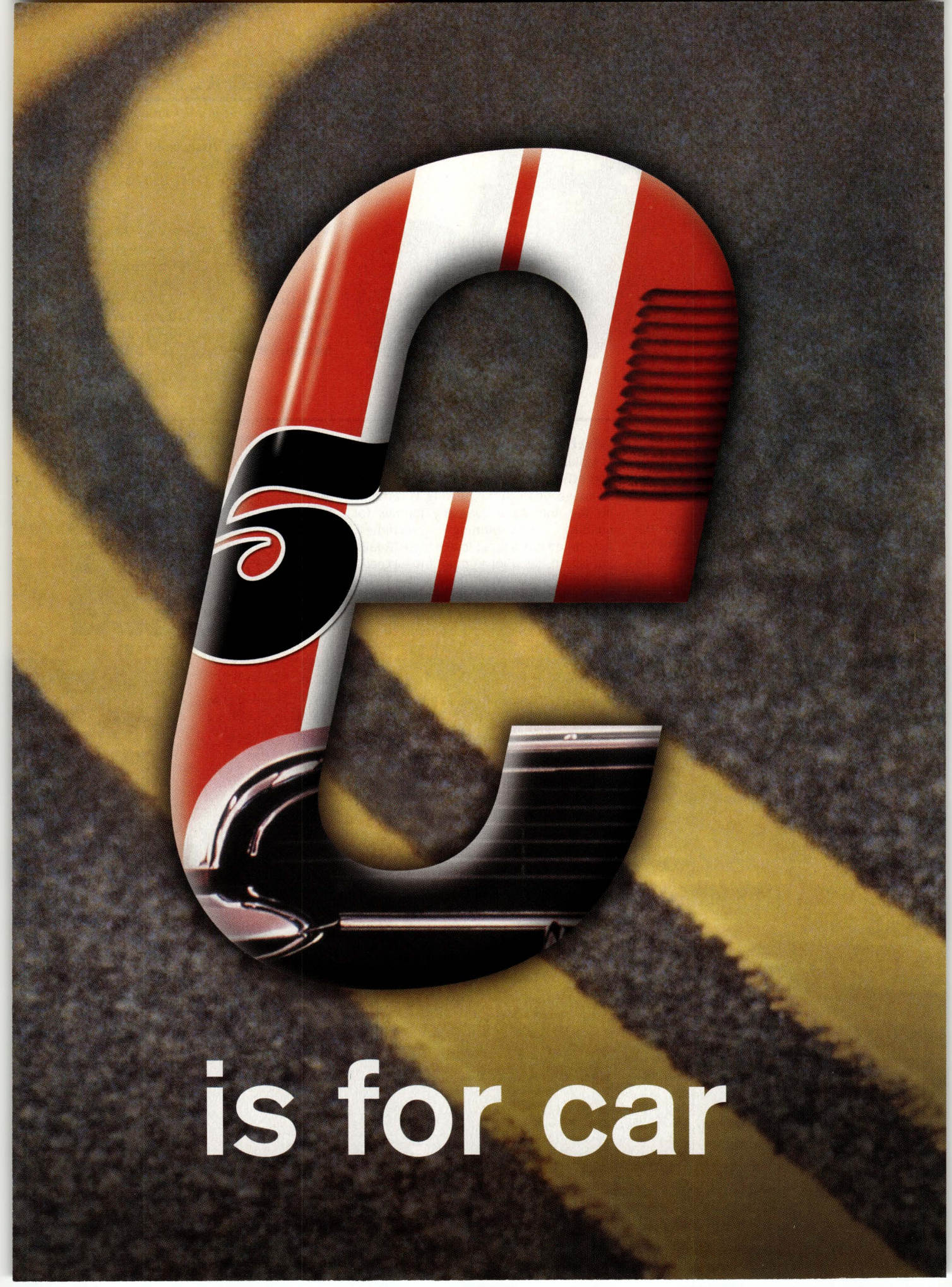
— Richard Saxton

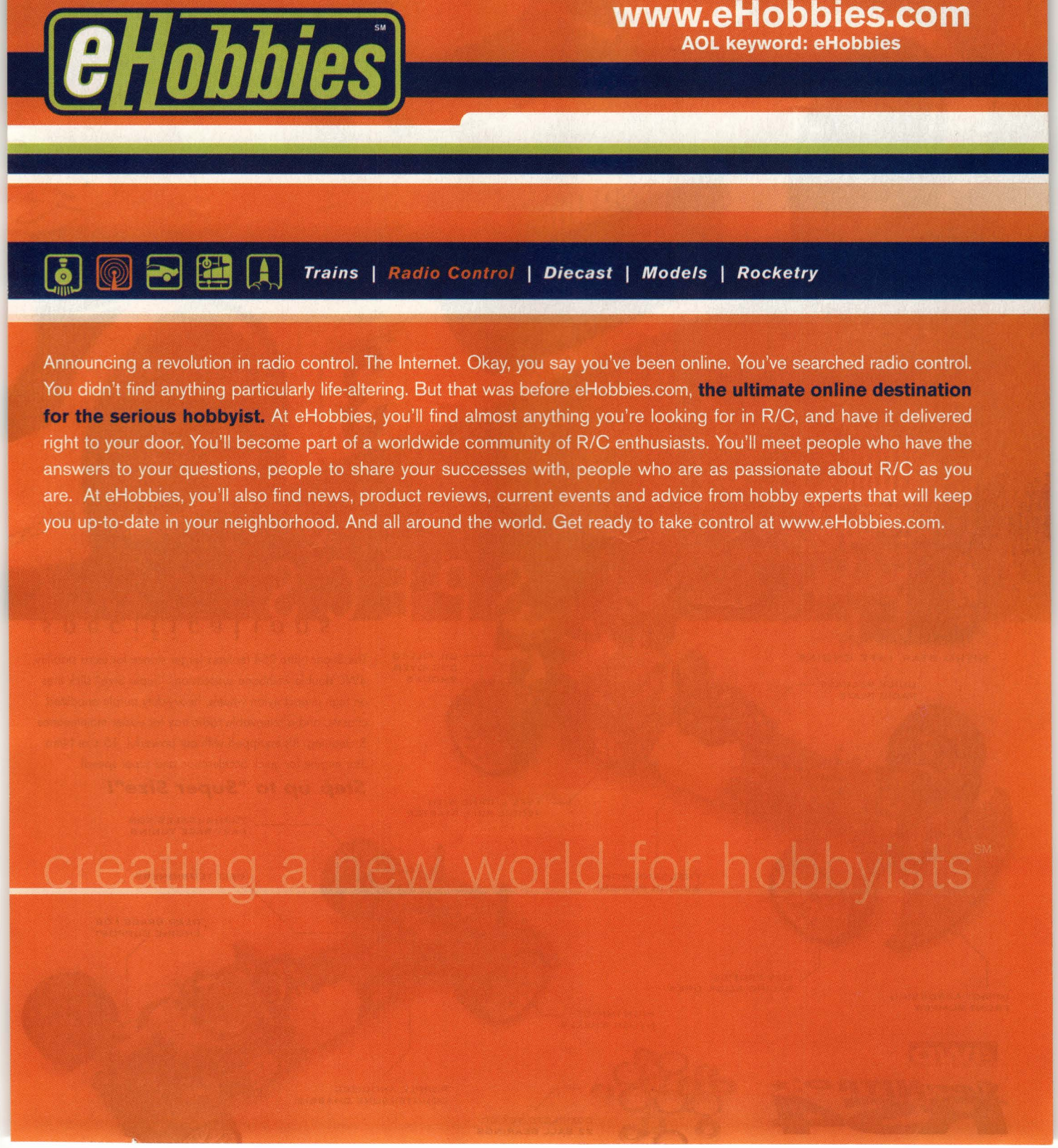
RC10-GT Hardened Diff Gear



Hard anodized, precision machined aluminum diff gear. RRP 1513

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creating a new world for hobbyists SM

SUPER NITRO RS4



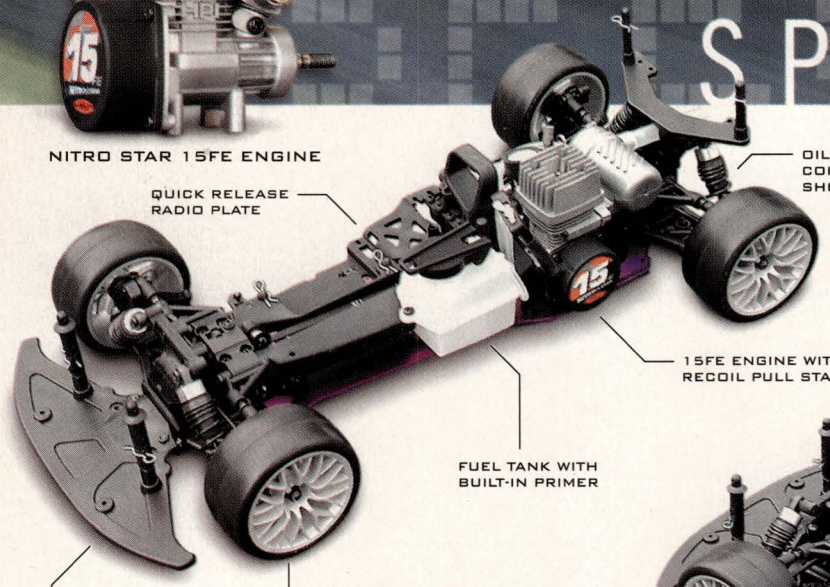
NITRO STAR 15FE ENGINE

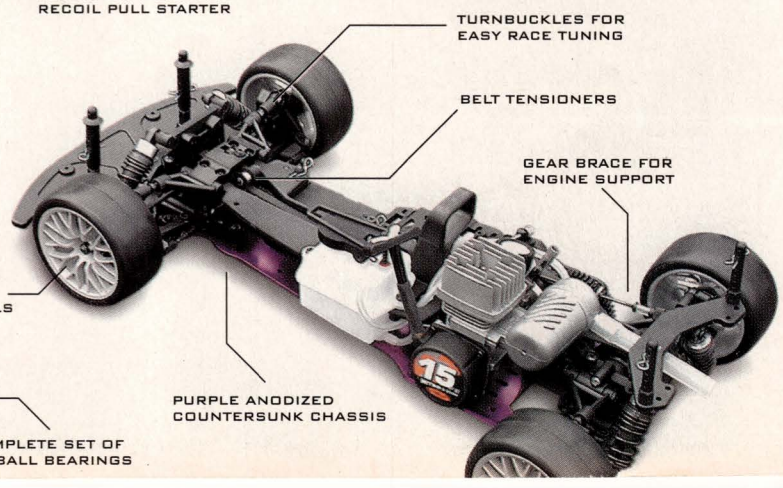
SPECS

specifications

The Super Nitro RS4 features larger stance for extra stability, 4WD double wishbone suspension, "Super Size" slick tires on high impact nylon wheels, heavy-duty purple anodized chassis, and a removable radio tray for easier maintenance & cleaning. It's equipped with our powerful .15 size Nitro Star engine for quick acceleration and super speed!

Step up to "Super Size"!





FOUR WHEEL DRIVE 4WD
MAXIMUM TRACTION ON ANY SURFACE

Super NITRO RS4



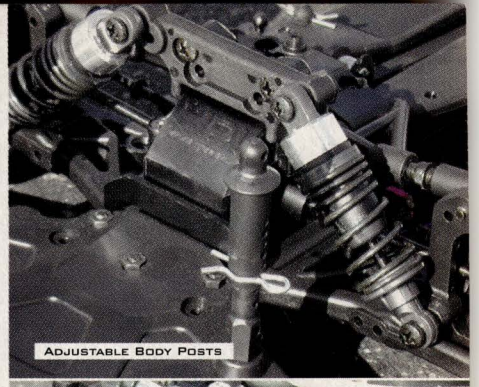
COMPLETE SET OF 22 BALL BEARINGS

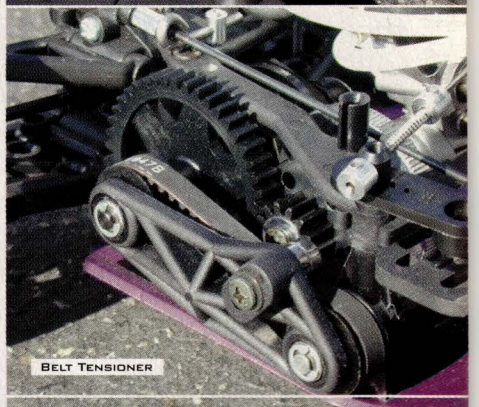
GO BIG! THE SUPER NITRO IS 20% BIGGER THAN OUR 1/10 NITRO RS4.

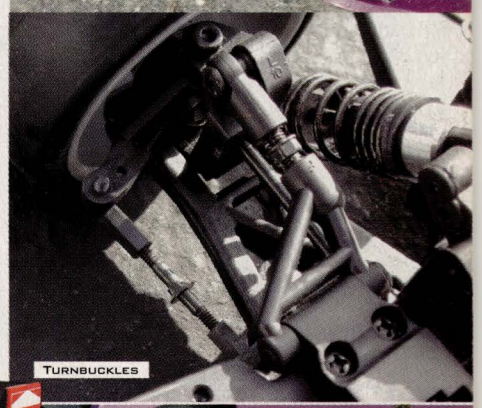
The Super Nitro RS4 cars are over twenty inches long, almost ten inches wide and over five inches tall! With four wheel drive and a larger stance, Super Nitro cars can handle tons of power and soak up bumpy parking lot surfaces.

Our powerful .15 size Nitro Star engine is included for quick acceleration and super top speed! The Super Nitro RS4 kits also include a complete set of 22 ball bearings and a countersunk purple anodized aluminum chassis. Our efficient belt drive system provides smooth power to all four wheels. And, each of the three drive belts has its own tensioner for easy adjustment.







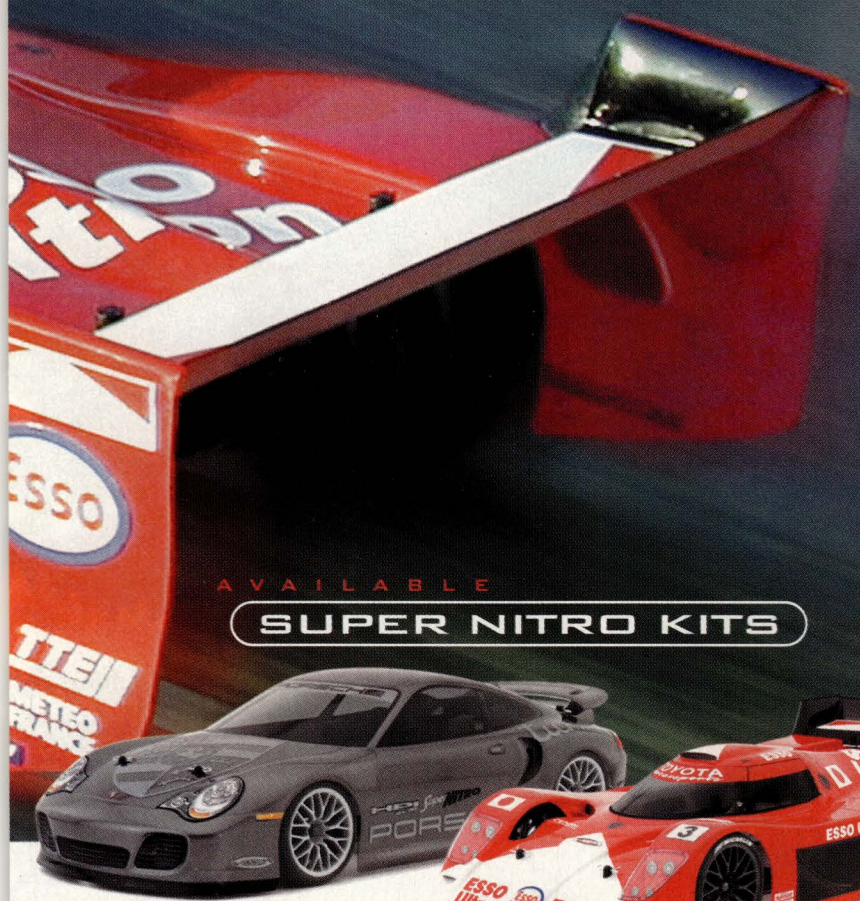






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SUPER NITRO KITS



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Send $2.00 for our full color 40 page catalog!



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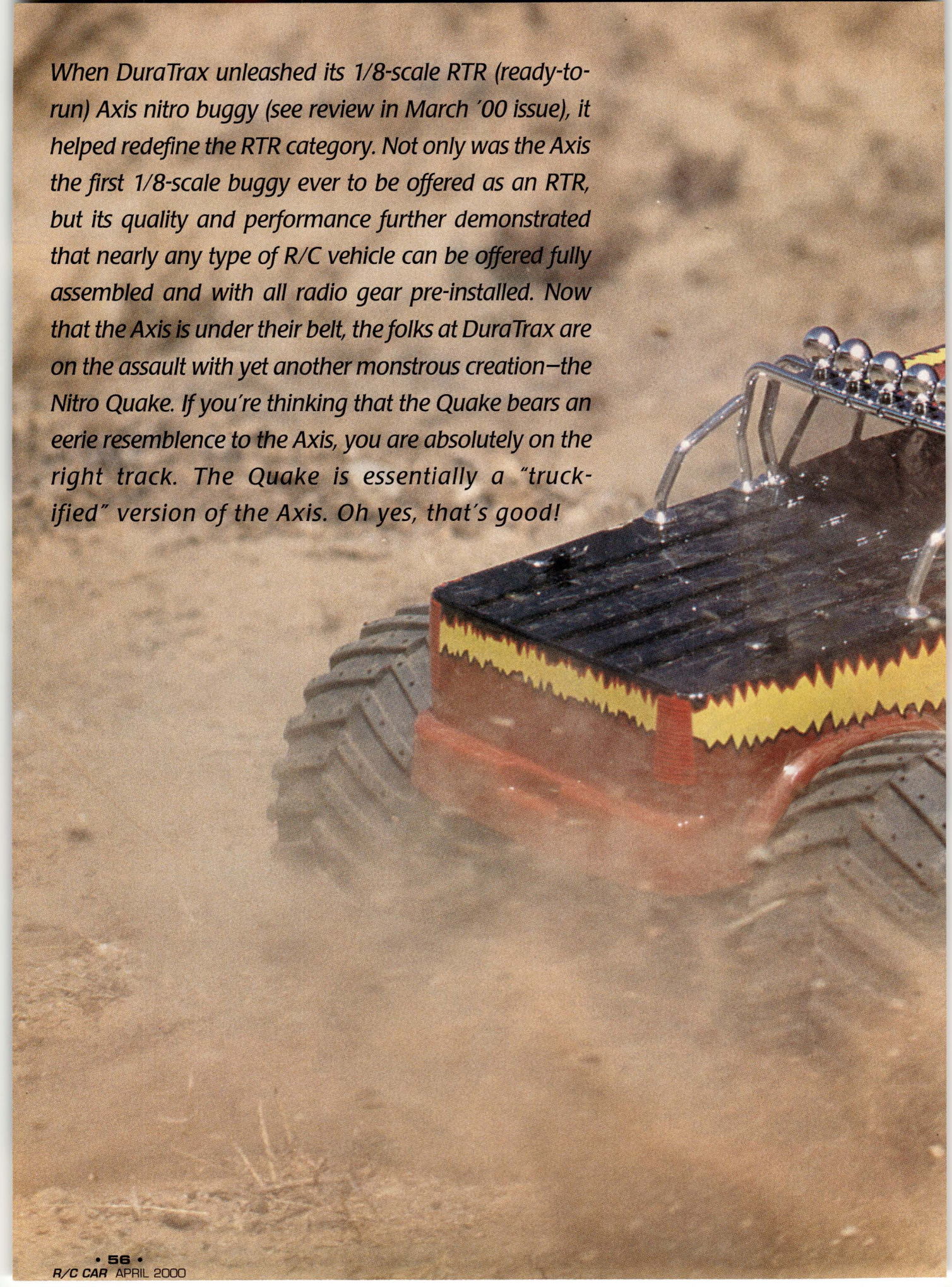
#481 Dodge Viper GTS-R
WB 280MM

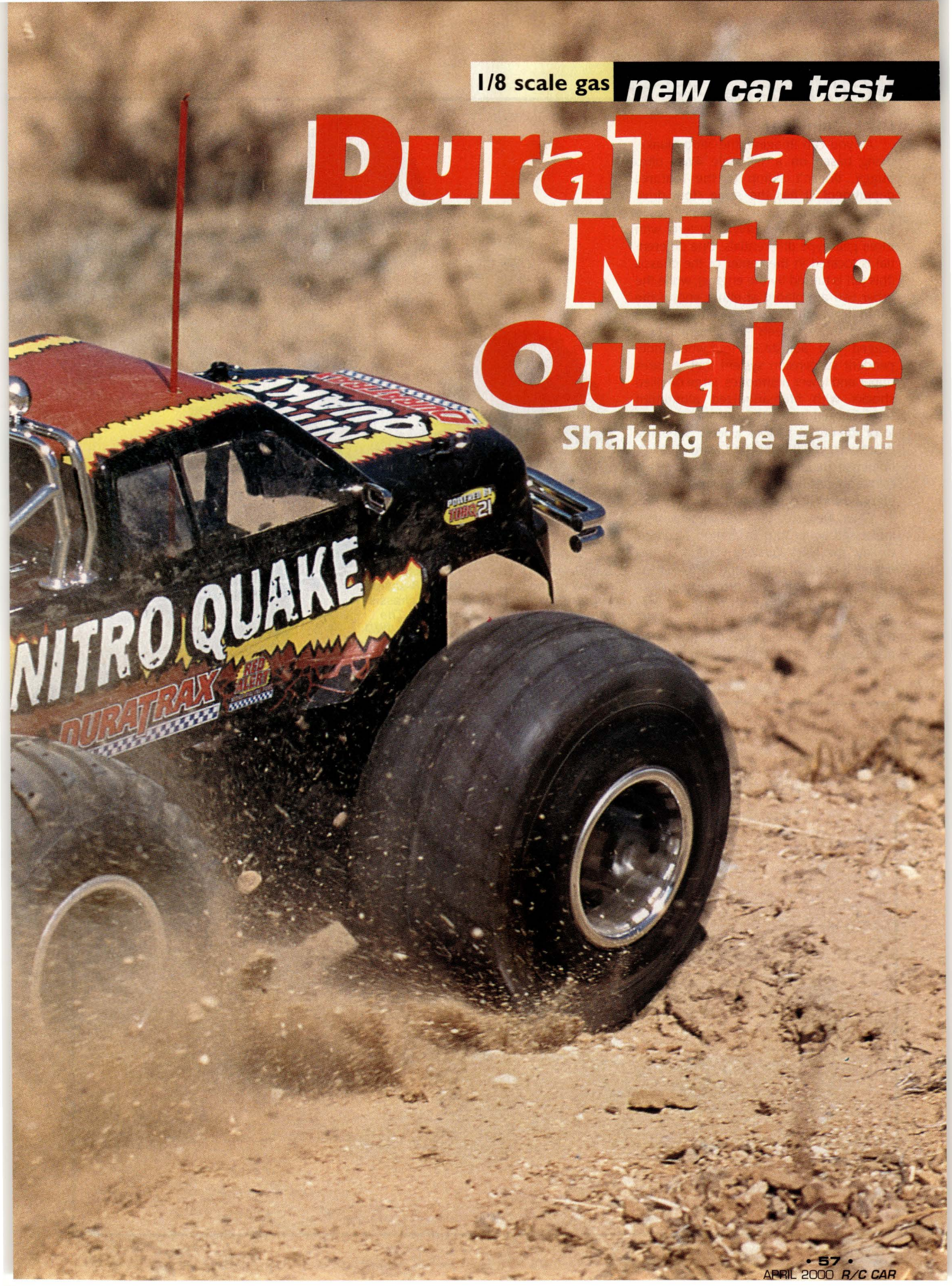
#483 Alfa Romeo 156
WB 300MM

#486 Corvette C5-R
WB 300MM

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When DuraTrax unleashed its 1/8-scale RTR (ready-to-run) Axis nitro buggy (see review in March '00 issue), it helped redefine the RTR category. Not only was the Axis the first 1/8-scale buggy ever to be offered as an RTR, but its quality and performance further demonstrated that nearly any type of R/C vehicle can be offered fully assembled and with all radio gear pre-installed. Now that the Axis is under their belt, the folks at DuraTrax are on the assault with yet another monstrous creation—the Nitro Quake. If you're thinking that the Quake bears an eerie resemblence to the Axis, you are absolutely on the right track. The Quake is essentially a "truck-ified" version of the Axis. Oh yes, that's good!





1/8 scale gas **new car test**

DuraTrax Nitro Quake

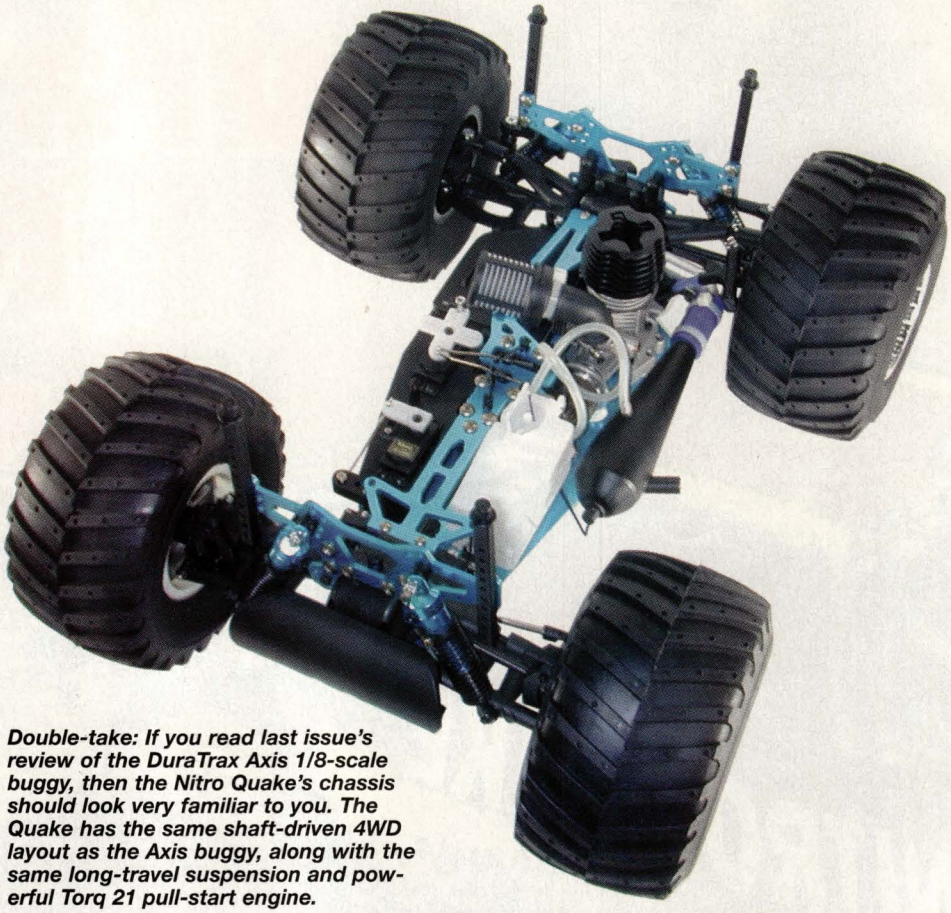
Shaking the Earth!

Quake thinking

As you can imagine, the Nitro Quake, being based on a 1/8-scale 4WD nitro buggy, doesn't skimp in the features department. It has the same stout drive train as the Axis buggy. This includes a full-time shaft-driven 4WD system with three gear-type differentials. One differential is located in the center of the chassis (this diff is turned by the engine), while the other two are placed at either end of the car to deliver the power to all four wheels.

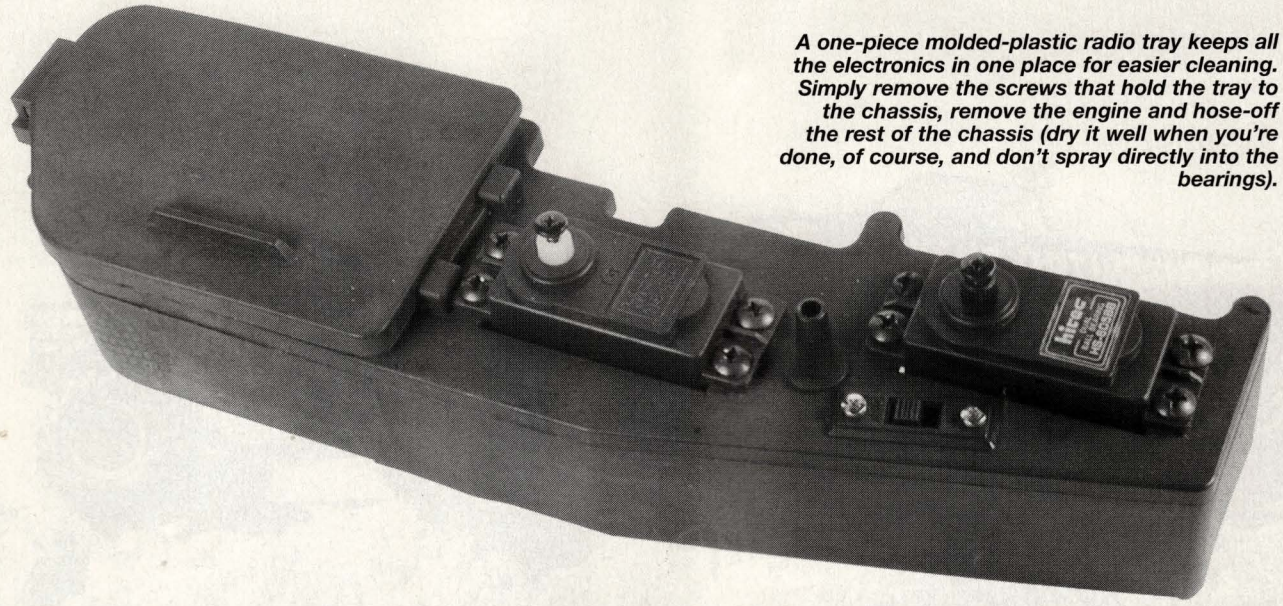
And those wheels are attached to a rugged and adjustable four-wheel-independent suspension system that features upper and lower wishbones, large oil-filled shocks with blue-anodized aluminum reservoirs, and adjustable camber and toe-in or toe-out at all four wheels. Speaking of wheels, you'll notice the Nitro Quake's immense paddle tires right away. These things are just under seven inches in diameter and four inches in width!

When we tested the Axis, we were very impressed by its Torq 21 engine. Needless to say, the Nitro Quake's version of this engine is of equal quality and performance. The Torq 21 features a racing-style slide-valve carburetor with both high- and low-speed needle adjustments. All engines have a high-speed needle, but the low-speed needle lets you make precise adjustments to the engine's low-end throttle response



Double-take: If you read last issue's review of the DuraTrax Axis 1/8-scale buggy, then the Nitro Quake's chassis should look very familiar to you. The Quake has the same shaft-driven 4WD layout as the Axis buggy, along with the same long-travel suspension and powerful Torq 21 pull-start engine.





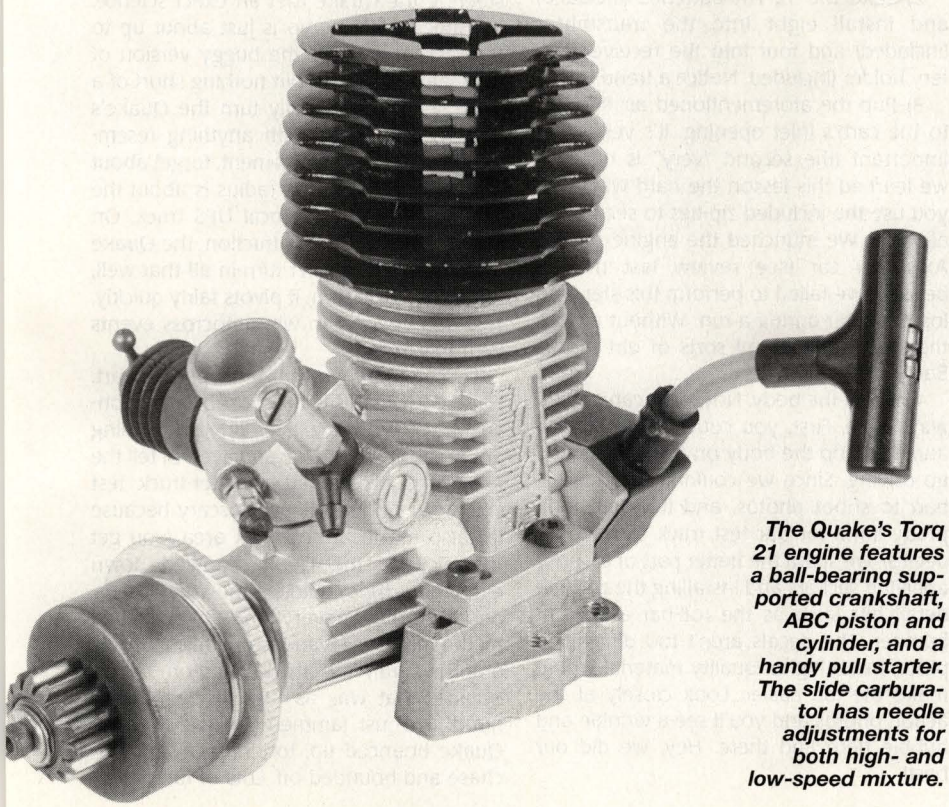
A one-piece molded-plastic radio tray keeps all the electronics in one place for easier cleaning. Simply remove the screws that hold the tray to the chassis, remove the engine and hose-off the rest of the chassis (dry it well when you're done, of course, and don't spray directly into the bearings).

(just off idle) and makes a significant improvement in low-end grunt (the monster truck's reason-for-being). In addition, you won't need any expensive starter boxes or bump-starters to use the Torq 21, as it comes with a handy pull-start mechanism similar to that of a lawn-mower's engine. Unlike a mower, however, you should never, ever pull a glow-engine's starter all the way out—this will usually cause damage. Short, fast tugs are the way to fire up these small engines. We liked the fact that the Axis' engine was allowed to breathe through a racing-style muffler, as this allows the engine to make more power and makes it easier to tune. When we saw that this muffler was also included with the Nitro Quake, well, this also was a good thing (are we developing a Martha Stewart theme here?).

An R/C vehicle is only as tough as its chassis. And with a 3mm-thick aluminum upper and lower plate, you can imagine that the Nitro Quake is one tough customer. Atop the chassis, to the left-hand side, is a large molded combination servo-tray and receiver box. The battery and receiver are placed inside the box and covered by a clever sliding hatch that can be removed and re-installed without the need for screws or clips (making for ultra-fast frequency and battery changes). Another interesting feature of the Nitro Quake's chassis is its fuel tank, which sits atop a neat molded "drip tray" that is designed to channel spilled fuel away from the chassis.



***Pack in the box:** Sure, nearly every 1/8-scale nitro off-roader has a radio box to protect the receiver, but how many have this neat sliding lid that can be removed or installed in seconds without clips or screws?*



The Quake's Torq 21 engine features a ball-bearing supported crankshaft, ABC piston and cylinder, and a handy pull starter. The slide carburator has needle adjustments for both high- and low-speed mixture.

The trend nowadays in the RTR field is that when you need to include radio gear in your vehicle, you turn to Hitec. DuraTrax is no exception, and the Nitro Quake includes Hitec's excellent Lynx AM transmitter with the receiver and servos already installed in the truck's chassis. Rather than use one of Hitec's standard servos for both throttle and steering functions (these servos aren't up to the task of steering an eight-pound, 30-mph truck), DuraTrax instead includes a steering-servo upgrade in the form of Hitec's ball bearing- equipped 605BB servo.

DURATRAX NITRO QUAKE



Parked next to the 1/10-scale Tamiya Mad Bison, the Nitro Quake appears positively huge. In addition to its size advantage over most monster trucks, the Quake enjoys a significant horsepower advantage. It's nearly unstoppable!

Is the Nitro Quake truly ready-to-run?

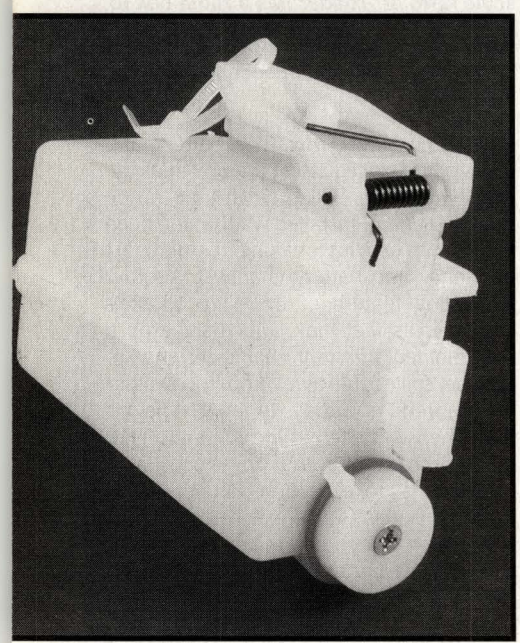
You betcha! Flip back a page and look at the chassis photo. Aside from needing the air filter installed, this is what greets you when you open the Nitro Quake's box. To finish the truck as it's shown in these photos, you must do the following:

1) Take the truck out of the box (duh!)

2) Take the 12 AA batteries (included) and install eight into the transmitter (included) and four into the receiver battery holder (included. Notice a trend here?)

3) Pop the aforementioned air filter on to the carb's inlet opening. It's very, very important (the second "very" is because we learned this lesson the hard way) that you use the included zip-ties to secure the air filter. We munched the engine on our Axis test car (see review last month) because we failed to perform this step and lost the filter during a run. Without a filter, the carb will suck all sorts of dirt inside. Bad for the engine.

4) Detail the body. Now, you can go two ways here. First, you could be really lazy and just plop the body on the chassis and go driving. Since we couldn't do that (we had to shoot photos, and it would look pretty lame for our test truck to have no decals), we spent the better part of an hour applying stickers and installing the chrome detail bits such as the roll-bar and front bumper. The decals aren't too difficult to place, but a higher-quality material would make the job easier. Look closely at the action photos and you'll see a wrinkle and bubble here and there. Hey, we did our best!



The Nitro Quake's 125cc fuel tank has a neat little adjustable fuel nipple that allows you to route the fuel line away from any potentially dangerous rotating engine and driveline parts.

How does the Nitro Quake perform?

In a nutshell, this thing's unstoppable! No, really! We'll be the first to tell you that steering the Quake isn't an exact science. Its Hitec 605BB servo is just about up to the task of steering the buggy version of the Quake, the Axis, but nothing short of a $100 servo could really turn the Quake's massive front tires with anything resembling authority. On pavement, forget about it; the Quake's turning radius is about the same as that of our local UPS truck. On dirt, where there's less traction, the Quake fares better; it doesn't turn-in all that well, but once in the turn, it pivots fairly quickly. Just don't expect to win autocross events with this truck.

Let's get back to that unstoppable part. Hands-down, this is the most brutish monster truck we have ever driven. Nothing got in the Quake's way and lived to tell the tale. At our patented monster-truck test site, which in itself is pretty scary because it's also the local dog-walk area (you get the picture), the Quake mowed down everything that could be mowed. Weeds, bushes, Doogie, everything got munched by the massive seven-inch paddles. At one point we ran the truck head-on into a boulder that was as high as the truck's hood. We just jammed the gas and the Quake bounced up, tottered, caught purchase and bounded off. Lots of fun.

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DURATRAX NITRO QUAKE



Type: Ready-to-run 1/8-scale nitro off-road truck.
Manufacturer: Duratrax, distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021 • phone (217) 398-6300; fax (217) 398-0008
Price: $599.99
What you get: Everything! All you need to buy is fuel, a glow-starter and a fuel bottle.

Length 17.7 in./450mm
Wheelbase 12 in./304mm
Width 12.8 in./325mm
Weight (RTR) . . . . . 7lbs., 14oz.

The Nitro Quake dwarfs its included Hitec Lynx transmitter. The Quake isn't just big, it has the .21 power to back up its aggressive looks.

And talk about fast: the Nitro Quake is scary-fast thanks to its Torq 21 engine. Unless we were running the truck in a very large area, we learned that things could get ugly in a hurry, especially if there were parked cars and curbs to be found (kids, never run your Nitro Quake near cars, people or small mammals). On dirt, the Quake is always ready to unload a diff and balloon its inside front tire to the size of a Toyota space-saver spare.

What we don't like

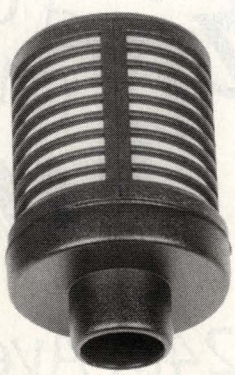
1) The Nitro Quake needs a more powerful steering servo. But we can understand why it doesn't come with one. As mentioned in the text, it would take a super-servo in the $100 and above range to really wrangle the Quake's huge front wheels. As a result, the Nitro Quake doesn't track all that well in a straight line, and when you make slight course deviations, there's quite a bit of wander involved in getting back in line.

2) The fuel tank doesn't have a primer. This isn't a big deal, but it can take a number of tugs on the pull-starter to get enough fuel to the carb to start the engine. To expedite the process, we would remove the fuel tank's pressure line from the exhaust pipe and blow through it (gently, as you don't want to force too much fuel into the engine, which will cause the engine to lock). If you try this, make sure the pressure line is clean before you put it anywhere near your mouth. And finally, don't suck any fuel into your mouth—it's poison! Blow only.

What we like

1) The Nitro Quake comes nearly 100 percent ready-to-run. DuraTrax thoughtfully includes full instructions (in case you need to make repairs), a molded wheel-nut wrench, and even a video that will help you get the engine running and in tune.

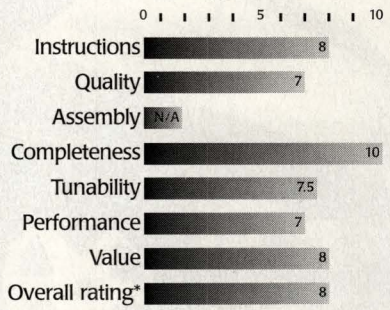
2) This truck is a blast to drive. We tried every reasonable method of halting this behemoth, but nothing could meet the challenge.



The Nitro Quake's air filter is cool enough to merit its own photo. The filter features an outer mesh screen to keep out most of the larger dirt particles, and a wet-type foam element inside to filter out fine dust.



Ratings



**The overall rating is not the average of the subjective ratings. It is our overall appraisal of the kit's quality and features.*

3) The included Hitec Lynx radio system is an excellent choice. We ran four tankfuls of fuel through the Quake's engine before realizing that we had forgotten to uncoil the receiver's antenna wire! The truck never glitched once.

What we really think

This is the fourth offering in DuraTrax's RTR lineup, and it's undoubtedly the biggest! The Nitro Quake delivers an excellent combination of rock-crawling ability and flat-out high speed. Although we'd like to see slightly lower gearing (to further improve the truck's climbing ability) and a more powerful steering servo (or perhaps dual servos), neither of these problems tarnishes the image of the Nitro Quake; it's fast, reliable and unstoppable! ◆

SOURCES

Blue Thunder Fuel, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • (217) 355-9511
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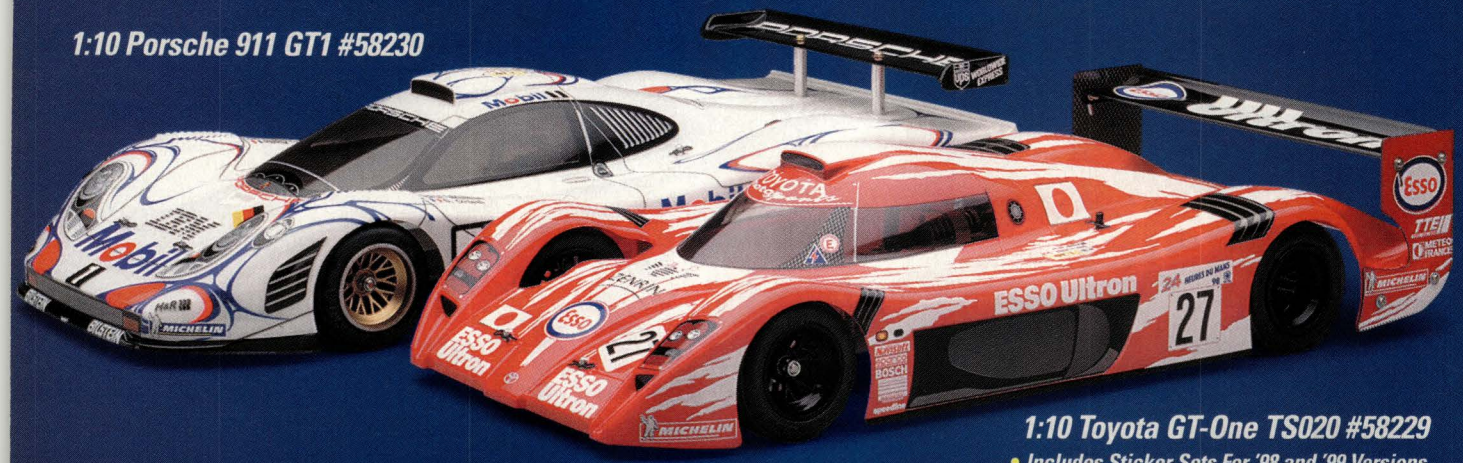
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1:10 Toyota GT-One TS020 #58229

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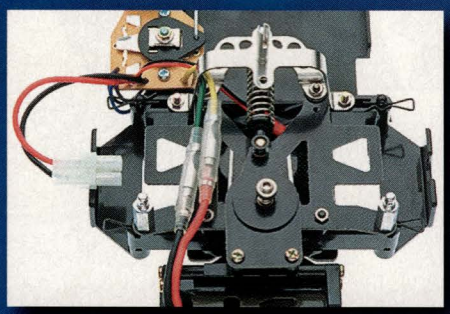


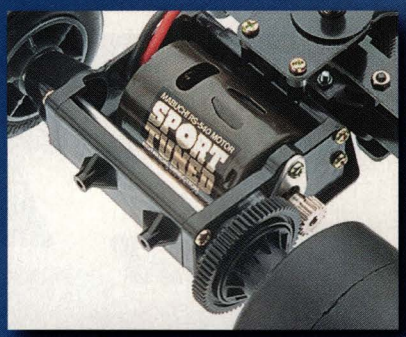
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Have you ever wondered what it would be like to get hold of a factory driver's cars and race them at your local track? What would it be like to take the cars of one of the fastest drivers in the country—a World Champ, no less—and show up at your local stompin' grounds for race night? You'd be the envy of all your race buddies! Well, we had such a chance recently, as Team Losi/Team Trinity driver Matt Francis graciously loaned us his cars over his short winter break from the regular racing tour. Matt insisted that we take his new Triple-X, XX-4, and NXT to our local track, Hot Rod Hobbies, for a full thrash session. Here's how it went.



Matt gives us the keys...what was he thinking?

We were pretty darned shocked when Team Trinity/Team Losi's Matt Francis made the offer. "How about if I send you guys my cars for a few days so you can go club racing with them?"

No, Matt's not a sucker—he knew perfectly well what he was getting himself into. It's not that we would ever intentionally thrash on someone else's cars, but the list of people who can drive as well as Matt is an extremely short one—and did we mention that we didn't make the list this year? So with this in mind, our goals were as follows:

1) Spend a couple of days practicing with Matt's Team Losi Triple-X 2WD buggy and his XX-4 4WD. (You'll notice that Matt had sent us his Losi NXT gas truck as well, but he had asked that we not drive it because he was in the midst of testing the new Trinity/Picco .12 engine. He has promised to let us drive his NXT in the near future, however.)

2) After adequate practice, we would enter Matt's cars at a club race at Hot Rod Hobbies, our local track and hangout.

3) Not embarrass ourselves by driving like Rhesus monkeys.

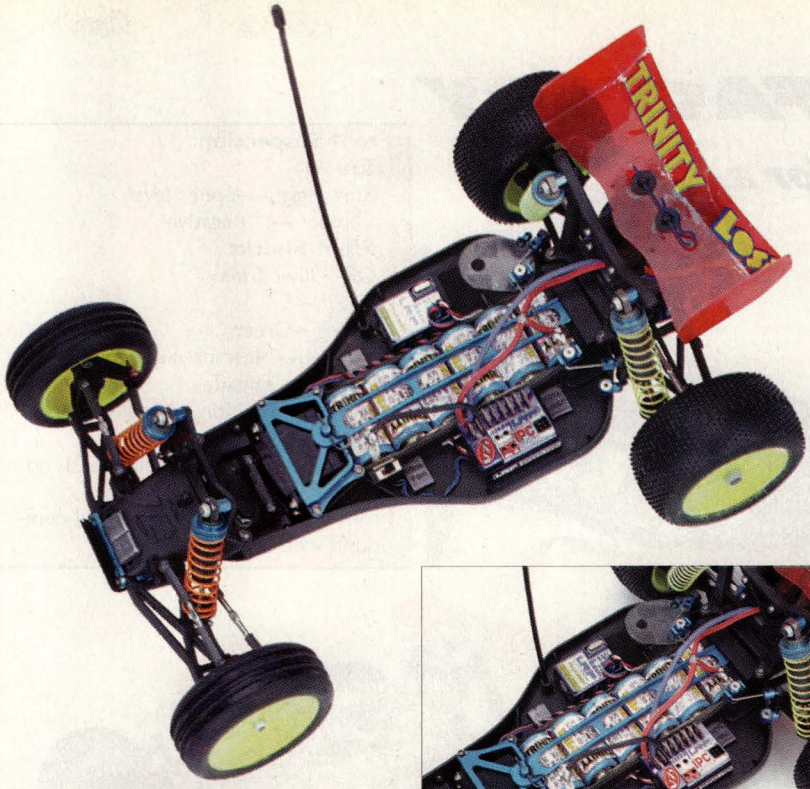
4) Not to send Matt's cars back in kit form.

Practice time

Along with his cars, Matt also sent along his personal Airtronics M8 transmitter, several Trinity battery packs, and a small bag of spare parts (hey, wait a minute...). Because Hot Rod lets us use his track whenever we want, and because technically, testing Matt's cars qualifies as "work" (don't you wish you had such troubles?), we were able to spend a few hours during the week driving Matt's buggies with the whole track to ourselves.

We have driven the pros cars and truck on many occasions throughout the years, but to be honest, in most cases the cars



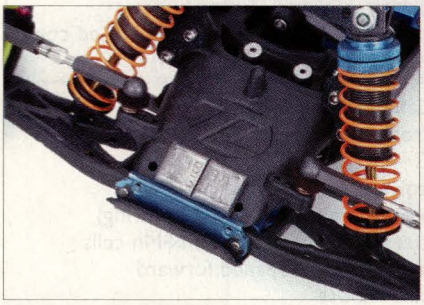


MATT FRANCIS'

TEAM LOSI TRIPLE-X

Front Suspension:
Toe—0°
Ride Height—Arms just below level
Camber—1° negative
Front Shocks:
Oil—25wt Trinity
Piston—55
Spring—Orange
Limiters—.050 inside/none outside
Mounting position—Middle on arm; number three on tower with three washers (.060)
underneath ballstud
Camber link position—A on hub; number three on bulkhead
Carrier spacer—Down
Front tire—Losi 4-rib (Red compound with firm Losi foam)
Notes—1/2 oz. lead weight on bulkhead

Matt's Triple-X is loaded with Team Kinwald aluminum parts such as this front chassis brace, battery hold-down strap and rear suspension-arm mount.



To improve on-power steering, Matt added 1/2 oz. of lead weight to the front of his Triple-X buggy.

Rear Suspension:
Anti-squat—4°
Ride height—Bones level
Camber—0°
Sway bar—Yes: .055
Rear Shocks:
Oil—20wt Trinity
Piston—56
Spring—Yellow
Limiters—.050 inside/none outside
Mounting position—Inside hole on arm; number two on tower
Camber link position—B on hub; number three on tower
Hub position—Center
Rear tire—Losi X-2000 Wide (Red compound with Losi firm foam)
Notes—Handmade rear sway bar

Miscellaneous
Electronics:
ESC—LRP IPC V7.1
Receiver—LRP Phazer
Motor—Trinity 10x2 (82/20 gearing)
Battery—Trinity 3000mAh NiMh cells
Battery position—Spaced forward
Wing mount—Up
Wing angle—.060
Drive shafts—Stock
Diff hubs—Standard steel

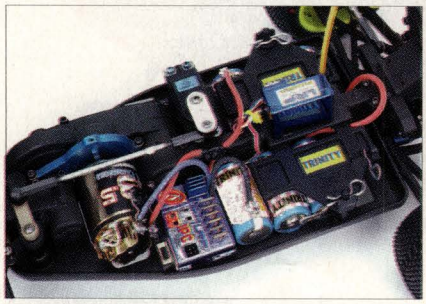
weren't set up for our track. Matt's cars, however, had the setups he had used to race at the NORRCA Nationals and the Hot Rod Shootout—both of which happened to have taken place at, give that man a kewpie doll, Hot Rod Hobbies. With a pro's cars, set up for our track, the pressure was on.

Driving Matt's Triple-X

The first car we drove was Matt's Triple-X buggy. The first run was made using the Panasonic 3000mAh pack that was installed in the car when we received it. We were surprised that the car didn't have more punch. By contrast, the Sanyo 2000s we used for the next run made the car feel much more ballistic. Right away, Matt's Triple-X felt vastly superior to our own test car, which, by the way, we had always considered dialed for this track. The biggest difference between Matt's car and ours was that his had unbelievable balance between front and rear traction. There was always just enough steering and just enough rear bite. Never did the car feel as if one end were overpowering the other. The difference was best noticed after driving our Triple-X and Matt's back-to-back. Our car tended to oversteer when entering fast turns, but Matt's could be driven hard without pushing or hooking.

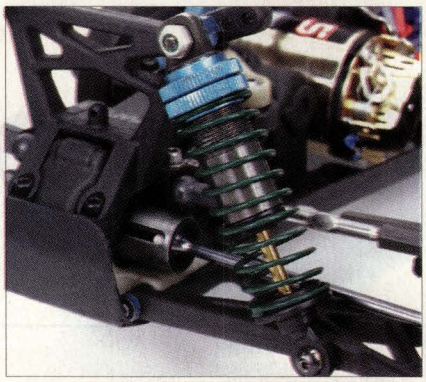
Also of note was the stability of Matt's Triple-X. On our track there is a short S-shaped straight that has two sets of small double-jumps. You must clear the first double while navigating the S-curve. It's very tricky to land from the first double and accelerate cleanly enough to clear the second. With Matt's car, we could turn in mid-air over the first double, land, and blast over the second set of jumps. Even if we landed sideways, the car hooked. The Losi X-2000s on Matt's car were perfect for our dry, hard-packed and "choppy" dirt.

FACTORY RIDE for a DAY!



Notice the left-side cells of Matt's XX-4 are moved as far forward as possible. This further centralizes the weight of the car and adds steering.

Front Suspension:
Toe—0°
Ride Height—Bones level
Camber—1° negative
Front Shocks:
Oil—30wt Trinity
Piston—57
Spring—Green
Limiters—New internal spring inside/none outside
Mounting position—Middle on arm; number two on tower
Camber link position—Number 1; no washers
Front tire—Losi Blockhead (Red compound with firm Losi foam)



Matt uses Losi's threaded shock bodies with two Team Kinwald spring collars (one sets the pre-load, the other locks it in place.



MATT FRANCIS'
TEAM LOSI XX-4

Rear Suspension:
Anti-squat—2°
Ride height—Bones level
Camber—0°
Sway bar—None
Rear Shocks:
Oil—30wt Trinity
Piston—55
Spring—Yellow
Limiters—.040 inside/2 "A" spacers
Mounting position—Inside hole on arm; number two on tower
Camber link position—B on hub; number three on tower
Hub position—Center
Rear tire—Losi X-2000 Wide (Red compound with Losi firm foam)

Miscellaneous
Electronics:
ESC—LRP IPC V7.1
Receiver—LRP Phazer
Motor—Trinity 10x3 (86/18 gearing)
Battery—Trinity 3000mAh NiMh cells
Battery position—Spaced forward
Clicker—Loose
Diff hubs—Standard steel

Breakin' out the XX-4

After putting in a few runs with Matt's Triple-X, we decided it was time to see what his 4WD XX-4 was like. Matt primarily uses Trinity 3000mAh Panasonic cells for his 4WD because he feels that these batteries give him full power all the way through the race. He says that even with good 2000mAh cells, he still has to conserve power a bit because of the tremendous amp-draw of a 4WD car. Unlike Matt's 2WD car, which seemed a bit docile with the 3000s, his 4WD was a rocket ship. This led us to the conclusion that the 3000s must require different types of motors to match the punch of Ni-Cad cells. Because of this phenomenon, we are now in the process of compiling data for a future article on using the Panasonic Ni-Mh cells.

Have you ever driven a 4WD buggy that was so dialed-in that it felt slow and in control? We haven't had this experience for quite some time. Most 4WDs we drive tend to feel squirrely and out of control. Matt's XX-4 was absolutely cake. We could grab huge handfuls of throttle at nearly any point on the track, and the car would accelerate like a bullet leaving the barrel. As with his Triple-X, Matt's 4WD was also very stable and well-balanced, with superbly neutral cornering and with just a bit more steering than we had felt in his Triple-X.

Race night

Tuesday nights at Hot Rods are usually pretty well attended. I had inquired at the shop earlier in the week about the possibility of enough entrants for a 4WD class, but the prognosis didn't appear positive. However, we were optimistic about the chances of there being enough 2WD modified buggies to merit a sepa-

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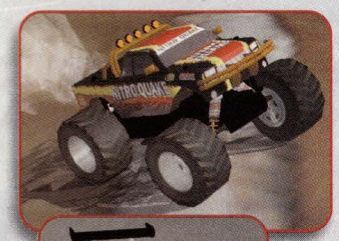
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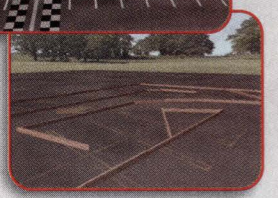


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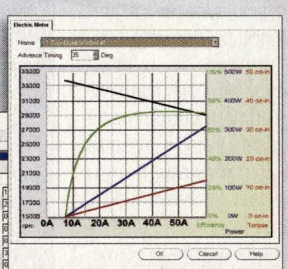
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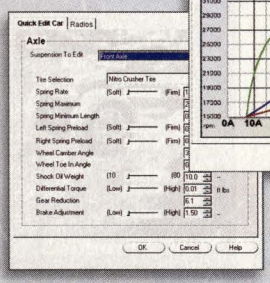
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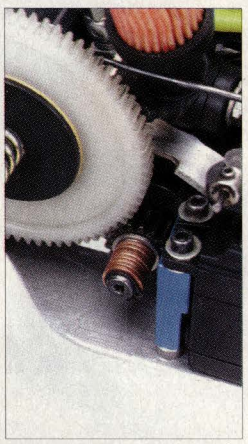
FACTORY RIDE for a DAY!





MATT FRANCIS'
TEAM LOSI NXT

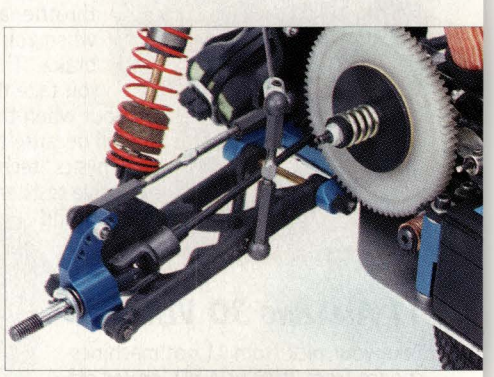
Front Suspension:
Toe—1° negative
Ride Height—Arms level
Camber—Long
Front Shocks:
Oil—20wt Trinity
Piston—57
Spring—Orange
Limiters—A inside/none outside
Mounting position—Middle on arm; number three on tower with three washers
Camber link position—A on hub; number three on bulkhead
Front tire—Losi 4-rib (Red compound with firm Losi truck foam)



Matt's NXT has lots of Team Kinwald aluminum parts. It also has Losi's stronger white spur gear.

Rear Suspension:
Anti-squat—2°
Ride height—Bones just below level
Camber—0°
Sway bar—Yes: .055
Rear Shocks:
Oil—20wt Trinity
Piston—57
Spring—Red
Limiters—none inside/none outside
Mounting position—Inside hole on arm; number three on tower
Camber link position—4-B
Hub position—.050" forward from center
Rear tire—Losi T-2000 Wide (Red compound with Losi firm truck foam)
Notes—Handmade rear sway bar

Miscellaneous
Powerplant:
Engine—Picco/Trinity .12
Pipe—Picco
Receiver—LRP Phazer
Receiver pack—Trinity 5-cell



Matt uses homemade swaybars on all of his Losi rides. Maybe we'll soon see "Team Francis" accessories!

rate class. Unfortunately, it was unseasonably cold on Tuesday night, so not many racers showed. So we were forced to run Matt's Triple-X with the mod truck class (of which there were two heats—club racers love their trucks). There was a full 2WD stock class, but we didn't want to mess with Matt's stuff too much, so we stuck with the hand we were dealt.

Matt's buggy felt as good that night as it had during practice, showing that a well-balanced car remains consistent in almost any track conditions and temperature. We had qualified pretty well for the A-Main, but ended up getting rear-ended at the start by a local racer who will remain nameless (Scott Renolds, you know who you are!). Returning to the race in last—and not buying the "my truck has no brakes" excuse—we worked through the traffic pretty well. The massive horsepower of Matt's Trinity motors made playing catch-up much easier. We even made an exciting pass down the main straight—and we can't remember the last time we could out-horsepower anyone at Rods!

All in all, driving Matt's cars was an awesome experience. Above all else, we learned two important lessons: first, a professionally setup car makes a difference. Second, it takes an equally pro driver to take that car and win at the highest level of competition. Thanks Matt. ◆

SOURCES

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[illegible] Team Associated [illegible] David Jun Special: Team Losi XX Kinwald Edition; [illegible]a M02L Mercedes SLK; [illegible]a TAO3R Nissan 240SX; how to clear big jumps; rebuild your tranny; *R/C Car* glossary; JR R-1 vs. Airtronics M8; Tekin BC112c digital peak charger; Novak Rhino DC peak charger; Trinity IFMAR off-road worlds video; Comp Art truck tire washer; KO Propo EX-11 Presto radio; HPI RS4 Pro Electric touring car (part 1); Team Losi XX-4 4WD off-road buggy (part 1) OFNA Z-10 pro electric touring car.



❑ MAY '98
Kyosho Nitro Mini-Cooper; Tamiya Blazing Star; Yokomo YR-4 MS USA version; Traxxas 4-Tec; Mugen Prime 12; Team Losi XX-4 Racing Truck; Innoventive Technologies CVEC tuned pipe; Motor Saver filters; PC/RC EFR; Reedy International Race of Champions; how to build battery packs; Kyosho Rally cars; KO Propo EX-1 Mars FM radio; PROTOForm Volvo S-40 touring body; Tekin DIS-350 battery discharger; Racers Edge diff building board; Team Associated RC10T3 (Part 1); HPI Nitro Mini (Part 1); Tamiya M02l.

❑ JUNE '98
Kyosho GP-10 MK. II Spider; Schumacher Cat '98; OFNA Racing Nitro Z-10 HPI RS4 Mini; Kyosho Inferno DX II; SRP Spectre; Bennett vs. ESP Clods; '98 Team Losi Winterchamps; Airtronics anti-lock brake booster; Cross Racing JOMO Nissan Skyline GT; GM Racing Super Glue; Tekin G-10 PRO ESC; Hitec Lynx FM Radio; Schumacher '98 Spec S.S.T. 2000 (part 1); Team Associated RC10B3 (part 2); Team Losi Double-X Kinwald Edition (part 2).

❑ JULY '98
MRC Nitro Thunder King; Traxxas Nitro Sport; Kyosho ATV Quad rider; OFNA Pirate 10 SE Porsche; Kyosho Formula 10; Team Losi XX-T 'CR' Graphite; Team Losi XX-4 (part 2); Tamiya M02L (part 3); Futaba 3PJ FM/PCM radio system; Roland Digital Group Sitka; Schumacher gauge set; Dirt Bagz Battery Caddy; Robinson Racing bearing cleaner; GM Racing V-12 ESC.

❑ AUG. '98
HPI Nitro RS4 Racer; Tenth Technology StreetWise Stadium Truck; Thunder Tiger Twister; Yokomo MX-4; Team Associated Nitro Dual Sport; Team Associated Nitro Dual Sport; inside the Silver State Nitro Challenge Winners; Setting your suspension; 12 ways to go faster!; inside the Pro-Line Cactus Classic; Factory Works Motor Centering Kit for Losi vehicles; MIP Thorpe Wrenches; Futaba Magnum Sport and Magnum Junior Radios; Progressive Suspension EDC Shocks; Schumacher CAT '98; Team Associated RC10T3.

❑ SEP. '98
Trinity Switchblade 12sj; Schumacher Fireblade USA; Tamiya Golf VR5; FSR Bullet; Kyosho SuperTen McClaren; GTR F1; Thunder Tiger Mirage V-Spec; which scale is for you?; how to care for your modified motor; project Dirt Oval Nitro Sport; MIP 4-N-1 Clutch; RPM Tire Gluing JIG; Hitec CG-330 Charger; Trinity Touring Car Tire Tamer; OFNA starter box; Dynamite Glow Tuning Screwdriver; Team Losi XX4 (part 1); Team Associated RC10GT (part 1).

❑ OCT. '98
Kawada SV-10 Alcyon; Tamiya's PIAA Porsche & Mercedes CLK GTR; Schumacher Nitro .21 Xtreme; Kyosho Nitro Blizzard; Tamiya Volkswagon Beetle; ROAR Off-Road Fuel Nationals; understanding swaybars; 10 beginner problems; OFNA car stand; Performance Hobby Jack Stand with Lite Switch; Novak Atom ESC; JR Racing XR2 AM Computer Radio; Trinity Monster Stock Jr. Stock Motor; HPI RS4 Pro; Team Losi Kindwald Edition

❑ NOV. '98
HPI RS4 Rally; MRC Nitro Thunder King; HPI Mini Pro; Team Associated L3; Tamiya Ferrari F310B F1; Tech Racing Voggerd GT; Kibrough/BSR Oval Shootout; Mark Pavidis' new Mugen MBX-4; building a track; turn marshalling rules; Tamiya Championship Series; RPM Ride-Height gauge; Dynamite Ultra-Start starter box; Tekin Pro Motor Dyno; Traxxas Nitro Sport.

❑ DEC. '98
Kyosho TF-3 Type-R; Tamiya M0-3 Cooper; Kawada SV-10 Alcyon; Tenth Technology Streetwise Mercedes; Tamiya TGX-Mk. 1 TS; painting Lexan bodies; roll center; Novak Pit Wizard; 12 uses for fuel tubing; '98 ROAR mod Nats; Driving the ROAR off-road winning cars; JR-Propo R1 Radio; Schumacher CCD charger/discharger; Kyosho MP-5; Schumacher Fireblade USA.

❑ JAN. '99
Traxxas Nitro 4-tec; Kyosho QRC-SV Mooneyes Street Van; Thunder Tiger TA02 Nitro Conversion; OFNA Nitro Z-10 Pro; Tamiya TA03R Mobil 1 NSX; Team Kinwald Pro Shock bushings; RPM Bearing Blaster; Tamiya tire gluing jig; Racers Edge shock piston drill set; IFMAR OnTrack World Championships; Dynamite's New 12 S and 12 SPD Engines; ROAR On-Road Fuel Nationals; off-road tire tuning; HPI Viper Cup; First Annual Labor Day Shootout

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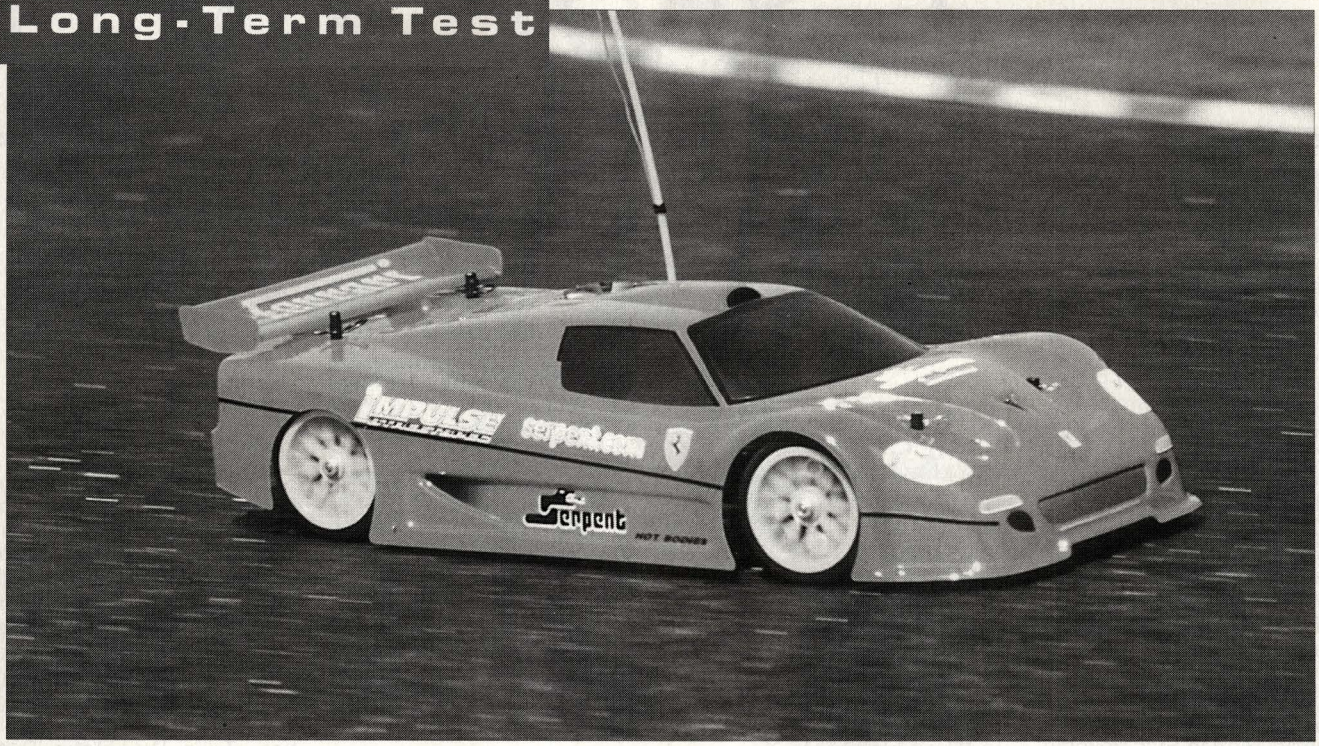
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Serpent Impulse Streetspec

How does it fare after the honeymoon?

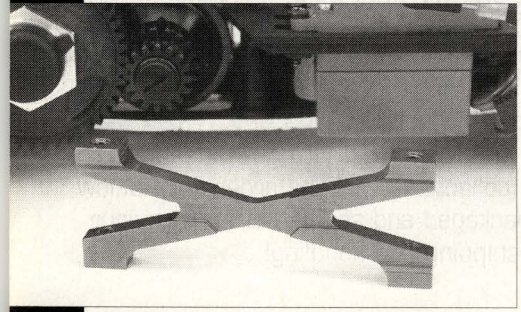
By Lito Reyes

If you read our initial review of Serpent's Impulse Streetspec in our December 1999 issue, you may recall how enthralled all of us TC fanatics were when it came in. Building it and testing it further solidified our affection for the car. But now that it's been "broken in" a bit more, is the honeymoon over?

The fall and winter racing season in lovely Southern California (don't really mean to rub it in, but there is still plenty of good racing going on well into December) has provided us ample opportunity to live with the Impulse. Let's jump into the some details of how the relationship is holding up.

Gripe time...

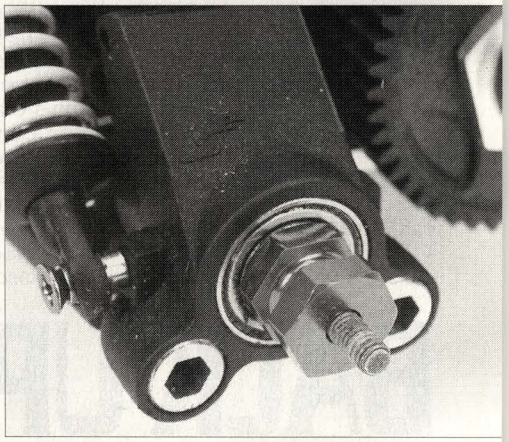
I'd like to start off with my gripes about the Impulse. They are not insignificant, but there are only a couple, so I might as well get them out of the way. The biggest problem is the aluminum header. Due to the way the middle belt is routed along the left side of the chassis, the header has to clear the upper chassis brace and rear pulley. When the head heats up, the aluminum material becomes very soft, and a light tap on the left side is all it takes to bend the header right into the pulley. Serpent U.S.A. tells us that Serpent headquarters back in the Netherlands is aware of the problem and they are working on a solution. But for now, a spare header should be included in an Impulse owner's toolbox. If it does happen, the header can be bent back out while still hot. This can be done a number of times before the material becomes weakened. I think that a brace can be designed to attach to the rear engine mount to prevent the header from being pushed into the pulley, but we'll see what Serpent offers us in the future.



This aluminum middle chassis brace from Serpent helps eliminate flex from the chassis.

The second gripe I have is the limited range of adjustment for the engine mounts. The full range of adjustment is about two millimeters. That doesn't leave a whole lot of room for different size clutch bells. Serpent has some new gearing options in the works, but we haven't seen them yet. I suspect that any gear change would include changing both the spur and the clutch bell.

You may remember how we lauded the sturdiness of the suspension design. You may also remember me saying that if there was a way to break it, we would do our best to find out how. Well, it hap-



Although not a necessary hop-up item, we added a full set of aluminum alloy hex-hubs to our Serpent. A nice feature of alloy hubs is that they don't wear out as quickly as plastic hubs.

pened, but not on purpose. During one particularly spirited run, the rear right lower inner hingepin worked its way loose, due to an improperly set setscrew. Of course, this wasn't discovered until after the damage was done. The end result: a broken lower A-arm and a bent hingepin. Replacing the parts was a little harder than anticipated. I knew that Impulse shared many suspension parts with its "big brother," the Impact, but I didn't realize how unpopular the 1/10-scale on-road nitro class was in my area. I had to special-order the parts, and they took two weeks to arrive. Nor did I realize how expensive the parts were. Fortunately for us, Serpent U.S.A. now has a good stock of parts to supply its distribution channels.

The upper plate is strong, but not inflexible. Due to the mounting location of the throttle/brake servo, if the throw isn't set "just right," a strong servo can easily bow the upper deck, causing a little bit of chassis tweak.

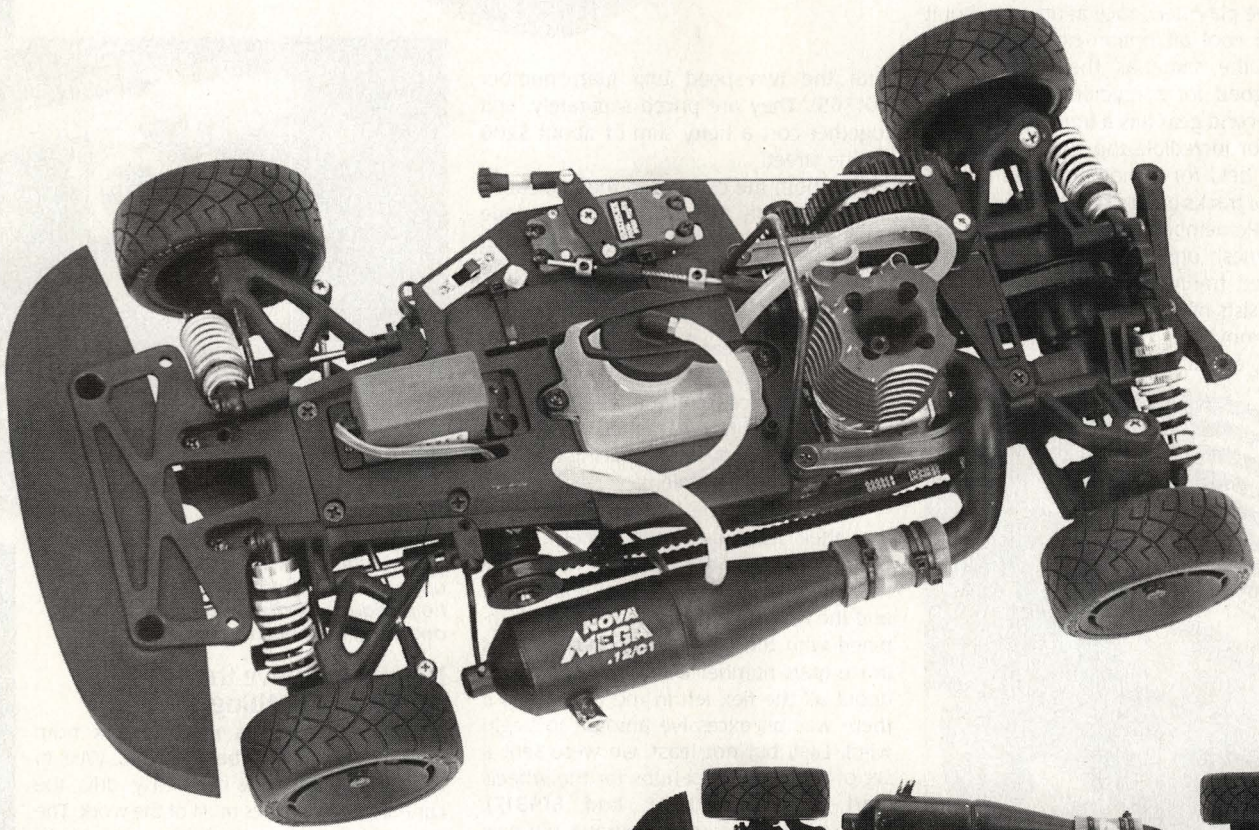
The last gripe I have isn't that big, but must be mentioned. Proper-fitting wheels that kept the car's width within the legal dimensions were a bit of a bear to find. I initially mounted up the stock tires on the yellow multi-spoke wheels that came with the kit. I found the tires working well on really hot days, but in moderate temperatures they took too long to warm up to operating temperature. So, going through my collection of tires, I tried to find some that would work better. Because of the extra-large pillow balls, most wheels I had on hand would not work because the wheels' spokes or ribs would catch on the uprights. If there was enough clearance, it would make the Impulse too wide to be legal for racing. After a couple of trips to the LHS, I found that Pro-Line 26mm Warlock wheels put the width right up to 200mm and will work without modification. Also, HPI 26mm rims with zero millimeter offset will work if some spoke or rib material is ground away with a rotary tool.

More of what we love...

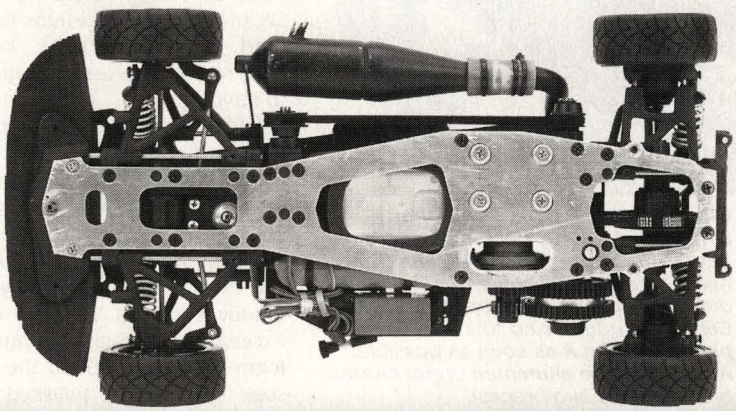
Enough with the gripes. What about the joys the Impulse brings? The first thing is the performance. The Novarossi-built engine is strong, reliable, and very fast, and the included pipe complements it nicely with lots of punch and gobs of top-end. Its handling, of course, is incredible and doesn't take a whole lot of tweaking to get it to feel right.

The next treat is the ease of maintenance. Changing that broken arm and bent hingepin took less than five minutes, and that included resetting the geometry to match the other side. Removing the upper deck for cleaning means unscrewing eight screws. All of the radio gear is neatly attached to the deck.

With the exception of that "freak" accident with the setscrew, the suspension has fully lived up to expectations. The car has survived some crashes, bang-ups, and tumbles that would have destroyed lesser cars. Of course, all of this was done on purpose for the sake of testing (can you see my nose getting longer?).







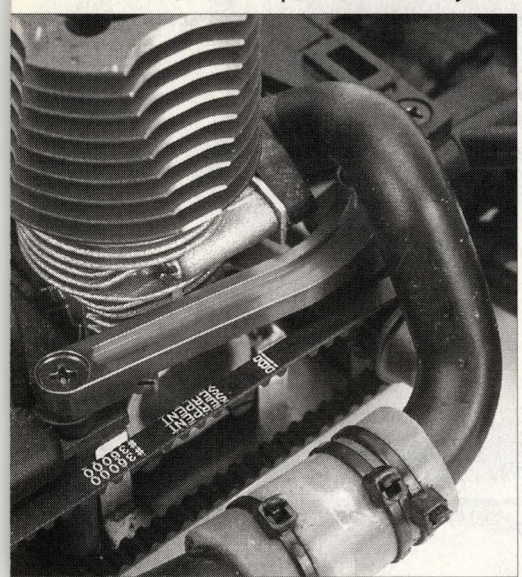
Serpent Impulse Streetspec

Driving other touring cars makes me appreciate how really strong the Impulse's brakes are. Driving the Serpent, I find myself staying on the power longer at the end of a straight and braking really hard to get the weight to transfer to the front tires to turn in. Having that confidence in my brakes helps make it easier for me to push the car a little harder, and my lap times have shown that.

What else did we do to it?

It's pretty much an obsession. We always have to take a perfectly good car and modify it in some way. You love to do it, too, so we'll just do a little bit of sharing here, and get this stuff off our chests.

The first thing we did was beg Ed Enberg of Serpent U.S.A. to send us their two-speed transmission unit to play with. We are completely aware that it probably isn't needed on most tracks. In fact, the stock gearing is a little too tall for some tracks we play...er...race at anyway, but it was too cool an option not to try. First gear is the same as the stock single-speed—good for a medium to large size track. Second gear has a three-tooth larger pinion for incredible top speeds that can only be held for a moment even on the largest of tracks before having to brake for a turn. Remember how I mentioned the limited mesh options earlier? Luckily, the two-speed tranny meshed perfectly. The unit consists of two parts—a Centax clutch with removable pinions (part number 801530), and a replacement rear layshaft with the two-speed unit (part number 801365). They are priced separately, and together cost a hefty sum of about $200 on the street!

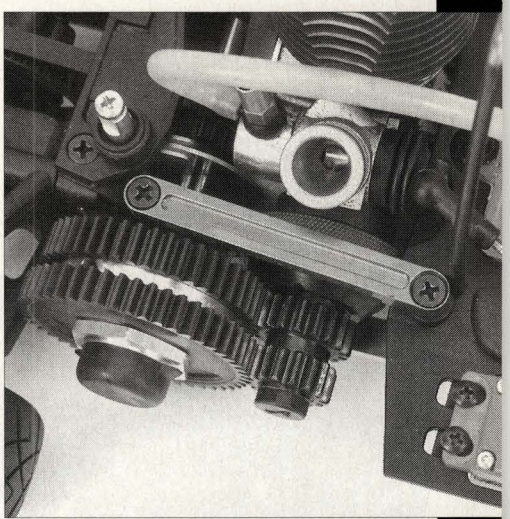


One complaint we have with the Serpent is that the aluminum header gets a little soft when the cylinder head heats up and can bend easily if tapped during a race. We were informed that Serpent is addressing this issue, and plans on fixing it as soon as possible. Also notice the aluminum upper chassis brace (one of two braces).

But both the clutch and the two-speed are individually adjustable and are made of heavy-duty materials. The shoes that transition the shift from first to second gear are made of a material similar to nylon. This type of set makes for a softer shift between gears and doesn't "shock" the drivetrain as much as some other units do. Another nice feature of Serpent's two-speed is that the gears are physically spaced apart, so flywheel spacing from the crankcase is more lenient.

Another upgrade that Serpent sent us was their new aluminum upper chassis braces (part number 801131). This eliminated the flexing between the upper deck and the rear bulkhead. These pieces, combined with the aluminum middle chassis brace (part number 801106), remove just about all the flex left in the chassis (as if there was an excessive amount to begin with). Last, but not least, we were sent a set of aluminum hex-hubs for the wheels (part numbers 801218 and 801317). They're not a necessary upgrade, but nice to have.

What else did we learn about our beloved Impulse? Be careful when building the shocks; they can leak oil, as one of ours did. And use Associated O-rings, since these expand more than some other O-rings and form a better seal. Also, 1-1/2 to 2 O-rings in each of the front differential outdrives will rid the front dogbones of excess play. And last but not least, use a foam tire insert around the fuel tank to soak up fuel that is splashed or spilled.



Here is the other brace in the set of two upper chassis braces. These pieces help reduce flexing between the upper deck and rear bulkhead.

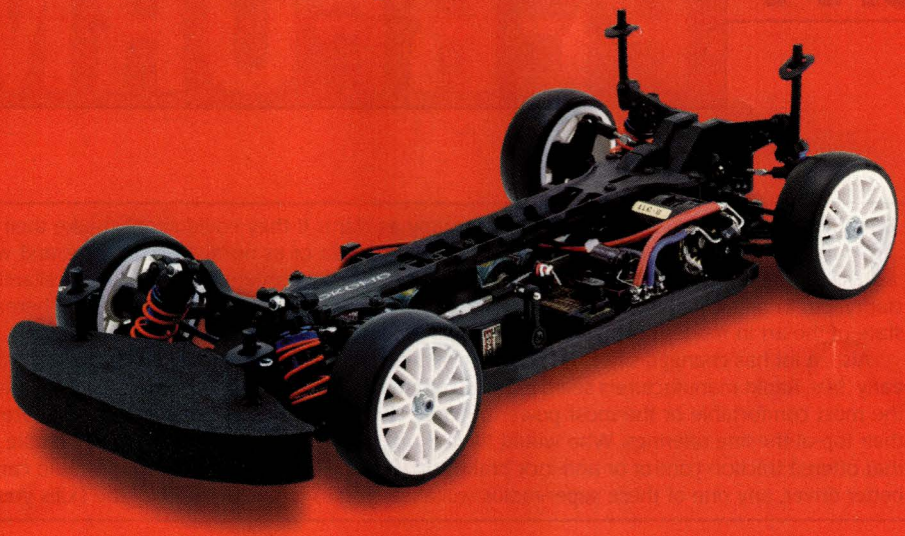
Does it still have that "special something"?

Most relationships require work from both parties for it to be a success. Well, in this case, our part has been easy—drive the car hard; the car does most of the work. The Impulse responds well to being pushed to its limits. Its solid handling, speed through the corners, reliability and ease of maintenance make it a pleasure to race the Impulse. But like an exotic sports car, parts are not cheap. Overall, we have found that it is very easy to live with the Serpent Impulse. The honeymoon ain't over yet... ◆

SOURCES

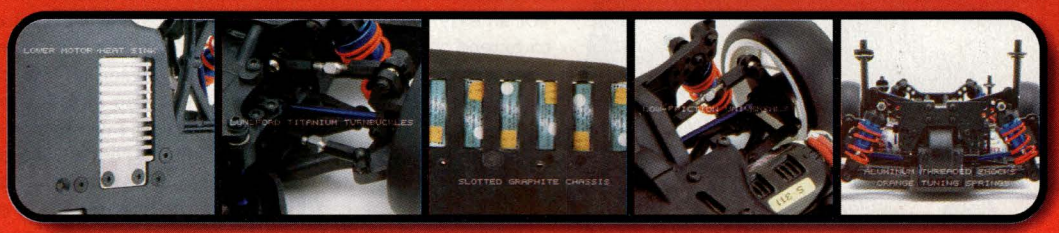
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Congratulations to new Yokomo team driver Chris Tosolini for winning the PRO Modified Class at the 2000 Novak Midwest Touring Car Championship!

Also, congratulations to the 'Fabulous One' - Barry Baker for winning the 2000 Millenium RC Touring Car Race in Hong Kong.

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HIGH PERFORMAN

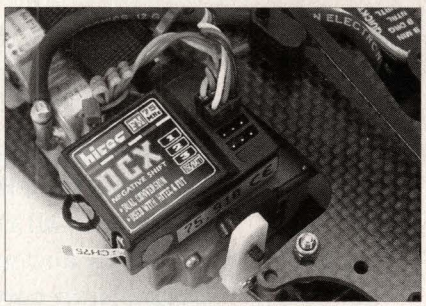
In the early days of R/C, hobbyists were happy as clams if they could simply make their vehicles turn in the right direction. Radio glitches were often thought of as normal occurrences and were accepted as part of the game. Today, radio technology has made a quantum leap in not only reliability and signal clarity, but in the amount of features offered. The current crop of super-radios featured here represent the state-of-the-art in modern computer transmitters for surface use (cars and boats).

Also, a lot has changed since the first Airtronics Caliber and JR-Propo R-756 radios wowed racers in the early '90s. Radio manufacturers seem to be in competition with each other to see who can make their radio the most comfortable or the most powerful. They also seem to be packing more and more features into their top-of-the-line offerings. Who would have thought 15 years ago that we would be able to buy radios that offered traction control or anti-lock brakes or 10-model memory? Although no radio can make you a better driver, any one of these super-radios will allow you to make the most of the skills you do have.

HITEC **Lynx 3D**

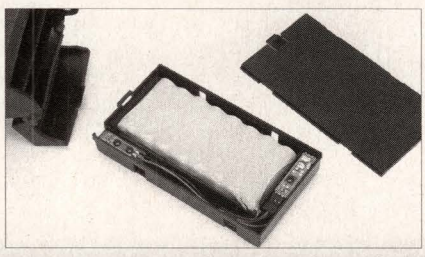


Hitec's first foray into the world of computer radios (for cars; Hitec has been making computer aircraft radios for years), the Lynx 3D, represents what we have come to expect from this trend-bucking firm from Korea—quality at an unbelievable value. One of Hitec's goals in designing the Lynx 3D was to provide its customers with greater value than its competitors could offer. First, it had to meet or exceed 90-percent of its competitor's features at a lower price. Not an easy task, but Hitec believed it possible. Also, Hitec wanted to extend the value further by including as standard equipment such features as a NiCad battery with charger, and a DSC (direct servo control) cord. On top of all this, Hitec also includes their top-of-the-line dual-conversion DCX micro receivers—one of the best on the market. And with all this, Hitec still managed to keep the price of the Lynx 3D hovering just under the $200 mark.



The Lynx 3D comes with Hitec's innovative DCX dual-conversion micro receiver, which processes the radio signal twice to ensure clarity.

Although it lacks a few of the features found on the more expensive systems, the Lynx 3D is anything but lacking. It has more than enough high-end features to satisfy even the most discriminating software-head, including ABS, idle-up and even 10 model memory! As with all of its products, Hitec's Lynx 3D proves that you don't have to be wealthy to afford top-shelf features and performance.



Hitec includes a NiCad battery pack and charger as part of the Lynx 3D package. This feature is optional on most other radios

CE RADIO GUIDE

Make some serious (radio) waves!

MULTIPLEX
Profi 404 and 707



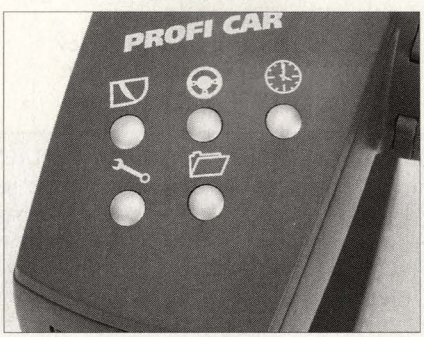
The latest additions to the "super radio" category are the Profi 403 and 707 from Multiplex. The most striking features of these new German radios is their appearance—very sci-fi. But in reality, these are the lightest transmitters you can buy, and they are superbly balanced. Visually similar, the 403 and 707 differ in several ways: the more expensive 707 can store settings for up to 12 models (the largest number of any radio save the Futaba 3PJS, which can store additional models via plug-in memory cards), and while the 403 features four-channel operation, the 707 has five (seven if you count its 'truck' feature that was designed for super-scale semi trucks such as those from Weidico).

In addition, both Profis "talk" to the receiver at a speed of 60Hz, which according to Multiplex is 50-percent faster than other radios. Navigating through the Profi's programming menus is easy thanks to Multiplex's user-friendly, icon-based controls and software, which groups together all functions assignable to the throttle and steering channels—no more scrolling through vast menus that contain settings for both channels.

Other notable features of the Profi radios include the ability to switch between FM (the standard mode) and AM transmission. This means that you can use the Profi with some of those old receivers you have lying around. Also, the Profi allows you to adjust the sensitivity of each trim adjustment from between 0.5 and three-percent in increments of 0.5 percent. And although the Airtronics M8 was the first to feature a top-mounted LCD display, the Profi takes things a step further by angling the display so that it's in-line with the driver's field of vision. If you are ready for a different kind of radio, the Profi could be for you.



Multiplex's tiny Pico receiver can work with as many as five channels!



Navigating the functions of the Profi is made simpler by grouping each function's settings into separate menus, e.g., all the steering settings can be accessed by pressing the "wheel" button.



The Profi is the only radio in the world that can switch between AM and FM. Break out all those old AM receivers.



The R-1's huge LCD displays information both numerically and graphically.



JR's tiny R200 micro receiver comes standard with the R-1. Despite being a three-channel system, the R200 is set up for racing—just steering and throttle channel.

JR-REMOTE CONTROL R-1

Looking like a cross between a Futaba Magnum Jr., a Nintendo Gameboy and a Sony VCR remote, JR's potent R-1 is perhaps the most feature-laden transmitter of the bunch—sure to win any "my radio is bigger than your" bragging match. Following the recent trend of lowering and centering the steering wheel in relation to the throttle trigger, the R-1 feels very balanced when held either horizontally or vertically.

The R-1's very large (126 x 64 dot) LCD screen is capable of displaying large doses of data. For example, not only does the R-1 display exponential values numerically, it is the only radio that show graphically how each change you make affects the "curve" of the steering or throttle response. Aside from a small display switch (and the main power switch), all of the R-1's functions are controlled by an array of eight buttons (the VCR remote part), which are arranged in a circular pattern on the right side of the radio's case.

The R-1 offers several features not found on any other radios. Aside from the above mentioned graphic display, the R-1 has multiple-tone trim settings (the tone of the beep changes as the trim nears the limits of its travel), 10-model memory and multi-point throttle and brake curves. We found the R-1's setup and operation to less intuitive than with some other computer radios, but once the basic arrangement of functions is learned, users will enjoy one of the most potent radios available.



Aside from the Futaba 3PJS, the R-1 is the only other radio that offers both PPM and PCM (pulse code modulation) transmisison. The R-1's RF module is removeable to allow frequency and band changes.

Radio terms

● Adjustable Travel Volume (ATV): This feature can affect both the steering and throttle channels (you select either "steering ATV" or "throttle ATV" from your radio's menu). ATV allows you to set the amount of travel from each channel—how far to the left and right the steering servo moves, or how far the throttle servo on your nitro vehicle moves to the throttle and brake sides. Throttle ATV also is used to affect the range of "travel" of your ESC (electronic speed control). ATV can also be used to set the travel of each channel individually, e.g., it can be used to set the left/right steering throw to different values, or it can provide greater travel for the throttle function and much less for the brakes. This feature is sometimes called EPA (end-point adjustment).

• Exponential (EXP): This allows you to adjust the throttle-servo's or steering-servo's responsiveness around the neutral position. For example, if you set your steering's exponential to a negative value, the wheels will steer less initially from neutral, but will "speed up" as the steering servo reaches the limits of its travel. If you choose a positive value, the steering will be quicker immediately from neutral, but will slow as the steering reaches the limits of its travel. A larger value will create a more noticeable difference between the "sped up" or "slowed" response and the "actual" speed of the servo. Some radios also allow you to set the point at which the exponential change begins or ends (this is known as exponential-point adjustment).

AIRTRONICS M8



In addition to having a removeable RF module, the M8 makes changing crystals as easy as possible—you don't even have to remove the module!



How do you follow a winning act such as the Caliber 3PS? You take all that was right and pack in even more features and refinement. This is what Airtronics did when it introduced the M8 back in '97. Sharing its basic outline with the Caliber, the M8 offers more functions yet its arrangement and appearance is less cluttered, almost elegant. When compared to the Caliber, the M8's steering wheel is lower and closer to the throttle trigger—similar to the layout of the old Airtronics CS 2P, which was a favorite among racers for its great feel.

The M8 displays its functions on a large LCD screen that's positioned on top of the transmitter's case. All of the M8's functions are simultaneously displayed, eliminating the need for menus, sub-menus and endless scrolling through them. All of the functions are controlled by a mere five buttons located right below the screen. Using the left- or right-arrow buttons, you can easily breeze through the M8's substantial menu, using the increase or decrease buttons to change the settings of whichever function is highlighted. To delve a bit deeper, an asterisk button allows access to sub-menus joined to some of the main functions.

The M8 has become the staple of the serious racing crowd—one look at any winners' chart from a national or world event will reveal a bias toward the M8. And it's no wonder; with features such as 10-model memory, a well-balanced and attractive case, and what we feel is one of the most easily navigable function interfaces of any computer radio, the M8 truly has everything racers need.



Airtronics moved the M8's display to the top of the radio's case. This makes it easier to see the screen when you can only spare a quick glance.



In response to racer feedback, the M8's steering wheel has been positioned lower and closer to the throttle trigger's position.

• Model select: With the new generation of computer radios came the ability to store settings for more than one vehicle. With this feature, you can use one radio to control as many as 10 vehicles (Futaba's new 3PJS can store more, thanks to its removable memory module) without reprogramming each time you switch—just pick the right model from the menu and you're ready to go.

• Custom button: This allows you to assign one particularly useful function to a single button or lever for quick access without having to scroll through the radio's memory. Most radios with this feature let you pick which grip dial to use as the custom key.

• Subtrim: How did we ever manage without subtrim? This allows you to adjust the center position of the steering or throttle channels so the main trim dial can be set in the neutral position (giving equal range of adjustment in both directions).

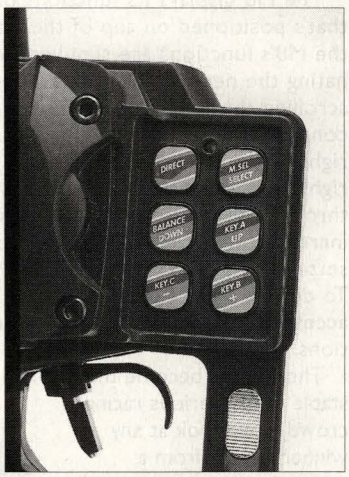
• Steering and throttle speed: allows you to change the speed of the servo in relation to the movement of the throttle trigger or steering wheel without requiring any exponential curve. Note that this feature doesn't actually increase the servo's maximum speed.

• ABS (anti-lock brake system): Yep, R/C cars can have ABS. Radios with this feature send a signal that actually pulses or

KO-PROPO
EX-1 Mars



Despite its deceptively simple appearance, the Mars is one of the most technologically advanced radio systems you can buy. Perhaps the most standout evidence of this fact is the Mars' System Level feature, in which the user can select from one of four "levels" of functions to best suit his individual experience level and skill. For example: System Level 1 allows the user access only the most basic of the Mars' myriad functions such as servo-reversing, model select and the various trims and sub-trims necessary to properly set the radio to the model. Level 2 includes everything provided in Level 1, but adds such functions as steering and throttle curves (EXP), timers and assignable grip-dials. Level 3 adds such features as steering speed and throttle "punch," ABS, fuel timer and model copy. Going whole-hog for Level 4 unlocks all of the Mars' capabilities, including two-way steering speed and steering "punch." In addition to its innovated System Level function, the Mars' also features 10 model memory with full memory functions such as reset, restore and data copy. Also, the Mars' has KO-Propo's Direct Set Programming feature that not only allows you to assign your most-used functions to the radio's four grip-dials, but automatically displays whichever function you've changed on the LCD display—no menu-hunting. Truly, the Mars EX-1 is a high-performance computer radio that will grow with you as you become more experienced.



Despite being one of the most advanced radios available, the Mars' controls couldn't be simpler.

"pumps" the brake servo when brakes are applied. In some cases, the speed of the "pump" and the amplitude, or the amount of the pump, can be custom set. ABS can also work with an electric car's ESC.

• Idle setting: is a function of the throttle channel that, when switched on, can increase the size of the carb's opening at idle to increase a cold engine's idle speed. Once the engine has warmed sufficiently, the idle setting function is turned off.

• Burst throttle: creates a greater initial throttle travel to overcome drive train lag such as a gas vehicle's clutch, providing faster throttle response immediately from idle.

• Traction control: in R/C it works by slowing the initial response of the throttle servo or ESC immediately from the neutral position. Some traction controls operate similarly to the ABS function in that they feather (pulse) the throttle on acceleration to reduce wheelspin.

• Timer and stopwatch: Most computer radios offer functions which allow you to time various activities such as how long the radio has been switched on, and how long you have been running your vehicle. Some radios have countdown timers that you can set to the desired run time, and offer a lap-timing function that enables you to time and recall individual lap times.

• Dual rate: allows you to alter the amount of servo travel. Most dual-rates are controlled by a separate dial or trim lever on the outside of the radio. Dual-rate affects both directions of servo travel simultaneously.

• Partial throttle start: enables you to choose a predetermined "full throttle" position that only activates at the start of the race (this helps prevent unwanted wheelspin). Once you slow the vehicle or apply brakes for the first time, the radio will then allow your vehicle to achieve its true full throttle capability.

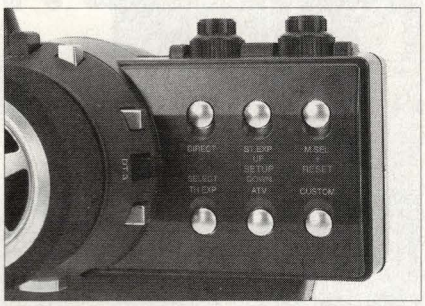
FUTABA
Magnum 3PJS



Beneath this rectangular plug is the receptacle for Futaba's new Data Pac "memory card" that doubles the 3PJS' memory capability.

When Futaba released the 3PJ, we were duly impressed—knocked out of our socks to be honest. Eight-model memory, traction control, anti-skid brakes, the choice of PPM or PCM transmission, and the look and feel of a fine Swiss watch were among the seemingly endless list of features that made the 3PJ the world's first true super-radio. So why did Futaba chose to update the 3PJ when clearly, it was still among the most sophisticated pieces of R/C hardware? To address the one complaint that seemed to come up more often than not—complexity. The very thing that made the 3PJ "super" was also hurting its reputation. If you didn't have the (thick) instruction manual with you at all times, you could find yourself tuned-out without the slightest clue as to how to access some of the radio's more "hidden" functions. So we were pleasantly surprised when we learned that Futaba had performed an extensive re-vamp of the 3PJ's software and navigation system. With the new 3PJS (Super), we were able to set up the radio without ever looking at the manual. The new system offers three function selection modes: Direct, Select and Set-Up.

But that's not all that makes the S "special." The new version is the first transmitter to offer expandable model-memory. Out of the box, the 3PJS can store settings for eight models. But you can purchase optional Data Pac modules that be installed to double the 3PJS' memory to 16! Just like the memory cards used for videogame consoles, the sky is the limit.



Futaba improved the 3PJS' controls to make it easier to access its incredible list of functions and features.

• Fail-safe: is particularly useful for gas vehicles to prevent runaways. In the event that the vehicle loses its signal from the radio, fail-safe automatically returns the throttle and steering servos to your pre-set positions, e.g., neutral, or brake for the throttle and full right for the steering.

• Model copy: lets you make a duplicate of your vehicle's settings so that you can "mess around" and experiment with all of your radio's various options without fear of screwing up the vehicle's original "good" settings. Some radios can also "talk" to other radios of the same make and model, allowing your friends to "upload" your settings to their radios. ●

SOURCES

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

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

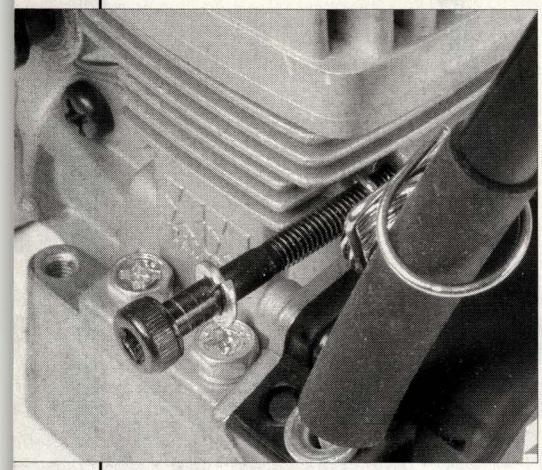
Hitec, 10729 Wheatlands Ave., Ste. C, Santee, CA 92071 • (619) 258-4940; (610) 449-1002 (fax)

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

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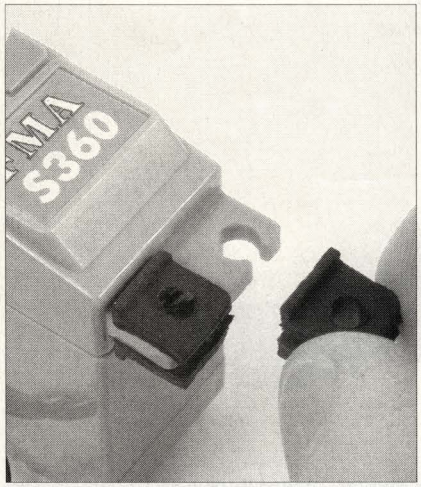
Multiplex USA, 14751 Calvert St., Van Nuys, CA 91411 • (818) 785-2401; (818) 785-3946

answer man



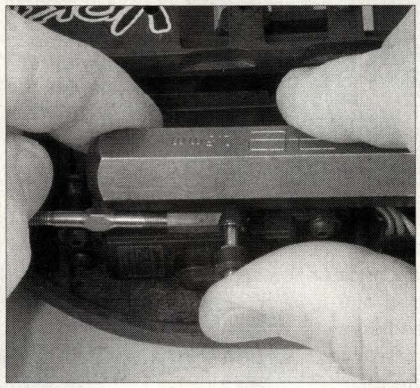
Lock 'em down

To prevent nuts and screws from loosening and falling out due to vibration, nitro racers use thread-locking compound such as Loctite. As you may or may not be aware, heat can do a good job of overcoming the Loctite's hold on the screw. To help prevent lost screws in areas that become hot, such as engine-mount screws, place a small lock-washer on the screw before you install it. The lock-washer will do its thing regardless of the temperature.



Bad vibrations

Gas cars and trucks are fast and fun, but let's face it, they vibrate way too much! This is pretty unavoidable, but there is something you can do to prevent your valuable servos from being damaged by all that shaking—install them using the rubber grommets that most servo manufacturers provide. You've seen them before, probably right before they go into the trash. Use them whenever you can to isolate your servos from the chassis.



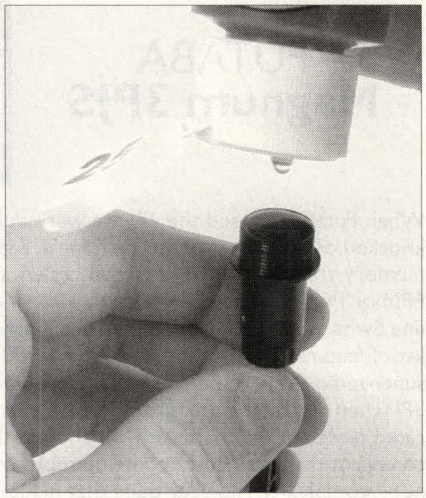
Make a better impress-ion

You need to snap a plastic suspension ball-end onto a metal ball-stud, but you don't want to resort to using pliers—they'll just gouge the plastic or deform it so the joint will bind once assembled. You can probably snap the ball-end on using your thumb, but you aren't that fond of pain and big red marks. The next time you need to press a pesky ball-end onto its ball-stud, use the flat part of a screwdriver or hex-wrench handle. It will provide more leverage for easier snapping, and you won't have sore digits.



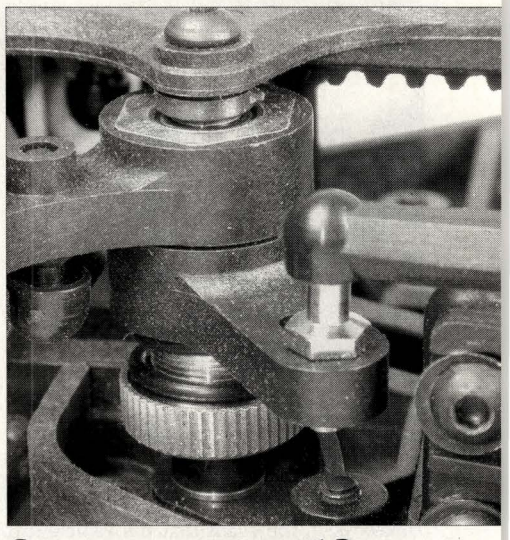
Save your servo

There's a trick that a lot of you use when setting your radio equipment into a new chassis. To ensure that the servos will be in their correct neutral positions, you turn the radio system on before you attach the servos to the steering and/or throttle linkage. This certainly prevents having to disassemble a portion of the chassis to re-position a servo-saver that's too far off to be helped by the sub-trim feature. But to reduce unnecessary strain on the servos, switch the radio off before you install and tighten the screws that hold the servo horns and linkage to the servos. This way, you won't be fighting for dominance in holding power with your servos!



Tiny bubbles. . .

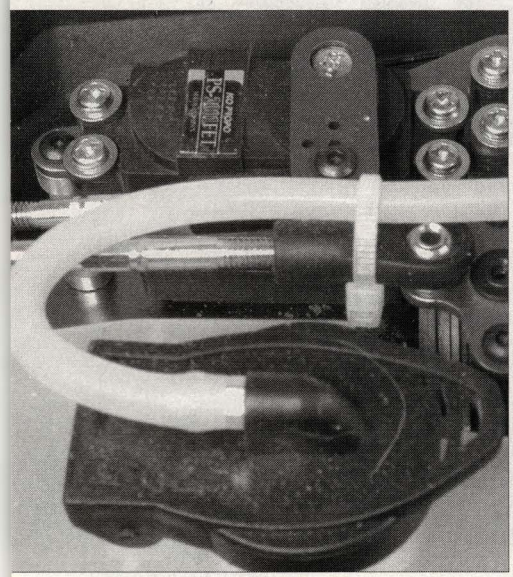
While filling up a shock with oil, we noticed something peculiar—we were actually adding tiny bubbles along with the shock oil! There's air inside that bottle of shock oil, and it can easily get mixed with the oil. To avoid this, and to reduce the amount of time it takes to get rid of all those air bubbles when filling your shocks, avoid shaking or sloshing the oil inside the bottle, and when you fill your shocks, hold the bottle of shock oil straight up and down.



Save your servo, part 2

Many popular off-road vehicles include servo-savers built right into the steering system. A servo-saver is usually a spring-loaded device that acts as a sort of shock-absorber, protecting your servo's gears from damage by feedback from the wheels. Unfortunately, it's very easy to set your vehicle's servo-saver too tightly. And when this happens, the buffering effect

provided by the servo-saver is nullified.—goodbye servo gears, especially with off-road trucks, which have larger wheels. To prolong the life of your steering servo, always keep your servo-saver set as loosely as possible, especially if you have servos with plastic gears.



Avoid choking your engine!

Gas cars can often seem like mazes of wires, linkages and fuel tubing. What a mess! To neaten things up a bit, we sometimes secure all that extra fuel tubing with zip-ties. But beware—it's very easy to overtighten the zip-tie, which effectively crimps the fuel line. If you crimp the fuel-feed line to the carb, your engine will starve for fuel. If you crimp the pressure line coming from the pipe to the tank, your engine will run inconsistently from the lack of even fuel-flow (caused by not enough pressure inside the fuel tank). Keep those zip-ties nice and loose, and your engine will thank you! ◆

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ROAR 1/5 SCALE NATIONALS

The big boys go racing!

By Roland Chavarry

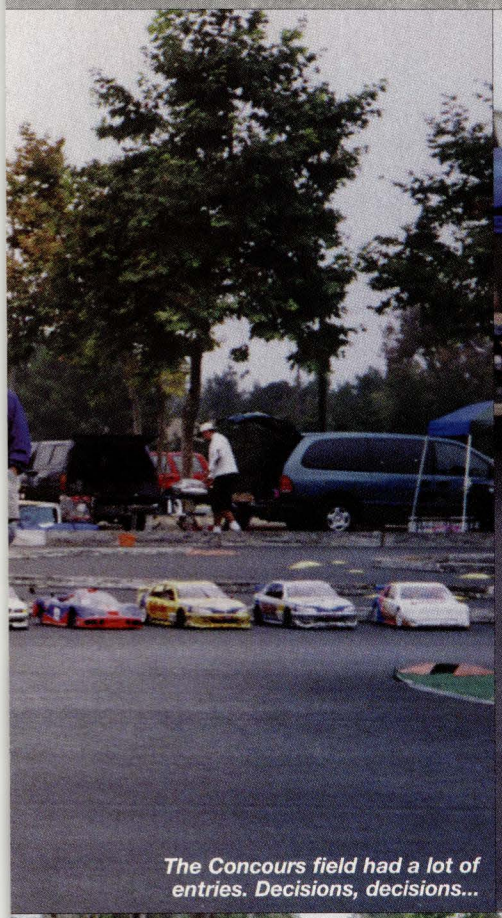
San Jose, California, was the site for the U. S. 1/5-scale Nationals. The site was a parking lot set up by RAMS (Radio Amateur Control Models of Santa Clara) at Santa Clara Mission College. This national event was nothing but thrills and spills, with all the drivers out for one thing–a National title.

For Friday practice, everyone had on a happy face, knowing that come Saturday qualifying it would be every driver for himself. Nevertheless, you could see all the teams "thrashing" to get ready–trying just about anything to get the edge. The consensus on every team was to go with whatever the fastest guy on the team was running. Hey, that always worked for me!

Saturday qualifiers were getting underway with six heats of sedan and three heats of GTP class. Qualifying here is a bit different than in other types of organized R/C racing. Heats last ten minutes, from which they take the best two consecutive laps as your qualifying run. The car uses up two or three minutes to heat up the tires since there are no warm-up laps before the qualifier begins. Also during qualifiers, drivers are allowed to stop for tire changes or suspension setup. They have ten minutes and they only need two consecutive laps.

It was obvious that the track was coming to the drivers. Qualifying spots switched over back and forth, but after two rounds, Rick Hohwart (SVM) had taken charge of the field in both classes. WOW!!

By the third round, the sun was beginning to set and times did not really improve, except for a few drivers. The story of the day, however, was Rick Hohwart edging out Marty Barnes (FG), Tim Bump (HARM) and Barry Baker (HARM) in the sedan class. Also in the GTP



The Concours field had a lot of entries. Decisions, decisions...



Rick Hohwart showed up for the Nat's ready to win. He piloted his Ricambi car to the win in both the Sedan and GTP classes!



Yokomo/Trinity's Barry Baker was just one of the top drivers in the country that came out to try their hand at 1/5-scale racing. The "Fabulous One" had a good showing in his first ever 1/5-scale race with his HARM car.



Concours winners: Eric Vasutin (top), and Karlton Spindle (bottom).



Yet another top driver making an appearance at the race was Tamiya's David Jun. Here David poses with his second place finishing HARM car!

ROAR 1/5 SCALE NATIONALS

class Rick qualified first, ahead of Eric Vasutin (FG), Jim Rose (SVM) and Tim Bump (HARM).

On Sunday, the stage was set for a last round of qualifiers, and the entire field of cars was on a mission to move up a few spots. The track was right, drivers were pumped up and ready for a thirty-minute showdown—the main event.

Concours Honors

All the cars looked pretty awesome; however, Eric Vasutin's car was the one that stood out, followed by Multiplex "Gurumaster" Karlton Spindle's and Fred Valdez's in third.

Shortly after Concours, the field was ready for the last round of qualifiers. A few times dropped, others moved up and after the dust settled, it was clear that Rick Hohwart was the pole sitter, leaving David Jun and Marty Barnes scratching their heads as second and third qualifiers in the sedan class.

In the GTP class, again Rick Hohwart took TQ honor over Tim Bump and Eric Vasutin; other notables included Jim Rose, fourth, and David Jun was the fifth to qualify.

The mains were finally posted. The lower mains were run first, as usual, with the winner of each main moving up to the next final. With the GTP main scenario set, after a few warm-up laps, the field got going on a rolling start. Once the field had settled, Rick was long gone. Before long he started to lap the field and even overtook second place with a lap on the field. Rick just continued to pull away, lapping the field a second time. With all that lead and so little time left, his first U. S. 1/5-scale title was a sure thing. After that, it was all "high fives." The official results listed Rick in first, Eric Vasutin in second, and Tim Bump in third. Thanks a lot to you guys for putting on quite an endurance show.

The sedan A main was almost a repeat of the GTP class. With Rick Hohwart at the front of the field, he just never looked back while he lapped the whole field two times. The real race was between David Jun and Marty Barnes for the runner-up spot. They diced and sliced, switching positions back and forth. In the end David Jun crossed the finsh line a mere .0045 seconds ahead of Marty Barnes. However, the most notable was Jeff Devlin, after winning the B main and bumping up to the A finishing with a very honorable fifth place.



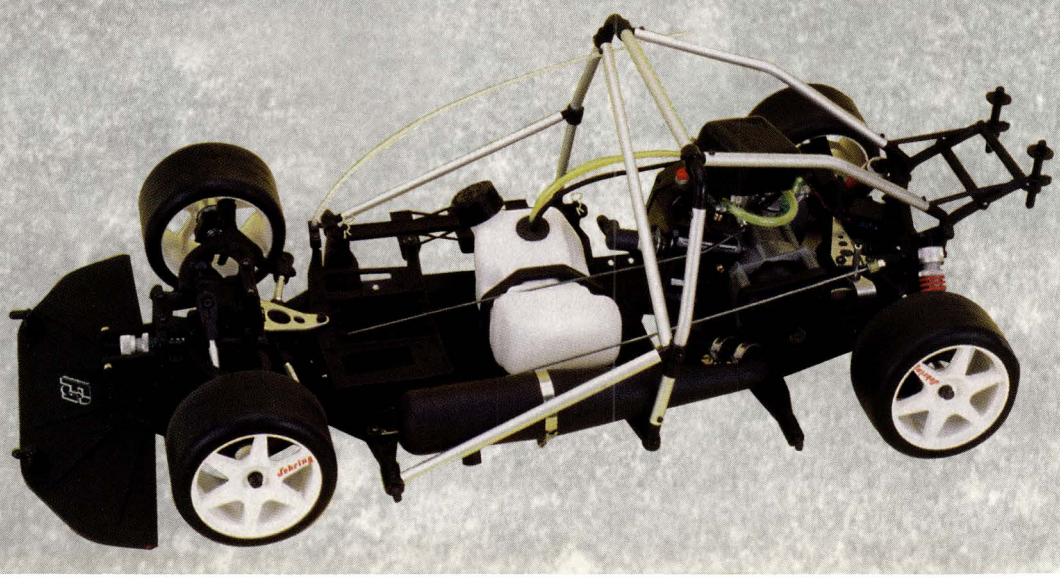
Here's a quick view down pit lane. Looks a little longer than your typical 1/10-scale touring car track doesn't it?

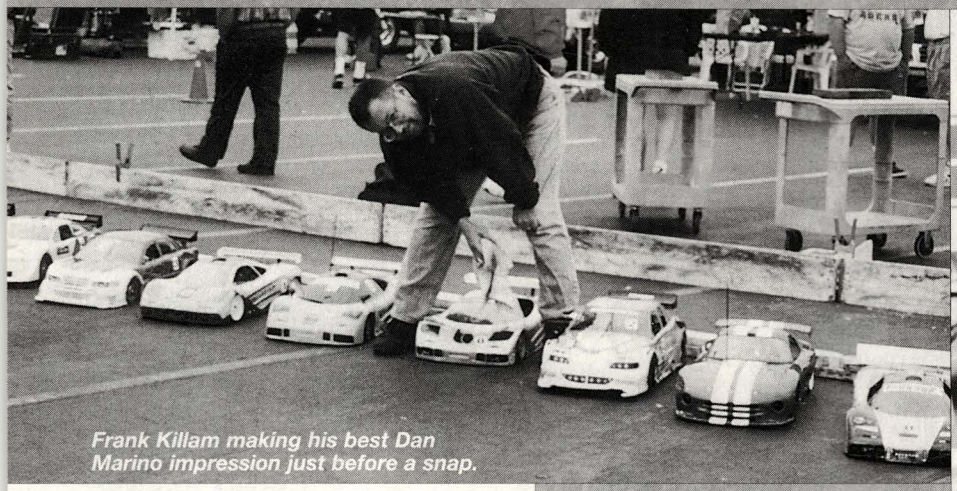
1/5 SCALE BUYER'S GUIDE

SEI Racing

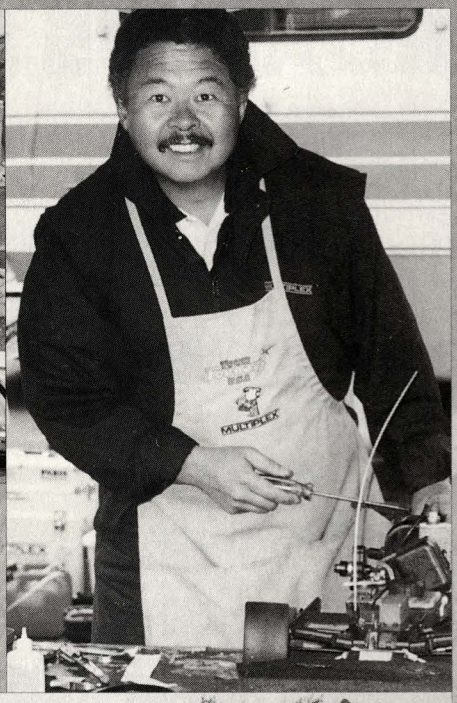
From FG Modellsport, originators of 1/5-scale. '97 & '99 European Champion and many other victories make this the ultimate in R/C for both racing and pure fun. Imported by SEI Racing over six years ago, thus starting a whole new class of R/C in the US.

Prices start at $899.00 and go up to $6500.00 for the real Megalomaniac.



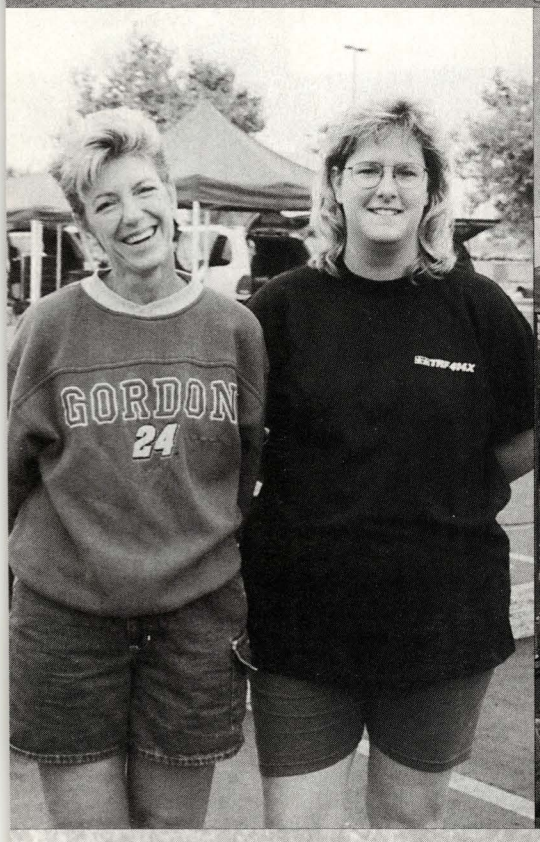


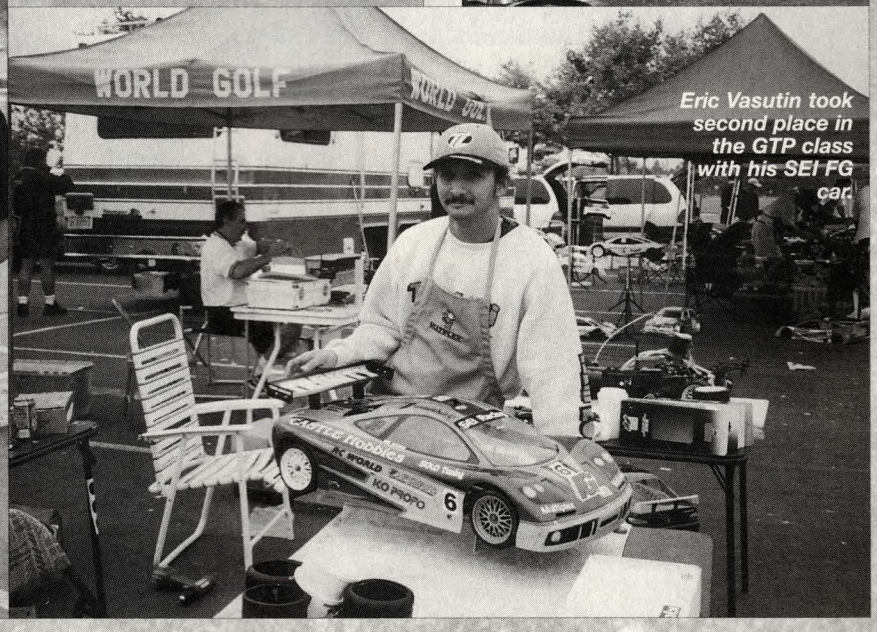
Frank Killam making his best Dan Marino impression just before a snap.



Steve Tseruda from Team Technago USA was always willing to help out the racers.

Sheree' Fernandez (left) and Holli Berchard attended the race with Holli placing sixth in the A-main after qualifying eighth overall.





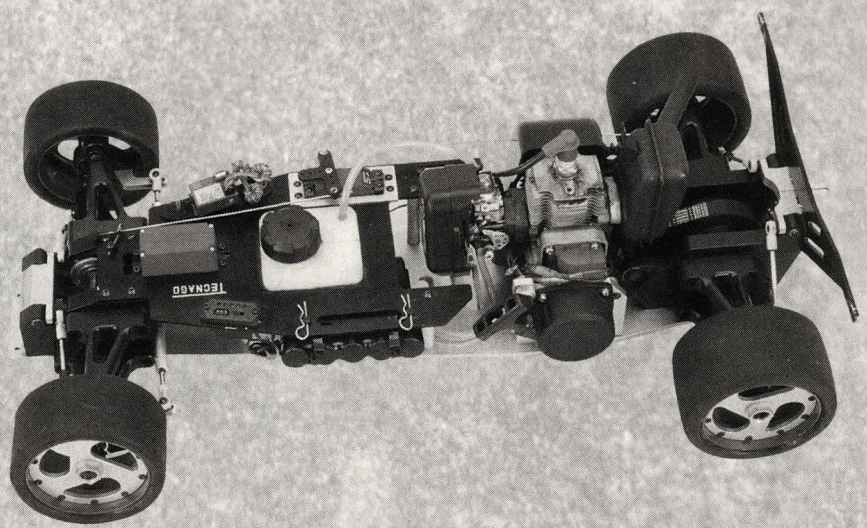
Eric Vasutin took second place in the GTP class with his SEI FG car.

Tecnago 1/5-Scale High Performance R/C Race Cars

From the country that brought you Ferrari, Lamborghini & Gina Lollobrigida comes a car created by the designer of the BMT 1/8- and 1/5-scale cars. Unique to Tecnago is the addition of racing components included with the car. Racing features include: Rubber from PMT racing, adjustable clutch, front and rear disc brakes, All Ergal and Delron CNC construction, and foam bumper!

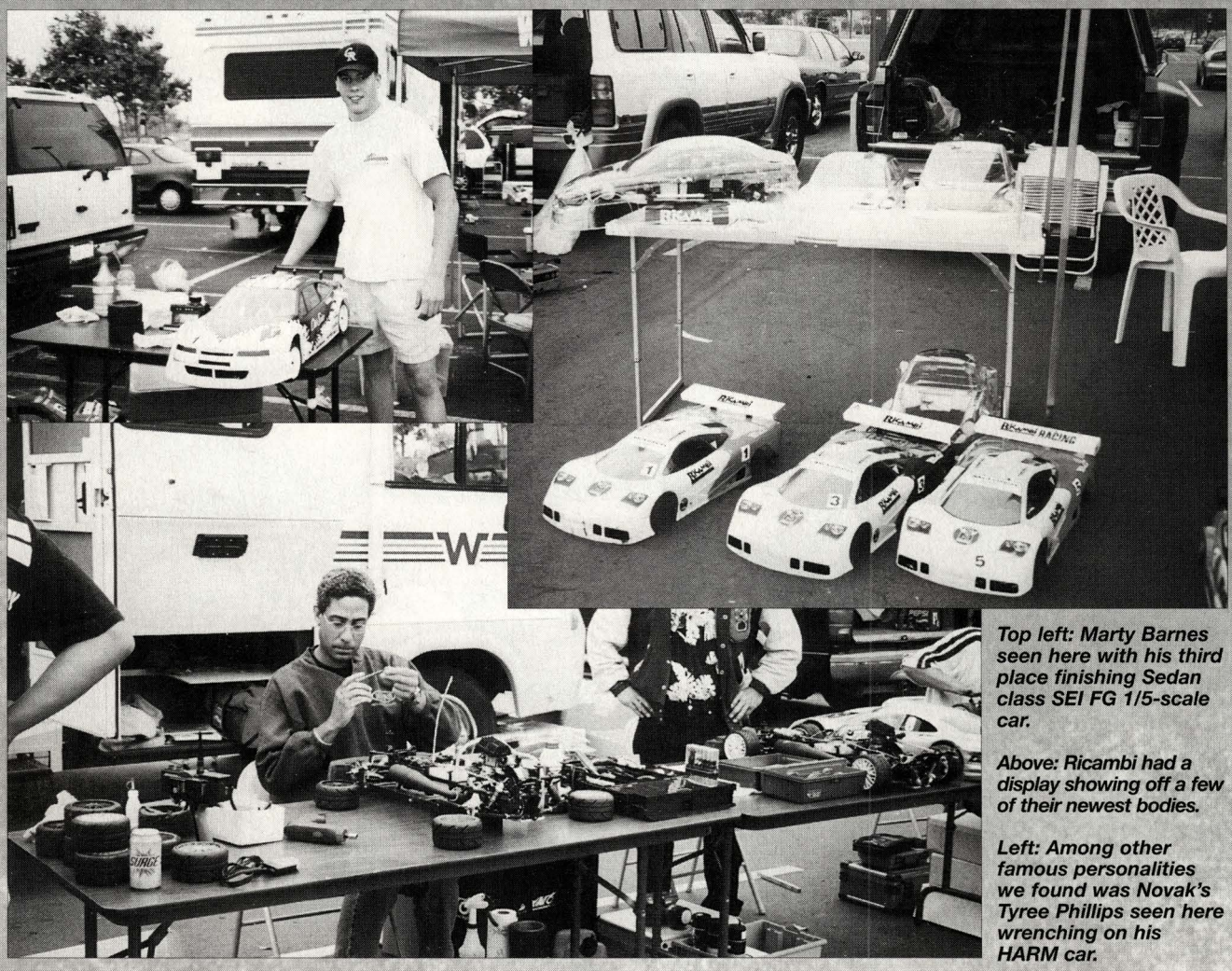
Base Price for:

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Tecnago w/Tech & tuned pipe. $999.00
Tecnago w/Solo tuning & tuned pipe $1,350.00
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ROAR 1/5 SCALE NATIONALS

To summarize, the U. S. Nationals was a very well-organized event. At the end of the mains there was nothing but laughter and cheers. As it was my first 1/5-scale event, I can't believe how much fun I had racing my car. On behalf of myself and my fellow newly made friends, we would like to thank RAMS president, Mike Evert, Jim Rose, the staff and the club membership for putting on a class act race. Also, a big hurrah to Karlton Spindle, owner of Multiplex and importer of Technago, and Jeff Devlin from SEI, Moyes Lucas of Lucas racing and Mason Wood from Ricambi. Without their support, this event would never have taken place. I look forward to covering more 1/5-scale events in the future. In the meantime, I leave you with this thought; "smooth driving is fast driving." ◆



Top left: Marty Barnes seen here with his third place finishing Sedan class SEI FG 1/5-scale car.

Above: Ricambi had a display showing off a few of their newest bodies.

Left: Among other famous personalities we found was Novak's Tyree Phillips seen here wrenching on his HARM car.

HARM HAS A FORMULA-ONE CAR!!

Well...YEAH. What we have for all you open-wheel fans is a HARM IRL car. This was originally commissioned by Futaba Corp. in celebration of their sponsorship of the Kelly racing Dallara, driven by Scott Sharp.

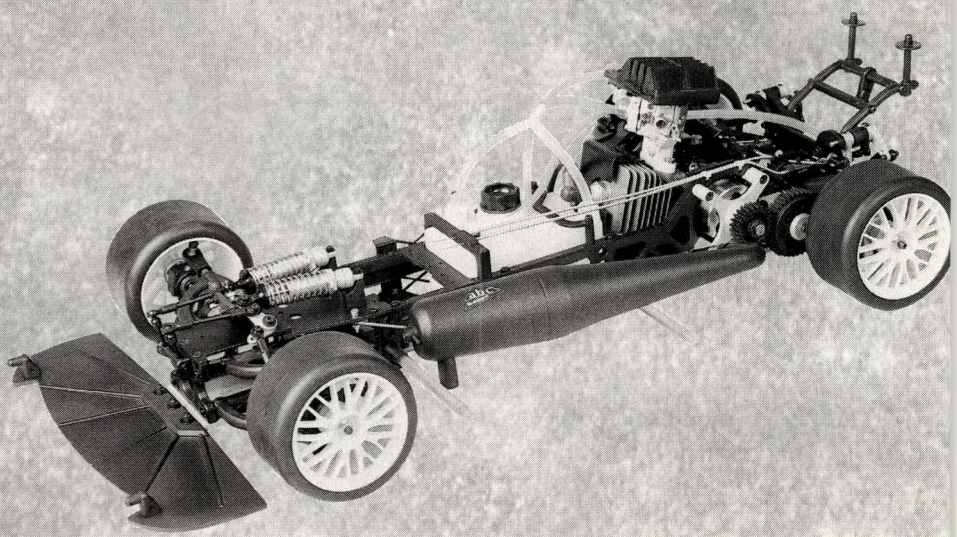
Now you can purchase this 1/5 scale car, and with slight wing and body alterations, you can make it a CART, IRL or F-1 car, and the most beautiful part of it all is that it fits the stock HARM RACE chassis!!

ALL you HARM STREET guys can run this body with just a change of a few suspension pieces. You don't have to purchase another chassis!!

Contact: LUCAS RACING: (323) 221-5537

HARM IRL CAR

Part# 1491205.....$1699.00



1/5 Touring Sedan

A Main

	Q.pos.	NAME	INFO	TIME
1.	1	Rick Hohwart	SVM, Futaba, Opel	91,30:08.994
2.	2	David Jun	HARM, Futaba, Merc	89,30:01.548
3.	3	Marty Barnes	FG, Air, Opel	88,30:01.036
4.	5	Tim Bump	HARM, Air	88:30.09.971
5.	11	Jeff Devlin	FG, Futaba, Peugot	88,30:18.710
6.	8	Holli Bechard	Harm, JR, Mercedes	87,30:06.342
7.	7	Jim Rose	Svm, Futaba, Opel	86,30:03.628
8.	6	Gary Gundesen	FG, Futaba, Merc	83,30:08.635
9.	4	Barry Baker	Harm, Air, Peugot	63,24:53.223
10.	9	Paul Smith	Technago, Utab, Alpha	51,24:21.108

1/5-scale Sedan winners (from left to right): David Jun took home second, Rick Hohwart went back to back as he took the win, and Marty Barnes placed third.





1/5 Sport GT

A Main

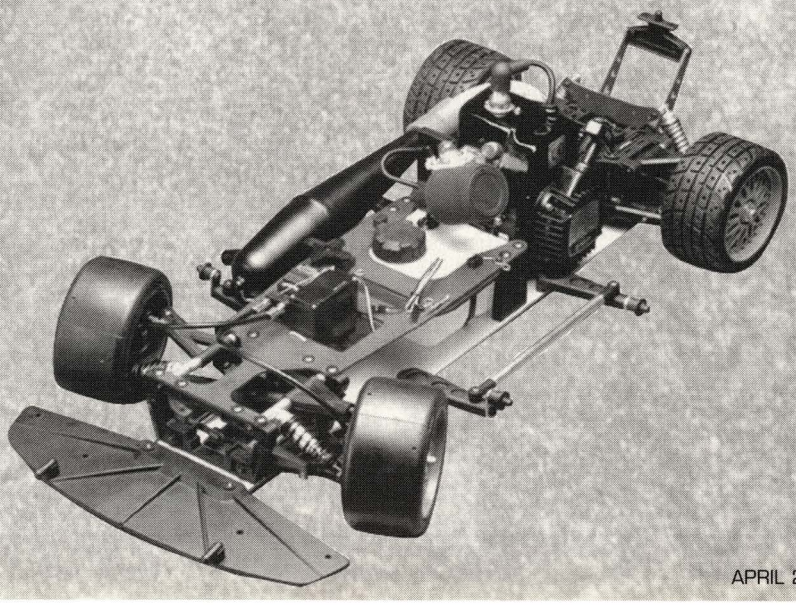
	Q pos.	NAME	INFO	TIME
1.	1	Rick Hohwart	SVM, Futaba, McLaren	89,30:07.113
2.	3	Eric Vasutin	FG, KO, McLaren	87,30:14.548
3.	2	Tim Bump	Harm, Air	86,30:12.202
4.	4	Jim Rose	SVM, Futaba	85,30:10.259
5.	9	Bryant Thomas	SVM, Futaba, McLaren	84,30:21.213
6.	8	Frank Killam	FG, Futaba, McLaren	83,30:00.731
7.	6	Paul Smith	Technago, Futaba, McLaren	81,30:03.236
8.	7	Steve Tsuruda	Technago, Futaba	81,30:15.874
9.	5	David Jun	HARM Street, Futaba, Viper	79,30:02.003
10.	11	Yee Tantiyavarong		74,30:07.984

1/5-scale GTP winners (from left to right): Eric Vasutin took second, Rick Hohwart won the overall, and Tim Bump rounded out the podium with his third place finish.

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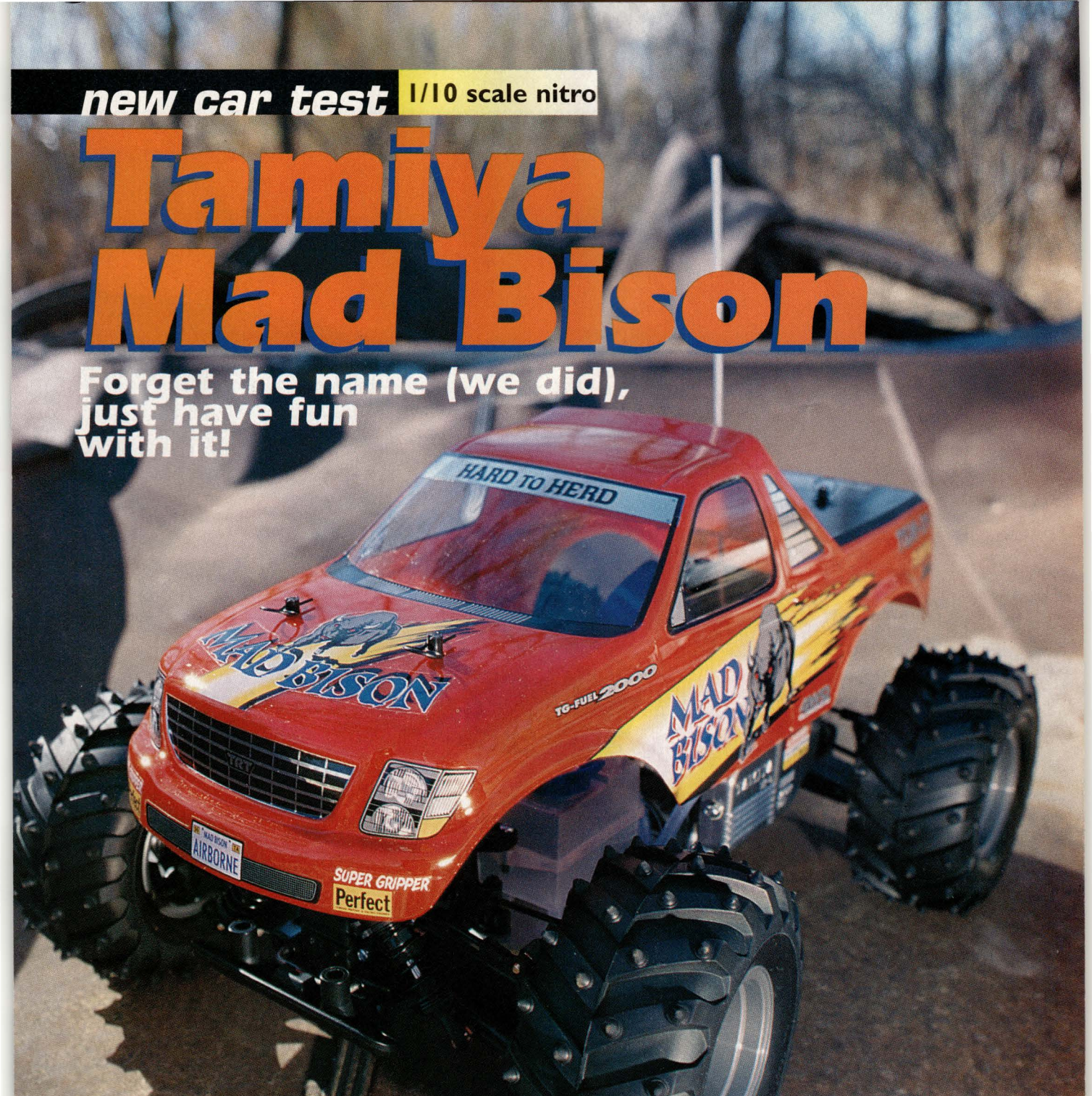
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Tamiya Mad Bison

Forget the name (we did), just have fun with it!



When it comes to naming its R/C vehicles, no company on earth is, shall we say, as "creative" as Tamiya. Strange-vehicle-name trivia contests at our offices always begin and end with a Tamiya vehicle. Perennial all-stars in this category include the Thunder Shot, Clod Buster (we still don't know what this means, although it has become synonymous with big monster trucks) and the all-time strangest, Rookie Rabbit. But now we have a challenge to the throne of moniker oddities—the Mad Bison. Hey, who else but Tamiya would name its latest off-road kit after an attitudinally challenged cow-cousin?

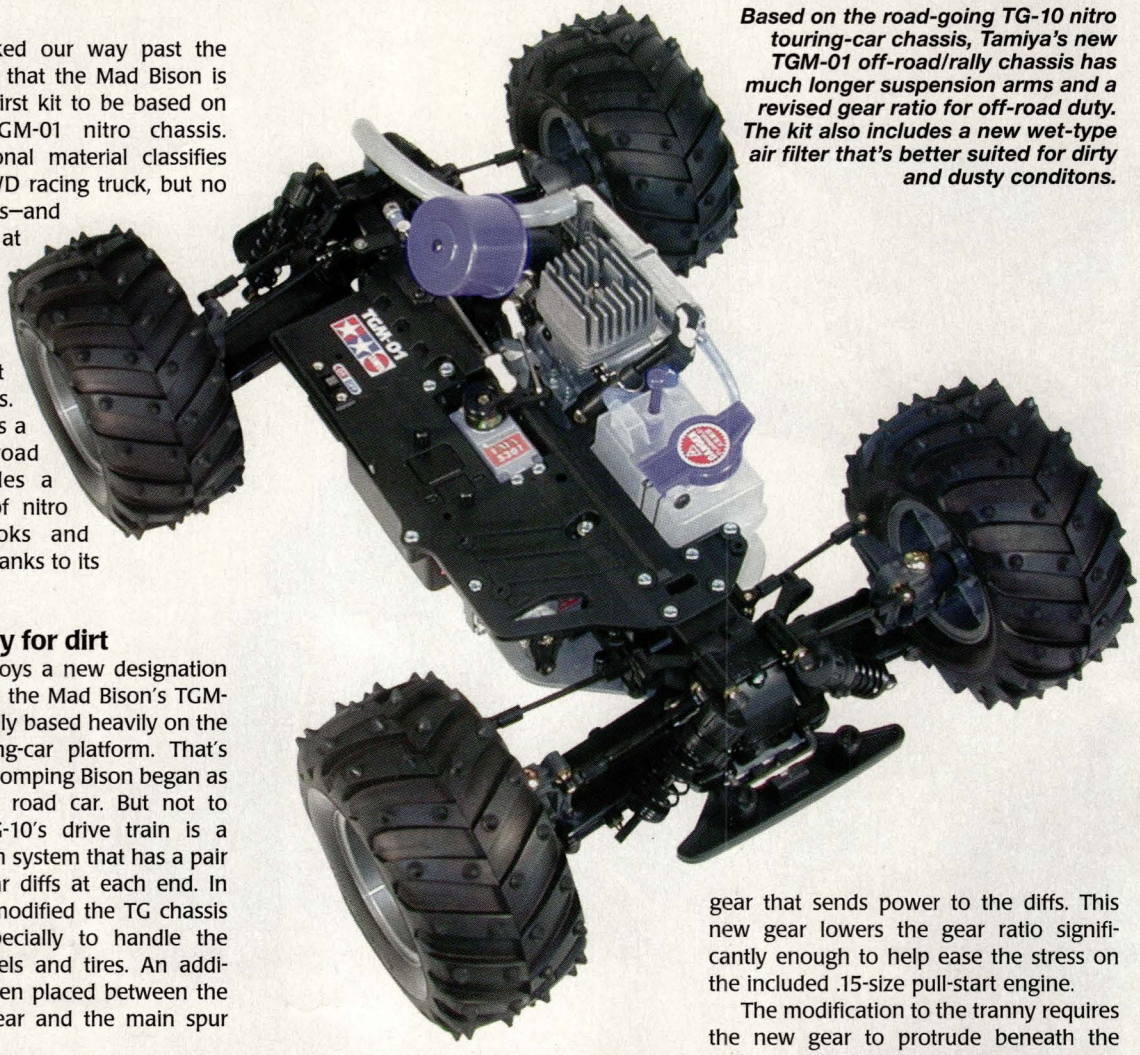

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Tamiya now includes its own FS-15 glow engine with its 1/10-scale nitro kits. The engine is very well-made and proved quite reliable during testing. The single-needle carb means easy tuning, but lacks the low-end grunt we like for off-road.

TAMIYA MAD BISON

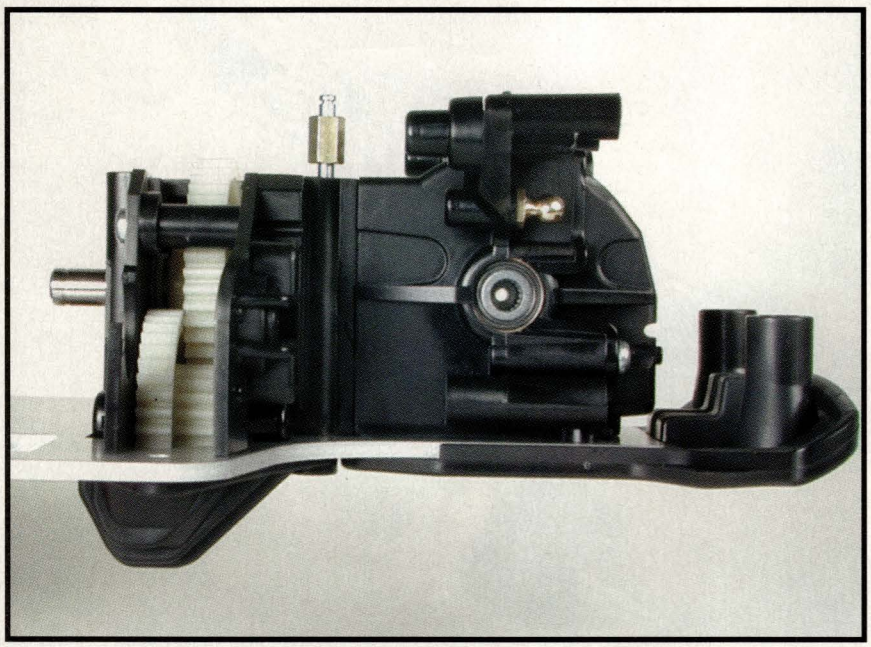
Based on the road-going TG-10 nitro touring-car chassis, Tamiya's new TGM-01 off-road/rally chassis has much longer suspension arms and a revised gear ratio for off-road duty. The kit also includes a new wet-type air filter that's better suited for dirty and dusty conditons.



Once we worked our way past the name, we learned that the Mad Bison is actually the very first kit to be based on Tamiya's new TGM-01 nitro chassis. Tamiya's promotional material classifies the Bison as a 4WD racing truck, but no one in our offices—and we're sure no one at Tamiya—would even remotely claim that the Bison could hold its own against true racing trucks. Rather, the Bison is a fun-loving off-road truck that provides a satisfying blend of nitro power, good looks and stable handling (thanks to its full-time 4WD).

This TG is ready for dirt

Although it enjoys a new designation in Tamiya's lineup, the Mad Bison's TGM-01 chassis is actually based heavily on the TG-01 nitro touring-car platform. That's right, the off-road-romping Bison began as a ground-hugging road car. But not to worry, as the TG-10's drive train is a rugged shaft-driven system that has a pair of stout metal-gear diffs at each end. In addition, Tamiya modified the TG chassis and driveline especially to handle the Bison's large wheels and tires. An additional gear has been placed between the engine's pinion gear and the main spur gear that sends power to the diffs. This new gear lowers the gear ratio significantly enough to help ease the stress on the included .15-size pull-start engine.



To accomodate the large off-road truck tires, Tamiya lowered the TGM-01's gear ratio significantly by adding an extra set of reduction gears to the tranny. The new gears actually extend below the chassis plate, but an elaborate series of shields protect and seal the gears from dirt.

The modification to the tranny requires the new gear to protrude beneath the main chassis plate. Not too good for gear life in punishing off-road conditions, but with the addition of a molded gear cover, the underside of the TGM-01 is fairly invulnerable from damage from rocks and harsh landings. To further protect its belly, the Bison comes with a clear polycarbonate undertray that covers the main aluminum chassis plate and extends upward to provide a degree of protection to the equipment located atop the chassis such as the engine and electronics.

Obviously, the short arms and limited travel of a nitro sedan's suspension aren't well suited for off-road. The Bison gets a set of extra-long arms that use Tamiya's innovative two-piece design. Conventional one-piece suspension arms are full of nooks and crannies created by the various ribs and cutouts that make them strong and light. Tamiya's two-piece arms are nearly hollow on the inside and provide a baby-bottom smooth exterior that won't trap dirt and debris like most one-piece arms.

The arms are damped by a full set of Tamiya's excellent plastic oil-filled shocks. The provided springs feel well-matched to

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the weight and travel of the Bison's chassis, as does the included silicone shock oil. However, we found the shocks to be too short for the amount of travel in the Bison's suspension. As a result, the shocks bottom well before the chassis touches the ground, thus reducing the suspension's ability to handle larger obstacles. The reduced travel also seems to make the Bison feel more tippy than it should.

Building the perfect Bison

Are you tired of hearing us glow about how fun and easy it is to build Tamiya's kits? Then skip to the next paragraph, because the Bison almost falls together with exceptional parts-fit and some of the most well-illustrated and clear instructions in the business. All of the plastic parts are held together by self-tapping screws that are very easy to thread (no arm-pump here). Also, installing the engine and setting its linkage to the throttle servo couldn't be easier. The mesh between the engine's pinion gear and the tranny's input gear is pre-set (you can't screw it up), and Tamiya's unique throttle/brake linkage is virtually fool-proof (this is usually the hardest part of building a nitro vehicle for most novices).

Bison on the loose!

We decided to test the Bison in the most inhospitable area we could imagine-a desert-like dust-bowl infested with large rocks, brush and dead grass. Enough stuff to break suspension, tangle driveshafts and work its way into transmissions. After several tanks of fuel, here's our take on the Bison's capabilities.

Here's what the Bison does well:

Engine—the included FS-15LT engine was nothing short of perfect. It started right away and its factory carb-settings were spot-on for break-in using our 20-percent Blue Thunder fuel. The quality of the engine is very good, with a sensitive carb needle and a pull-start that never felt as if it were about to come off in our hands.

Steering—the best part of the Bison's handling was its nimble-feeling steering. Unlike many other monster trucks, the Bison's steering was precise and quick, even with a sport-level servo installed. The truck tracks straight and holds its course even on very bumpy surfaces. It also has a very tight turning radius, which makes it easier to get out of trouble spots (or to avoid them in the first place).

Brakes—with its large single-disc brake system, the Bison has plenty of stopping power. Better yet is that the brake stops all four wheels at once, so the Bison always stops straight without pulling to the side.



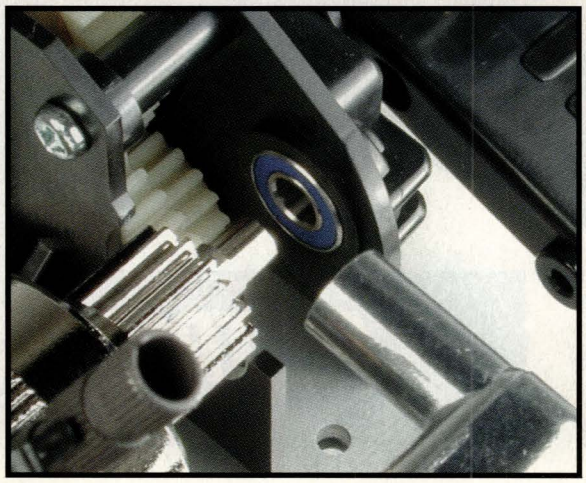
Tamiya's innovative two-piece suspension arms provide good strength. Once built, the arms present a smooth surface to which dirt can't stick, keeping the vehicle nice and clean.

Here's what the Bison doesn't do well:

Accelerate from a dead stop—because of its user-friendly single-needle carb, the FS-15LT engine always remains very rich at low rpm. As a result, acceleration is sluggish until the rpm builds and the engine comes on pipe. The tendency, especially with newer hobbyists, is to lean the high-speed needle until acceleration is improved. Unfortunately, doing this makes the engine too lean and can result in damage. The FS-15LT, as well as most single-needle engines we've tested, must remain fairly rich in order to ensure longevity. Just get used to sluggish acceleration. By the way, the restrictive muffler extension tube doesn't help. If you don't mind the mess, lose the tube and the engine will be able to breathe better (it will make more power, be easier to tune and will stay a little cooler).

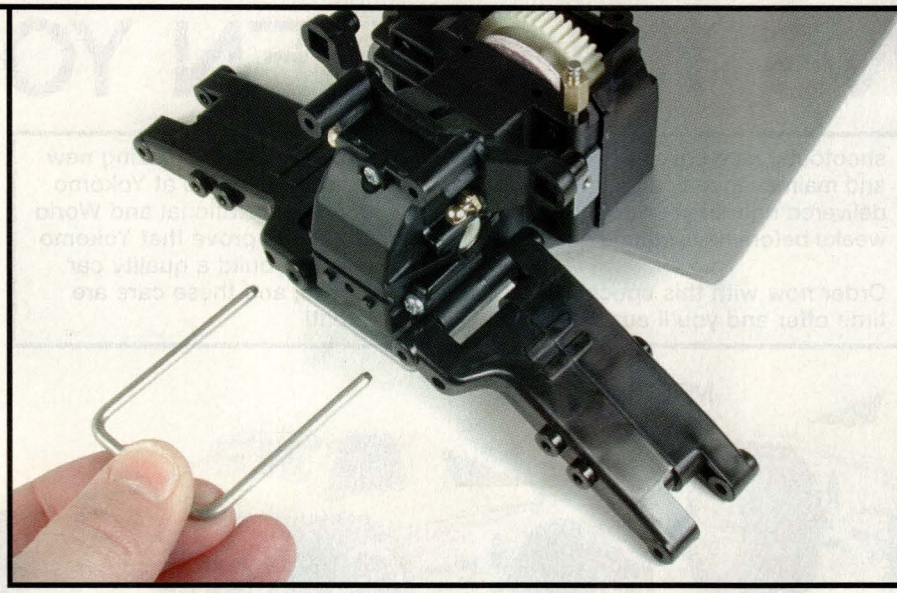
Take sharp turns at speed—to be fair, most monster trucks don't take well to high-speed cornering—their center of grav-





We love Tamiya's throttle/brake linkage. It's so easy to build and set. Other manufacturers should study this design for their sport-level nitro vehicles. We used FMA's new S301 ball-bearing servos for both steering and throttle.

The clutch-bell's gear is supported by an additional ball-bearing that's inside the truck's gear-case. This prevents the gears from pushing apart during heavy loads, which could cause them to become stripped.



Type: 1/10-scale 4WD nitro monster truck

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Price: $585

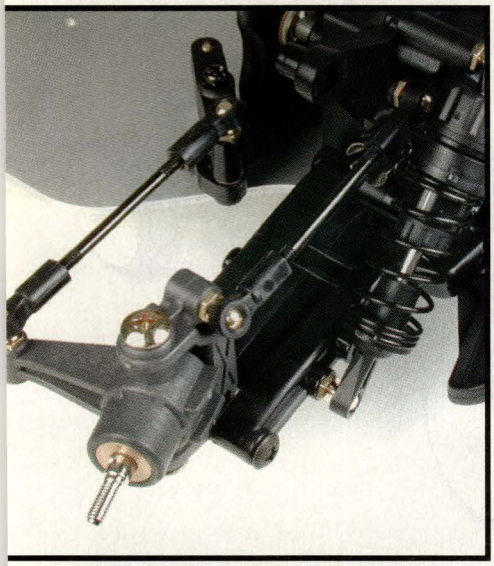
What you get: Complete rolling chassis with FS-15LT pull-start engine. You must purchase a two-channel radio system with two servos, glow fuel (we recommend 10-percent nitro content) and fuel bottle, a glow-plug igniter and paint for the body.

For easier assembly, the Mad Bison doesn't use conventional hinge-pins and E-clips for its suspension. These U-shaped rods secure both suspension arms at once, and are held in place by the front and rear bumpers.

ity is just too high. But because it has limited suspension travel (thanks to shocks that are too short), the Bison is a little more inclined to roll during tight turns. Even during our photo session, where we usually take it easy (at least until the film runs out), the Bison managed to get on its lid on more than one occasion. Unless you plan to modify the truck's suspension (by installing longer shocks), use caution during those really tight turns—your Bison's body will thank you.

What we don't like about the Bison

1) Shocks aren't long enough to allow full use of the truck's long suspension arms and generous travel.



Front suspension has long travel, but is limited by short shocks. The steering spindles and uprights are molded of a stiffer composite material. The truck would definitely benefit from longer shocks.

2) It would be nice if Tamiya engineered a muffler system that didn't rely on a restrictive rubber tube to route the exhaust away from the chassis. We'd rather have an ugly hole in the body than lose all that power!

3) The instructions tell you not to glue the tires to the wheels. We found that the wheels spin too freely inside the tires, reducing drive power. We added a couple of drops of CA instant glue to prevent slippage.

What we like about the Bison

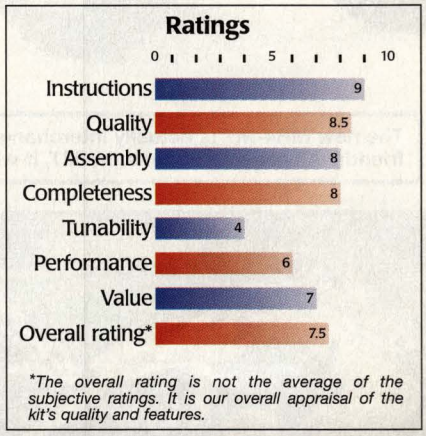
1) The included FS-15LT engine is easy to start and runs like a clock. We criticized the engine's lack of a low-speed needle adjustment (which would allow finer tuning for greater acceleration), but that's just us; most beginning hobbyists, at whom the Bison is targeted, lack the experience to tune a two-needle glow engine.

2) The 4WD drive train makes the Bison easy to drive on every surface. No frustrating donuts.

3) Building the Bison is actually fun. Despite the inherit complications of nitro engines (as opposed to the 'plug and play' nature of electric vehicles), we imagine that nearly anyone will be able to have success with this kit.

What we really think

We like to think of the Mad Bison as a Blackfoot (one of Tamiya's first monster truck kits) for the new Millennium. Kinda corny, but it fits. This truck is about having fun, as was the original Blackfoot, but the addition of nitro power with its extended run time (no waiting for batteries to recharge) and unmistakable sound, make this a kit that will appeal to anyone's sense of fun. Just don't try to figure out where the name comes from...◆



**The overall rating is not the average of the subjective ratings. It is our overall appraisal of the kit's quality and features.*



In back, the rear hub carriers are also molded of stiffer material, but as with the front, longer shocks would increase compliancy and stability on rough terrain.

SOURCES

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

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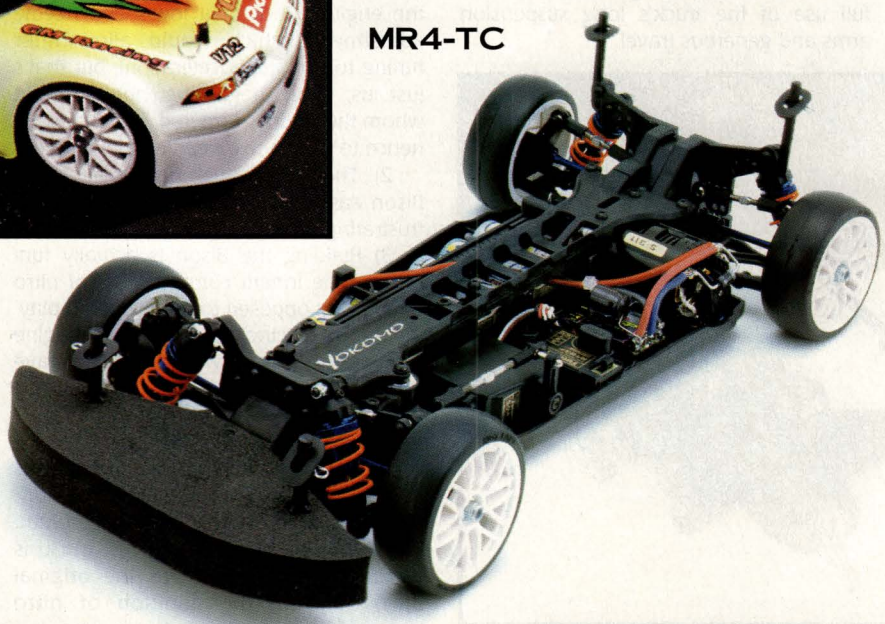


The new MR4-MT is actually interchangeable with the race-worthy buggy, but is equally at home just messing around with friends. Anywhere you take the MT, it will fit right in, and specific tires for either dirt or street add to your fun



PRO
MR-4TC PRO

MR4-TC



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

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

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

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

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

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

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

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

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

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

Spokane Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212; Dave Mapston (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

ABC R/C Inc & Raceway, 244 W. Main St., Waukesha, WI 53186; Dick Mathiesen, (414) 542-1245

Gary's Hobby Center, 3701 Durand Ave., Racine, WI 53403; Bill Phalen, (414) 542-1245

Heart of the Valley R/C Club, 1330 Midway Rd., Menasha, WI 54952; Bill Morgan, (920) 954-1695

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

JJ's Dirt Heaven Hobby and Raceway, 6028 County Rd K, New Frankview, WI 54229; *dirtheaven@msn.com* Aaron Dufey (920) 866-9096

Mid-West Tri-Clone, 3745 Shuster, West Bend, WI 53095; Tom Holz, (414) 334-0429

Pro-Star Racing, 726 Pine St., Green Bay, WI 54301; Chuck, (920) 452-0801

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

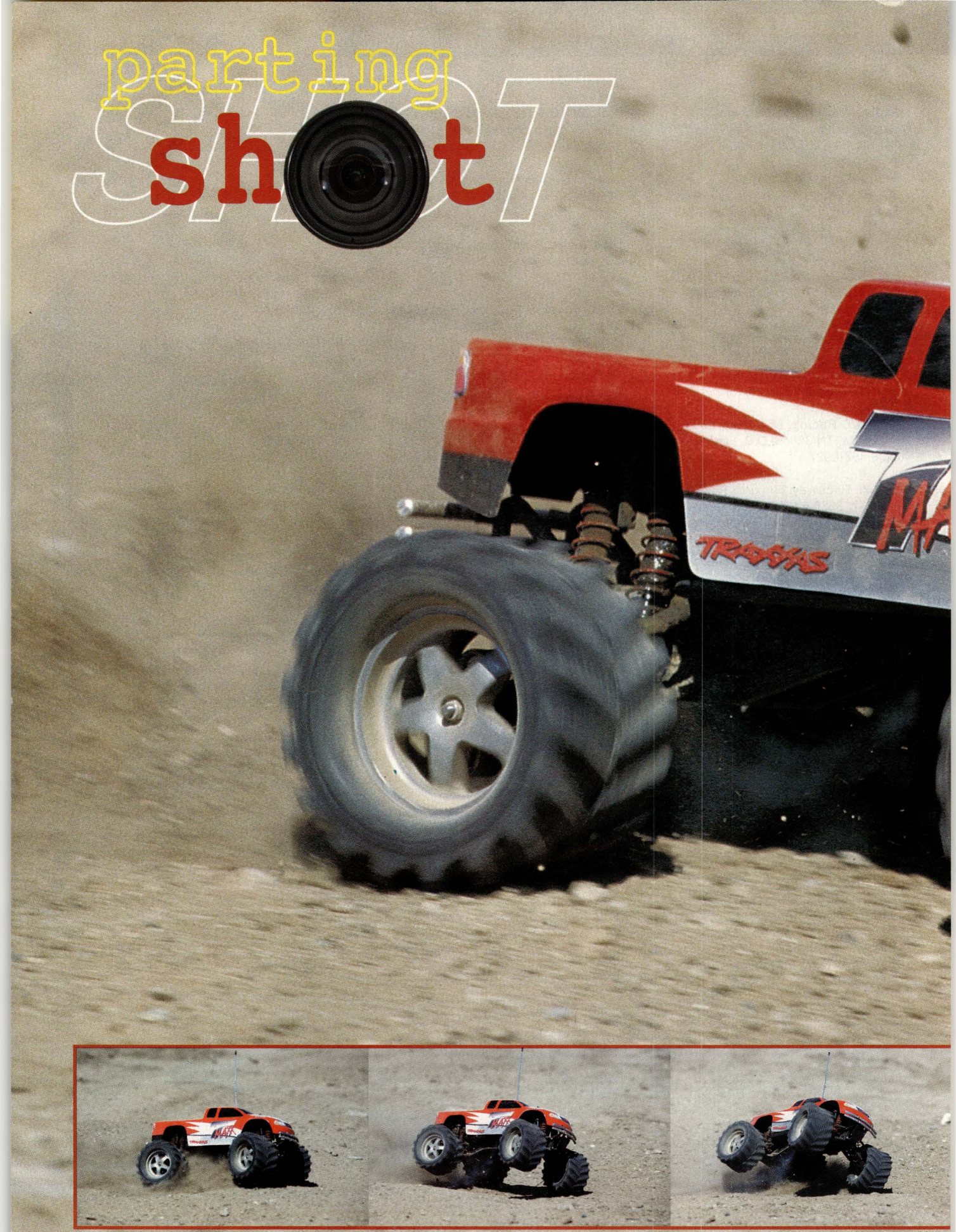
WYOMING

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

THUNDER TIGER RACE PLACES

parting shot



Monster of the Millennium?

The Traxxas T-Maxx is without a doubt one of the most exciting releases we've seen in the R/C industry in the past few years. This all-new, nitro-powered monster truck had everyone buzzing at its first public outing at the yearly hobby trade show in Chicago this past fall. We were so impressed with the truck during our photo shoot that arguments started flying about which staff member would be reviewing the truck! During our test session, not much stopped the truck—it handled bumps, jumps, ruts, climbed over rocks, hills, small children... you name it! For our in-depth look at this massive monster, check out the January 2000 issue of *R/C Car*. In the meantime, check out this wild sequence we captured during our test session!



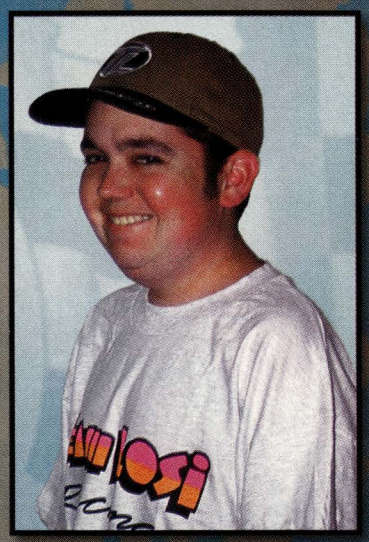
World Champions



Team Losi Triple-X

- *1999 2WD ROAR National Champion*
- *1999 2WD European Champion*

XXX



Brian Kinwald

- *1997-1999 IFMAR World Champion (Double-X)*
- *1999 ROAR National Champion (Triple-X), (XX-T), (XX-4)*



Team Losi XX-4

- *1999-2000 4WD IFMAR World Champion*
- *1999 4WD ROAR National Champion*
- *1999 4WD European Champion*



Jukka Steenari

- *1999-2000 IFMAR World Champion (XX-4)*
- *1999 European Champion (XX-4), (Triple-X)*

TEAM XX4 LOSI

TEAM LOSI

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1 Run



NEW "Yellow"

Low Profile Racing Slick

#A-7702Y

Tires $14.95
Wheels $6.00
$20.95

Tires $111.60
Wheels $47.60
$159.20

Actual Tires From Recent National Event

Do The Math... Team Losi's new ***Yellow compound***, Low-Profile Racing Slicks give you quick times on the track — run after run. They cost a fraction more, but outperform and ***outlast as many as 8 sets**** of the next best tire. Even if you only realize half of this difference you save time, save wheels, save glue, but most of all, you ***save money!***

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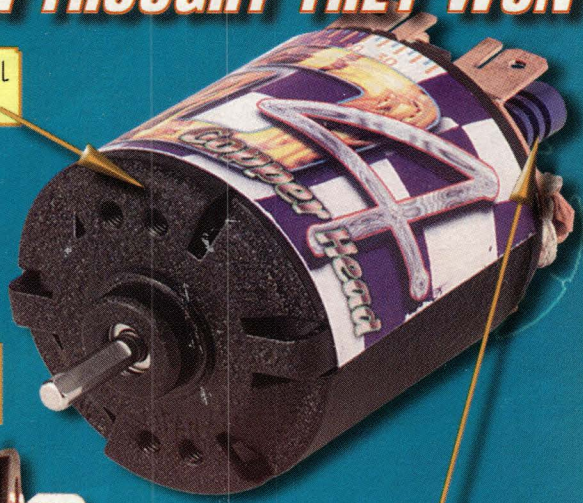
** Individual results may vary*

JUST WHEN THE COMPETITION THOUGHT THEY WON

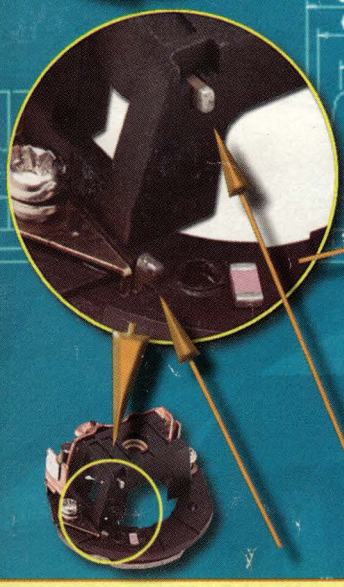


New can design has more metal for a stronger magnetic field

Our "Epic 2k" magnets are matched so they gauss the same side to side for an equal magnetic field



100% pure copper hoods & heatsinks for less resistance & better cooling





Blue anodized brush heatsinks keep brushes cooler running

Black wrinkle finish disipates heat better than metallic plating for a cooler running motor.



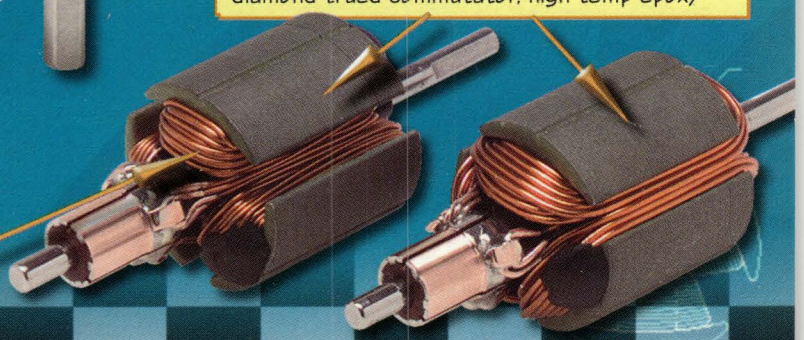
All 3 surface mount capacitors come pre-installed in both the P2k & D4. No soldering needed!

Only the D4 allows you the option of replacing just the magnets instead of the whole motor can



Hemi pattern wound with 100% pure copper wire, epoxy balanced, silver brazed connections, diamond trued commutator, high temp epoxy

2 D4 armature blanks, one for low turns and one for high, maximizes the metal to wire ratio for more effective horsepower



Special "High Variance Split Double Winds™" use one thick and one thin wire for lower inductance and a quicker "spool up" than is possible with a standard style double wind

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