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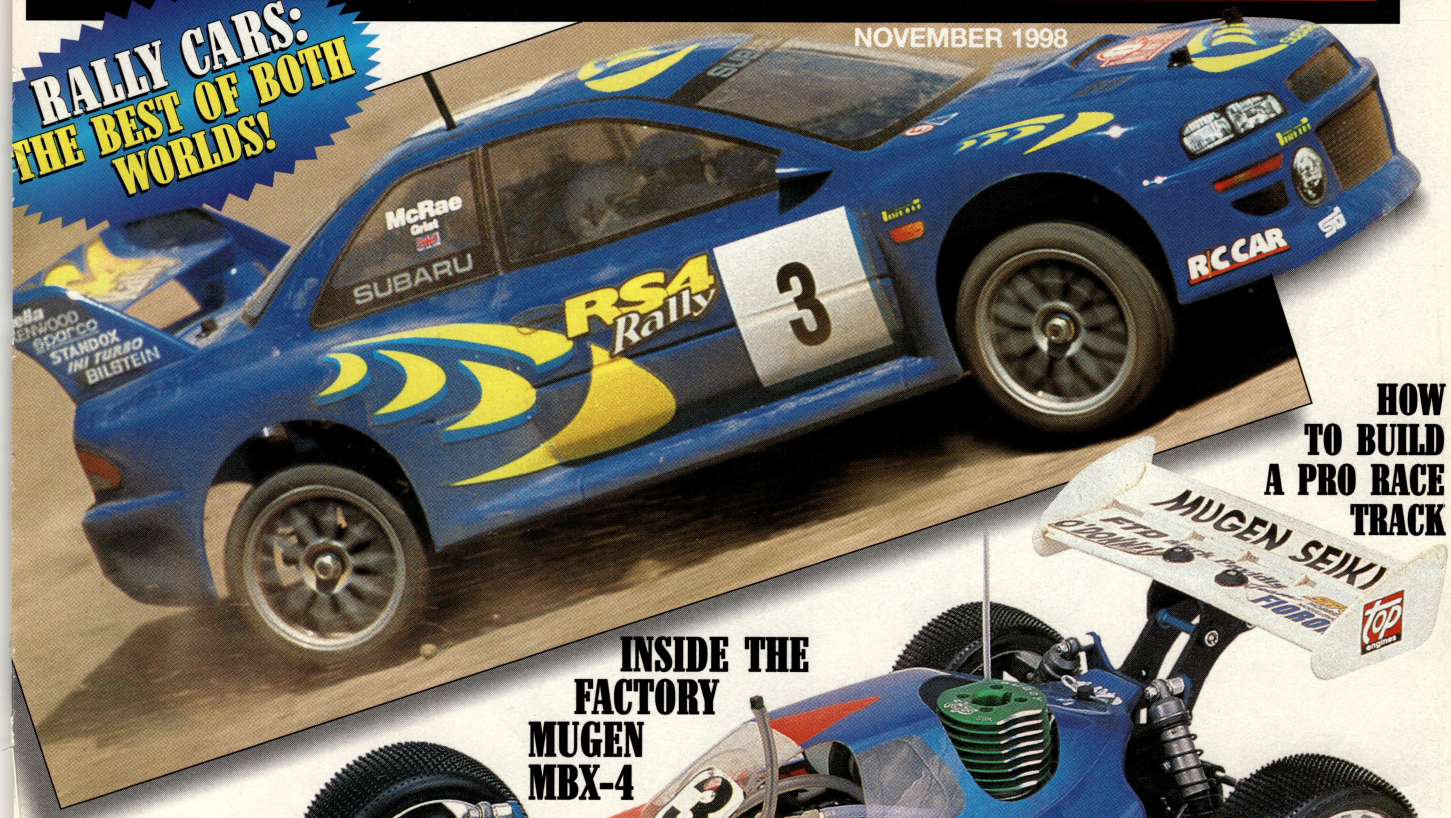
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# R/C CAR

THE RADIO CONTROL CAR MAGAZINE

NOVEMBER 1998

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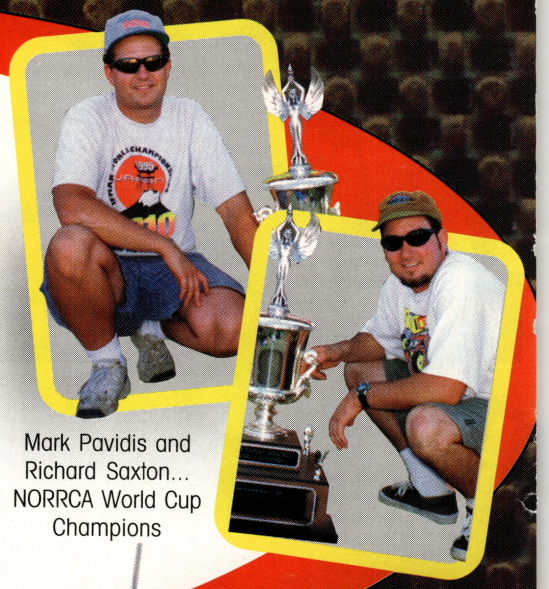
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FIRST TESTS:

- TECH RACING VOGGERD GT
- TAMIYA FERRARI 310B F1
- MRC NITRO THUNDER KING
- TEAM ASSOCIATED L3
- HPI RS4 MINI PRO

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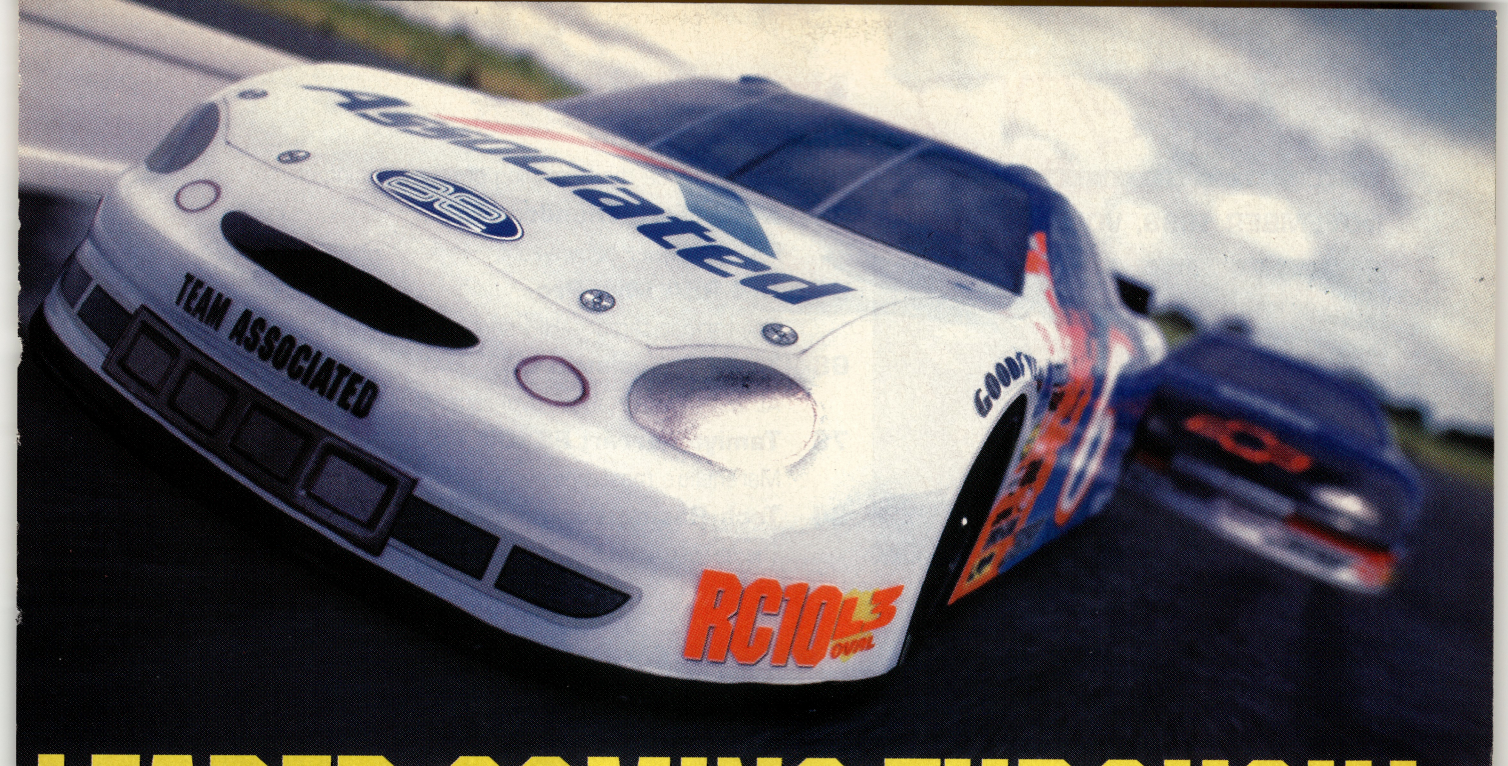
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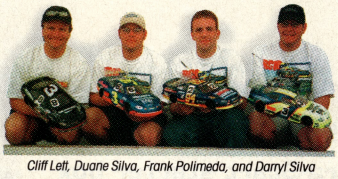
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*Cliff Lett, Duane Silva, Frank Polimeda, and Darryl Silva*

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R/C CAR
THE RADIO CONTROL CAR MAGAZINE
NOVEMBER 1998, VOLUME 1, NO. 8



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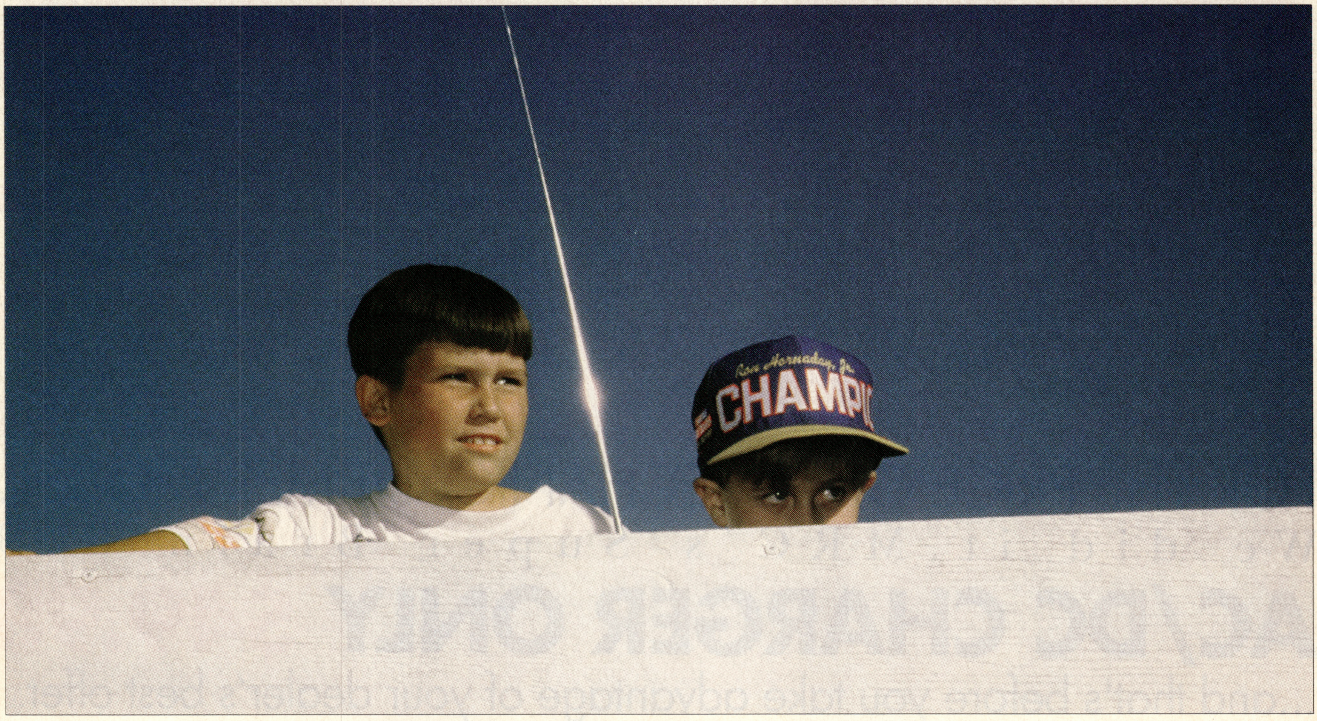



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# My first race

## *The mishaps and misfortunes of a first-time racer*

**Guest editorial by Tom Hinz**

A person's first race can be a rather nerve wracking experience, as I'm sure most of you know. The night before is spent setting up your car and making sure everything is working right, and all of your battery packs are fully charged and ready to go. By the time you get to the track your car is in the best shape it has ever been in...or ever will be again!

Naturally, you want to get to the track early to take a few practice laps. And this is when the trouble begins. Unless you have built a track in your backyard there is not much that will prepare you for the double jumps, table tops and 180-degree turns that you are likely to find at a race track. Due to the fiercely competitive nature of this sport the only advice I could get from anyone is "go fast and avoid hitting anything." That is an okay plan in theory but in the real world it is not likely to happen. Needless to say, half way through my first warm-up lap, I ran into trouble with another first-timer and a wall. This had the potential to put a damper on my race day, but thanks to years of watching MacGyver I was able to fix my car with nothing more than duct tape, a pocket knife and a large quantity of super glue. After that little experience I made a command decision that I would forgo any more warm up and wait until the qualifier.

### WAIT FOR EVERYONE TO CRASH

In the qualifier I did surprisingly well—all things considered. I managed to beat everyone who crashed badly and could not finish the race. To accomplish this I used the strategy of going really slow until the first big pileup, and then I passed everyone that was involved. To avoid being re-passed I tried really hard to zig-zag across the entire width of the track. The key thing to remember is when people start to yell at you for blocking just insist that it's your first time, and that you can't get control of the car. It also helps if your car looks like a jalopy held together with duct tape, because people with lots of money invested in their car will stay away from you!

### TAKE OUT THE LEADER AND RUN

After this experience I thought it was a nice time to pack up and go home, but unfortunately there was yet another chance to be humiliated in front of hundreds of people that came to see more crashing. At my local track there is actually another race with all the people from the qualifiers that finished closer to last place than to first. I think that the qualifier is just a clever ploy to weed out all the good drivers from the crash-test class. The strategy of winning in this race is to crash the least. That way you have a better than average shot of winning. The unwritten rule seems to be: if your are being lapped, take out the leader! I bring this up here because thanks to someone following this little rule, I can say that I finished fifth instead of sixth.

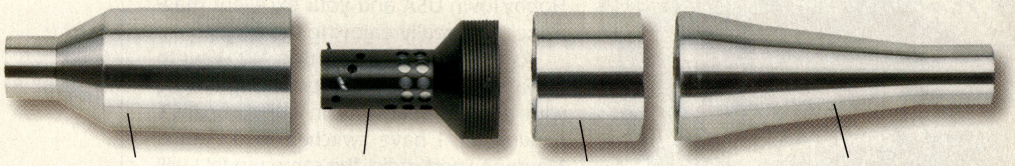
The most important thing I learned that race night is not anything about how to drive or set up a car, but that the real joy—the true joy—of the sport comes after the race. That is when you get to lie to your friends and fellow racers about how well you could have done if only.... ◆

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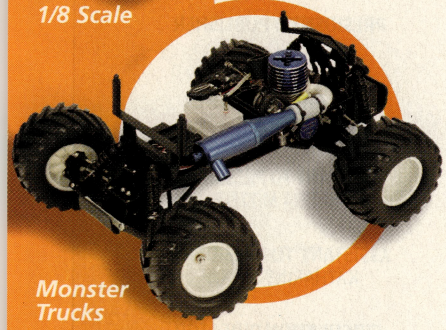
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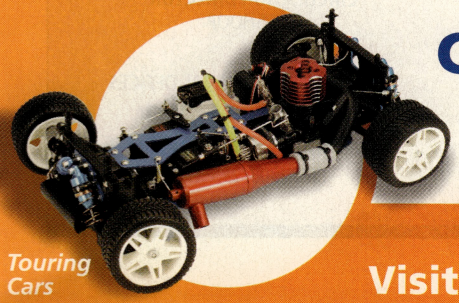


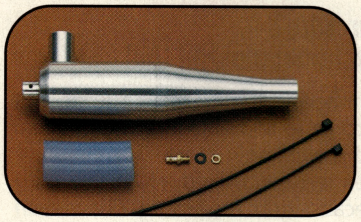
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# Feedback




## Tired of needless hop-ups

I would like to start this letter off by saying that your magazine is tops on my workbench for tips and setups for all my cars and trucks. There is one question though: why is it that when you review a car you hardly ever leave it "box stock"? When I read a review I want to see how the car performs the way you received it in the box. If it comes with a plastic tub chassis then, don't review it with the optional graphite slotted lower C.G. chassis. Save the hop-ups for the setup column or long-term test review.

When *Road & Track* magazine tests a new Camaro, they don't slap on new exhaust, tires, rims, and turbo kits until they test the car at factory specs. I think you should do the same. Would you buy a new pickup only to rip out the stock engine and replace it with a pro engine before ever driving it? Most people wouldn't.

I'm not trying to whine, it's just that if we R/Cers want to bring in new people to the hobby we have to stop leading them to believe they need a "Team Worlds" car to have fun. I for one have beaten the most hopped up cars on the planet because I kept my car on the track.

But after all that's just my opinion I could be wrong.

Thank you for your time,

**Chris Filtz** [*via online*]

P.S. Don't take this as a trash on your mag; after all if I thought it sucked, I wouldn't have a two-year subscription.

*Okay Mister Smarty-pants, we respectfully disagree with your entire letter, up until the last part. What the heck are you talking about? Almost all of our "New Car Tests" are very close to box-stock.*

*All right, okay. We cop. Sometimes we do get these really cool parts…and well…we have to use them, right?*

## Calling all R/C historians!

I am building my first ever R/C car: an HPI RS4 Sport with a Mercedes CLK GTR body. With the help of the great folks at HobbyTown USA and your excellent magazine, I am really enjoying the project.

As your August issue article, "12 Ways to be Faster," suggests, I am practicing driving with a Radio Shack car in our company's parking lot. I have switched to a Futaba Magnum Sport radio, the same model I will be using with the RS4, from the joystick model that came with the Radio Shack.

Is there a written history of the R/C car sport, explaining how it began and how it developed? If you know of such a document, magazine or, hopefully, a book, would you please send me the information?

Thanks,

**Greg Hall** [*via online*]

*We're glad someone read that article! We keep going to our local track, but no one seems to be going much faster (they must've missed that issue!).*

*You know, you're not the first person to request such an article. Maybe you'll see an "R/C History" article on these pages someday.*

## Gas or Nitro? I thought we cleared this up!

I am new to the R/C racing scene and I would like to find out some information. I would like to know if there is a difference between a gas powered R/C and a nitro R/C, because from the pictures I have seen I cannot tell. If there is a difference could you let me know. Also if there is differences in speed, how much of a difference. Congrats on the new magazine, and I look forward to reading it each month.

**Louis Ishmael** [*via online*]

*It's easy, Louis. Most every internal combustion R/C car or truck is nitro-powered, with the exception of large-scale (i.e., 1/5 and 1/4 scale models), and this one Italian car that has the World's tiniest gasoline engine (but we haven't seen one in the States yet, so don't be scared).*

*As far as speed, a 1/8-scale nitro car will pretty much kick butt on a large-scale gasoline car (It's true, so don't you quarter-scale guys write any nasty letters!).* ◆


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THE RADIO CONTROL CAR MAGAZINE

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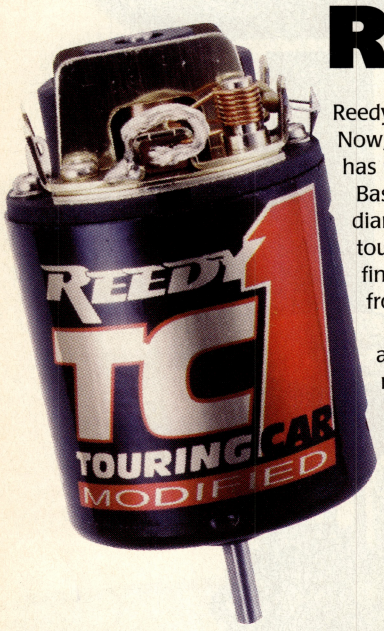
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# Newsflash

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

## Reedy goes on Tour!




Reedy Modified motors have won more world championships (18 of them) than any other brand. Now, Mike Reedy has brought his years of winning experience to the touring car crowd, and has produced a motor specifically for use in 4WD touring cars!

Based on Reedy's proven Sonic motor series, the new TC1 touring car motors use a large-diameter commutator with lay-down brushes to produce the gobs of low-end grunt that 4WD touring car racers demand. And when coupled with Reedy's exclusive "turbo action" cooling fins, this large-comm design makes the TC1 much more resistant to the damage that comes from over-heating.

The TC1 motors are available from a relatively mild 14-turn to an insane nine-turn, and there are special winds for four-minute and five-minute races. The retail price for the TC1 motors is $75, and you can contact your Team Associated dealer for more info.

## Just do a Wheelie!



The engineers at Kyosho must have had too much Sake one night while at the drawing table. This is the only way someone could have come up with something as wild as Kyosho's new "Wheelie" series of ready-to-run and almost-ready-to-run R/C.

The Wheelies are about the same size as 1/10 scale, but with their ultra-short wheelbases, they are able to lift their front tires whenever you yank the throttle! Adding to the "popping" fun are crazy looking "deformed" bodies, balloon-type tires that help the Wheelies to bounce around like silly, and the option of either electric- or nitro-power.

The Wheelie Series RTR vehicles come fully assembled with a two-channel radio already installed, while the ARRs require that you buy and install the radio system. Hey, who wouldn't have fun with a car called "Hoppin' Mad," "Pedal Popper," or "Boogie Box"?

## Outrageous upgrades



When not busy doing wheelies, the Kyosho gang concentrates on making life easier for new R/C racers. In fact, they've just made getting into R/C off-road even easier by massaging the Outrage ST (above) and Outrage MKII buggy.

The ST truck gets new, one-piece wheels, while the buggy now comes with preassembled, three-piece wheels. Both vehicles also get new multi-colored graphics so newbies can get killer looks without complicated paint jobs.

Both vehicles are electric powered, come 90-percent built, and include an electric motor and rotary speed control.

## HPI is SLICK!



HPI Racing is proud to announce its new 26mm Racing Slick Belted Tires (part no. 4435, $11). Made from a new compound for better grip, these tires will provide longer life and wear than non-belted tires and have a new profile design, which concentrates the weight of the car on a smaller area of the tire for more grip.

The Racing Slick Belted Tires come in HPI's new "B" compound, and are rated to run best at temperatures between 15° Celsius (60° Fahrenheit) to 40° Celsius (105° Fahrenheit). This new tire rating system will be standard on all the tires HPI releases in the future. The letter notes the compound of the tire, while the numbers list the suggested temperature range in Celsius to run the tire, e.g., B15 means B-compound rated for 15° Celsius.

These brand-new tires will fit any standard sedan-size wheel and come without inner foams. The choice of inner foam is left to the racer.




## NEW PRO .15 ENGINES AS LOW AS $60.00

Lets face it. There are things that no manufacturer's warranty will cover, such as using bad fuel, sucking dirt or water into the engine, or just flat wearing it out. In addition to the standard 2-year warranty, Traxxas is the only engine maker with a Lifetime Engine Replacement Plan. ***You can trade in your damaged, worn, or out-of-warranty engine for a brand new one at 1/2 the retail price...no questions asked!*** That's just **$60 for an all new Pro .15** without starter (about the cost of a piston and sleeve for other engines). ***Attention racers:*** Now you can always have a fresh, all-new engine and never have to rebuild another one. ***No one protects your engine investment better than Traxxas!***

### The Plan:

Avoid costly, time-consuming rebuilds by trading in a worn, damaged, or out-of-warranty Traxxas Pro. 15 engine for a brand new replacement Pro .15 engine. Just bolt it in!

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The engine being exchanged must be 100% complete with crankcase, head, carburetor, piston, sleeve, rod, crankshaft, and starter (when trading for starter-equipped Pro .15).

### The Cost:

Pro .15 with pull starter- $70 + trade in

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*Note: Models equipped with an EZ-Start electric starter must purchase a Pro .15 with pull starter. Pro .15s w/o starter come with a finned aluminum backplate and no provisions for an EZ-Start starter or recoil pull starter.*

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Also, from now to November 30, 1998, you can trade ***ANY competitor's*** .11 to .15 engine just like it was a Pro .15. This isn't a misprint! All other brands, including O.S., Dynamite, HPI, Kyosho, Ofna, and many others can get the same trade-in deal for just $10.00 more!

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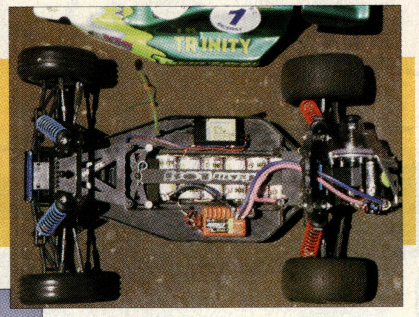
# Newsflash

# 1998 ROAR OFF-ROAD STOCK NATS

## *Over 250 entrants take Mile High Raceway!*

July 10-12, MHOR Raceway, Aurora, Colorado

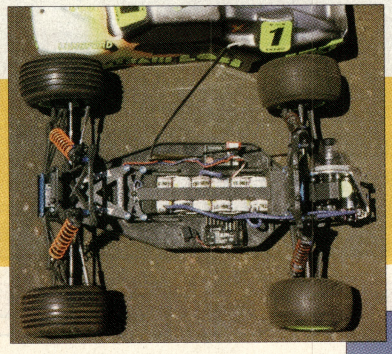
■ Despite bouts with inclimate weather, most would agree that the '98 ROAR Off-Road Stock Nats were a huge success. The foundation of the Stock Nats is level-field racing for those who can't or don't want to invest in the best batteries or the fastest motors. It all comes down to driving and setup skills, with a heavy emphasis on non-factory racing. In fact, to keep any factory drivers from "sandbagging" to win a national title, ROAR prohibits top finishers from the Stock Nats from participating in the Modified Nats!



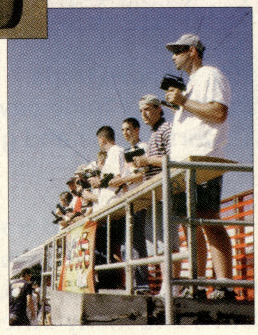

***Vincent Nocella's Top Qualifying and 2WD Stock National Champion Team Losi Double-X 'CR.' Vincent used a Novak Cyclone ESC, an Airtronics radio system and Trinity batteries.***



***Over 250 entries marked the third annual ROAR off-road nats just for stock racers. Racing was fast and above all, equal, during the weekend of July 10-12!***




***Nick Lasley's Top Qualifying Team Losi Double-XT with Tekin ESC, Airtronics radio, and Trinity batteries. Nick lost out to Eric Pesto's Team Associated T3 in the mains!***



***Tension mounts on the MHOR Raceway drivers' stand prior to the A-main events!***

Before the modified classes were separated from the stock, you would often see many top pros using the stock class as a "practice" class for the mods. This obviously left the true stock racers out in the cold!

We at *R/C Car* applaud ROAR's formation of the Stock Nats, and its strict adherence to true stock-class racing policies.

Congratulations to the staff of MHOR Raceway, and to our new national champions!

## STOCK NATS WIN

| Pos. | Driver | Car | Front tire | Rear ti |
|---|---|---|---|---|
| **2WD STOCK** | | | | |
| 1 | Vincent Nocella | Losi XX 'CR' | Losi | Losi |
| 2 | Justin Morrison | Losi XX 'CR' | Losi | Losi |
| 3 | Eric Pesto | Assoc. B3 | Losi | Pro-Lin |
| 4 | Welby Nalls III | Losi XX 'CR' | Losi | Losi |
| 5 | Jarrod Hurd | Schumacher | Losi | Losi |
| 6 | Jeremy Aymar | Assoc. B3 | Pro-Line | Losi |
| 7 | Eric Clark | Losi XX 'CR' | Losi | Losi |
| 8 | Robert Heacox | Losi XX 'CR' | Losi | Losi |
| 9 | Jason Willener | Losi XX 'CR' | Losi | Losi |
| 10 | Brian Westerman | Losi XX 'CR' | Losi | Losi |
| **TRUCK STOCK** | | | | |
| 1 | Eric Pesto | Assoc. T3 | Pro-Line | Pro-Lin |
| 2 | Nick Lasley | Losi XXT 'CR' | Losi | Losi |
| 3 | Richard Trujillo | Losi XXT 'CR' | Losi | Losi |
| 4 | Vincent Nocella | Losi XXT 'CR' | Losi | Losi |
| 5 | Justin Morrison | Losi XXT 'CR' | Losi | Losi |
| 6 | Brian Westerman | Losi XXT 'CR' | Pro-Line | Pro-Lir |
| 7 | Jeremy Aymar | Assoc. T3 | Losi | Pro-Lir |
| 8 | Eric Clark | Losi XXT 'CR' | Losi | Pro-Lir |
| 9 | Welby Nalls III | Losi XXT 'CR' | Losi | Losi |
| 10 | Ryan Dawson | Losi XXT 'CR' | Losi | Losi |
| **4WD STOCK** | | | | |
| 1 | Chris W. Marsh | Losi XX-4 | Losi | Losi |
| 2 | Richard Trujillo | Losi XX-4 | Losi | Losi |
| 3 | Nick Lasley | Losi XX-4 | Losi | Losi |
| 4 | Jarrod Hurd | Schumacher | Losi | Losi |
| 5 | Roman Gastelum | Losi XX-4 | Losi | Losi |
| 6 | Eric Larsen | Schumacher | Losi | Losi |
| 7 | Brian Westerman | Losi XX-4 | Losi | Losi |
| 8 | Bill Mitchell | Losi XX-4 | Losi | Losi |
| 9 | Kumanee Suebsakul | Losi XX-4 | Pro-Line | Pro-Lir |
| 10 | Nick Malato | Losi XX-4 | Losi | Losi |
| **JUNIOR STOCK** | | | | |
| 1 | Andrew Cartwright | Losi XX 'CR' | Losi | Pro-Lir |
| 2 | Ken Nelson | Losi XX 'CR' | Losi | Losi |
| 3 | Michael Petrie | Losi XX 'CR' | Losi | Losi |
| 4 | Richard Yarber | Assoc. B3 | Pro-Line | Pro-Lir |
| 5 | Justin Howard | Losi XX 'CR' | Losi | Pro-Lir |
| 6 | Jason Sheyko | Losi XX 'CR' | Losi | Losi |
| 7 | Joshua Gray | Losi XX 'CR' | Losi | Losi |
| 8 | Kim Perry | Losi XX 'CR' | Losi | Pro-Lir |
| 9 | David Tregemba | Assoc. B3 | Losi | Losi |
| 10 | Travis Schreven | Losi XX 'CR' | Pro-Line | Pro-Lir |
| **MASTERS** | | | | |
| 1 | Earl Valles | Assoc. T3 | Pro-Line | Pro-Lir |
| 2 | Chris Perry | Losi XXT 'CR' | Losi | Pro-Lir |
| 3 | Gordon Willardson | Losi XXT 'CR' | Losi | Pro-Lir |
| 4 | Bob Novak | Losi XXT 'CR' | Losi | Losi |
| 5 | Dale Bates | Losi XXT 'CR' | Losi | Losi |
| 6 | T. Rex Baldwin | Assoc. T3 | Pro-Line | Pro-Lir |
| 7 | Don McMillan | Traxxas | Pro-Line | Pro-Lir |
| 8 | Kelly Lunsford | Losi XXT 'CR' | Losi | Pro-Lir |
| 9 | Richard Leonard | Assoc. T3 | Losi | Losi |
| 10 | William Miskho | Losi XXT 'CR' | Losi | Losi |

| VERS | | |
|---|---|---|
| Radio | ESC | Battery |
| Airtronics | Novak | Trinity |
| Airtronics | Novak | Pro Match |
| Airtronics | Novak | N/A |
| R-Racing | Novak | N/A |
| R-Racing | Novak | Xipp |
| Airtronics | LRP | Peak |
| Airtronics | Novak | GM-Racing |
| Airtronics | Novak | N/A |
| Airtronics | Novak | Xipp |
| Airtronics | Tekin | Racer's Edge |
| Airtronics | Novak | N/A |
| Airtronics | Tekin | Trinity |
| Airtronics | Novak | Peak |
| Airtronics | Novak | Trinity |
| Airtronics | Novak | Pro-Match |
| Airtronics | Tekin | World Class |
| Airtronics | LRP | Peak |
| Airtronics | Novak | GM-Racing |
| R-Racing | Novak | N/A |
| Airtronics | Tekin | Peak |
| Airtronics | GM | World Class |
| Airtronics | Novak | Peak |
| Airtronics | Novak | Trinity |
| Airtronics | Novak | Xipp |
| Airtronics | Novak | N/A |
| Airtronics | Tekin | Kamikaze |
| Airtronics | Novak | Racer's Edge |
| Airtronics | Novak | Trinity |
| R-Racing | Novak | GM-Racing |
| Airtronics | Tekin | Trinity |
| R-Racing | Tekin | N/A |
| Futaba | Novak | N/A |
| Airtronics | Tekin | N/A |
| Futaba | LRP | N/A |
| Airtronics | Novak | N/A |
| Futaba | Tekin | N/A |
| Futaba | N/A | N/A |
| Airtronics | Novak | N/A |
| Futaba | Novak | N/A |
| Airtronics | Novak | N/A |
| Airtronics | Novak | N/A |
| Airtronics | Novak | N/A |
| R-Racing | Novak | N/A |
| Airtronics | Tekin | N/A |
| Airtronics | Novak | N/A |
| R-Racing | Novak | N/A |
| Futaba | Novak | N/A |
| Futaba | Novak | N/A |
| Futaba | Novak | N/A |



# Associated's newest Pocket Rocket!




For 20 years, Team Associated's RC12 series of on-road cars have virtually dominated 1/12 scale racing in both national and international events, winning seven IFMAR World Championships and numerous ROAR Nationals.

Now, with input from IFMAR World Champion Masami Hirosaka, Jon Orr, and Phil Davies Team Associated introduces the RC12L3! Refinements and changes on the new car include a new carbon fiber chassis that's lighter, yet still strong in all the right places; Associated's new VCS Micro Shock, with its Volume Compensating System for more consistent damping (optional springs for this shock are now also available); and a brand-new three-bolt wheel hub design that's specifically made for use with Jaco's new Aeroforce wheels.

Of course, the new 12L3 comes with Associated's proven Dynamic Strut front suspension, with its fully adjustable caster, camber, and toe-in/out, plus a host of new features, including lightweight aluminum hardware (all blue-anodized, of course!), titanium turnbuckles, and Factory Team graphite-thru axle—all standard!

The new 12L3 (part no. 4015), is available at your hobby shop for $250 suggested retail, and doesn't include body, radio, or electronic components.

# Late Breaking Stuff!

*(Things that came in after the dreaded deadline!)*

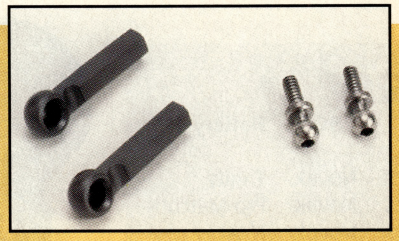
■ Team Trinity's David Spashett pulls a triple win at the '98 IFMAR On-Road "On Track" Worlds in England! David won the 1/12 category using a Trinity Switchblade 12, the ISTC (International Scale Touring Car) class with his Losi Street Weapon, and the 1/10 category using a Trinity Switchblade 10. Way to go Mr. Spashett! (We'll be bringing you more on this event next month).

■ Results from the ROAR Off-Road Mod Nats! Good news for Team Associated—Mark Pavidis takes the 2WD title with his B3, and Scott Hughes wins Truck with a T3! Team Losi's Scott Brown, a perennial crowd favorite, wins the 4WD class using a Losi XX-4.

■ Corally unveiled its new 4WD touring car chassis at the IFMAR ISTC race in England. The car looks pretty trick, and in typical Corally fashion, contains several innovative design features. Stay tuned for more on this Dutch treat!

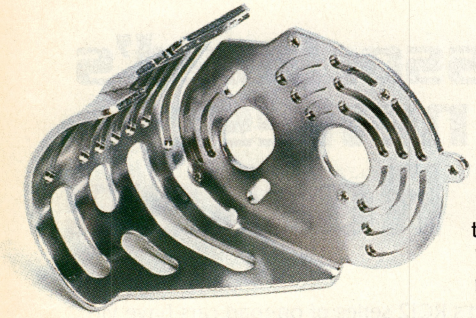
# Newsflash

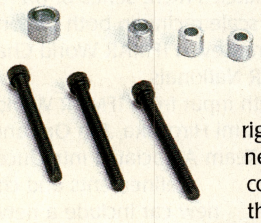
# The Latest from Losi



Steel ball-ends are good, titanium ones are better. Losi takes this one step further by introducing these new **Titanium Ball Studs** that have an innovative hex cut into their tops to allow easy installation using a common 5/64-inch Allen wrench.

These ball studs are lighter than stock, less likely to bend, and are the easiest ball studs to install that we've ever used. The new ball studs are available in three lengths (.188, .250, and .388 inch) to fit most popular cars and trucks, and come packaged by the pair with a set of heavy-duty plastic ball-cups included.

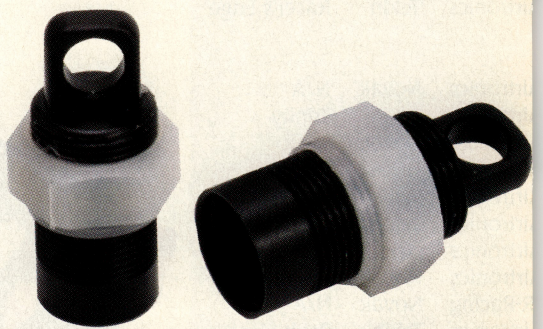




To improve the handling of its Double-X and Double-XT, Losi offers this **Centered Motor Kit** The kit consists of a new, lightweight, machined motor mount plate that's been polished to a gleaming finish.

Once installed, the kit centers the mass of the motor between the left- and right-side of the vehicle. Exiting corners under power becomes more consistent, and you'll also find that the vehicle will tend to jump better with more stability.

For added versatility, an additional set of mounting holes in the new motor plate allow it to also be used in the standard, non-centered position. The entire centering kit is available for $16.95, The new motor plate can also be purchased separately for $11.95.



These **threaded shock bodies for the Street Weapon** are better than the conventional body/collar design for two reasons: First, the threaded bodies allow you to make the smallest and most accurate adjustments to your Street Weapon's springs' preload in seconds. Secondly, the threaded body and adjuster nut is far less likely to change its setting during a crash; conventional clamp-type spring collars have been known to move about during harsh collisions.

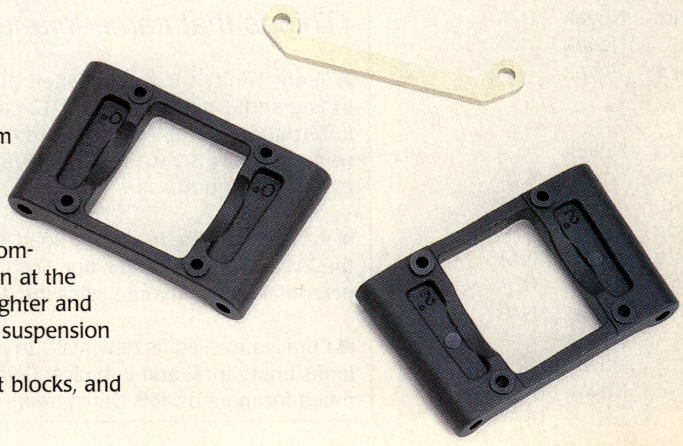
Losi is now selling these .36-inch versions in pairs for only $19.95 retail, and is also offering a set of four replacement hex adjustment nuts for $8.50.

If someone from Team Losi is reading this, how about threaded shock bodies for off-road?



According to World Champ Brian Kinwald, Losi's new **Taper-Pin Buggy Tires** provide incredible forward traction on dry and dusty tracks, yet still allow the car to have plenty of steering.

The Taper-Pins are available in Losi's tried-and-true Silver compound as well as the new and improved Red compound. The tires fit most popular 2.2-inch buggy rims, and come with foam inserts.



The hottest mod for the XX-4 4WD buggy is to install the rear-arm support from the Double-X 'CR' 2WD buggy. Losi now offers this **'CR' Rear-Arm Bracket** for the XX-4 that makes the conversion much easier to perform.

The kit includes an aluminum hinge-pin support bracket and complete instructions on how to make the mod. Placing the rear toe-in at the arm mounts instead of at the hubs makes the car accelerate straighter and enhances steering, and the bracket ensures that your XX-4's rear suspension remains as strong as it is in its stock form.

You'll need either the two-degree or zero-degree 'CR' rear pivot blocks, and Losi's A-2126 zero-degree rear hubs to complete the conversion.

NOVAK RACING ELECTRONICS

FINE-TUNE THROTTLE PROFILES RIGHT AT THE TRACK

# Get With The Program!

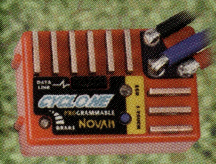
Novak's line of programmable racing products puts you in complete control. Unique driver preferences can be downloaded into the Atom or Cyclone speed controls via Novak's optional programming devices, the Pit Wizard or ESC Profile Software.

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NOVAK RACING ELECTRONICS

# Newsflash

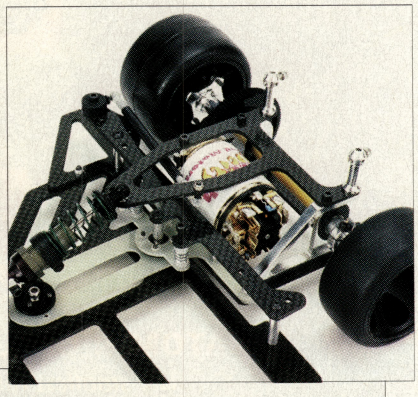
## LRP's Jet is ready for takeoff!




Earlier this year, during our coverage of the Reedy International Race of Champions (see our May '98 issue), we gave you a glimpse of a prototype of LRP's Jet peak charger. Well, it's been six months, and it looks as though the Jet is finally ready to take flight!

Here's what we know thus far (the charger in the photo was wrenched from team driver Mark Pavidis, and even LRP's exclusive U.S. distributor, Team Associated, doesn't have many facts at this time): The Jet is an AC-powered (standard house-current), microprocessor-controlled peak-detector charger that uses LRP's new Anti-False-Peak circuitry. The Jet can charge virtually any NiCad rechargeable battery from a one-cell (such as a glowplug ignitor), to a six-cell racing pack, to an eight-cell transmitter battery.

The Jet is also fully protected against reverse voltage connection without the need for an external fuse—it's all electronically controlled! As soon as we can get our hands on a sample, we'll let you know how well it works.



*The G-Force features an interesting and effective means of adjusting rear-pod tweak*



## RACEtech pulls HIGH G's!

What's the fastest oval car around? A lot of folks might say it's this one: the new RACEtech G-Force. Designed by the oval gurus of Dillon Racing and developed by Richie King, it's fair to say that the G-Force's chassis is more than just a little NASCAR-influenced.

Standout features of the G-Force include a unique, spring-loaded tweak setting for the rear T-plate, and a sliding front suspension (Associated's Dynamic Strut suspension is used) that allows for minute wheelbase changes independently from the left-side to the right.

Want to see just how fast the G-Force is? Check out our race coverage of the Kimbrough/BSR Oval Shootout in this issue!




**Sources**

**Associated Electrics, Inc.**, 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax • www.rc10.com

**HPI**, 15321 Barranca Pkwy., Irvine, CA 92618 • (714) 753-1099; (714) 753-1098 fax • www.hpiracing.com

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

**RACEtech Motorsports**, 4200 Sarpy Ave., St. Louis, MO 63110 • (314) 531-3003

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

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

# The Fastest and Best Handling Car in the World

TEAM XX CR LOSI

## 1997-98 IFMAR World Champion

Team Losi's Double-X 'CR' 2WD buggy once again took the racing world by storm. On the way to claiming the 1997-98 IFMAR World Championship, the Double-X 'CR' posted **the absolute fastest** 2WD, 5-minute qualifying heat and main event times. In heads-up racing against the competition's latest designs, the Team Losi Double-X 'CR' has proven – once again – that it is simply the best!

**Facts:**

**Fastest Qualifying Times:**
1) Brian Kinwald – 13 laps 5:23.26
2) Greg Hodapp – 13 laps 5:23.32
3) Masami Hirosaka – 13 laps 5:23.86

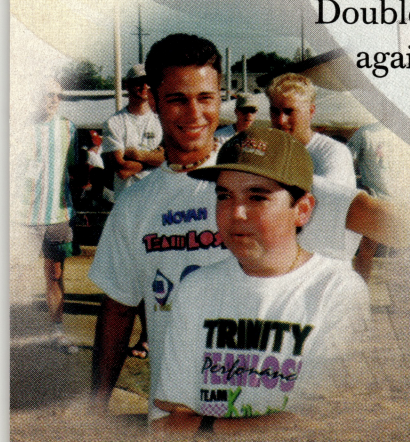
**Fastest Main Event Times:**
1) Brian Kinwald – 12 laps 5:00.79
2) Brian Dunbar – 12 laps 5:01.73
3) Masami Hirosaka – 12 laps 5:02.67

**13 Lap Club**

**These five drivers were the only ones to post 13-lap runs:**

Brian Kinwald | Greg Hodapp | Matt Francis | Scott Brown | Masami Hirosaka

*Competition's latest attempt to match the Double-X 'CR'*




Brian Dunbar (2nd) and Brian Kinwald (1st) — IFMAR 2WD World Champion




TEAM LOSI Racing

Team Losi, Inc., 13848 Magnolia Ave., Chino, CA 91710 www.TeamLosi.com

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# REAL RACING

DRIVER: RICK HOHWART

OCCUPATION: PRESIDENT, PEAK PERFORMANCE

WIFE'S LICENSE PLATE: RC WIDOW

RADIO: FUTABA 3PJ

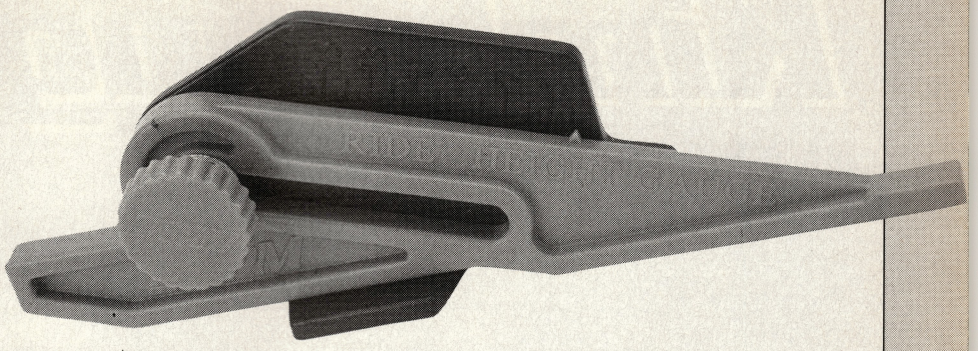
Futaba

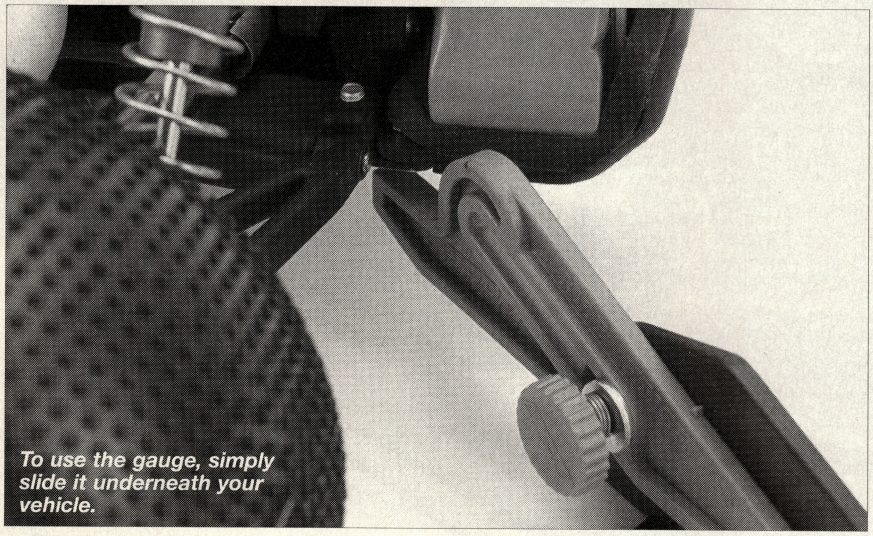
25 Years USA

Futaba is a proud sponsor of Kelley Racing, winner of the Dura-Lube 200.

Product Test

# RPM Ride-Height Gauge





*To use the gauge, simply slide it underneath your vehicle.*

## What it does

Measures the actual ride-height, in inches, of all on-road cars and most off-road cars and trucks.

## What it has

• A black, molded-plastic base with a graduated scale in increments of 0.025". The total range of measurement equals .5".

• A blue-plastic "slide" that fits into a groove on the base piece. The groove is angled so that as the slide is moved to the left, it rises. If moved to the right, the slide is lowered. The slide has a small "pointer" that indexes to the base's scale. As the slide is moved, the pointer tells you the exact height of your vehicle's chassis.

• A molded knob is used to hold the slide to the base. The knob threads to the base, and clamps the slide to the base with a spring and washer. The spring lets you tighten the knob without actually locking the slide in place, so it can still be moved.




*Our only gripe is that the gauge doesn't quite reach on some off-road trucks or 1/8-scale buggies.*

## What we like

• One gauge is all you'll need to measure the ride-height of your pan-car, touring sedan, or off-road buggy.

• The parts that make up the gauge are very precisely molded, which means that you're assured of the utmost accuracy.

• The base's scale is very easy to read with large hash marks and numbers.

• Finally, a way to measure and set ride-height that's more scientific than the old "arms' level," or "dogbones slightly below level" methods.

## What we don't like

• We'd like to see the slide's extensions be made longer. This is especially needed for off-road, when you'll need to slide the gauge past the motor-plate or suspension to touch the chassis.

• The gauge doesn't quite reach high enough to touch the chassis of some off-road trucks and 1/8-scale gas buggies.

## What we really think

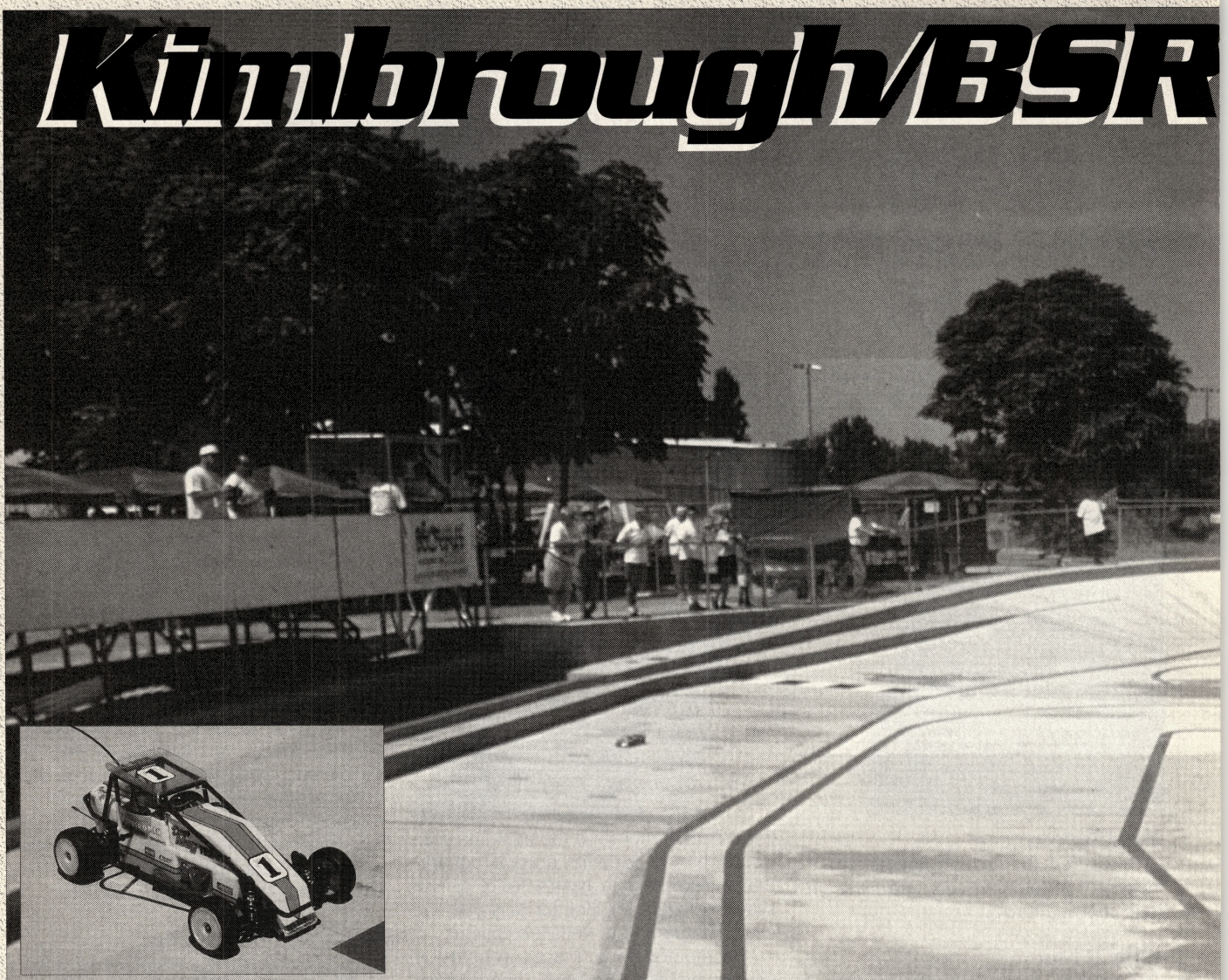
RPM has seemingly established its own market niche—the manufacture of inexpensive, simple and effective tools for the R/C racer. The new ride-height gauge fits right in alongside RPM's Camber Gauge as a "must have" in any racer's toolbox.

We've long believed that a system was needed in which a vehicle's ride-height could be measured as the distance between the ground and the bottom of the chassis; not by some arbitrary "arms level" or other "landmark" measurement. Now, with RPM's Ride-Height Gauge, setting your chassis has become more scientific, and accurate! ◆

info

**Manufacturer:**
RPM, 14978 Sierra Bonita Ln., Chino, CA 91710 • (909) 393-0366; (909) 393-0465 fax
**Price:** $8.95
**Recommended for:**
Any vehicles that have adjustable ride-height (this means almost any vehicle!)
**Rating:** ⊛⊛⊛⊛●

# Kimbrough/BSR





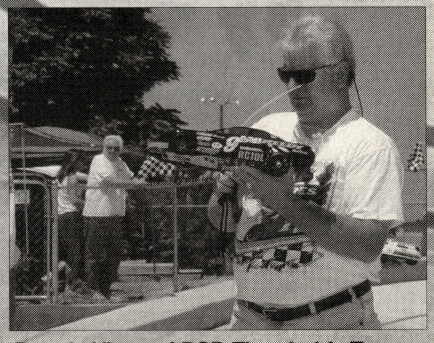
*The Sprint car class was one of the most exciting to watch! These awesome-looking open wheelers were nearly as fast as some of the NASCAR racers, and that's without the benefit of a wing!*

**June 27—The awesome new concrete tri-oval at Showtime R/C Speedway in Bakersfield, CA, was the site of this year's Kimbrough/BSR Oval Shootout, where the top drivers and the fastest cars came from around the country to see who could go the fastest and turn the "...leftest."**

Seventy racers filled up a total of nine classes: Bolink Spec Truck (in which rigid "spec" class rules, including batteries and motors, are strictly enforced), Pro-Bolink Truck (allows graphite axles and more powerful motors and batteries), Sportsman Stock NASCAR, Sportsman Modified NASCAR, 1/12 Stock NASCAR, NASTRUCK, Expert Modified NASCAR, Expert Stock NASCAR, and even a class for Sprint Cars (comprised of C&M and Custom Works chassis).

A portion of the event's significance was that it marked the debut of Team Associated's new L3 superspeedway car. With top drivers like Tony Neisinger, Gary Hamilton, Donn Rice, and brothers Duane and Daryl Silva, the new L3 looked quite impressive. In comparison with the old car, most drivers praised the L3's wide range of tuning options, especially the offset rear motor-pod. Neisinger seemed to have his new L3 working the best, and he was the fastest of the Associated team, qualifying in second place in the Expert Mod class. ◆

*The Showtime R/C Speedway track is a newly poured concrete tri-oval that's as smooth as glass. Fast laps are in the five-second range, while the really fast guys can go 4.5 seconds.*



*Ronnie Vines of BSR Tires holds Tony Neisinger's new Associated L3 car prior to round one of qualifying. BSR's extensive testing on this concrete tri-oval paid off this day, as its capped tires dominated the A-mains.*

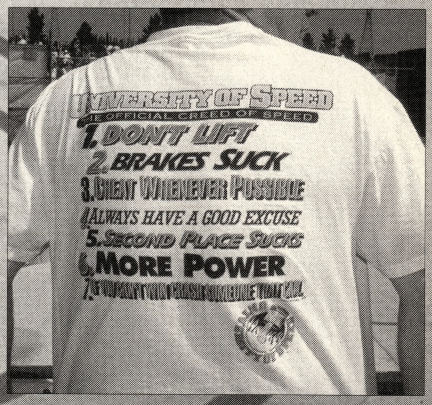
# Oval Shootout



*Team Associated's Tony Neisinger displays his new L3 oval racer. Tony drove the L3 to an impressive debut finish of second place in the Expert Modified NASCAR A-Main.*



*A special "blindfold" race using "spotters" between event sponsors Jay Kimbrough and BSR owner Ronnie Vines turned out to be a sham, as it was discovered that Richie King and Gary Hamilton were really driving the cars from the side of the track!*




*Where can I get a shirt like this?*

## Virtual Driving

● To find out what it's like to pilot one of these NASCAR speedsters, we asked Team Associated driver Gary Hamilton to take us on a typical lap.

"At the start, you have to roll the throttle ever-so-gently to avoid breaking the rear tires loose. When you're using capped-tires, there's just not much traction at the starts—especially when the tires are still cold.

Heading into turn one, you have to be real careful because the car will want to turn hard because you're still not up to race speed yet. This makes it a challenge to get into turn two on the proper driving line, which is critical, because you must exit turn two cleanly to get some speed on the back straight.

If you've made it through turn two and have some speed, your tires are beginning to warm, but you still must back-off for turn three if you want to hit the 'hot' line, which is about 1-1/2 feet from the bottom of the turn. If you miss this line, you're toast, and your car will push all the way through turns three and four. If someone's right on your tail, and you miss turn three's inside line, you're going to get passed!

On this track, the right line means everything. It's the difference between being fast (4.8 second lap times) and being really fast (4.5 seconds)!" ●

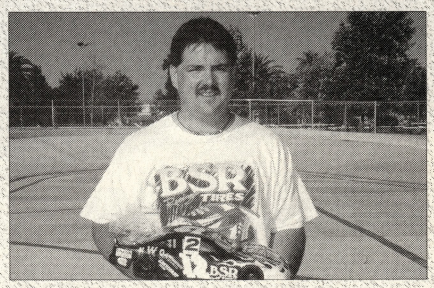
# Kimbrough/BSR Oval Shootout



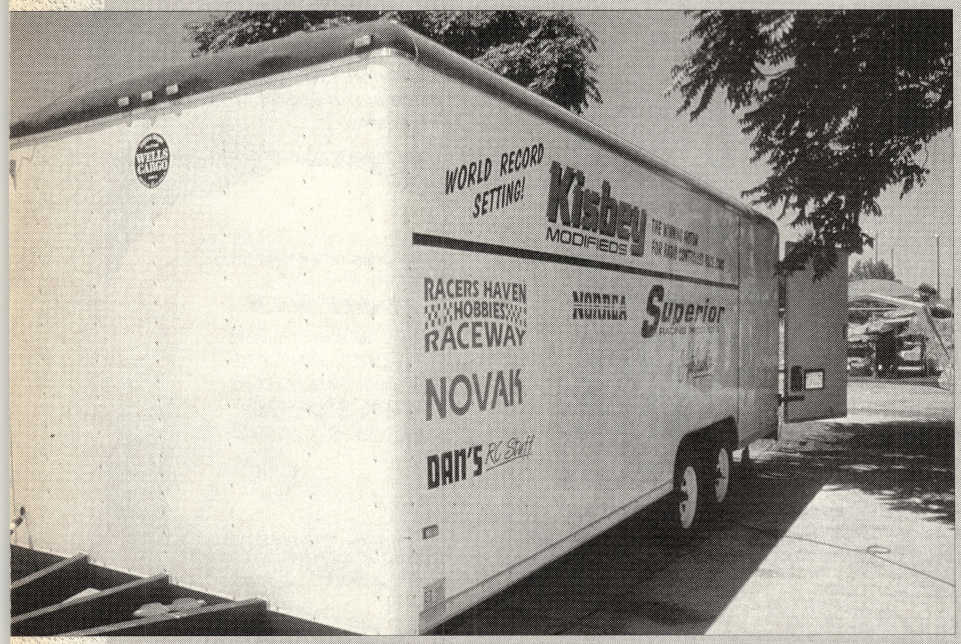




*This behemoth belongs to motor builder Dave Kisbey. Dave and about four of his racers can easily pit inside, and there's enough equipment to allow Dave to dyno and maintain motors for his racers.*




*Richie King and his RACEtech G-Force were on fire throughout qualifying, setting a new track record of 51 laps in 4:00 (just shy of a 52-lap run) during the second round. In the Expert Modified A-main, Richie put a lap on the entire field (including former World Champ Tony Neisinger!) and nearly equalled his record-time run.*




*Gary Hamilton just got his new trailer finished in time for the Oval Shootout. It features full Formica countertops, storage cabinets, and of course, air conditioning! Gary's trailer is finished in his sponsors' colors (Associated, Reedy, Novak, and BSR).*

## Trailer Park

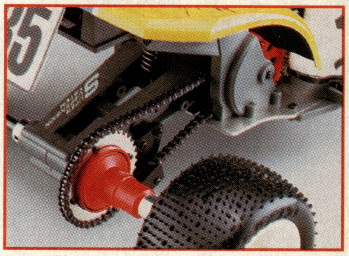
● Superspeedway remains the only form of R/C racing where trailers are commonplace. In the heyday of oval racing, the late '80s, the pits of such famous venues as Lake Whipoorwill Speedway would be filled with trailers fitted with such amenities as full machine shops.

Although not quite as grandiose, these two trailers, seen in the pits at Showtime Speedway, were impressive nonetheless. ●

## Kimbrough/BSR Oval Shootout Results:

| | Driver | Laps | Time |
|---|---|---|---|
| | *Expert Modified NASCAR* | | |
| 1 | Richie King (TQ) | 51 | 4:01.94 |
| 2 | Tony Neisinger | 50 | 4:03.93 |
| 3 | Daryl Silva | 48 | 4:00.87 |
| | *Expert Stock NASCAR* | | |
| 1 | Larry Ruby | 43 | 4:03.45 |
| 2 | Paul Cathey | 42 | 4:00.29 |
| 3 | Tom Harris | 42 | 4:01.13 |
| | *NASTRUCK* | | |
| 1 | Arnold Brittain (TQ) | 41 | 4:00.57 |
| 2 | Tom Harris | 41 | 4:01.30 |
| 3 | Andy Jacobson | 40 | 4:00.24 |
| | *Bolink Truck* | | |
| 1 | Kent Kniffen (TQ) | 34 | 4:00.79 |
| 2 | Brent Finney | 34 | 4:03.34 |
| 3 | Curtis Kniffen | 34 | 4:06.98 |
| | *Pro Bolink Truck* | | |
| 1 | Dave Barber (TQ) | 38 | 4:00.73 |
| 2 | A.J. Ghilarducci | 37 | 4:05.80 |
| 3 | Jeff Meyer | 37 | 4:05.88 |
| | *Sportsman Stock NASCAR* | | |
| 1 | Kent Finney (TQ) | 42 | 4:03.16 |
| 2 | Lou Maldonado | 42 | 4:03.46 |
| 3 | Dewayne Perry | 41 | 4:04.98 |
| | *Sportsman Modified NASCAR* | | |
| 1 | Ed Turney | 44 | 4:02.72 |
| 2 | Todd Nalley | 44 | 4:03.36 |
| 3 | Chuck Howell (TQ) | 43 | 4:01.31 |
| | *Expert Stock Sprint* | | |
| 1 | Dave May | 40 | 4:00.66 |
| 2 | Dave Barber (TQ) | 40 | 4:01.87 |
| 3 | A.J. Ghilarducci | 36 | 4:00.11 |
| | *1/12 Scale Stock* | | |
| 1 | James D. Albera | 42 | 4:00.00 |
| 2 | Lou Maldonado | 42 | 4:01.56 |

# Say SAYONARA to the same old, same old.



A realistic, rugged "sidewinder" drive chain transfers power smoothly to the rear wheels.

## ATV Quad Rider

**1:4 scale**
Nitro Dirt 4-Wheeler

## Blaze new trails with Kyosho's ATV Quad Rider!

Race miles past monotony with Kyosho's one-of-a-kind ATV Quad Rider. Its churning nitro power lets you charge over any terrain, with 1/4 scale detail supplying Supercross-style realism. Most assembly is factory finished—and a GT12S-CR recoil-started engine comes included and installed. The action duplicates full-size dirt bikes, with efficient chain drive and a ball diff for excellent cornering control. Three long-stroke oil shocks, a front double wishbone suspension and rear swing arm/sprung monoshock keep it steady-as-she-goes over stormy tracks. The authenticity even extends to a detailed, easy-to-assemble vinyl driver figure! Bid "bye-bye" to the same old boring rides...get the ATV Quad Rider, and go crazy!

For the location of the dealer nearest you, please call 1-800-682-8948, and mention code number 2921Q.



**Length:** 16.9 in
**Width:** 12.3 in
**Height:** 12.6 in
**Wheelbase:** 12.4 in
**Approx. Weight:** 4.7 lb
**Ground Clearance:** 1.8 in
**Engine:** GT12S-CR w/pull start (included)
**Requires:** 2-channel radio w/2 servos, glow fuel, glow starter
**Note:** Does not require specialized electronics to operate



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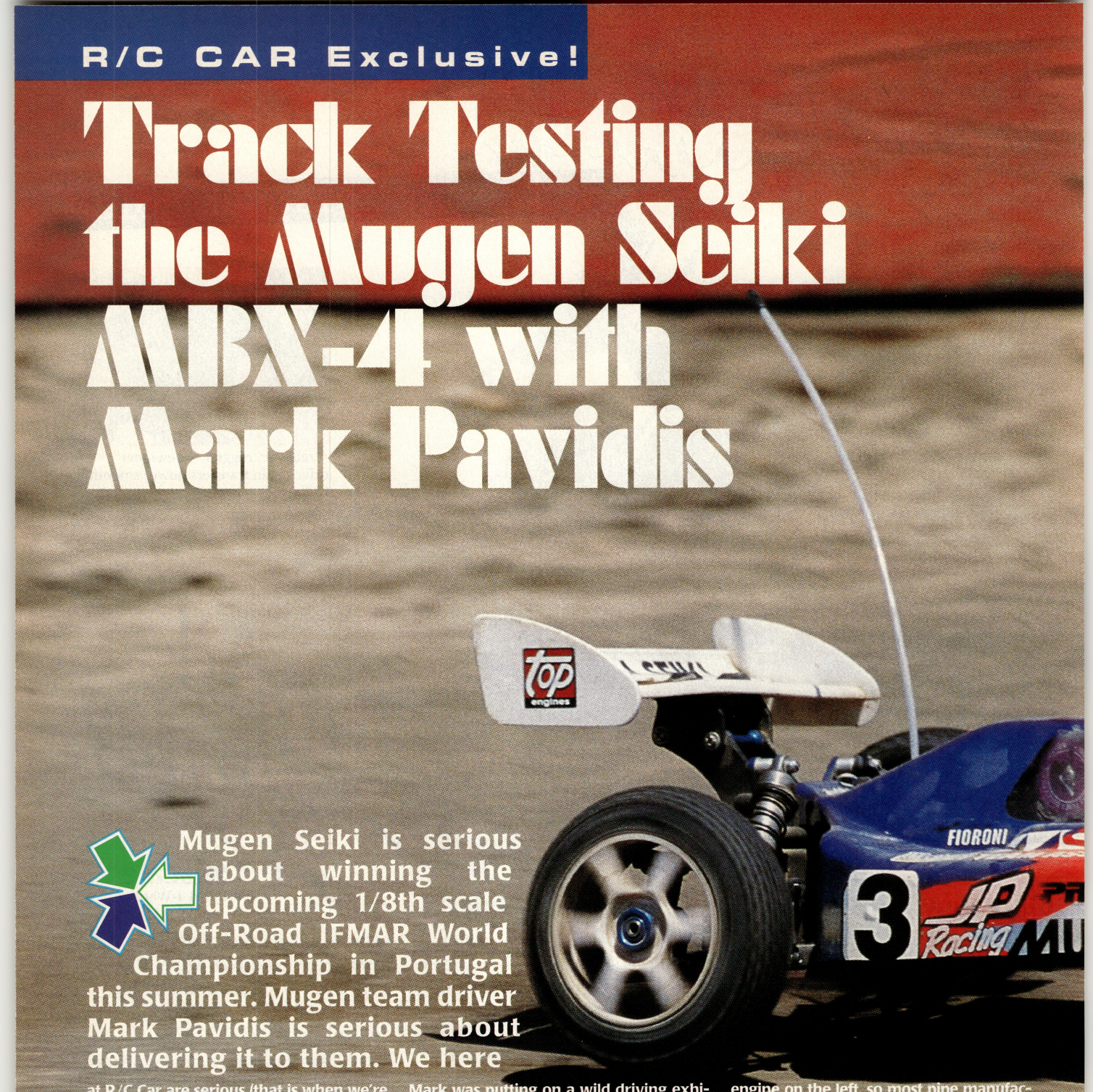
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R/C CAR Exclusive!

# Track Testing the Mugen Seiki MBX-4 with Mark Pavidis




**Mugen Seiki is serious about winning the upcoming 1/8th scale Off-Road IFMAR World Championship in Portugal this summer. Mugen team driver Mark Pavidis is serious about delivering it to them. We here**

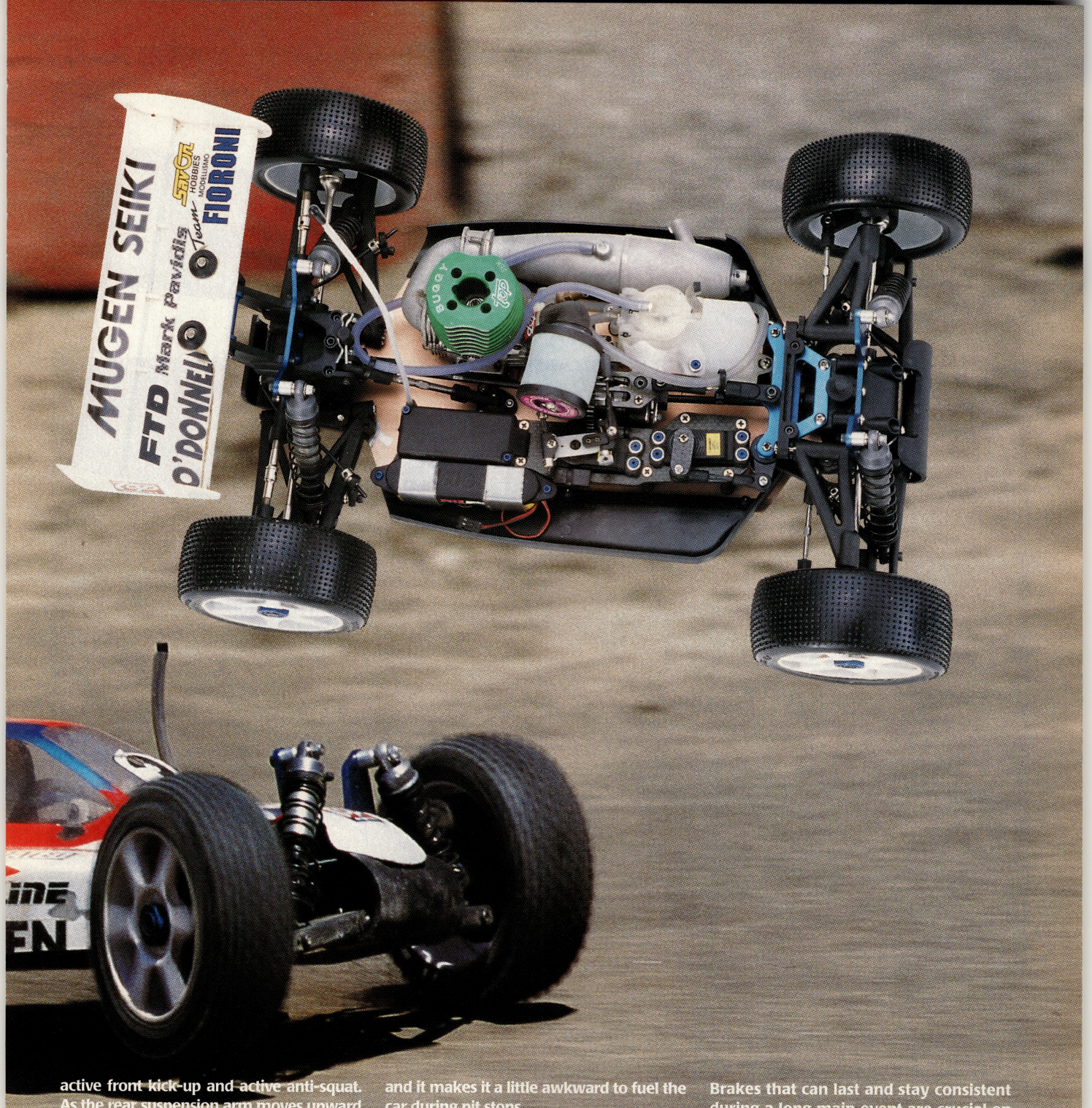
at R/C Car are serious (that is when we're not goofing around at work) about showing you the car that they feel confident can win them the title—the all new MBX-4! The MBX-4, as you'll quickly see in the photos, is not a re-vamped Super Athlete—it's a totally different car. The past few issues we've been teasing you with spy photos and info on the car, but this time we got our hands on the real deal. We called Mugen master Mark and asked him if he wouldn't mind letting us put his MBX-4 through its paces at our newly redesigned off-road track at Hot Rod Hobbies in Saugus, CA. Faster than you can say "you bet your buggy buddy," Mark was putting on a wild driving exhibition for us and a select few at our new track. After watching him effortlessly turn our double-double section into a massive quad and grab big style points over the tabletop, Mark sat down with us and went over what's new and exciting with the car. Here's what Mark had to say.

## Mark on the MBX-4 The new design:

The MBX-4's layout is completely different than the Super Athlete (the MBX-4's predecessor). Mugen "standardized" the car by placing the engine on the left hand side of the chassis. All other cars have the engine on the left, so most pipe manufacturers make their pipes to fit on those cars. Also, according to some people, having the engine on the left benefits the car's handling due to the dynamics of the engine and how it affects the car's overall balance.

The front end of the car is stronger than the Super Athlete, and the chassis is stiffer too. The MBX-4 uses a pivot-ball front end, which attaches the front hub to the upper and lower wishbones similar to an on-road gas car.

The suspension arms have a unique mounting system—they're mounted closer inside next to the transmission and the way they're mounted gives the arms a form of




active front kick-up and active anti-squat. As the rear suspension arm moves upward through its range of motion, it goes to zero degrees anti-squat. I think Mugen's engineers wanted to have the arms mounted as close to the transmission as possible so they could use longer suspension arms. Obviously, a longer arm off-road car will be able to handle rough track conditions much better.

Another plus with the MBX-4 is that it's much easier to work on than the Super Athlete. The radio tray comes out much easier, and the diffs can be accessed by removing only six screws. The only thing I don't really like about the car is that the fuel tank opens toward the back of the car and it makes it a little awkward to fuel the car during pit stops.

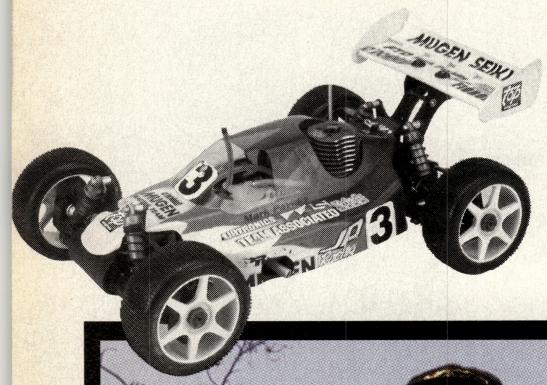
## How it handles:

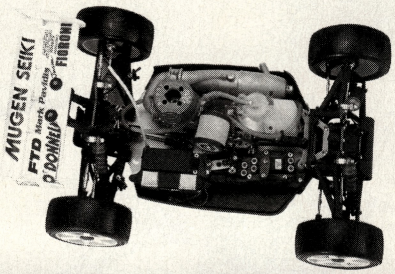
I brought my old Super Athlete and my new MBX-4 to the Portugal Worlds warm-up race to compare the two on the track. I noticed that the MBX-4 has much more on-power steering than the Super Athlete. Also, the MBX-4 uses a new brake pad with a rubber-coated surface and a steel brake disc that works more like a "true" brake system. When you hit the brakes, this car stops! Overall they seem to work a lot better, and I noticed that they didn't fade as the brakes on my Super Athlete would. Brakes that can last and stay consistent during a long main event are crucial on an 1/8-scale car.

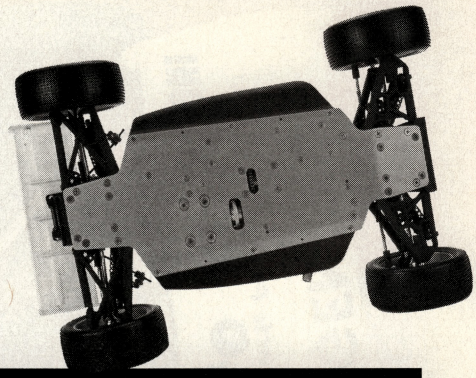
## The IFMAR race in Portugal:

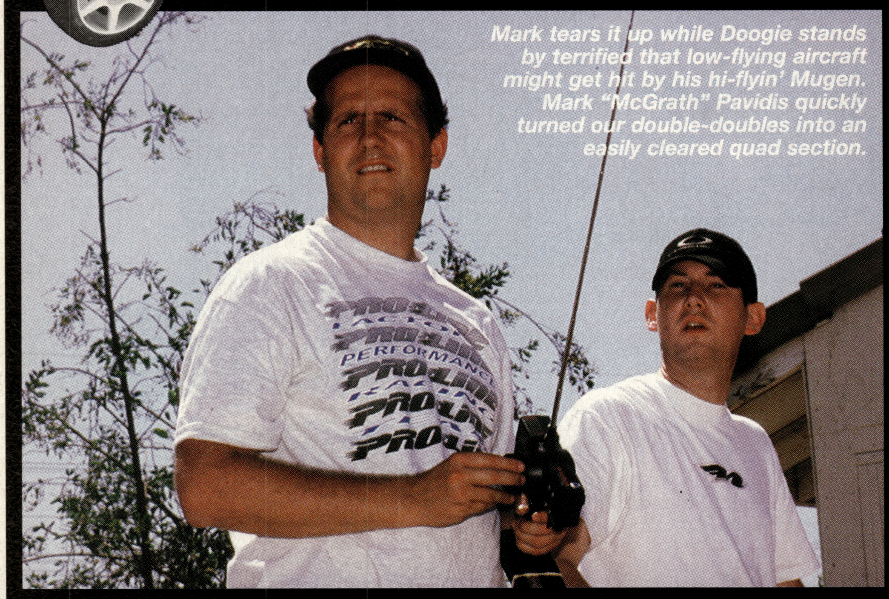
I've been close to winning in the past and this time I really want to win the title. It's a highly prestigious event, and I really think I have a chance to win it this year. At the World's warm-up race, I was on the same pace with the fastest guys from around the world and I was in second place in the main. Unfortunately I ran into "technical" difficulties—my battery pack totally dumped and I had no steering or throttle. This time though, I'm going there to win! ◆

# Mark Pavidis' MBX-4






*Mark tears it up while Doogie stands by terrified that low-flying aircraft might get hit by his hi-flyin' Mugen. Mark "McGrath" Pavidis quickly turned our double-doubles into an easily cleared quad section.*

## Mark Pavidis' MBX-4 Setup

**Front suspension:**
- Front ride-height—Arms level
- Front camber—2° negative
- Toe-in/out—1° toe-out

**Front shocks:**
- Oil—250wt Mugen Silicone oil
- Piston—Prototype black piston (2-hole)
- Spring—MIP
- Shock shaft—Standard
- Mounting—Outside hole on on tower, inside hole on suspension arm
- Camber link—Standard (upper arm in forward position)
- •Threads screwed into suspension arm just so the end of the threads is flush with the arm

**Rear suspension:**
- Rear ride-height—Universals level
- Camber—3° negative

**Rear shocks:**
- Oil—250wt Mugen Silicone oil
- Piston—Prototype black piston (two hole)
- Spring—MIP
- Mounting—Middle hole on tower, outside hole on arm
- Camber link—Inside hole on tower, upper middle hole on hub carrier

**Power:**
- Engine—TOP (five-port) modified by O'Donnel
- Pipe—TOP EFRA 086
- Clutch—OFNA Racing four shoe
- Fuel—O'Donnell 30%

**Radio Gear:**
- Radio—Airtronics M8
- Servos—Airtronics 94258
- Receiver pack—Orion 900mAh five-cell pack

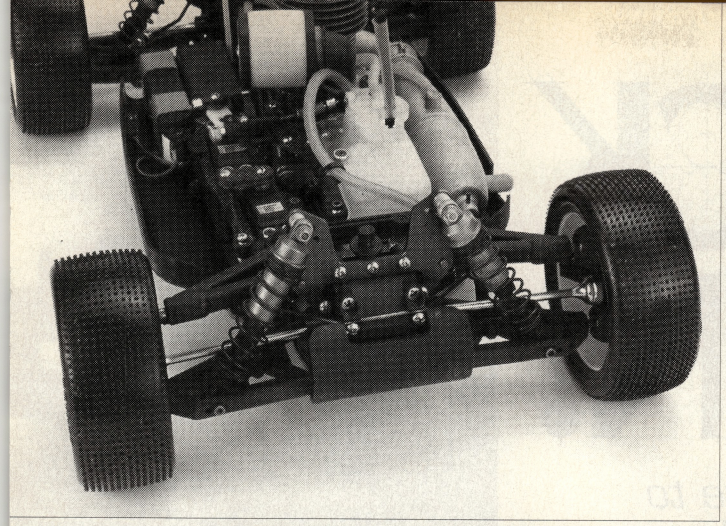
**Tires:**
- Front—Pro-Line Multi-Spike (XTR) with Medial Pro Gray foam
- Rear—Pro-Line Multi-Spike (XTR) with Medial Pro Gray foam

**Miscellaneous:**
- Front diff—5000wt Mugen Silicone oil
- Center Diff—10,000wt. Mugen Silicone oil
- Rear Diff—3000 wt Mugen Silicone oil
- Lunsford Racing titanium turnbuckles
- • Mark custom made a graphite radio tray and anodized all the aluminum parts blue •
- MIP Shiny CVDs

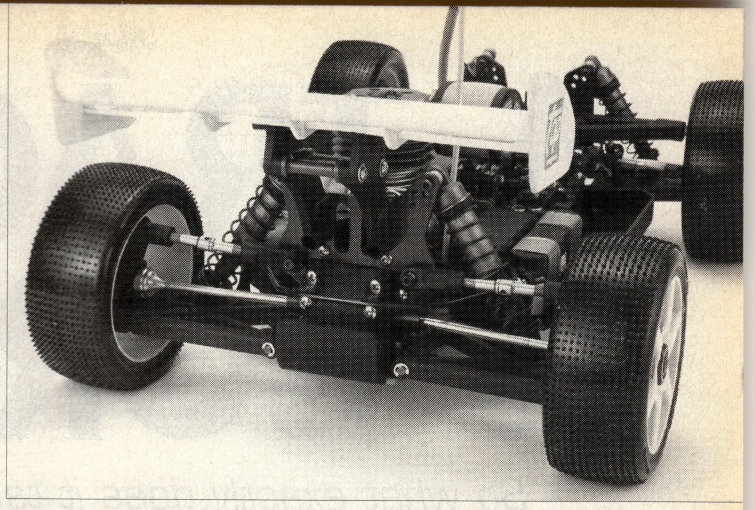
**Special Mods:**

Mark ground down the chassis in the rear of the car so the suspension arms get more down travel. According to Mark, the car has very little rear suspension down travel out of the box. Mark also removed the travel limiter screw inside the rear suspension arms. ●

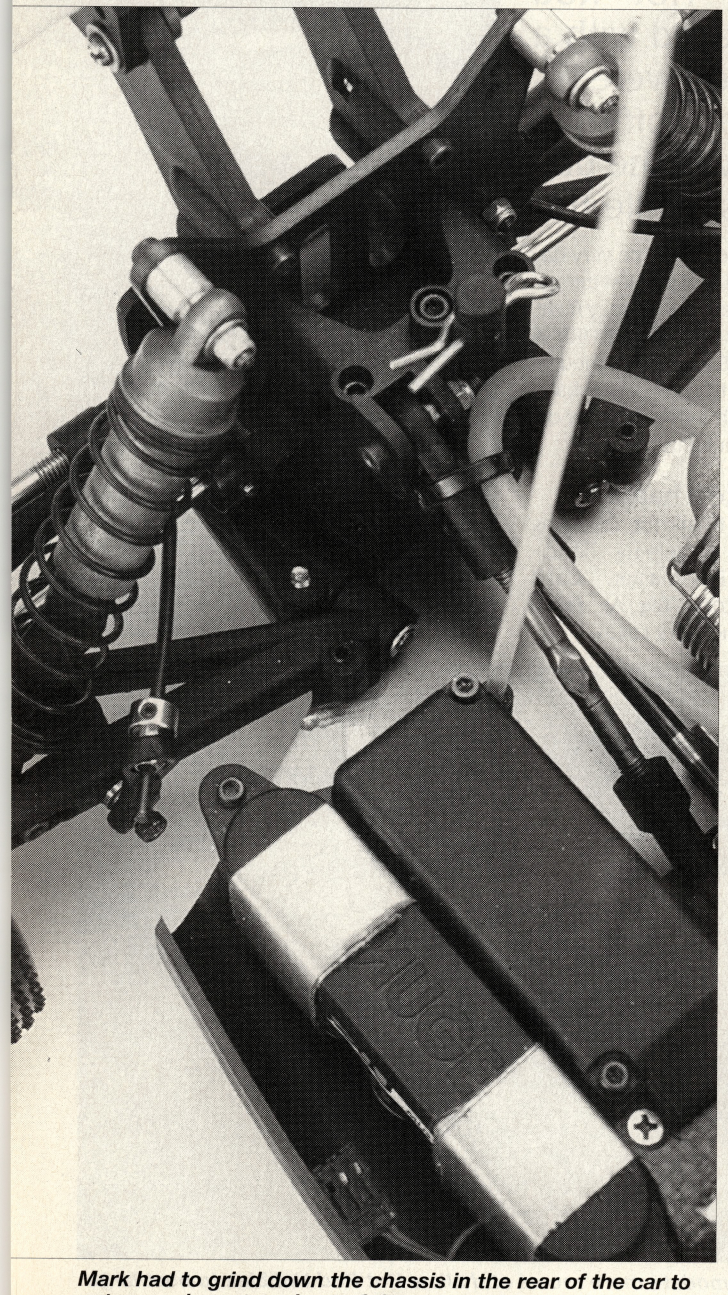




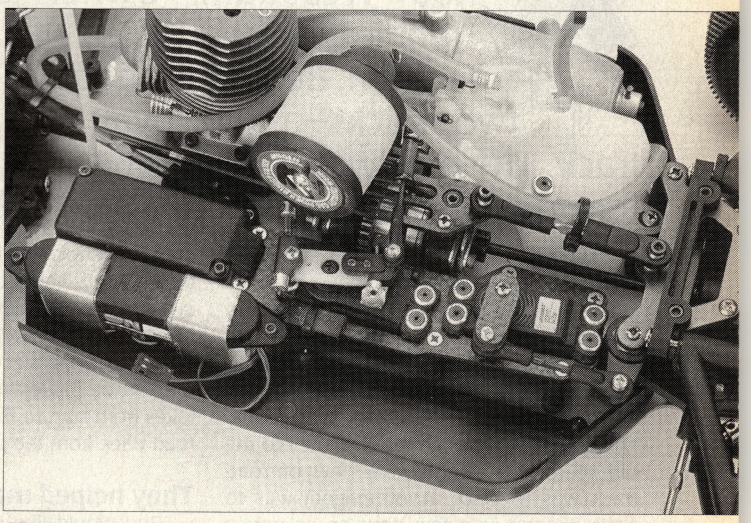
*The MBX-4 shares the same shocks as the Super Athlete, but that's where the similarities end. The new MBX-4 incorporates a unique pivot-ball front end that attaches the front hub to the upper and lower wishbones.*



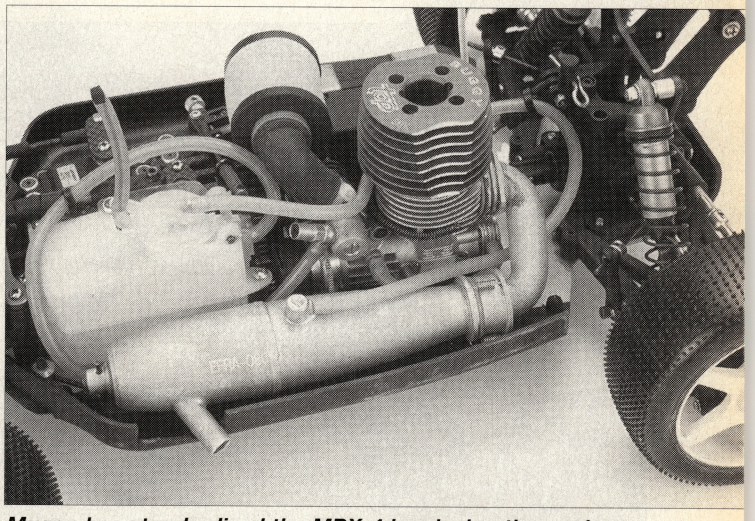
*In the rear of the car you'll also find the shared Super Athlete shocks along with a new, unique suspension arm mounting system. The new arm mounts are positioned closer inside next to the transmission, and the way they're mounted gives the car a form of active anti-squat.*



*Mark had to grind down the chassis in the rear of the car to get more down-travel out of the suspension.*



*Mark custom made a graphite radio tray and servo horn for his MBX-4. The mounting position of the fuel tank is not one of Mark's favorite things about the car—"the fuel tank opens toward the back of the car and it makes it a little awkward to fuel the car during pit stops."*



*Mugen has standardized the MBX-4 by placing the engine on the left side of the car just as every other 1/8-scale buggy is designed. Apparently, placing the engine on the left also benefits the car's handling abilities due in part to some form of engine dynamics. Could crankshaft rotation/torque physics play a big part in how a car handles? Mugen must agree it does.*

# A TRACK IS BORN!

*So what exactly does it take to build an off-road track?*



Rod Wesbaum, owner of Hot Rod Hobbies in Saugus, CA, was faced with a decision. Behind his hobby shop were his two tracks—a dirt oval and an off-road track. The oval was in the prime spot with the better driver's stand and better pit tables, while the off-road track was in a smaller spot with less pit area and a smaller driver's stand. Since the off-road crowd was pulling in twice the entries the oval crowd was, Rod decided that he had to give the off-road group top billing and put in a totally new off-road track where the oval was sitting. The goal was to switch the oval over to the old off-road area after the new off-road track was in place. Another goal was to have it done in a few days so as not to miss any racing action.

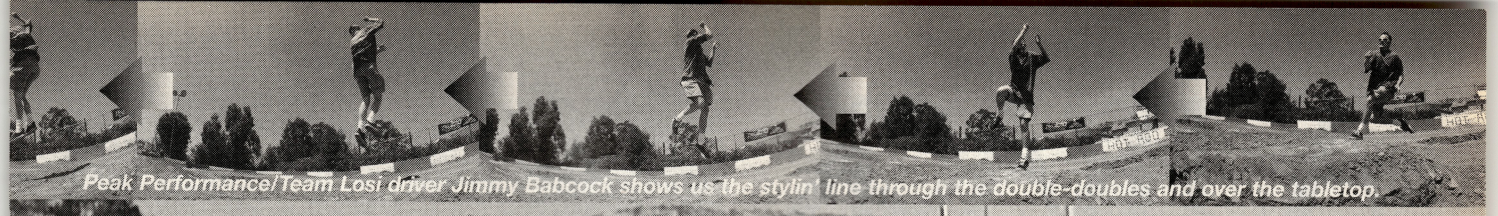
After 20 truckloads of dirt were dumped (200 cubic yards) and a few days of hard work were put in, Hot Rod Hobbies had a brand-new, totally primo track. The very day the track was finished, it saw the best turnout in a long time—85 entries on a Tuesday night. The following Saturday Rod had a NORRCA series race with over 115 entries! We thought it might be interesting to show you what it takes from start to finish to make a new off-road track from the ground up.

## They helped make it happen!

Rod would like to thank the following people for lending a helping hand—Harvey, Hazmatt, Bassmaster, Chad Bradley, Jimmy Babcock, Big Al, Jason Laremont, Francois, and Jerry Lucas.



***Extra pit tables were added to the off-road area to help accommodate more racers and allow Hot Rod Hobbies to host large events.***



*Peak Performance/Team Losi driver Jimmy Babcock shows us the stylin' line through the double-doubles and over the tabletop.*



***20 truckloads of dirt were dumped on Hot Rod Hobbies dirt oval track to form the new "expanded" off-road track. The clay/sand mixture (roughly 30 percent clay) started to form a blue groove after it had been raced on for a little while.***

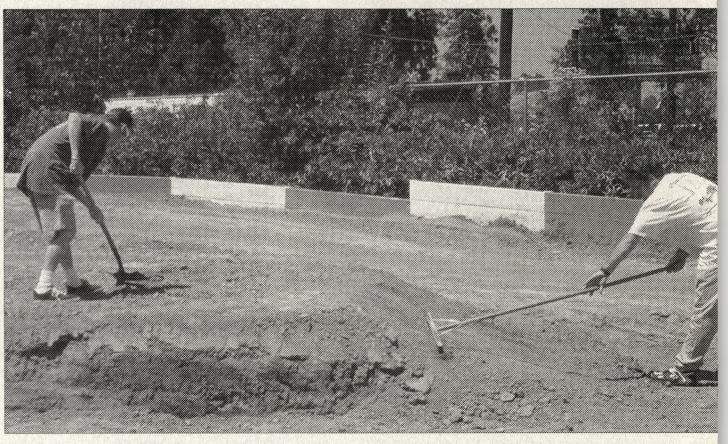
# A TRACK IS BORN!



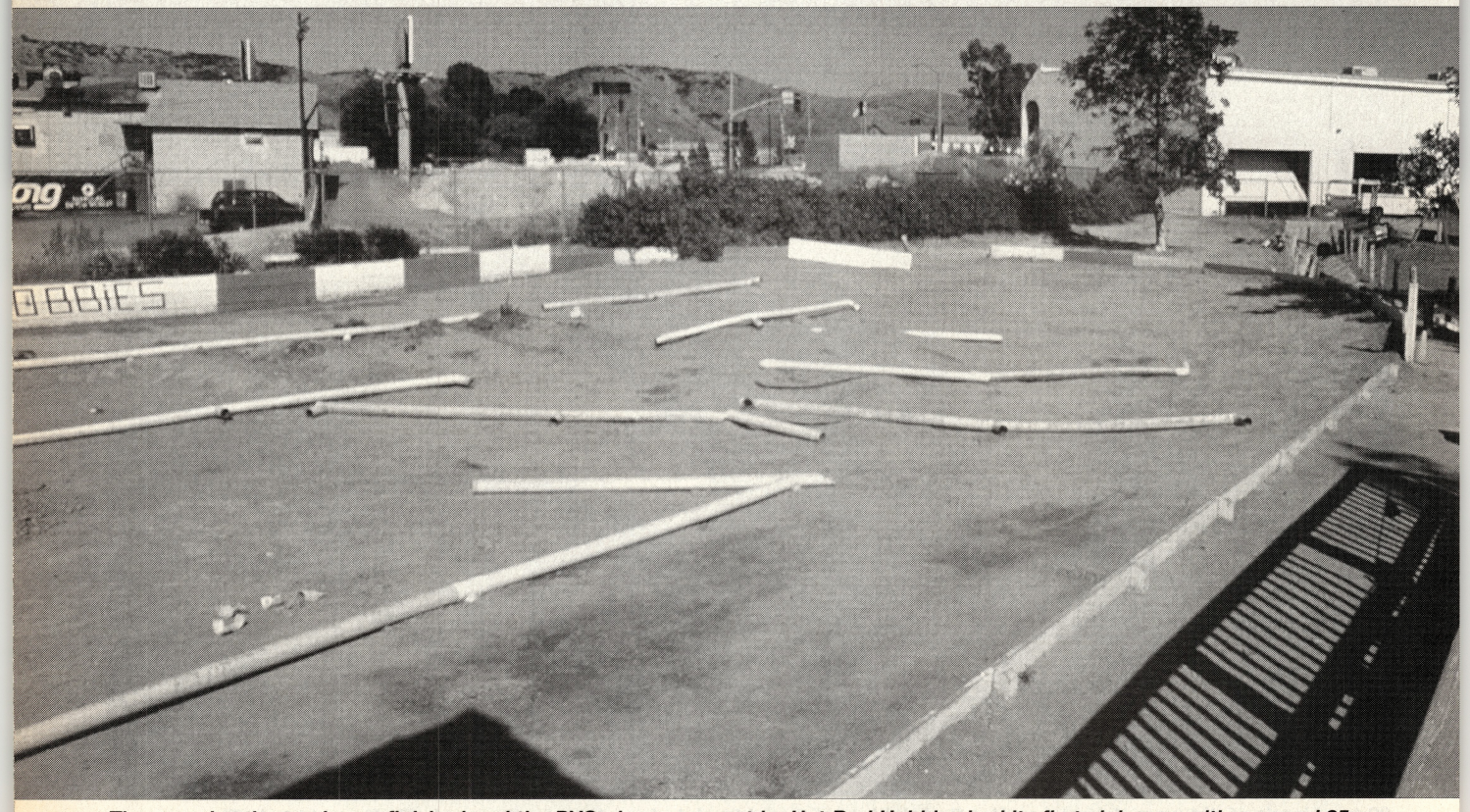
*Once the dirt was in place and graded, the track workers started smoothing out the surface and began planning the track layout.*



*Chris Rodney (left) and Ian Cochran (right) were provided to track owner Rod Wesbaum through a city work program of the Santa Clarita Valley. The program pays youths to go around the city and help out local businessmen wherever there's a need.*



*Rod (right) and Jimmy Babcock smooth out a tabletop with shovels and a concrete rake—building a new track is hard work...but it's worth it!*



*The very day the track was finished and the PVC pipes were put in, Hot Rod Hobbies had its first club race with a record 85 entries! A few days later Rod hosted a NORRCA divisional race with 115 total entries—not bad for a brand-new track! ◆*

# Get Struck By Lightning.



58222 Ford SVT F-150 Lightning

Meet the Lightning. Tamiya's version of the 1999 Ford F-150 SVT Lightning. The full scale version first appeared at this year's Chicago Auto Show sporting a SVT (Special Vehicle Team) package that included a 5.8 liter Triton V-8 equipped with a supercharger and an intercooler. This combination of beauty and performance will likely make the Lightning the hottest selling truck of the decade.

If you're an RC'er who's into trucks, you're going to love the Tamiya Lightning. This gorgeous, faithfully reproduced body sits on top of the proven Tamiya TL01 shaft-drive, 4WD chassis. Simple to build and easy to maintain, the TL01 Lightning delivers stunning performance at the track, in your driveway or on any smooth, wide-open surface. Best of all, you won't break the bank taking one home; the Tamiya Lightning kit will go out the door for less than a hundred bucks!

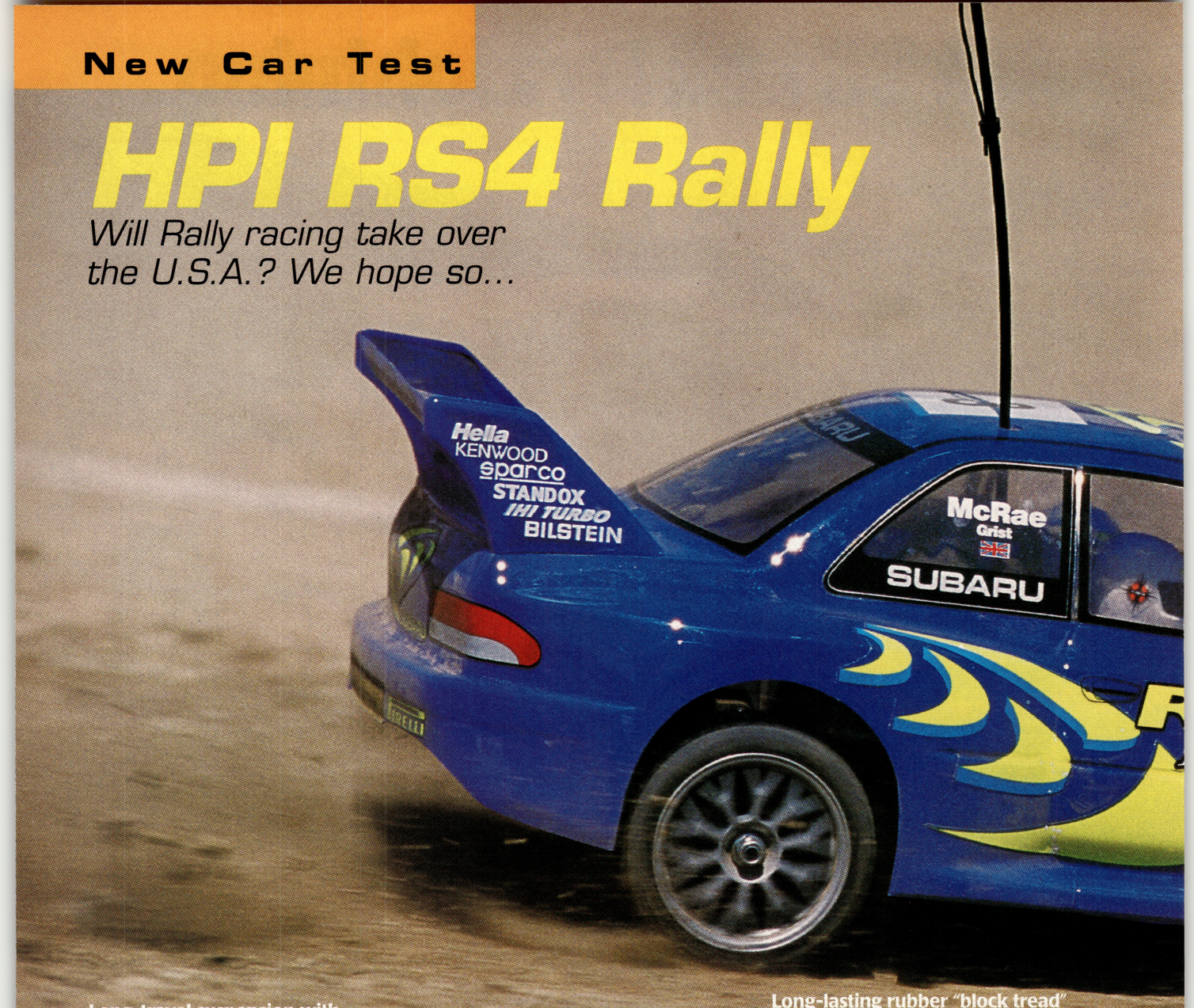
Usually, "getting struck by lightning" would be a painful experience, but with the Tamiya Lightning, it's a blast!

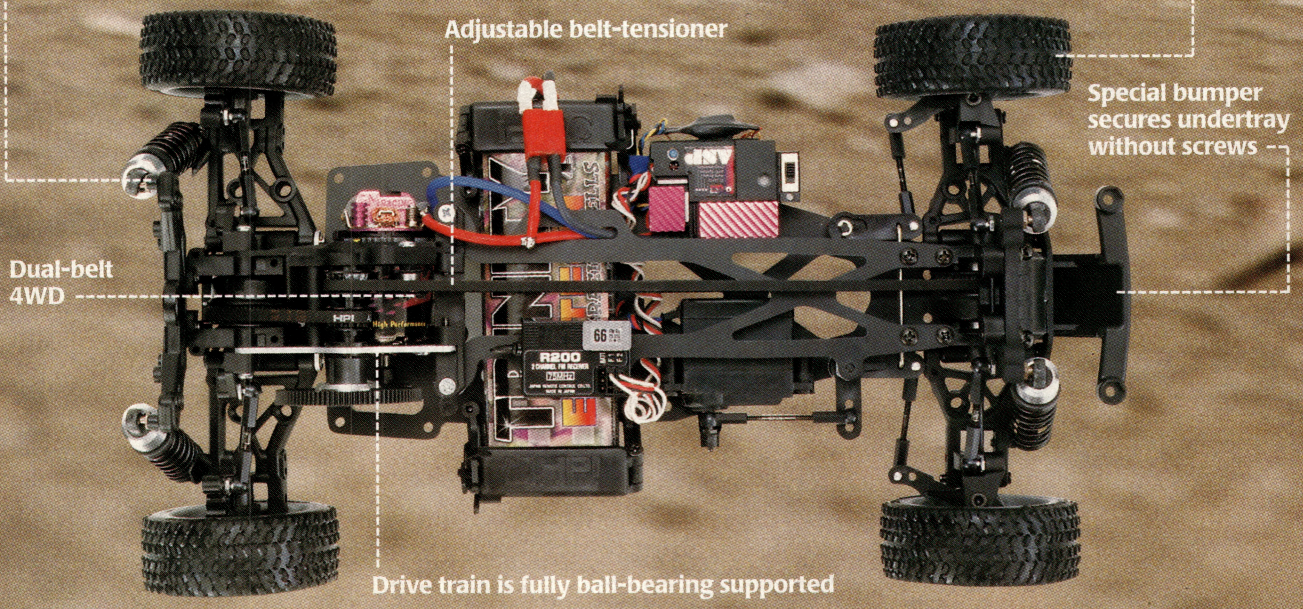
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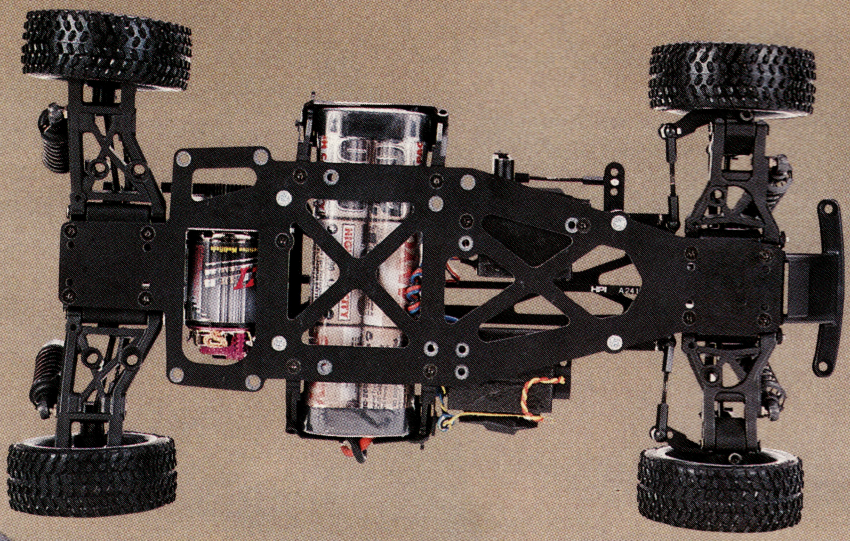
*Tamiya America, Inc.*
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*1-800-TAMIYA-A · www.tamiya.com*

# HPI RS4 Rally

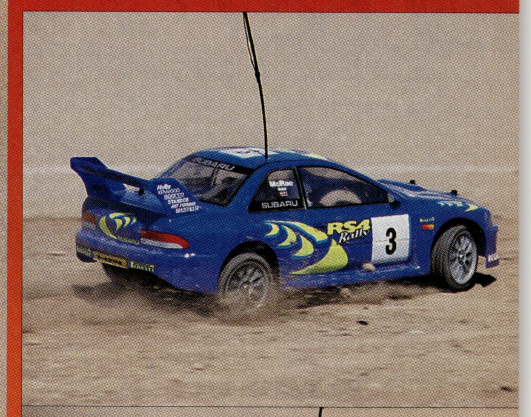
*Will Rally racing take over the U.S.A.? We hope so...*
















**While HPI can't exactly take credit for manufacturing the first R/C rally car (Tamiya and Kyosho have produced rally cars for a few years now), HPI can be credited with making the first race-oriented electric**

rally car. This is a bold move from a company that coincidentally, is on the move. In case you've haven't noticed, HPI doesn't come out with "duds"... When we first spied the rally prototype a few months ago at HPI's USA headquarters, we left its building confident that it would be a very successful car in its rapidly expanding lineup. And now after testing the finalized production version, we believe we can

## Options we used

- Futaba 3PDF (75mHz)
- Futaba 9402 servo
- Novak Mercury receiver (75mHz)
- GM Racing ASP ESC
- Trinity Speedgems machine-wound mod motor
- Trinity Amp Max (1400 mAh) and Voltmax Pro Racing Pack (1700 mAh) ●

# Touring With REEDY Modifieds

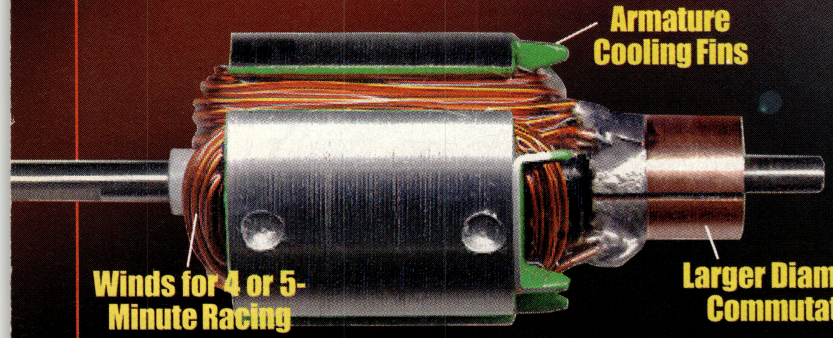



## New TC1... Just for Touring Cars!

The TC1 utilizes Reedy's exclusive large commutator/laydown brush technology to produce the outstanding torque characteristics needed for 4WD Touring Car racing. This larger comm, along with the "turbo action" cooling fins on the armature, make the TC1 much more resistant to damage from heat. The larger diameter comm also has lower electrical resistance due to the increased amount of conductive material.

Special winds have been developed for both 4-minute and 5-minute racing. Brushes and springs have also been tailored for touring car use. The TC1 is the perfect motor for serious Touring Car racers everywhere!

#555 TC1 Touring Car Motor, 9 turn *(4-min./hi-rpm)*
#554 TC1 Touring Car Motor, 10 turn *(4-min)*
#553 TC1 Touring Car Motor, 11 turn *(4 min hi-torque or 5 min std.)*
#552 TC1 Touring Car Motor, 12 turn *(5 min)*
#551 TC1 Touring Car Motor, 13 turn *(5 min)*
#550 TC1 Touring Car Motor, 14 turn *(5 min)*







**The ONLY Touring Car Motor featuring Large-Comm Technology!**

## New #763X Cavity Brushes

Reedy's #763X Laydown brushes are the same race-proven compound as their popular #730X with the addition of a small cavity for more rpm!



**For Serious Touring Car Competiton!**

## REEDY Zappers

#645 Nova "Zappers" RC2000 Sport Pack
Voltage-maximized, unmatched RC2000 cells
*Low-cost, high-performance power*

#646 Reedy "Zappers" RC2000
Voltage maximized, cycled and matched
*Excellent for Stock Class racing*

#647 Reedy "WC Zappers" RC2000
The premium, top percentage of matched cells
*The choice of World Champion racers*




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## BY TEAM ASSOCIATED

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Team Associated introduces the new "Factory Team" line of RC Parts and accessories. These are all the high-performance, trick components that you see on our Team driver's cars... blue anodized, carbon fiber, plated titanium, and even *unobtanium* parts! We're introducing the "Factory Team" line with some industry firsts, like our new "Factory Blue" titanium turnbuckles. These aren't just the coolest looking turnbuckles... they're the strongest, lightest titanium turnbuckles on the market today.



**Blue Titanium Turnbuckles**

***Factory Blue Titanium Turnbuckles (2)***

| | |
|---|---|
| #1401 | 1.30"/33mm |
| #1402 | 1.375"/35mm |
| #1403 | 1.65"/42mm |
| #1404 | 1.775"/45mm |
| #1405 | 1.875"/48mm |
| #1406 | 2.00"/51mm |
| #1407 | 2.30"/58.5mm |
| #1408 | 2.65"/67mm |
| #1409 | 1.00"/25.5mm |
| #1410 | .63"/16mm |
| #1411 | .75"/19mm |
| #1412 | 3.50"/89mm (1only) |

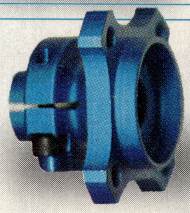
***Factory Blue Titanium Turnbuckle Kits***

| | |
|---|---|
| #1205 | RC10 World's Car |
| #1206 | RC10B2 Buggy |
| #1207 | RC10B3 Buggy |
| #1230 | RC10LS, RC10L2 |
| #1231 | RC10LSO / L2O / L3O |
| #1250 | RC12LS / LC / L3 |
| #1260 | Dual Sport, Nitro DS |
| #1280 | RC10GT / T2 / T3 |
| *For Yokomo* | |
| #1301 | Yokomo YZ-10 |
| #1302 | Yokomo YR4 |
| #1303 | Yokomo YR4M |
| *For Losi* | |
| #1331 | Losi GTX |
| #1332 | Losi XX4 Buggy |
| #1333 | Losi XX4 St. Weapon |
| #1334 | Losi XX Buggy |
| #1335 | Losi XX Truck |
| *For HPI* | |
| #1351 | HPI Nitro RS4 Narrow |
| #1352 | HPI Nitro RS4 Wide |
| #1353 | HPI Pro/Sport Narrow |
| #1354 | HPI Pro/Sport Wide |



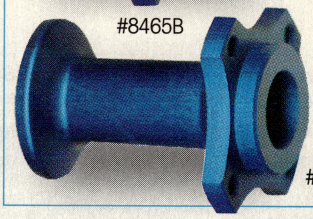
#6193B

**Blue Super Wing Things**



**RC10 L3 OVAL Lightened Blue Hubs**

#8465B



#8467B

***Aluminum Factory Blue Screw Kits***



| | |
|---|---|
| #8115 | RC10LS/LSO |
| #7675 | RC10GT Gas Truck |
| #6910 | RC10 All Alum. Chas. |
| #6911 | Losi XX, XXT |
| #9290 | RC10 B2 / B3 Buggy |
| #7300 | RC10T Truck |
| #7303 | RC10T2 Truck |
| #7299 | RC10T3 Truck |
| #8809 | RC10 DS Dual Sport |
| #4179 | RC12LS |
| #8470 | RC10L3 Oval |
| #8901 | Nitro Dual Sport |



**Blue Aluminum Locknuts**
#6937




#1105

***...and MORE!***

| | |
|---|---|
| #1105 | Green Slime® Shock Lube |
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#7219 for T3

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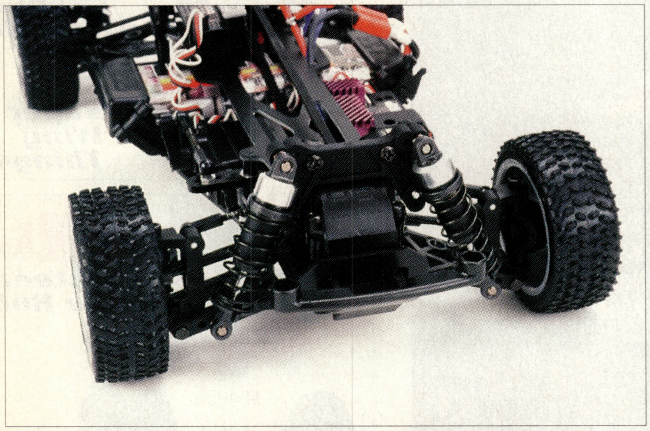
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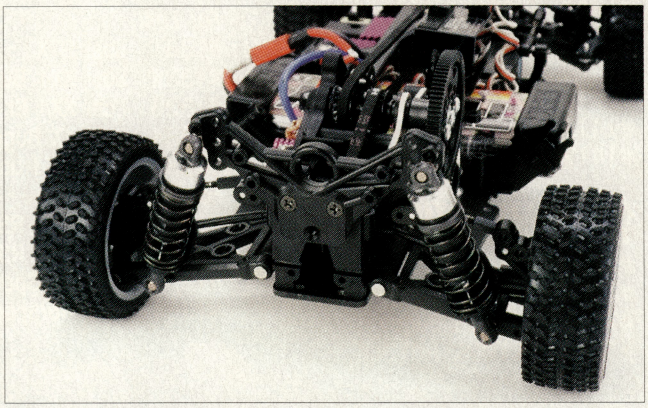
ad#1043/133




*This is the coolest-looking rally body on the face of the planet. Kudos to HPI for replicating Colin McRae's WRC championship-winning Subaru Impreza. Take your time when detailing it and you'll have one trick-looking ride.*



*Rally ready! The front end of the RS4 Rally shows the new, longer plastic shocks and rally-type block tread tires.*



*In the rear of the car are long-travel plastic shocks, and a plastic shock tower. Dogbones get the power to both the front and rear wheels.*

## Setup Tips

● As we mention in our test of the HPI RS4 Mini Pro elsewhere in this issue, HPI has one of the best support services available to HPI groupies—its website *(www.hpiracing.com)*. HPI's site is one of, if not the best manufacturer's sites out there. It has the latest press releases, racing tips, building tips, cool product photos, etc. Here are a few RS4 Rally tips we picked up on HPI's site that we'd like to pass along.

• When racing the car on extra rough/bumpy surfaces, it's recommended that you add 2-4mm of ride-height to the shocks.

• For modified racing conditions, you have to set the suspension up a bit stiffer than stock. Go up one piston number, an oil weight, or a stiffer shock spring rate.

• When running the car on a high-bite on-road surface or a track with a lot of traction, try setting up your shocks with a #4 piston, 40wt Silicone oil, and stiff springs (either a gold or white spring).

• When running the car on a loose or slippery on-road surface, try running a #1 or #2 piston, 20 or 30wt Silicone oil, copper springs (soft) or silver springs (one rate stiffer).

• If you want to slam your car really low to the ground when running on the road, try this setup. Place the top of the rear shocks on the upper hole of the rear shock tower, place the hub carriers in the lower holes, and remove the unflanged rings from the shock bodies. Use shock clips to adjust ride height.

• If you run one of HPI's Minis or other touring cars and have a spare set of shocks and tires lying around, you can style yourself out like a full-size rally team and have all the extra "equipment" necessary for different rally terrain. Full size rally teams bring different shocks, tires, wheels...you name it. Why shouldn't your 1/10th scale team be set up the same way. A fun way to get more enjoyment with your RS4 Rally is to be ready for any type of terrain whether it be on-road or off. Experiment with different setups such as shorter shock lengths when racing on-road, try different tires on different surface, etc. Before you know it, Colin McRae will be calling you for setup advice! ●




*Check out the detail on this inner body piece. Look at the navigator's map, the steering wheel, roll bar...not bad HPI...not bad at all.*

confidently confirm our initial gut reaction.

## A familiar friend

The RS4 Rally is based on the popular RS4 touring car platform. For those of you who are not familiar with the RS4 design (you really should crawl out from underneath that rock), here's a quick rundown on the car. The RS4 Rally is equipped with a dual-deck FRP chassis (G10 type fiberglass), long composite nylon suspension arms, and composite front and rear bulkheads/diff housings. A lightweight molded battery "box" setup allows for the user to choose between stick or side-by-side packs. Plastic steering bellcranks (with an included in-line servo saver) attach to the left and right side hubs. Adjustable upper links/turnbuckles can be found at each end to adjust camber and front toe. Plastic shock towers and body posts are also found front and rear.

## A proven drivetrain

The RS4 uses the tried and true twin-belt drivetrain found in every electric RS4 configuration. Both front and rear the car is equipped with smooth, durable gear differentials (ball diffs are available as hop-up items), and the entire drivetrain is ball bearing equipped (the only item lacking ball bearings is the steering system). A 90-tooth graphite reinforced 48-pitch spur gear comes standard with the kit as does a 31-tooth pinion gear. An included, molded-in belt tensioner helps keep the main drive belt from skipping.

## Test Notes

• Like all of the RS4's we've tested, the Rally's drive train is super-quiet and smooth. Its 4WD system does a good job of putting down the power, and even the loosest "marbley" dirt couldn't slow the RS4 Rally, which we could easily pitch through low-traction dirt in a controllable drift.

• Although sealed from the elements, the RS4 Rally's innards still get pretty darned dusty, so you should carefully check "inside" the car between runs to ensure that no small pebbles, which could damage the spur gear or belt-pulleys, have been allowed inside.

• Like HPI's RS4 MT, the motor, battery and speed control of the Rally gets bloody hot! To prevent meltdown (yes, a solder-joint could actually melt), always, always let the Rally cool down between runs.

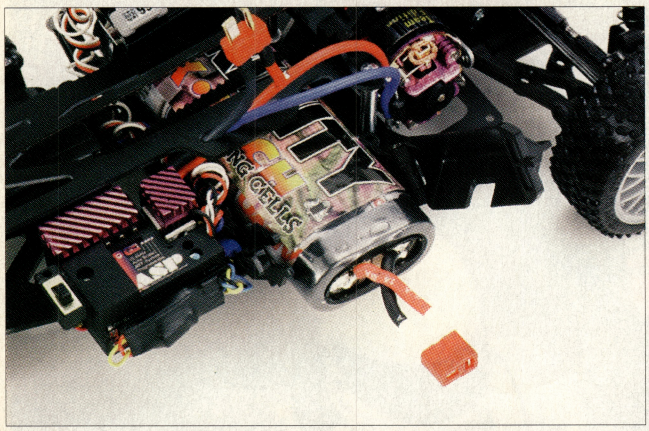
For better cooling, we would like to see HPI devise some type of heat-sink for this car that rises up through the bodywork and into the air stream.

• The kit-included shock oil seems a bit thin. Thicker oil and stiffer springs would improve the car's handling. The light damping causes the Rally to lean excessively during cornering, and undulate over the bumps.

• As an aside, the GM-Racing ASP speed control we used in this car has a built-in steering "gyro" that automatically counter-steers should the rear wheels lose traction.

At first, we thought this to be more of a curiosity than anything useful, but after testing, we are now firm believers in this technology! It has its quirks (straight-line tracking can feel vague on slippery surfaces), but try as we might, we couldn't cause the RS4 Rally to spin out when the ASP's gyro was enabled! Now we can understand why this technology isn't race-legal yet.

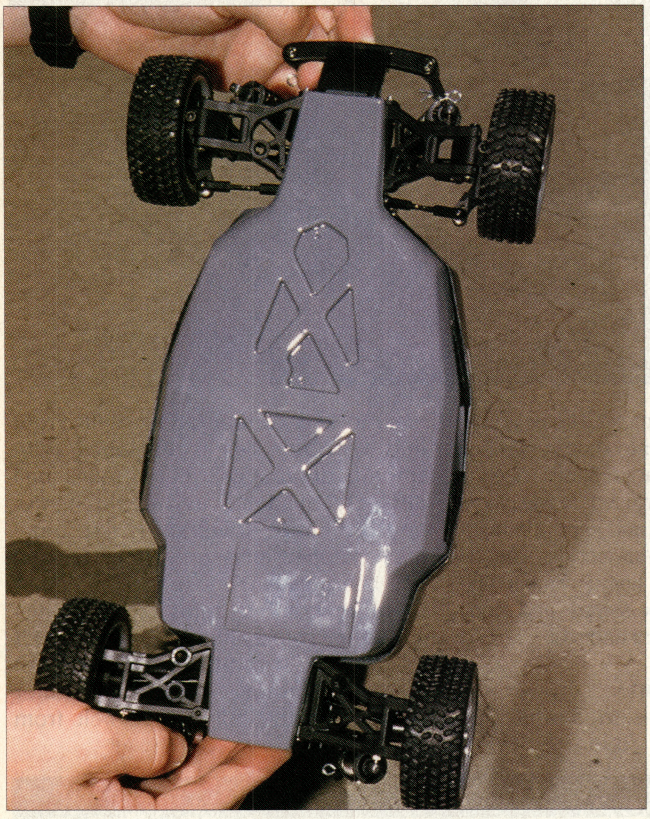
• Overall, the RS4 Rally makes the transition from pavement to dirt a seamless one. The kit's block-tread tires aren't particularly "hooked up" on either surface, but their traction is predictable on both, and make for a driving experience that's nothing but fun.●



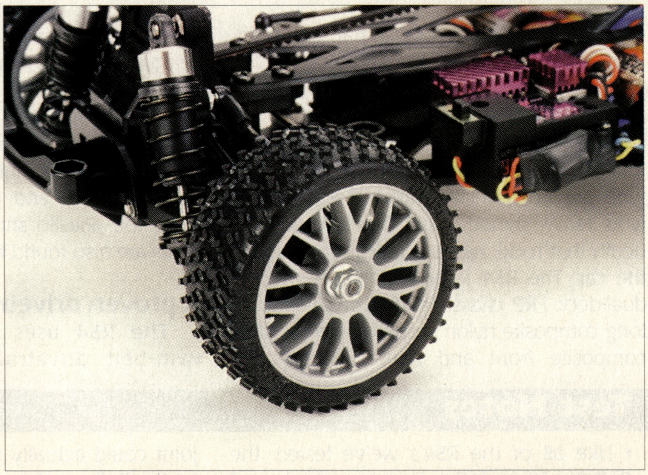
*The battery is slid in and out through a side "hatch" in the battery box compartment.*



*The long-travel plastic shocks should soak up moderate off-road action. We don't recommend you "sky" your RS4 Rally 20 feet high over a tabletop jump, but you don't have to run your car only on the street—make no mistakes, this is a true dual-purpose car just like it's full-size counterpart.*



*In an effort to keep unwanted dirt from entering the chassis, the car also comes with an undertray to complement the inner and outer bodyshell set. The undertray uses hook and loop tape to secure itself to the inner body and when combined, they form a tight seal.*



*Gray mesh wheels with rally-type block threaded tires work well on most off-road surfaces. Softer compound rally tires (for hard-packed dirt surfaces) should be available soon.*

## Long arms & long shocks

Since this car will undoubtedly be seeing some off-road action, HPI designed the car to be a true dual-purpose machine that could handle well both on- and off-road. At each end you'll find a long suspension arm coupled to a long-travel oil filled shock. The shock is a self-bleeding, plastic, coil-over shock that utilizes HPI's progressive springs. Trust us, this car is made to handle the bumpy stuff as good as it can handle the pavement!

## A Rally Impressive Impreza

Truly the coolest thing about the RS4 Rally is the included Colin McRae WRC Championship winning Subaru Impreza bodyshell. It's sweet! The bodyshell consists of three layers—an undertray, an inner body complete with a driver and navigator (hook and loop tape secures the inner body to the undertray), and finally the really, really cool-looking Subaru body (did we say that it's really cool looking...well, it is!) The outer bodyshell comes complete with all the decals necessary to make Colin McRae proud as well as a set of HPI's own RS4 Rally decals. Man is it ever a cool body...(can you tell we're big-time rally fans?)

Complementing the sharp-looking body set is an equally cool set of gray mesh wheels and brand-new, rally-type tires (softer tires will be available soon that work better on hard packed dirt). The directional tread tires should work well on loose dirt but will more than likely wear out quickly if you only intend on running the car in the street.

## HPI RS4 Rally

**Type:** 1/10 scale, 4WD rally car
**Manufacturer:** HPI Racing, 15321 Barranca Pkwy., Irvine, CA 92618 • (714) 753-1099; (714) 753-1098 fax • www.hpiracing.com
**Price:** $269 (est. street price $170-180)
**What you get:** complete rolling chassis. You must purchase a two-channel radio system w/servo for steering, an ESC, a motor, a six-cell stick pack battery, a battery charger, and paint for your Lexan body.

**Length** .....340mm/13-9/16"
**Width** .....200mm/7.8"
**Wheelbase** .....257mm (242mm short version)/10-1/16" (9 1/2")
**Track (F/R)** .....192mm/7-12/16 (F) 196mm/7-13/16" (R)
**Weight** .....1.54kg/3.4 lb. (est)
**Gear ratio** .....2:1

### What we like

• The bodyshell is sweet, sweet, sweet! The added inner body/driver and navigator and undertray really help keep the drivetrain protected from the elements.

• It's so much fun watching the car zip around our local off-road track...it's equally as fun watching it zip around our local touring car track... We have a feeling it will be a long time before we get bored with this car!

• The car's overall quality is awesome. HPI makes a darn good car kit. The instructions aren't too shabby either.

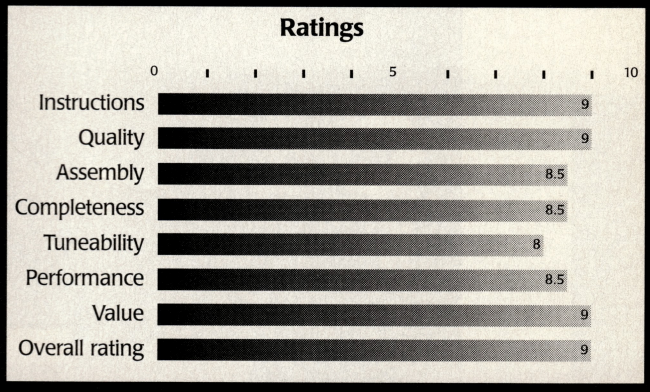
• Plenty of hop-ups are available. We have to set ours up with some graphite and a two-speed—we can't wait!

### What we don't like

• Where are the other rally body kits...we need more... Honestly, we're too pumped about this car to find fault with it as it comes out of the box. More "long-term testing" will tell us if the car has any hidden faults, but so far, none have come to the surface.

### What we really think

• The RS4 Rally not only looks good, it handles well on the dirt (you should expect to keep things realistic to its scale appearance when driving it—don't go skyin' the car over any huge tabletops and expect it to handle like an off-road truck or buggy). With a few minor tweaks (shorter shocks and slick tires) it can run with the hottest touring car. As HPI claims this is a dual-purpose car kit. We said earlier and we'll say it again—we truly believe this will be one of the most significant releases this year!




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

### Sources

**Futaba**, 4 Studebaker, P.O. Box 19767, Irvine, CA 92623-9767
**GM Racing**, 416 Ohio Ave., McDonald OH 44437 • (330) 530-2330
**Novak Electronics**, 18910 Teller Ave., Irvine, CA 92612 • (714) 833-8873 • (714) 883-1631
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# Marshal Law

## The Rules of Turn Marshaling




Driving and wrenching are but two of the skills needed to have a successful day at the R/C track. There are many more. One important, but often overlooked, skill is that of turn marshaling. If you've raced at least once, you know the value of a good turn marshal, and the disastrous results of a bad one.

When you crash—and we all do—a good marshal can make the difference between losing a few seconds and losing the race. Sometimes the crash is your fault, sometimes it's someone else's, but whatever the cause, it's the marshal's duty to get you back in the race as quickly as he or she can. Are you an attentive, quick, and responsive marshal, or are you the kind of marshal that makes one driver say to another "Dude, whatever you do, don't crash near that guy"?

I remember reading "Goofus and Gallant" in *Boys' Life* magazine when I was a kid. Goofus was always screwing up, not helping the old lady cross the street and that kind of stuff, where Gallant was always doing the right thing (I firmly believe that he would have jumped in front of traffic to help one little old lady get to the drugstore on time). This is the theme of our little marshal lesson, with "Mesh" being our hero, and "Grind" being the complete bungler and utter jerk just like Goofus.




**Mesh** goes immediately to his marshaling spot after his race is over. He makes sure that he's out there and ready long before the race will begin.



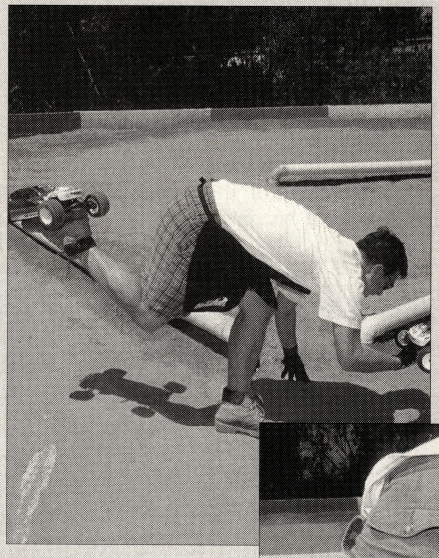
**Mesh** always watches his corner. He also may start moving when he suspects that a car might crash near his position. No matter how exciting the race may be, Mesh never takes his eyes from his spot.



**Grind** frequently holds involved conversations with other marshals during a race—mainly about how he could have won his race if "that damn turn marshal" had been paying attention. Rarely does he watch his corner. Often is heard cheering for his buddies in the race "Yeah baby!" Not surprising, Grind is often the target for expletives shouted from the drivers' stand!



**Grind** takes his car back to the pits and begins removing its tires. Shouts "Okay okay! I'm coming" only after the race announcer threatens to dock a lap from his best time unless he's out on the track in ten seconds (meanwhile, the drivers in the next race have been waiting for five minutes). If the announcer forgets that he was supposed to marshal, Grind considers himself lucky, and smarter than everyone else.



**Mesh** marshals cars as quickly as he can, but always takes care not to impede the other drivers' view of the track. He knows that oncoming traffic always has the right of way, and will sometimes wait for a second or two before going out onto the track to rescue a flipped car.



**Grind** waddles out into oncoming traffic without reserve. More than likely, his bulk causes the other drivers to lose sight of their cars and crash. Luckily for them, Grind is already out there to flip them. Unfortunately, he will likely be making his way (slowly) back to his spot and won't notice the new crash victims.

# Marshal Law



**Mesh** picks up broken cars, turns off their switches (or kills their engines), and places them down on the track out of the way of traffic. He makes sure that his gaze never leaves his corner for more than a few seconds.

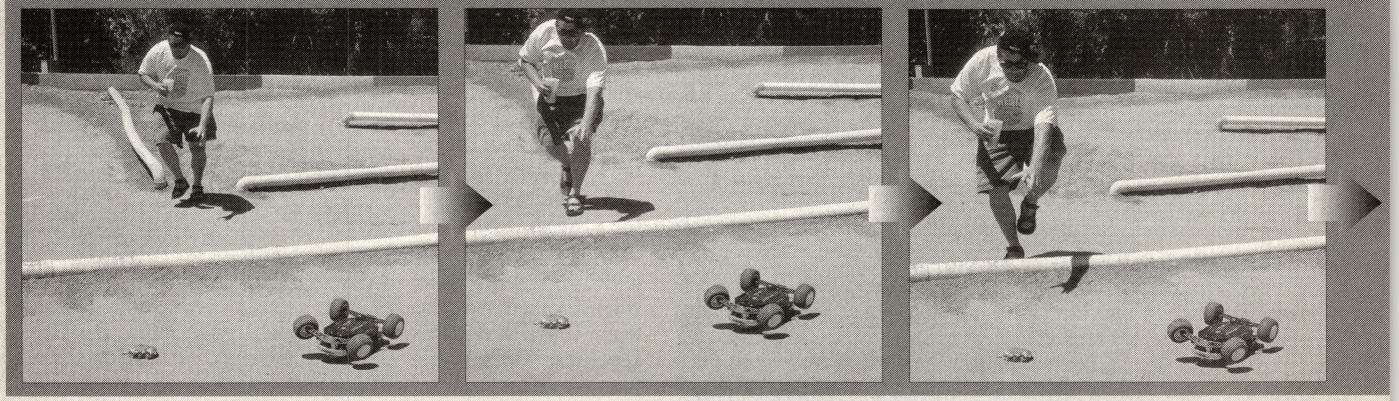


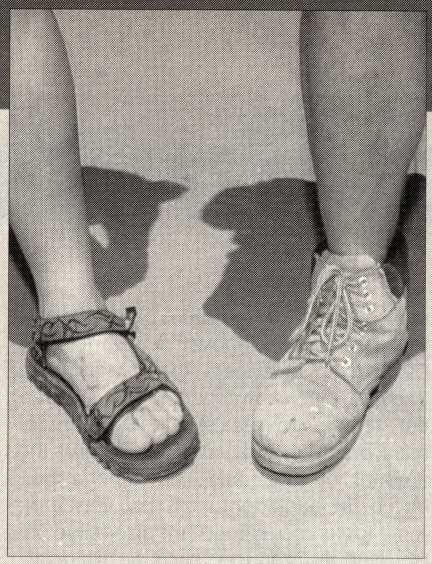
**Grind** feels that it's his responsibility to perform a mechanical miracle and get the poor schmoe back on the track. Grind forgets his duties as a marshal, and instead will kneel down on the track and somehow pop that ball-cup back on, or get that loose battery connection to work. There may be six upside-down cars within three feet of him, but Grind has assumed the role of an IRL mechanic and doesn't see them! Worse yet, Grind may even leave his spot entirely to carry a broken car back to its owner!

## Grind's Tip: How to pick up a double-cheeseburger

● Okay. Ya gotta marshal or they'll dock some laps. Hey, sometimes it's unavoidable. But what really steams me is when they have the nerve to expect you to marshal just when your food has arrived from Quicki-Burger. So ya got your Mountain Dew in one hand, and your double-cheeseburger in the other, and some doofus on the drivers' stand starts yelling at ya to get his car. Hey man, you crashed, don't yell at me! Anyway, whadaya do in this situation? If you're good, you can balance the burger on top of the cup, walk over to the car, and slowly reach down as not to upset the burger-balance. If you're usin' a straw, you're screwed—unless you're really good with your feet, and can flip the car by kickin' it.

If the burger falls to the ground, all is not lost unless it's a really loamy track. Most blue-groove tracks don't even get the burger that dirty. On pavement or carpet, all ya gotta do is brush off the tire dust and carpet fibers!—*Grind Hakyaneckst* ●





Be Safe: Mesh (right) wears rugged, often steel-toed workboots whenever he marshals. This will make sure that his toes won't get broken should some out-of-control car slam into them.

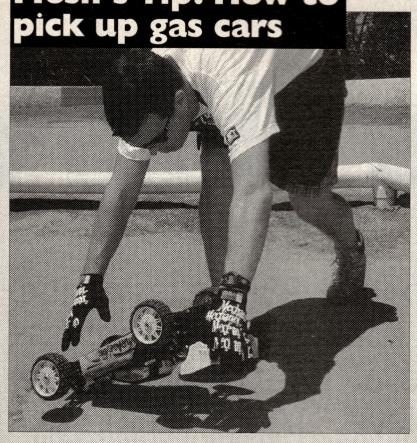
Grind, on the other hand, wears open-toed sandals (that is, if he even wears shoes at all!). Check out his toes the next time you're at the track—you'll see hundreds of battle-scars! Some people never learn from experience!

☆ ☆ ☆

See how easy it is to be a good turn marshal? Trust me, your racing buddies will remain your buddies a lot longer if you do a good job of marshaling their races, and they'll be much more likely to return the favor when it's your turn to race!

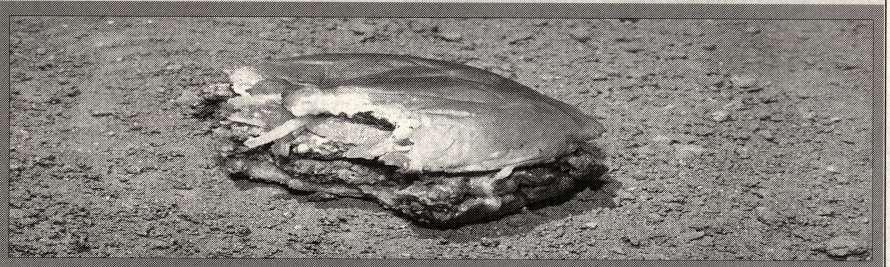
So be like Mesh, and pay attention and move quickly. If, however, you've read this article and think that Grind's a pretty cool guy, don't come to my track! ◆

## Mesh's Tip: How to pick up gas cars



● Nitro engines get hot. So do the aluminum chassis to which they're attached. This is why you should always use extreme caution when marshaling nitro races. The best way to know where to grab is to be familiar with the basic layouts of most common vehicles; most engines are placed somewhere in the middle of the chassis (so avoid this area). You never want to grab a nitro car by its sides, either, as this is where the exhaust pipe will likely be. Grab a car's muffler, and you'll have a nice blister within a minute!

So if the sides of the car are off-limits, and the bottom of the chassis going to be hot from the engine, where should you grab a nitro vehicle? Simple. For 1/8-scale buggies, try to grab by the rear wing—preferrably the wing-mount itself—as this is a good "safe" area and it will give you easy control of the buggy so it can be flipped back on its wheels. For most other types, try to grab the front and rear ends of the suspension. This way, you'll be away from the muffler, engine, and any spinning parts. If you want to be extra safe, wear a pair of heavy gardening gloves when marshaling nitro.—*Mesh Perfect* ●







## TEAM LOSI TECH-TALK

### Removing Steering Bushings

If you've ever tried to remove the steering bushings on your Double-X or Double-XT, you know how tough this can be. Here is a simple way to get them out. Find a 4-40 cap-head screw of any length. Slowly start to thread the screw into the bushing. Be sure to apply a slight amount of pressure to the screw so that the threads will "cut" into the bushing. Once the screw has threaded into the bushing (it doesn't take much) you should be able to pull the screw out along with the bushing. It is only recommended to use this method of removing the bushing if you plan to replace the bushings with new bushings or bearings. Reusing a bushing that you have removed with this method may cause the steering to bind slightly.

### Cut Down The Noise

Here's a quick tip to help reduce radio interference on your XX-4, or any other car that has a molded post in one of the chassis components that the antenna tube mounts into. Before inserting the antenna wire through the antenna tube, drill a small hole in the side of the tube about a half inch away from the end. Rather than insert the wire through the end of the tube, insert the wire through the small hole that you just drilled in the side of the tube. Run the wire the rest of the way through the tube as you normally would, and pull the excess wire through the opposite end of the tube. Press the antenna tube (with the drilled hole near the bottom) into the antenna tube mount. Now that the antenna wire is not touching the "Stiffezell" or graphite material, radio interference may be reduced.

### Preventive Maintenance

If you have ever broken a ball stud off in the rear bulkhead of your vehicle, you know what a pain in the neck it is to fix. The reason that these ball studs break is that the longer the ball studs are exposed to stress and high loads, the harder they become. This is referred to as "work hardening" and it is inevitable with any metal part and some of today's plastic parts. A simple way to avoid ball stud breakage is to replace the ball studs in the rear bulkhead after about every hour to hour-and-a-half of run time. Sure, they will last longer than this, but it's much easier to replace a ball stud that's in one piece than it is to replace a broken one. As for the other ball studs—even if they break, it's still easy to get them out. So unless you are going into an important race, you can leave the other ball studs alone.

*advertisement*

# Traxxas Nitro Sport

Several months ago (July '98) we tested the Traxxas Nitro Sport. It made quite an impression on the staff here at *R/C Car* and we've decided to keep the entry-level, 1/10th scale, gas truck for a long-term test to measure its durability

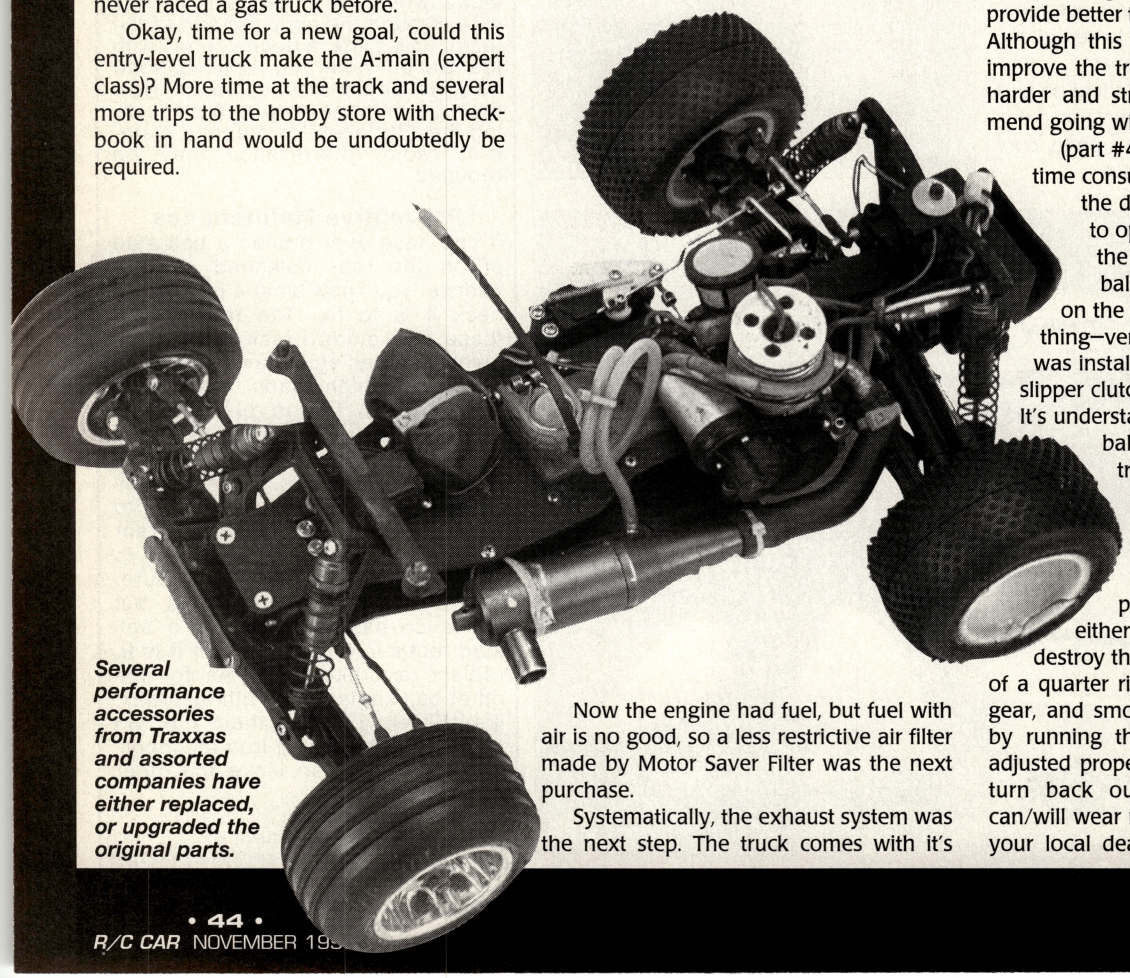
or toughness or something like that, and to begin competing with the truck. Heck, according to Traxxas advertising "Nitro Racing has never been easier!" Was it just marketing hype, or is the truck "race worthy"? Ultimately, the goal of the long-term test had now been decided—could we race it competively, and would it survive a long night of racing?

Off to our local track for a Tuesday night club race and four and a half hours later we had our answer: yes. The truck didn't win the Sportsman class, beating only two trucks that failed to finish the ten-minute main, but we finished with an entry-level, out-of-the-box Traxxas Nitro Sport; and in defense of the Nitro Sport, I'd never raced a gas truck before.

Okay, time for a new goal, could this entry-level truck make the A-main (expert class)? More time at the track and several more trips to the hobby store with checkbook in hand would be undoubtedly be required.

## Off to the gym

The stock TRX .15 engine needs little or no assistance producing power, producing more than enough yank for racing (especially when considering the truck was pitted against .12 c.i. engines). Unfortunately there was a slightly sluggish response, or "dead spot" off the bottom end that was a result of the truck not eating or breathing properly, or at least not up to its potential anyway. A Traxxas Pro Carb (part #4033—$40) was installed, replacing the rather limiting stock carb that came with a restricter piece and only a singular mixture adjustment needle. If you intend on racing this truck, this is a mandatory step.



***Several performance accessories from Traxxas and assorted companies have either replaced, or upgraded the original parts.***

Now the engine had fuel, but fuel with air is no good, so a less restrictive air filter made by Motor Saver Filter was the next purchase.

Systematically, the exhaust system was the next step. The truck comes with it's own version of a tuned pipe, which I replaced with an Innovative Technologies CVEC exhaust system (part #HSS100B). The new pipe can utilize one of five different settings to regulate the amount of back pressure and ultimately control the amount of low-, mid-, or top-end produced. In addition to all this, this darn thing looks cool with its anodized-blue finish, and it produces such a distinctive sound that even while racing with nine other gas trucks on the track, I can hear the truck anywhere from the driver stand. The noise is a real low growl, and several people at the track now refer to me as Doug Henry (ask your motocross friends—they'll explain it to you).

## Command control

Once the Nitro Sport was up to speed, it needed some help transferring that speed to the rear wheels. The truck comes stock with a planetary gear differential. Traxxas wiseman, Mike Jenkins suggested packing the stock diff with a heavy-duty automotive grease to stiffen its action and provide better traction on bumpy surfaces. Although this home remedy did slightly improve the truck's ability to exit corners harder and straighter, we highly recommend going with the optional ball diff (part #4420—$60). It's a somewhat time consuming process just to get to the differential, so if you decide to open it up, do it right and get the ball diff. Once installed, the ball diff can even be adjusted on the fly without removing anything—very slick! After the ball diff was installed, I added a Traxxas slipper clutch (part #4615—$17.50). It's understandable that the $60 ball diff was left off the stock truck to keep the overall cost down, but a stock slipper clutch would be appreciated by everyone. Be careful adjusting both the slipper and the ball diff, running either of them too loose will destroy them. I melted a hole the size of a quarter right through the stock spur gear, and smoked the inner friction pins by running the slipper too loose. Even adjusted properly (all the way in and 1/4 turn back out), the little slipper pins can/will wear rapidly. They're under $5 at your local dealer and it's highly recom-

# Budget Racer!

by Harvey McGee

mend keeping a set in your tool box. Unless you're running on a huge outdoor track (or dirt oval) pick up a 70-tooth spur gear in place of the stock 72 to boost low-end.

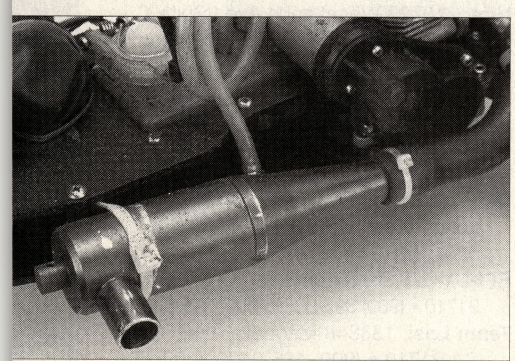
To gain some additional reliability, I replaced the plastic outdrives with the Traxxas steel ones, applied Loctite to the set screws, and didn't worry about them again.

## Ground control

Now the truck had "snort" for the straights, and exited corners in a much more controllable fashion. The only thing left to do was get it through the corners quicker. The pre-assembled, ready-to-run truck comes with too much ride height. In addition to detracting from traction and steering, it also kept the center of gravity too high causing the truck to "push" in corners and occasionally roll through high-speed turns.

Before messing with ride height, Traxxas Big Bore shocks were installed (part #4628X–$19.50). Initially 30wt oil was used, but in an attempt to stiffen the entire suspension without stiffer springs, I replaced the oil with Trinity's 40wt silicone oil and removed all ride height spacers. These adjustments brought the A-arms back to level and made a huge effect in the overall drivability of the truck.

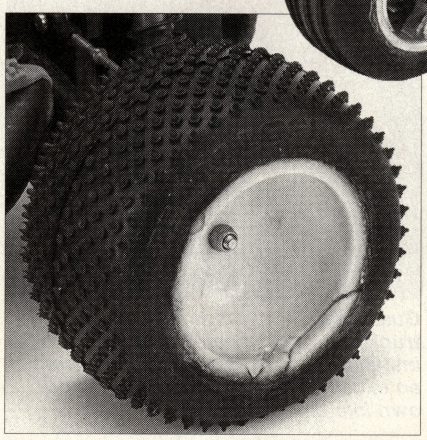
All four rims and tires were replaced. Team Losi rubber (silver compound) tires were mounted to RPM's chrome plated wheels. Up front, this was a good combination, but in the rear, the RPM rims are too thick where they mount onto the axle and don't allow the lock nut to fasten down completely. After the rear wheel fell off two separate times while racing, I took the Dremel to the insides to remove some of the excess plastic and it so far appears to be working. Bearings replaced the bushing at all four corners.



*If noise can be art, this thing's Picasso! The Innoventive CVEC pipe could be heard anywhere on the track while racing with nine other trucks. Very intimidating.*




*This truck has more drive time on it than a New York taxi, and it probably looks and performs better too!*



*The lightweight Traxxas wheels didn't fare well with my rather reckless skirmishes with the tracks retaining walls. (Nothing that can't be fixed with a little CA)*

## Radio control

The included Top Qualifier radio performed flawlessly, but for racing, especially gas, try to run a FM system. The signal is clearer, and your chances of glitching are reduced. A Hitec FM Lynx radio was implemented along with a Hitec HS303 servo to control the throttle and brake duties. Up front, an Airtronics 94735 was installed to provide quicker steering with more muscle. The stock turnbuckles survived much more than anybody could have asked for, but when they did finally succumb to rather reckless driving habits, Associated units were used. Associated ball-cups and ball-studs

Since the steering runs direct, there is a slight amount of bump steer, but it's really minor and easy to become accustomed to.

## Setup

**Front End**

| | |
|---|---|
| Shock | Traxxas Big Bore |
| Oil | Tinity 40wt Silicon |
| Piston | Traxxas, two hole |
| Limiters | None |
| Spring | Standard |
| Ride-Height | Arms slightly above level |
| Position | Inner hole in arm; outer hole in tower |
| Toe-In | 0° |
| Camber | 1° negative |

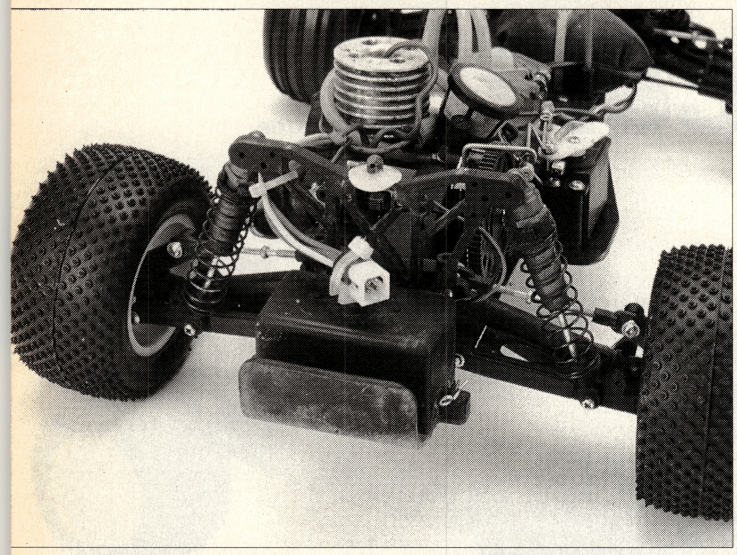
**Rear End**

| | |
|---|---|
| Shocks | Traxxas Big Bore |
| Oil | Tinity 40wt Silicon |
| Piston | Traxxas, two hole |
| Limiters | None |
| Spring | Standard |
| Ride-Height | Arms slightly above level |
| Position | Inner hole in arm; outer hole in tower |
| Toe-In | 3° |

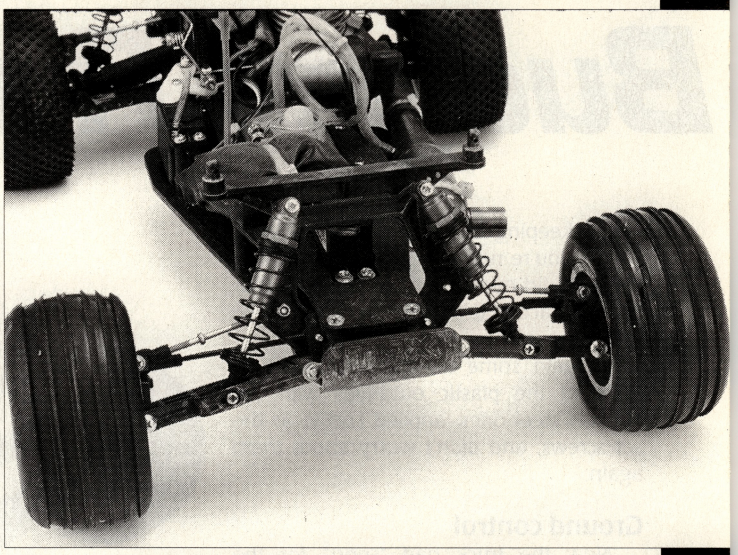
**Miscellaneous**

| | |
|---|---|
| Gearing | 70-tooth spur; 20-tooth pinion |
| Tires | Team Losi, front and rear |
| Exhaust | Innoventive Technologies, CVEC system |
| Filter | Motor Saver Filer |
| Radio/Receiver | Hitec Lynx FM |
| Servo | Airtrtonics 94735 |
| Steering; | Hitec HS303 for throttle ● |

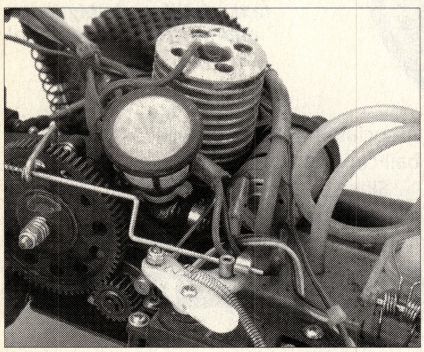
# Traxxas Nitro Sport Budget Racer!



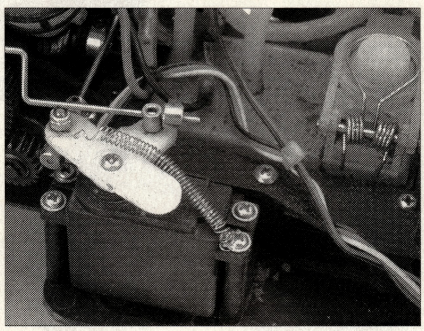
*The wire leading into the head ignites the glowplug. The receiver plug mounted on tip of the battery case receives the power from a 7.2 volt battery.*



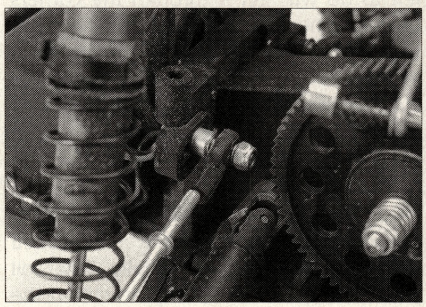
*Traxxas Big Bore shocks help smooth the bumpy ride. Associated tie-rods replace the toe-in adjustments in the rear.*



*A Motor Saver Filter allows the engine to breathe properly and deliver the wheelie producing power the TRX 15 engine is capable of.*



*Guarantee that you don't loose your truck and possibly an ankle by installing a throttle spring. Losi offers an excellent version or fabricate your own like us.*



*To combat the rear turnbuckle screws from pulling out of the plastic bulkhead, we swapped the system around and added a nylon locking nut to the end. Also notice the steel outdrives that replaced the plastic ones.*

## Controlling factions

Almost all the above mentioned hop-ups and upgrades happened separately over the last three months. In that time the truck has been raced every single Tuesday at Hot Rod Hobbies in Saugus, CA (some weeks it was raced on Saturdays too!). Additionally, the track is on the way to and from work every day, so countless other enjoyable hours were spent practicing. Officially, the truck has made the A-main and even finished seventh! Considering we're located in SoCal, where several factory drivers might show up at local club races—it's quite an accomplishment! Several A-main regulars (expert gas guys) have also driven the truck, and every single one of them was impressed. In the hands of any of these guys, the truck would regularly make the A and finish a lot higher than seventh!

The original electric starter is still being used, and it's still performing flawlessly. So far more than nine quarts of Traxxas Top Fuel (20 percent) has been run through it and it still maintains sufficient compression. When the time comes to re-sleeve, there are two options: either resleeve the existing engine, or for $70 Traxxas will replace the entire thing. Traxxas has a lifetime engine replacement policy, just see your local Traxxas dealer.

Although the truck was probably never meant to compete head to head with the RC10GTs and GTXs, it has. In stock form the truck is an absolute blast to drive in backyards and can even be raced in Sportsman and Novice level classes. With the right amount of time, practice and performance parts the truck can be made even more competitive. Typically *R/C Car* test vehicles that receive a review are shelved after testing. (Hey, we're always under new deadlines). There are some vehicles that are driven much longer for long-term testing, like the Nitro Sport, but often those cars/trucks become so thrashed that even if we wanted to run them longer we couldn't. This truck has held up well, and as long as there's still life in her, we're going to keep running (err-racing) her. See ya' next Tuesday!

### Sources

**Airtronics**, 1185 Standford Ct., Anaheim, CA 92805 • (714) 978-1895; (714) 978-1540 fax

**Hitec**, 10729 Wheatlands Ave., Suite C, Santee, CA 92071 • (619) 258-4940;

**Kimbrough Products**, 1322 Bell Ave., Unit 1-C, Tustin, CA 92780

**Innoventive Technologies**, 23 Mile Rd., Macomb Twp., MI 48042 • (800) 529-1919; *www.innoventive.com*

**Motor Saver Filers**, 242282 McCoy Rd., Lake Forest, CA 92630 • (714) 455-0201; (714) 455-0249 fax

**RPM**, 14978 Sierra Bonita LN., Chino, CA 91710 • (909) 393-0366; (909) 393-0465 fax

**Team Losi**, 138848 Magnolia Ave, Chino, CA 91710 • (909) 465-9400; (909) 590 1496; *www.TeamLosi.com*

**Trinity**, 36 Meridian Rd., Edison, NJ 08820 • (732) 635-1600; (732) 635-1640 fax; www.teamtrinity.com ◆

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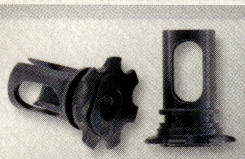
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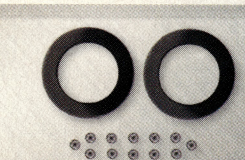
The original alloy steel that has been hardened for strength and finished with a black oxide rust preventive coating.

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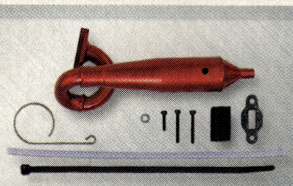
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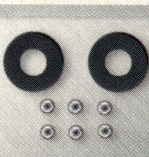
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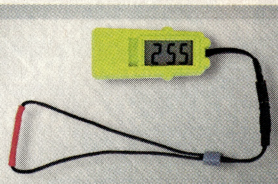
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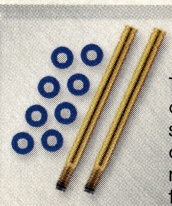
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# MRC Nitro Thunder King

## Monster power for the Monster Truck Wars

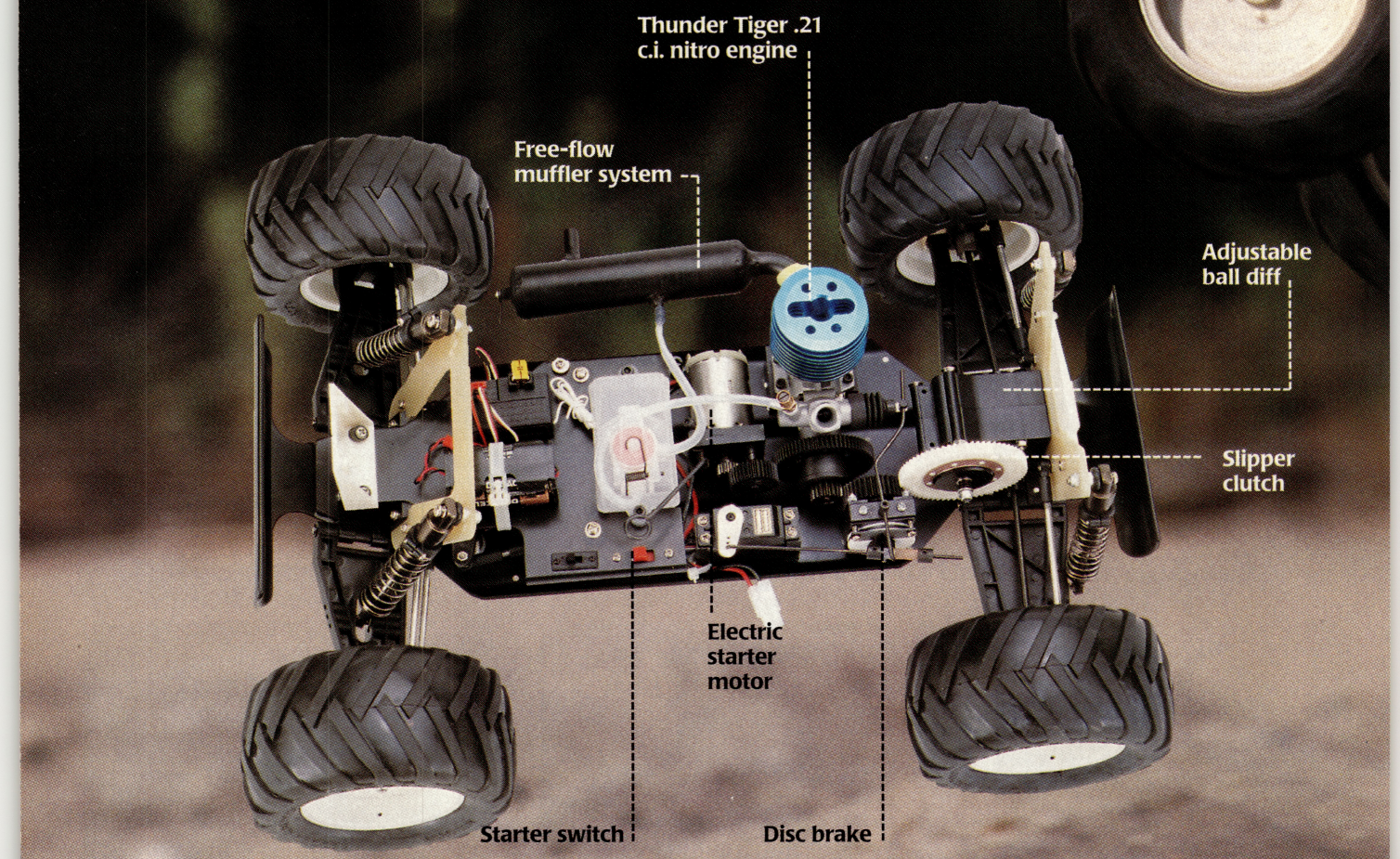
**Model Rectifier Corporation enters the gas truck wars in a big way with its new World Scale Nitro Thunder King monster truck. When MRC introduced the larger-than-life World Scale, the Thunder King was run into a** cinderblock wall repeatedly to show how tough the monster truck really is. Well, the Nitro Thunder King uses the same channeled aluminum chassis and hardware as its electric brother. Instead of two 540-type motors, though, the nitro version has one 540 electric motor and the fast Thunder Tiger Pro BRX .21 engine. Why does a nitro truck have an electric motor? To start the nitro engine! Much like the Traxxas Nitro Sport 1/10th-scale truck, the Nitro Thunder King has an on-board electric starter that makes your conversion to nitro a happy one.

Where a pull-start engine or one that requires a starter box or wheel could turn a neophyte gasser off, the ease of an on-board electric starter is hard to beat. MRC also kept the cost reasonable to boost methanol mania. We chose the almost-ready-to-run version with a Thunder Tiger BRX .21 engine and Futaba Magnum Sport radio, and gave it the ultimate torture test—we turned Jumpy Lumpy loose on it, because he can break cinderblocks in his sleep.

### Scale goes global

World Scale is actually a little larger than the usual 1/8th scale 4WD, and the Nitro Thunder King's wheelbase is 1.4 inches longer than the Kyosho Inferno series. The chassis is wider and more spacious, so it's easy to work on the various components. However, there are several nuts that are loose (not captured), so you have to grab them with needle-nose pliers to tighten or loosen the fasteners. This is rather John Deere-ish, but aren't most full-scale monster trucks?

Like a 1/10th-scale truck, the engine its sideways in the frame and drives






*The underside of the chassis looks as burly as the top. The protruding engine-mount screws, however, won't last long if the truck bottoms out frequently.*

## Options we used

- Futaba R112JE receiver (supplied w/2PC Magnum Sport radio)
- Futaba S3003 (two!) and S148 (one) servos (for steering and throttle/brake, respectively)
- Thunder Tiger BXR .21 engine (w/on-board electric starter)
- McCoy MC9 racing glowplug
- Blue Thunder 20% fuel
- Throttle return spring
- Homemade throttle linkage
- O.S. #202 air filter
- Futaba Y-harness for dual steering servos

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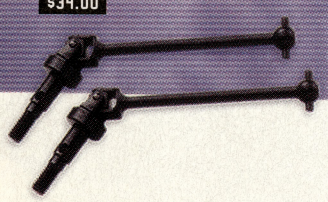
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a spur gear that's attached to the top shaft of the transmission/differential. However, the Nitro King has its engine on the right, so it spins in the opposite direction of a 1/10th-scale truck. This requires an idler gear, and MRC gave the idler a trick disc brake. The MRC doesn't have any slot cut into the channeled chassis for a starter wheel, either. The on-board starter is the only way to light up the nitro burner.

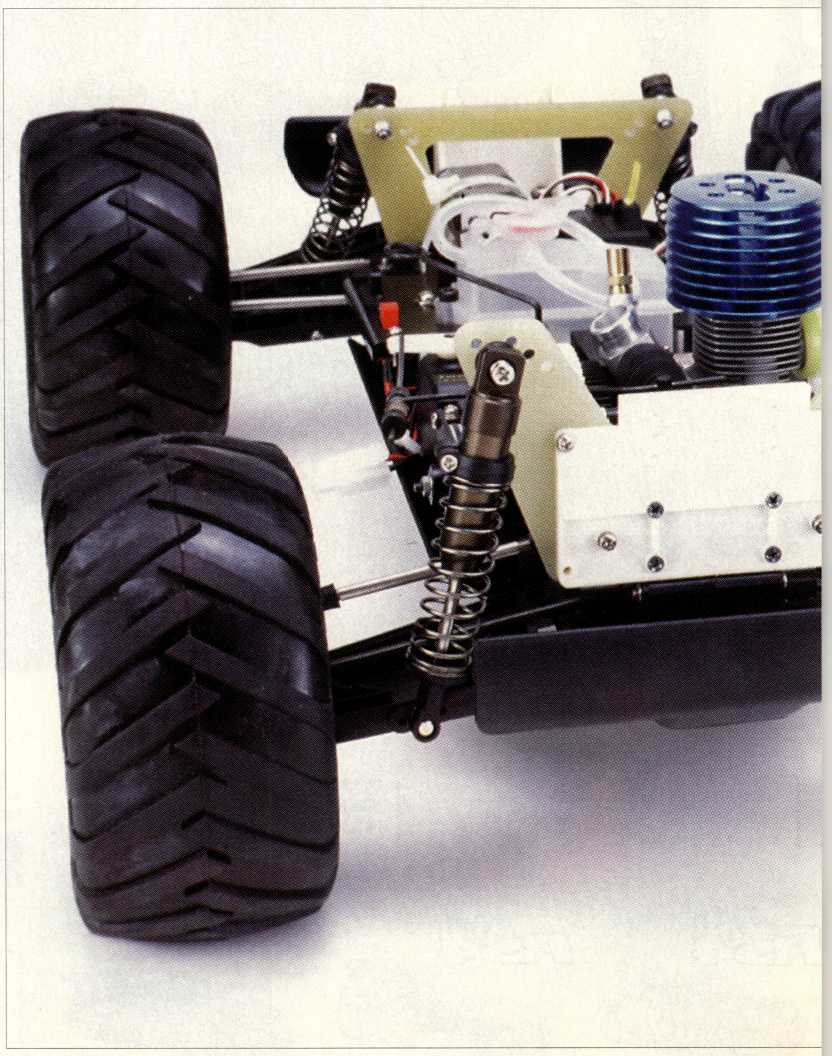
## Bring on the Thunder

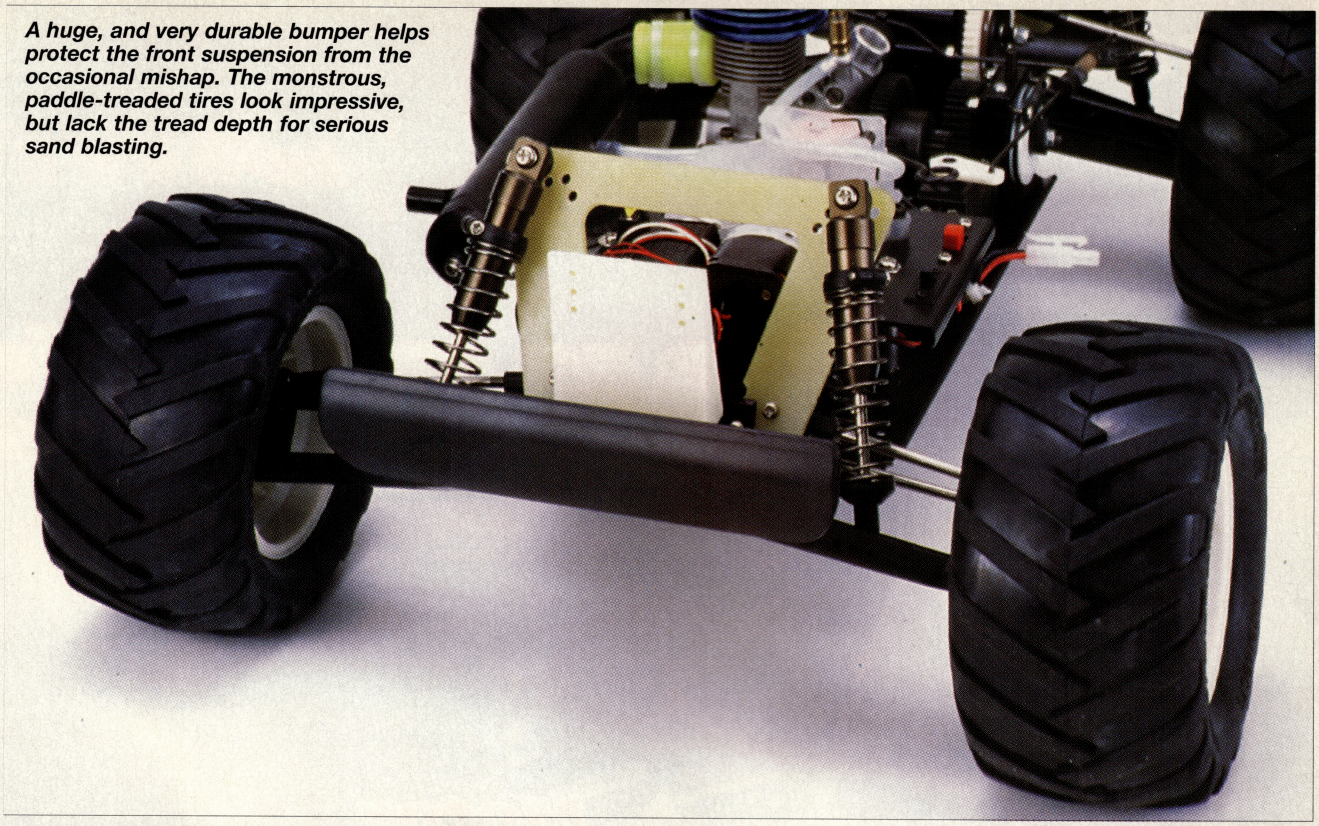
A tuned pipe is supplied with the Nitro Thunder King, but a glowplug and air filter are not. The supplied pipe mount wire is pre-bent. With the stock bend, the pipe comes into contact with the right front tire when the suspension compresses, especially on right turns. Bend the bracket so the pipe is closer to the chassis and higher at the front as a quick fix.

Notice that the upper suspension arms are non-adjustable, so you have to pop off one end to make camber adjustments. From the factory, the camber and toe-in settings are spot-on (slight negative camber, zero front toe-in, three degrees rear toe-in). There is also built-in rear anti-squat (to get more or less, you have to place washers between the pivot mounts and chassis). The tires are gigantic (5.75 inches tall) but could use foams to deal with the massive power of the Thunder Tiger 3.5cc engine and nitro-laced methanol.

## Shock it to me!

While the Nitro Thunder King has good camber and toe-in settings from the factory, the shocks come with way, way too much preload. This makes for a very bouncy ride and poor control. Loosen and raise the shock collars until the front and rear suspension arms are level with the ground. Do not over-tighten the spring collars, as this can distort the shock bodies and cause harsh midstroke travel. Clip-on preload spacers eliminate this. The aluminum shocks are the burliest (and

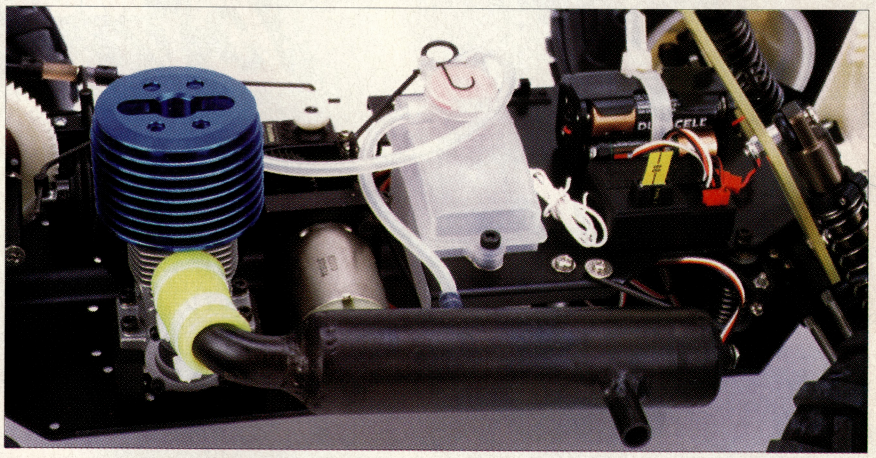




*A huge, and very durable bumper helps protect the front suspension from the occasional mishap. The monstrous, paddle-treaded tires look impressive, but lack the tread depth for serious sand blasting.*



*Even the rear gets a bumper! This should allow you to safely "brake check" any pesky vehicles dumb enough to follow you too closely!*



*A good, non-restrictive muffler is a thoughtful inclusion. During testing, we managed to break the stock manifold, and had to replace it with a length of silicone tubing.*

## Torture Test Notes

• After a break-in consisting of running two tanks of fuel through it without the body, testing moved to The Pipeline and the Santa Clara River wash. Unlike most monster trucks, the MRC isn't 4WD, so it depends more on momentum to conquer hills, jumps and cliffs. Its giant tires hook up well in sand and float over manicured grass (where's a golf course when you need one?) with ease. The Nitro Thunder King is surprisingly agile, as long as there's traction. On hard-pack soil, the Nitro King's weight conspires against it.

In dry-slick conditions, the tires simply don't have enough cutting edges to get a grip on the adobe. The front end pushes somewhat going into corners, unless you load the front end with braking. Even with an econo servo, the brakes are exceptionally strong. Using the brakes to drift the rear-end out is the fast way around a tight track. On exit, the Nitro King slews sideways if you get on the gas too hard or too soon. Of course, you could back off on the slipper clutch a bit.

Pretty quickly, we adapted to the Thunder King's weight and handling, then the jumping began. The shocks and suspension soaked up the leaps very well, and the Nitro King flew straight and true. Being heavier than other 1/8th-scale gas trucks, the MRC cased it a few times, but we had only one failure. The pipe mount loosened, and the headpipe connector split when we cased the triples. •

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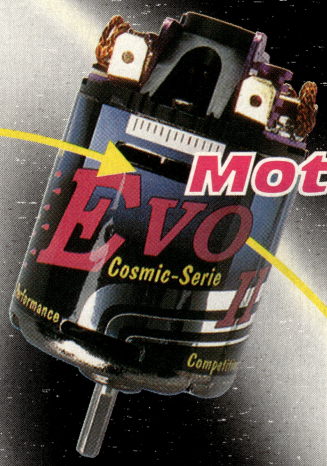
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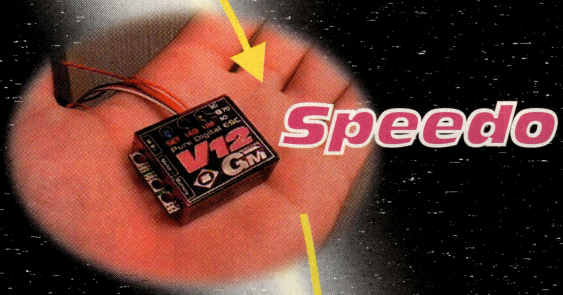

Driver

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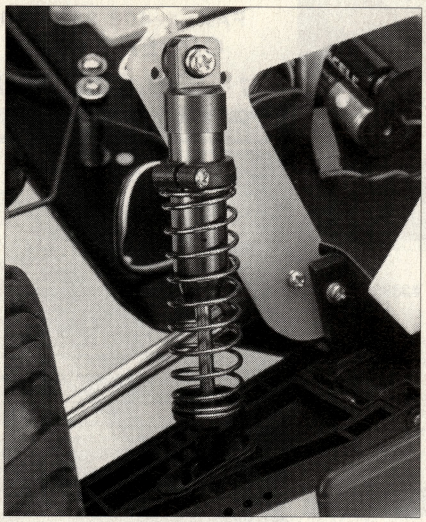

Battery

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# MRC Nitro Thunder King



***Everything is big! Large-volume, oil-filled shocks feature alloy reservoirs for consistent damping.***

longest) you'll find on any gasser, and they came set up with excellent spring and damping rates.

Although this is intended as an entry-level vehicle, MRC went a little over-board (under-board?) with the wheel bushings. They are made out of plastic, where most other manufacturers use metallic bushings. With all the leverage the World Scale monster truck places on its wheels, these plastic bushings allow way too much slop, which affects handling in a bad way. Bearings should be your first hop-up priority.

## Freight train drive train

A plastic spur gear is attached to the metal flywheel, and a spring-loaded idler gear connects it with the electric starter motor. Push in the idler then rotate the retainer into place. Hook your 7.2V battery to the Tamiya-type connector, attach your glowplug ignitor, then hit the red switch to turn the gas engine over. If it's the first start of the day, you will have to prime the engine with fuel by placing your finger over the exhaust outlet for a second or two while cranking the electric starter.

The brake/throttle linkage looks pretty trick, that is, until you try to hook up the manditory throttle return spring. Our one-piece throttle/brake linkage was scrapped before the engine was ever started. You want the return spring to close the throttle completely and apply tension to the brake. That way, if either the receiver battery or your transmitter fail, you won't have wayward ballistic missile on your hands. Go to a traditional two-sided servo arm and separate throttle/brake linkages as shown. Keeping with the econo nature of the kit, we used the 3003 throttle servo to double up the steering power and used a spare S148 for the throttle and brake.

## MRC Nitro Thunder King

**Type:** 1/8-scale 2WD gas truck
**Distributed by:** Model Rectifier Corporation
**Retail price:** (check your local hobby shop)
**What you get:** Complete rolling chassis, engine and Futaba 2PC radio. You must purchase air filter, glowplug and ignitor, 7.2V battery, charger(s) and fuel.
**Recommended for:** Backyard bashers to experienced racers

| | |
|---|---|
| **Length** | 24" (w/body) |
| **Width** | 14.75" |
| **Wheelbase** | 14.2" |
| **Front track** | 9.1" |
| **Rear track** | 9.1" |
| **Ground clearance** | 1.8" (@ ride height) |
| **Battery** | 4.8V receiver (supplied), 7.2V starter |
| **Weight** | 8.6 lb. |

### What we like

Trucks have to be tough, and they don't come much tougher than the MRC Nitro Thunder King. The channeled chassis and stout construction eliminate the need for chassis braces, and the oversized shocks soak up everything you throw at them. The brakes are super-strong and have a good feel. Dual steering servo mounts allow you to upgrade your performance without spending a lot on electrics. Two S3003s provide almost as much torque as a S9304 at a fraction of the cost.

Starting a .21 engine has never been easier with the MRC on-board system. The Thunder Tiger engine came jetted perfect for break-in on the high-speed circuit, but the low-speed was actually a little lean, so we backed it out a quarter turn, and it still rips! This engine is proving to be as reliable as it is fast, too. The MRC pipe provides a good powerband, too.

### What we don't like

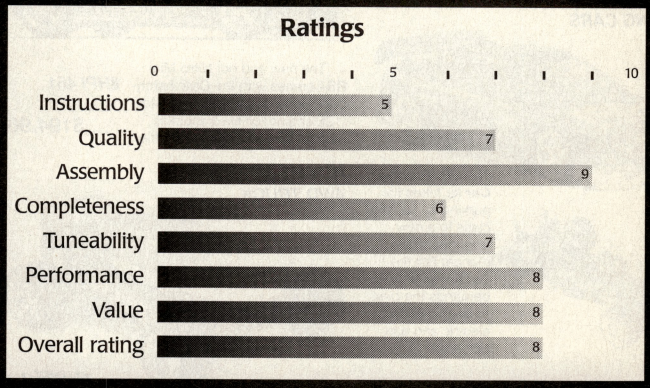
We mentioned earlier a general cobbiness in construction. There are several screws that could have captured nuts but don't. Getting to these nuts is a real pain. We roughed up the areas with sandpaper and used J-B Weld to capture the nuts on the radio plate. Also, our Nitro King came without any thread-lock securing the metal-to-metal connections. On a vibrating gas vehicle, this is not good.

Bushings are also questionable on a vehicle with tires this big, with nylon bushings being the weakest known to man. Upgrade to bearings ASAP. Also, the kit doesn't include an air filter, glowplug or the most important thing you can put on a gas vehicle—a throttle return spring.

Weight is the Nitro Thunder King's largest albatross, though. It weighs more than a pound heavier than the 4WD Kyosho Stadium Truck, and you can really feel the tonnage when turning and jumping the Nitro King. If you buy the Thunder King without an engine, you can eventually lose the electric starter by going with a pull-start unit. This will eliminate the need for a 7.2V battery pack and charger and allow you to remove the on-board 540 motor and hardware.

### What we really think

MRC has produced a tough truck that'll launch you into the world of methanol and nitro-methane with minimal cost and a short learning curve. The Nitro Thunder King is big, bad and fast. It will bash in the backyard with the best of them, and it knows its way around a track, too. The Thunder Tiger engine is rapidly becoming the standard of the industry. There a few rough edges that need to be ironed out, but the Nitro Thunder King delivers a big nitro-punch at a relatively small price. MRC's prebuilt monster truck is the easiest way there is to get into 1/8th-scale and methanol, and it requires few hop-ups as your nitro skills improve. And, since the body is a Ford, you can paint it to look like Bigfoot!




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

### Sources

**Model Rectifier Corp.,** 80 Newfield Ave., Edison, NJ 08837 • (732) 225-6360
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| #ASE7003 | RC10T3 BASIC KIT ..... | 134.96 |
| #ASE7013 | RC10T3 SPORT KIT ..... | 159.96 |
| #ASE7003 | RC10T3 TEAM KIT ..... | 189.96 |

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## RC10L2O SUPER SPEEDWAY

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## RC10DS DUAL SPORT



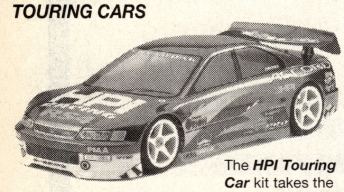
***Electric Versions***

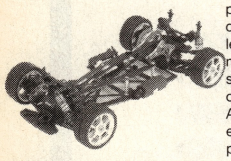
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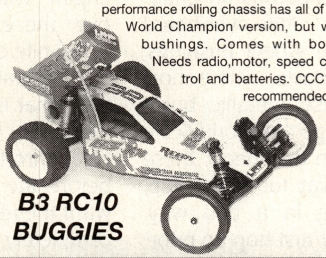


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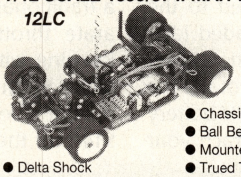
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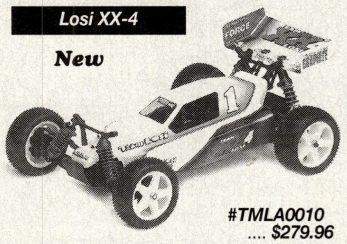


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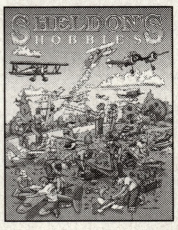
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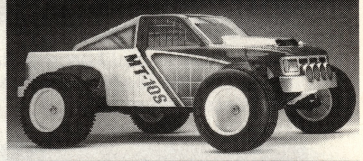
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| 4001 | VORTEX BUGGY W/RADIO RTR ..... | 149.99 |
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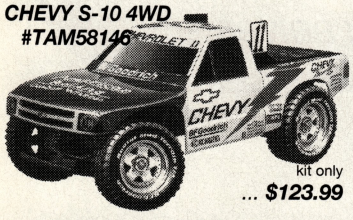
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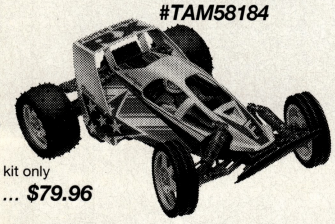
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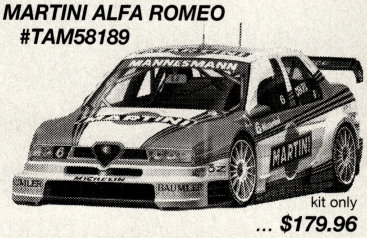
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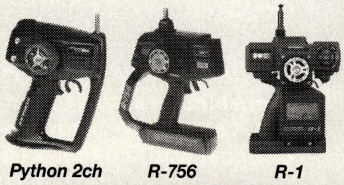
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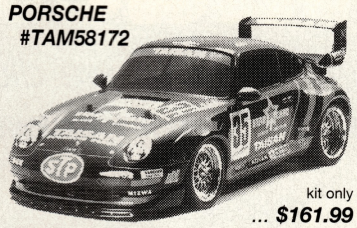
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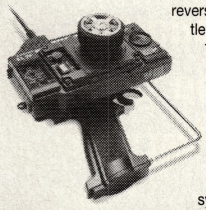
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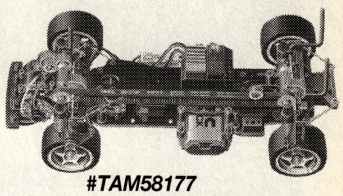
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# Team R/C Car Invades Tamiya

## *We came, we saw, we didn't embarrass ourselves...*



*Team R/C Car (and N-Style) from left to right: Contributing writer Jeremy Reitman, writer but not contributing editor Doogie, N-Style sales dude Jason Fontes (the 'Fonz'), and neither writer nor contributor, Frank Crashy.*

**"You know we're having a TCS race here soon," said Tamiya's TCS coordinator and ROAR National Touring Car Champ David Jun while we were on a photo shoot at its headquarters in Aliso Viejo. "You guys should come out and race in it—it'll be a lot of fun."**

Sure, why not we thought. It'll be fun, just like David said. Two seconds later our competitive nature kicked in and we were quietly planning on amassing our own small army of highly skilled Tamiya racers, building the ultimate Tamiya racing machines, putting in hours and hours of hardcore track testing... Then our next magazine deadline got in the way, we totally forgot about the race, and before we knew it, we were three days away from the event, calling David up asking if it was too late to register... At this point, our well-planned team of 100 skilled ninja racers was mysteriously whittled down to two heavily caffeinated editors, one contributor, and one motocross junkie friend of ours.

We were blazing a path toward glory—the highly formidable R/C Car/N-Style Team was formed.

Our goal was to go and reduce our fellow competitors to tears, instill fear with our awe-inspiring driving maneuvers and blind them with our concourse winning looks—the cars that is, not us. In reality, our eyes teared once we saw the fast guys hit the track. We were in awe at how close the competition was, and we don't even want to talk about concourse.

At the end of the day, it was one of the most fun "racing" days all of us have ever had and we can't wait until the next Tamiya race. Each of us raced in a different class—here's what we ran, and here's how we did.

## John "Doog" Howell—Sedan Spec



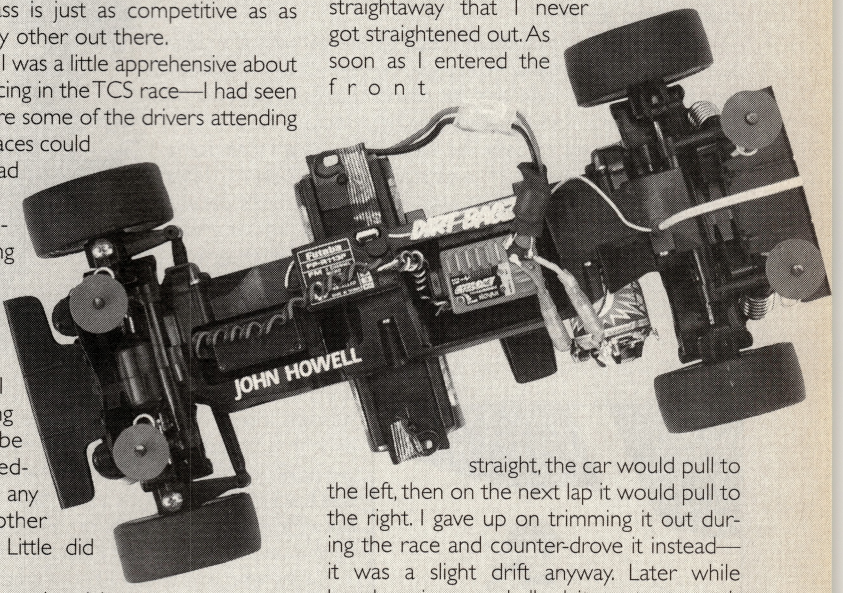

"Everyone bagged on me about racing in the TL01 class—"Doog, that's the slow class", "Doog, isn't that the slow class?", "Hey Doog, the slow class is up next"... Let me set the record straight—the TL01 class is not the slow class...it's the dangerous class (just kidding). Seriously, don't let the TL01's "budget" price fool you into thinking that it's a slow, non-competitive class. In all actuality, the TL01 class is just as competitive as as any other out there.

I was a little apprehensive about racing in the TCS race—I had seen how hardcore some of the drivers attending the Tamiya races could be, and I had never raced in a "structured" touring car race before. Frank suggested I try the TL01 class thinking it would be more "toned-down" than any of the other classes—ha! Little did he know...

I spent the entire night before the race building my TL01 and setting up my radio gear with Tamiya connectors. I had a few legal TL01 mods waiting at the track for me (thanks again Mr. Jun...) and I knew I would have to tear the car apart again in the morning so I finally set it aside.

I arrived at the track with roughly two hours worth of sleep and picked up my TL01 bearing kit, plastic shock set, Type-B tires and started to get to work. I had the bearings in, shocks built and tires glued up in under 30 minutes! Unfortunately, I didn't get any track time, which made me a little nervous. Every time Frank and I have been at the Tamiya track for testing, I'm always the one shooting photos and he's the one driving so I've never had any track time there. Add the fact that I had never driven a TL01 before this day and you can see why I felt a little unsure about my upcoming race.

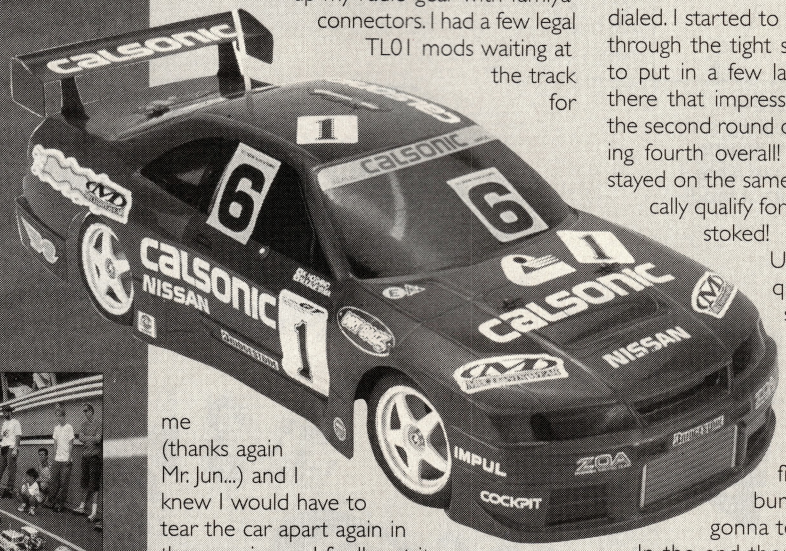
In the first heat, I found that the car had some mysterious wander to it on the straightaway that I never got straightened out. As soon as I entered the front straight, the car would pull to the left, then on the next lap it would pull to the right. I gave up on trimming it out during the race and counter-drove it instead—it was a slight drift anyway. Later while bench-racing we chalked it up to a rough gear diff (my bad).




Other than that, the car was totally dialed. I started to get the hang of drifting it through the tight sweepers and I managed to put in a few laps and passes here and there that impressed my teammates. After the second round of heats I was in an amazing fourth overall! I couldn't believe it. If I stayed on the same pace, I would automatically qualify for the Tamiya Nats. I was so stoked!

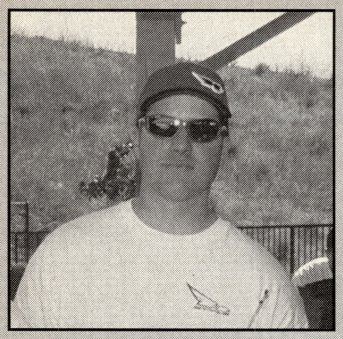
Unfortunately in my third qualifier, I changed some setups (everyone told me I was getting pulled on the straightaway so I geared up) and I also brain faded and over-drove the car. I finished fifth and was a little bummed—I thought I was gonna tear it up on my last run.

In the end though I finished fifth overall and I still qualified for the Nationals. I had so much fun, I can't believe it took me this long to race in a TCS race. If you have a TCS event nearby and have never tried it out, you have to try it—it's way kicked back and is a total blast!"






*The Concourse is judged prior to the start of the racing action. TCS races usually draw more than 100 competitors.*



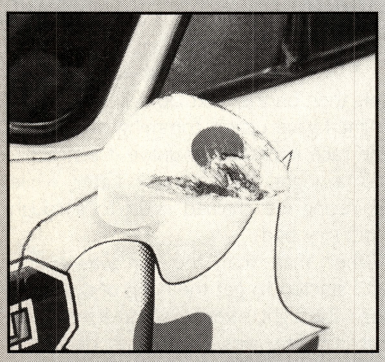
## Jason Fontes—Sedan Stock

"R/C street racing? Are you kidding me? That's what I thought when the editors of *R/C Car* asked me to go with them to the Tamiya TCS race. I work in the motocross industry and all I know is dirt! I work for N-Style as the National Sales Manager—we make graphics and decals for dirt bikes, and we're also breaking into the casual clothing market. Our company is even starting to sponsor some of the top off-road R/C drivers. Like I said, all I know is dirt and off-road...that's how I met Frank and Doogie. We pit together at the races and have gotten pretty cool with each other so one day they threw the idea of street racing my way. I said "let's run with it" not actually letting them know that I've never ever touched an on-road car. Sunday morning rolls around and I crawl out of bed at 4:00 a.m. to head to Doog's house. We get to Tamiya America's place to register early, and I'm blown away at how huge its facility is. It's amazing how cool the track is and how professional the program is run! At this point I'm so anxious to drive that I started to drive Doogie and Frank crazy with a million questions about touring car racing. They hooked me up with the PIAA Porsche from last month's cover and set me up in the Sedan Stock class—I was pumped!

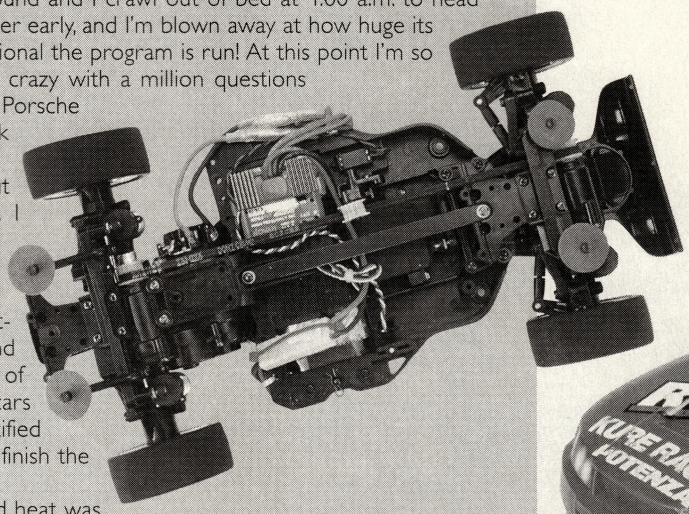
My first heat was really interesting...the car was a snail, but somehow I still managed to cartwheel it a few times... I thought Doogie toned the car down thanks in part to my "pin it to win it" style of driving. My second heat was a whole lotta fun—I actually felt like I knew what I was doing. I had the turns dialed, but I was lacking in the "spank" department on the front straight. I was moving at a snail's pace, and a car came up on me at Mach 1 and plowed into the back of me which caused chaos in the crowd (they run the mod cars and stockers at the same time)! Even though the unidentified missle almost put me into the retaining fence I was able to finish the race.

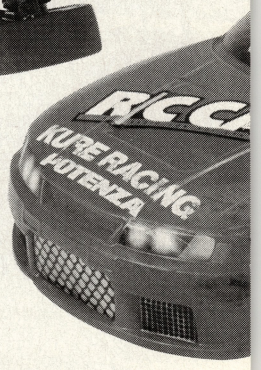
Doog worked on my car in between rounds and my third heat was unbelievable! He installed a full set of ball bearings in the car for me, hooked me up with his styled tires and replaced my 24-degree stocker with a brand-new one. It was whille we had the car torn down that we noticed the car was under geared by about six teeth! Oops. Out on the track, the car was twice as fast—and I was twice as out of control now. More speed brought on more spinouts. Halfway through the race I got it under control and I started looking like I knew what I was doing.

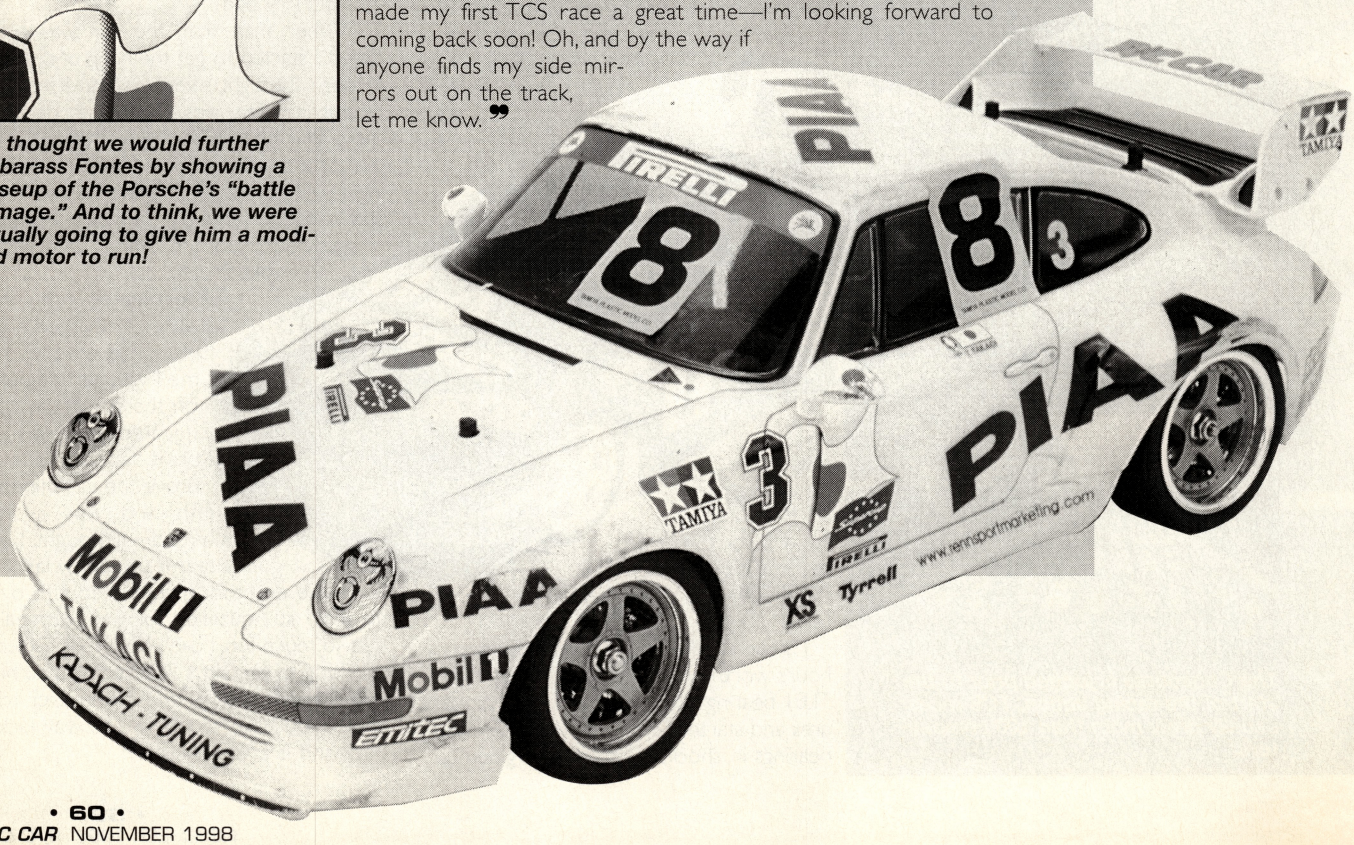
By the end of the day I had a great time, I didn't end up in last place, and I couldn't wait to do it again. Thanks to all the Tamiya staff who made my first TCS race a great time—I'm looking forward to coming back soon! Oh, and by the way if anyone finds my side mirrors out on the track, let me know."



***We thought we would further embarass Fontes by showing a closeup of the Porsche's "battle damage." And to think, we were actually going to give him a modified motor to run!***

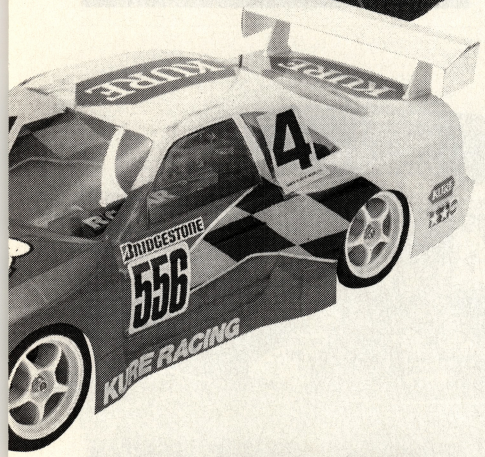




# Tamiya Race






## Frank Masi—Sedan Mod

"It was the toughest race of my career. I had to learn to kick back and not be so serious. "But guys, I haven't matched my batteries, cut my motors or glued up six sets of new tires yet! How can I possibly go to the TCS race?" Yes, it was hard.

I always like to be "over prepared" for racing. But with the TCS race, my friends had convinced me to adopt a "run what ya brung" attitude and to just go with the flow. The class I had chosen to run was 4WD Modified, and my weapon of choice was the TA03F Pro David Jun Edition from our April '98 issue. This car had every legal hop-up Tamiya makes, so I knew that I was far more likely to be out-driven than out-gunned!

Dave Jun from Tamiya America hooked me up with a new set of Tamiya "B" compound belted slick tires and super-stiff foam inserts (this was the hot traction ticket on the Tamiya track), and an optional carbon fiber battery tray (which would allow me to install my matched, side-by-side batteries to the TA03). For the first run, I bolted-in a Trinity Speed Gems 10-turn motor and set my car's ride-height as low as possible for the smooth track.

One thing I've learned about touring car racing is that the term "forcing a pass" is far too non-descriptive for the way these things are driven. In off-road, other racers are usually pretty careful about avoiding contact,

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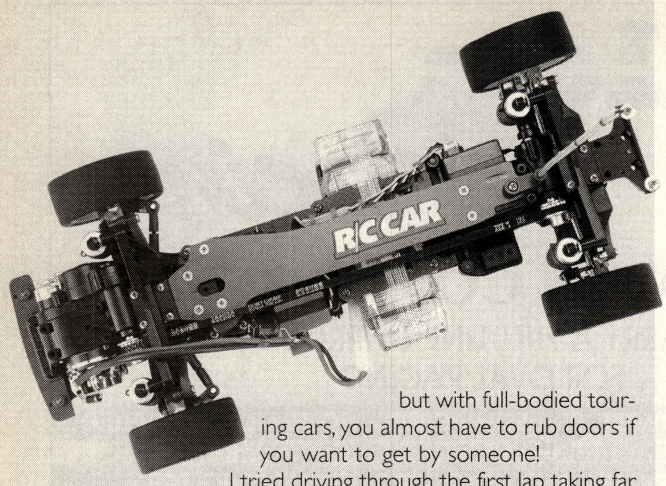
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# Tamiya Race






***Right: By God, Jim, there's a piece of somebody else's car stuck in there. Right on! Below: Check out all that scale machinery! The happy participants.***



but with full-bodied touring cars, you almost have to rub doors if you want to get by someone!

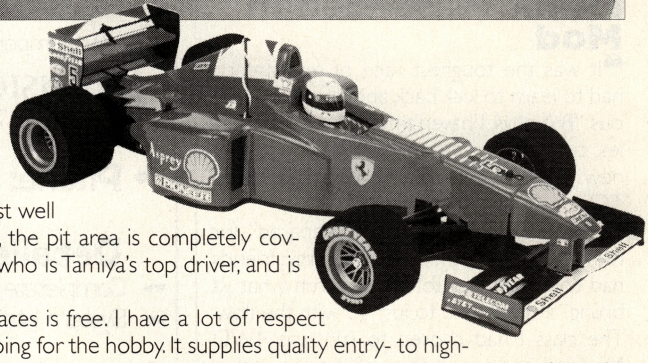
I tried driving through the first lap taking far too much care, and as a result, got punted pretty well! I have a solution for this, however, and that's for radio manufacturers to incorporate some type of feedback system, similar to Nintendo's Rumble Pack or Sony's Dual Shock controllers. You see, right now, there's no danger or accountability in R/C racing, so you can bang into anything or anyone and not get a scratch. With my idea, if you bang someone, your controller starts vibrating all over the place. Better yet, the offending driver's transmitter sends an electrical shock into his steering hand! (Alright, so I'm getting carried away).

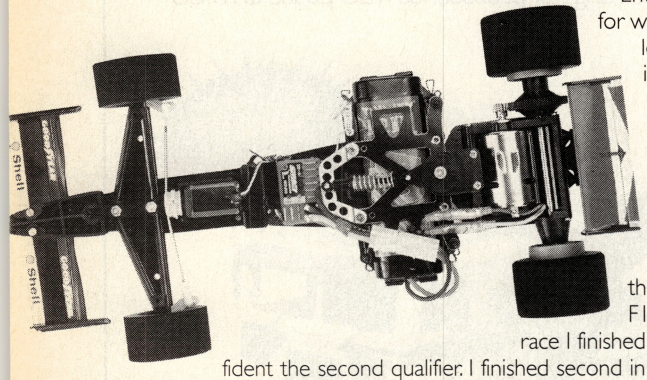
I did have a really great time, but only after I realized that I was there to have fun, not to win. Each run, my TA03 seemed to work better and better. One change I would make, however, is to remove the front "torque splitter," or one-way device that lets the front wheels coast freely when the car is off-power. This only allows for rear-wheel braking, and on the Tamiya track, with its low-grip surface, you really need all four wheels to lock-up for the best braking."



## Jeremey Reitman
## F1 Stock

"When I arrived at Tamiya America, I was in awe. The building itself is probably the size of three or more super markets, and the track is the smoothest and most well planned I've ever seen. To keep the temperature at a comfortable level, the pit area is completely covered with a slotted "roof." I also had the pleasure of meeting David Jun, who is Tamiya's top driver, and is a renowned sedan racer.






Entry at all TCS races is free. I have a lot of respect for what Tamiya is doing for the hobby. It supplies quality entry- to high-level R/C cars and free racing. By doing this, more and more people are brought into the hobby.

I was racing in the F1 class using Tamiya's new F310B Ferrari (see review in this issue). To run this class you must keep the car box stock and use a 540 sealed-end-bell motor similar to the one supplied in the kit. You may use any type of electronics (as long as the requiem Tamiya-style battery connectors and bullet-style motor connectors are used), and you may add bearings and oil filled shocks (only the suitable Tamiya shocks, of course).

When I first set my F1 down on the track that day I was amazed at the realism of these small cars. Flying through the sweeper makes you feel like you are watching an F1 race on ESPN. My F1 car, which I had raced for the first time, was a blast. The first race I finished in the middle of the pack. After a few minor adjustments to my car, I felt really confident the second qualifier. I finished second in my heat, which put me ninth overall. I was very happy with my car's performance, and the third run was still to come. In the "main" (there aren't really main events in the TCS, just three runs from which your two best times are tallied), I started in the third position, which put me in a good spot to get the holeshot. I pulled away from the pack so fast that I was able to go slow and careful each and every lap. Although second place was gaining ever so slightly, I knew I could pull away at any moment.

When the race day was finally coming to a close I took a moment again to reflect on the great day I had at Tamiya. My friends were right, the Tamiya race day is a day of fun and excitement. I tried to find something lacking on that day but I came up short. If anybody is looking to have a great time as well as gain more experience racing against others drivers of your skill level, then I highly recommend going to the Tamiya races. If you are the type of person who likes to race only to win then I would suggest you only race at your normal club race facility."

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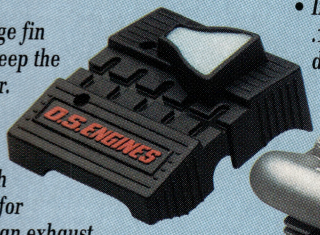
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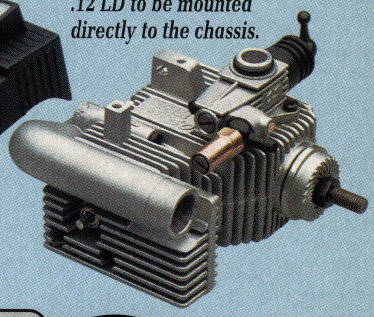

**Displacement:** 0.129 cu in (2.1 cc)
**Bore:** 0.551 in (14 mm)
**Stroke:** 0.539 in (13.7 mm)
**Practical rpm range:** 3000-30,000
**Output:** 0.56 bhp/29,000 rpm
**Weight (.12 LD):** 9.64 oz (272 g)
**Weight (.12 LD-X):** 11.85 oz (336 g)

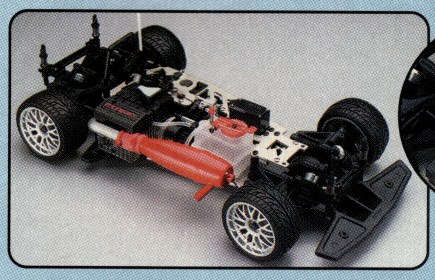
*.12 LD*

- *The very large fin area helps keep the engine cooler.*
- *Features dual needle valves, which are situated for easy access, an exhaust header and built-in air filter, as well as an O.S. #A3 glow plug.*




- *Integral mounts allow the .12 LD to be mounted directly to the chassis.*

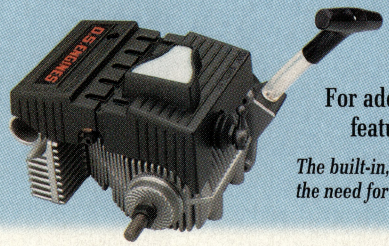







**Attention Kyosho SuperTen GP 4WD Racers:**

*The .12 LD Power Block makes a super upgrade engine for improving performance in these big, bold kits!*




**For added convenience, the .12 LD-X features a recoil starter system!**

*The built-in, easy-operating recoil starter eliminates the need for a separate electric starter and battery.*

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# HPI RS4 Mini Pro

*Pro proportions in a pint-sized package!*

**Following hot on the heals of its popular RS4 Mini comes HPI's new RS4 Mini Pro. The Mini Pro is the full-race version, which comes with a graphite chassis and graphite upper deck, a complete set of ball bearings for the drivetrain, universal driveshaft, hard-anodized alloy Super Shocks, ball diffs, Mini X-pattern radial belted tires, and it's topped off with a Mazda MX-5 Miata body.**

## Good lookin' in graphite

The Mini Pro is identical in design to the standard RS4 Mini. Its backbone is a dual-deck graphite chassis (the top deck doubles as a radio tray for the steering servo and receiver). The steering servo is mounted vertically on the top plate, which gives you more room to mount your ESC on the narrow, lower chassis plate (HPI also includes a servo-saver system).

A plastic battery box (the same style found on every electric RS4 before this one) keeps your cells nestled inside the chassis securely. The underside of the chassis is completely countersunk so no screw heads protrude out toward the pavement.

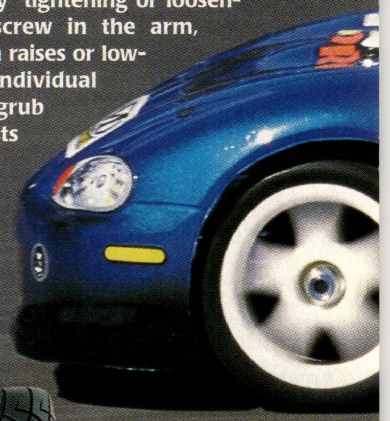
The Mini Pro has an adjustable wheelbase. It can be built in either 225mm or 208mm configurations. Cool-looking bodies are available from HPI in both lengths.

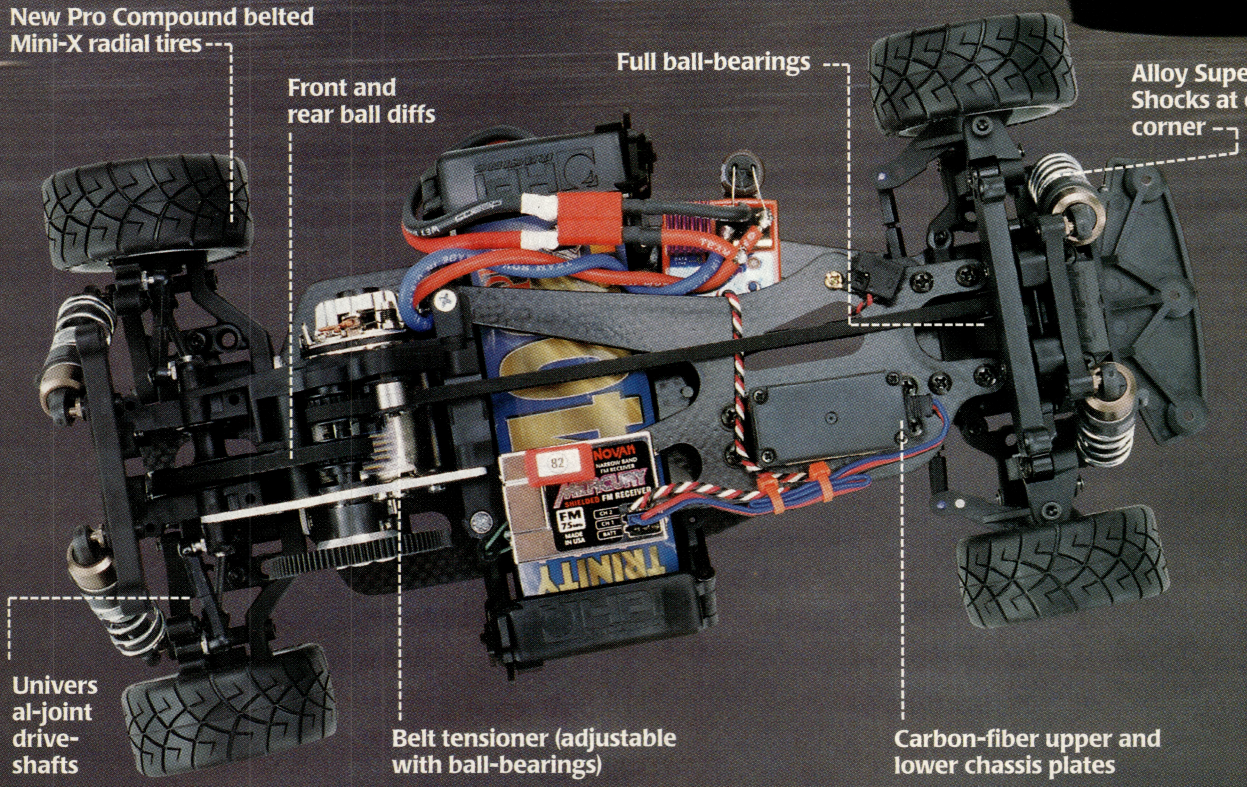
## "Dually" Drivetrain

The Mini Pro uses the same style dual-belt drivetrain found on all the other electric RS4 platforms. Limited slip ball diffs are found both front and rear. The entire drivetrain is ball bearing bushing supported, and included in the kit is a carbon fiber reinforced 48-pitch spur gear and a 31-tooth steel pinion. A belt tensioner slot is molded into the rear bulkhead (a pilot shaft and ball bearings helps keep the belt in place). Power gets to each wheel via universals.

## Super Suspension

The front of the car uses molded upper camber (two lengths are available to alter front camber angles), and in the rear, ball-cups and threaded rod replace the original molded camber links so you can adjust camber more easily. The Mini Pro also uses tweak screws in the suspension arm like the original Mini. By placing small grub-type screws into the suspension arm, racers can adjust the tweak on their car by "tightening or loosening" the screw in the arm, which then raises or lowers the individual arm (the grub screw rests against the bottom chassis plate).





## Options we used

- Airtronics CX2P
- Airtronics 94737
- Novak Mercury receiver (75mHz)
- Novak Atom ESC
- Trinity GT-1 machine-wound mod motor
- Trinity Amp Max (1400 mAh) and Voltmax Pro Racing Pack (1700 mAh) ●

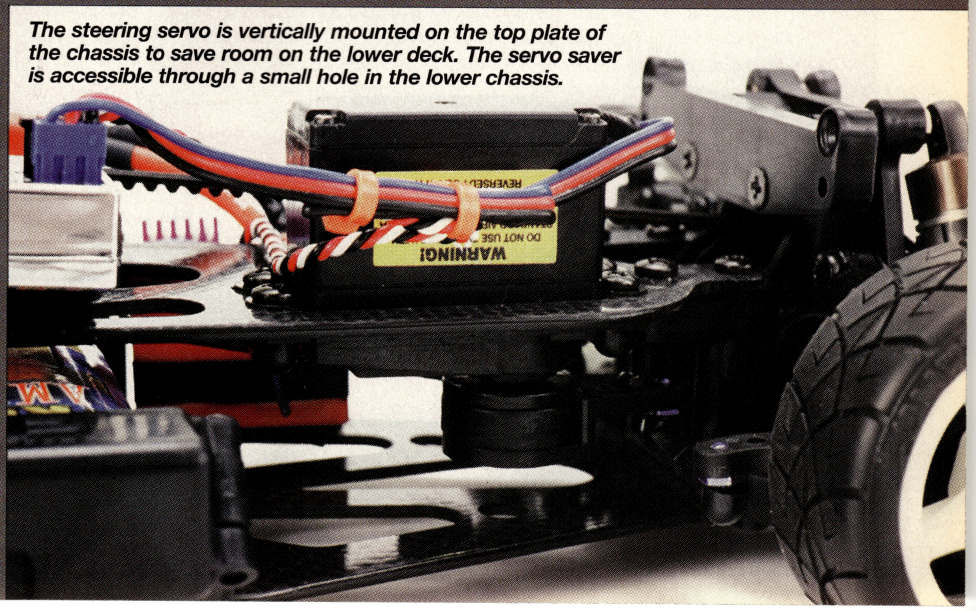
## Test Notes

• Where we found the original RS4 Mini to be a bit hyperactive at low speeds, the Mini Pro is tame and easy to drive. The improved shocks and especially the ball diffs smooth the power delivery to the wheels, and allow the use of hot modified motors without risk of over-powering and unloading the gear diffs.

• The new Mini X-pattern tires should become the new standard performance benchmark in the mini class. Their grippy rubber compound and belted design make up for their small diameter. The X-patterns hooked up tenaciously on our unswept asphalt parking lot.

• The Mini Pro feels more stable than the regular Mini at higher speeds. High-speed sweepers and even tight hairpins following long straights can be taken with much more confidence thanks to the Mini Pro's more rigid graphite chassis, Pro Shocks, and grippier tires.

• As with that of the Mini, the Pro's steering tends to be a bit wandery on-center when the car is driven at low speeds. ●




*The steering servo is vertically mounted on the top plate of the chassis to save room on the lower deck. The servo saver is accessible through a small hole in the lower chassis.*

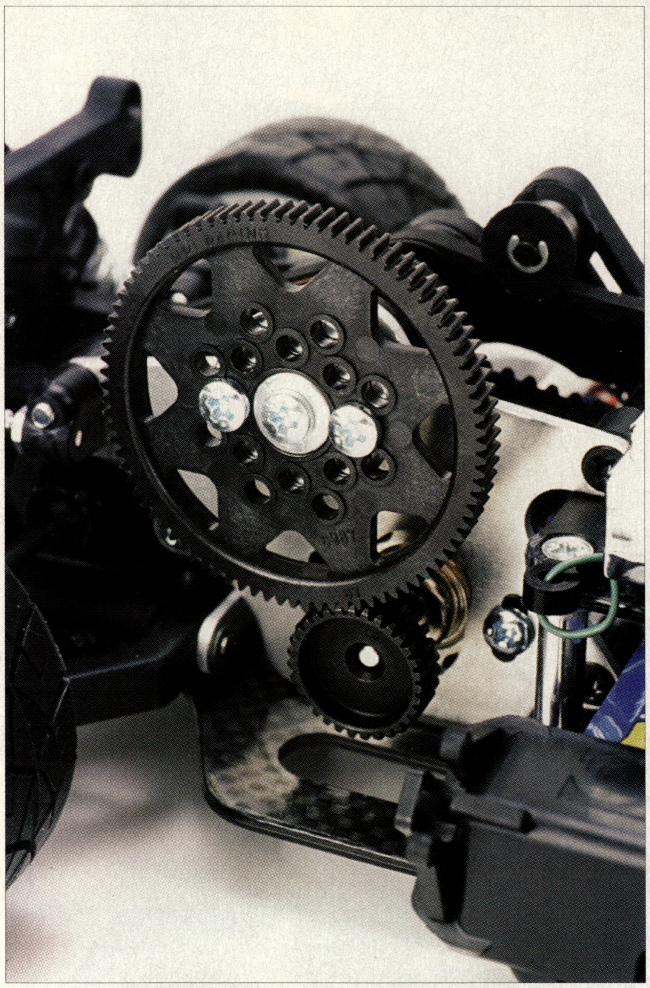
At each wheel you'll find one of HPI's alloy Super Shocks. This hard-anodized shock is "super" smooth. Silver springs come standard (you'll find various spring rates available as hop-ups for the car).

## Magnificent Miata

The RS4 Mini Pro comes with a slick-looking Mazda MX-5 Miata body with a full decal sheet and Mini Pro decals. To make the Miata body fit snug on the chassis, a new low-profile rear shock tower is included. The car comes with Pro-compound Mini X-pattern radial belted-tires look that are so cool, we were bummed to find out we couldn't stretch them to fit on our full-size car... The Mini X's should prove to work well on most track surfaces



***The X-Pattern mini tires work well on most unprepared surfaces (such as parking lots), but you may want to switch to harder compound front tires if you plan on racing the car in a more competitive environment.***



***A graphite composite 48-pitch spur gear and alloy pinion gear are included in the kit.***

## Setup Tips

● HPI has one of the best support services available to HPI racers—its website *(www.hpiracing.com)*. For those of you that race HPI cars and don't have access to the Web, well, simply put, you're bummin... HPI's site is one of, if not the best manufacturers sites out there. It has the latest press releases, racing tips, building tips, cool product photos, etc. Here are a few Mini Pro tips we picked up on its site that we'd like to pass along to those with a Web-deficiency...

• To help prevent the Mini Pro from spinning-out while rounding corners with the throttle on, raise the rear ride-height to 8mm in the front and 10mm in the rear.

• On most tracks, try running HPI's optional white springs on the front shocks with #3 pistons, and 30 or 35wt. Silicone oil. In the rear try silver springs, #1s, and 30 or 35wt Silicone oil.

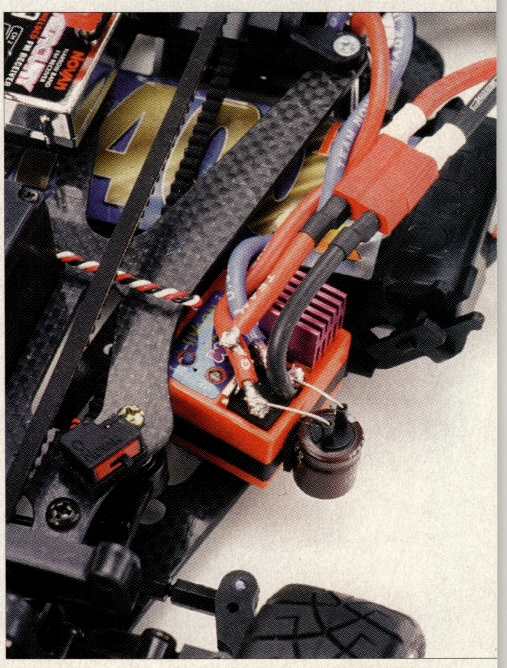
• On high-traction tracks or if you race the car with a mod motor, try red springs in the front, with white springs in the rear.

• A stiff front swaybar in the front of the car takes away some steering (Minis have a lot of inherit steering). Using white or stiffer red springs accomplishes the same task.

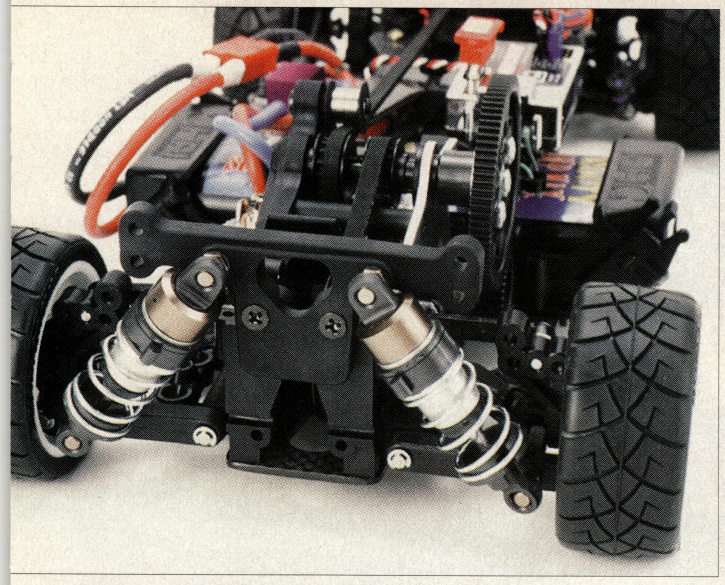
• HPI recommends using a front one-way diff (#A506) for use on large tracks with long straightaways (200ft. or more). Since only the rear wheels will brake, racers who are not familiar with the way one-ways work may tend to spinout the car more easily. The hot setup is to ease on the brakes and advance to full brakes gradually.

• Replacing the Z-bend wire between the steering bellcranks with a turnbuckle helps eliminate steering system slop. To do this you need to use two HPI purple (short) ball -nds (Z137) and dig up a small turnbuckle. Also, you can replace the steering system's bushings on the pilot shaft with two 4x8x3mm ball bearings to help tighten up the steering.

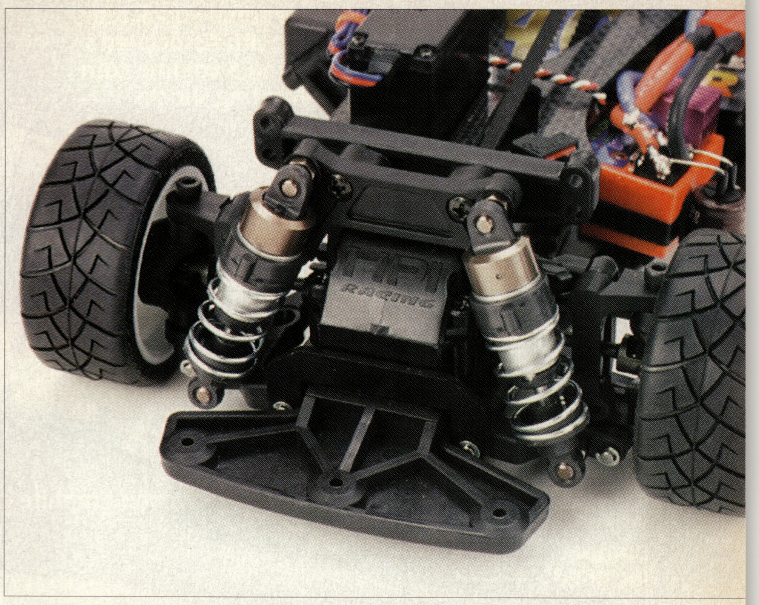
• The kit tires are good on most surfaces, but if you plan on racing the Mini Pro, harder compound front tires help keep the car from spinning out.●



***A small speed control is not a necessity, but is more a matter of convenience. Out Novak Atom fit the chassis like a glove!***



*In the rear of the car you'll also find the same alloy Super Shocks as well as the Mini X-Pattern belted radials. A new, low-profile shock tower helps the included Mazda Miata body fit snug to the chassis.*



*The front end of the RS4 Mini is equipped with alloy Super Shocks, a small plastic bumper (for those unavoidable nerfs), and a cool-looking set of HPI's Mini X-Pattern belted radials.*

## HPI RS4 Mini Pro

**Type:** 1/10 scale, 4WD-mini touring car
**Manufacturer:** HPI Racing, 15321 Barranca Pkwy., Irvine, CA 92618 • (714) 753-1099; (714) 753-1098 fax • www.hpiracing.com
**Price:** $379 (est. street price $220-230)
**What you get:** complete rolling chassis. *You must purchase a two-channel radio system w/servo for steering, an ESC, a motor, a six-cell stick pack battery, a battery charger, and paint for your Lexan body.*

| | |
|---|---|
| Length | 12"/305mm (13.5"/345mm w/body) |
| Width | 6.3"/160mm |
| Wheelbase | 8.8"/225mm (adjustable to 8.2"/208mm) |
| Track (F;R) | 5.3"/135mm |
| Weight (RTR) | 12.5oz./2lbs |
| Transmission ratio | 2.1:1 |

### What we like

• Included ball bearings...sweet...

• The included Mini X-pattern radial belted tires are schmack-daddy sweet. They work well on most surfaces, but maybe even more important is the fact that they are the coolest-looking mini tires on the face of the Earth!

• The hard-anodized alloy Super Shocks are smooth, assemble easily, and work great.

• We like the fact that when HPI comes out with a car kit more than likely, a kickin' full-race version is probably in the works.

• HPI parts are readily available, and there are plenty of juicy hop-ups to keep this car exciting for some time to come.

### What we don't like

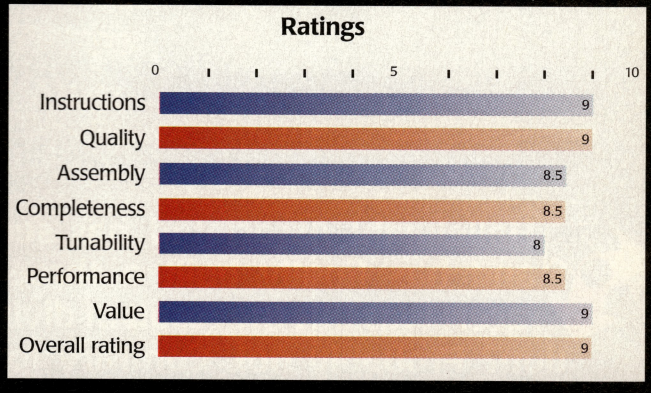
• On the two previous Minis we've built (RS4 Mini and RS4 Nitro Mini), we've run into the same problem we did when assembling the Mini Pro. The rear bulkhead /upper arm mount is not our favorite part of the car... You're supposed to thread the 3x15mm through the outside of the part into a nut placed on the inside of the rear bulkhead. Try as we may with each version we've built, it never worked. The screw seemed to be just a bit too short to catch onto the nut. To remedy this we simply ran the screw from inside the bulkhead out through the piece and eliminated the nut from the equation. Maybe we're building it wrong, but after building three versions of this car now, we can't seem to find out what we're doing wrong. Has the CA gone to our heads? Let us know...

• The belt tensioner rides on ball bearings yet the steering system rides on bushings of the same size. You could swap the two around and put the ball bearings on the steering pilot shaft for smoother steering, but it'd be even better if HPI included an extra two 4x8x3mm bearings so you could do both.

• Gluing the plastic outer belt pulley retainer to the other half of the diff gear frightens us. We're waiting for the day when we pull a "Ralph Malph with the loose salt shaker" with our bottle of CA and unload a few extra pounds of the stuff on the unsuspecting diff gear...along with our fingers...the table...the cable remote...

### What we really think

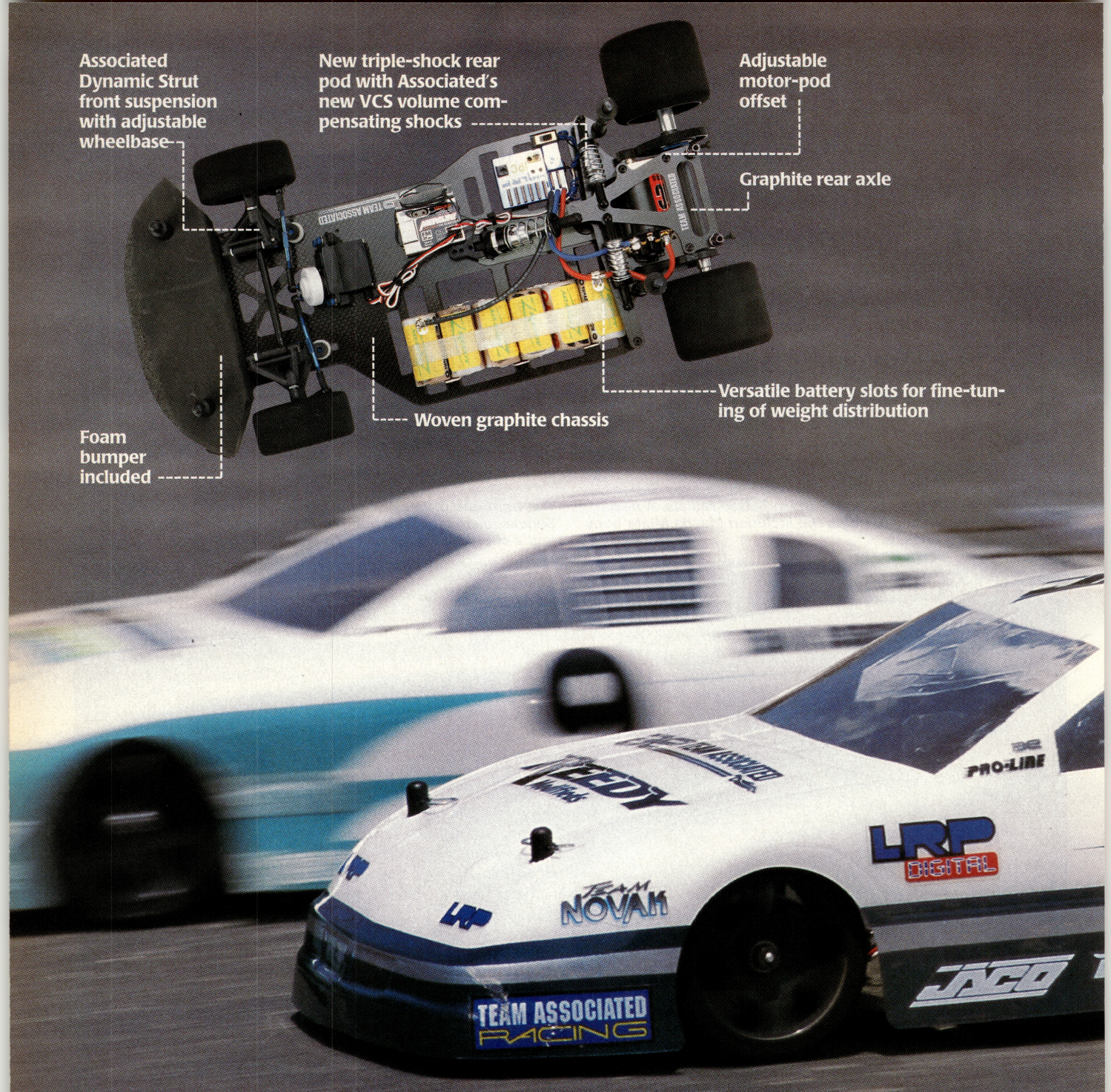
• The car is way cool. It handles great, looks equally great, and goes together easily. It is yet another stellar addition to HPI's quickly expanding product line, and is a prime example of the company paying attention to the racing market. Car kits of this quality are helping push HPI to the forefront of kit manufacturers.




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

### Sources

**Airtronics, 1185 Stanford Ct. Anaheim, CA 92805**• (714) 978-1895 • (714) 978-1540 (fax)
**Novak Electronics, 18910 Teller Ave., Irvine, CA 92612** • (714) 833-8873 • (714) 883-1631 (fax)
**Trinity Products Inc.**, 36 Meridian Road, Edison, NJ 08820; (732) 635-1600; (732) 635-1640 (fax) • *www.teamtrinity.com* ◆




**Hallelujah! Associated has seen the light and has finally built a three-shock oval racer! Was this the result of divine intervention? Probably not. Contrary to some people's belief, Associated was never oblivious to the** fact that a three-shock car is a more tunable platform for oval racing.

Oval racing has become so competitive that one second can make the difference between being in the A-main and the C-main. As a result, the three-shock design allows the driver to adjust the chassis with more minute changes to fine-tune the setup.

## Glorious graphite

Although the basic design of oval cars has not changed significantly in many years, the chassis and suspension designs have been substantially refined for better performance. As a result, dramatic improvements have been made in cornering speeds and all-around efficiency of the chassis.

Associated has done its homework with the L3's chassis; it's majorly stiff, which allows the suspension to react more consistently, and it has lots of room for battery placement, so you can experiment with the chassis weight distribution. Associated also gives you two sets of holes in which to mount front suspension. This lets you make adjustments to the car's wheelbase for when tuning the car for different-length tracks. And as you would expect from Associated, all of the graphite, including the motor-pod's upper and lower plates, is beautifully CNC cut.

## Strut your stuff

The front suspension is Associated's tried-and-true Dynamic Strut front end,

# Team Associated RC10L3

## 3 shocks & improvements make this Associated's most tunable oval racer to date!

by Frank Killam




*All L3s get super-stiff chassis precisely cut from expensive carbon fiber. The upper and lower motor-pod plates are also carbon fiber.*




*The author "at work" in the pits of the Encino, CA, Velodrome, where he top-qualified the Expert A-main, finished second overall, and set the second fastest time in the track's history.*

## Recommended Starting Setups

### ■ Short tracks

• Your local track will dictate your setup; whether it's a concrete or an asphalt track. Record the old setup of your current car and use it for reference later.

• Any body should work well, but try and get one that produces good down force for better cornering.

• Start with the kit setup to establish a "base line," and then play with the caster, spring rate, and tire stagger up front. In the rear, play with the springs, tweak, tire stagger and shock oil to fine tune the car to the track.

• Remember that tires and wing placement will make the biggest changes to the cars handling.

• As a starting point, set the car's tweak from the front, and make both tires even.

### ■ Velodrome tracks

• Velodromes are the trickiest tracks to find a fast setup that is still drivable.

• Aerodynamic balance is critical, and the motor and batteries must be perfect to really go fast.

• The chassis setup is actually simple: raise the car up off the ground, and mount the body so it can't hit the tires when the suspension is fully compressed.

• Make the suspension compliant so it will soak up the bumps. Set the damping so the car stays on the ground.

• Use rock-hard tires like Jacos VRs to cut the rolling resistance.

• The body choice is easy since there are only three to choose from: Protoform's Monte Carlo or T-Bird, or Parma/PSE's Aero Monte Carlo.

• Use the kit springs all around, and set the front caster at eight degrees. Use 40wt oil in the center shock and 80wt in the side shocks.

• Mount the wing to the body, low and back.

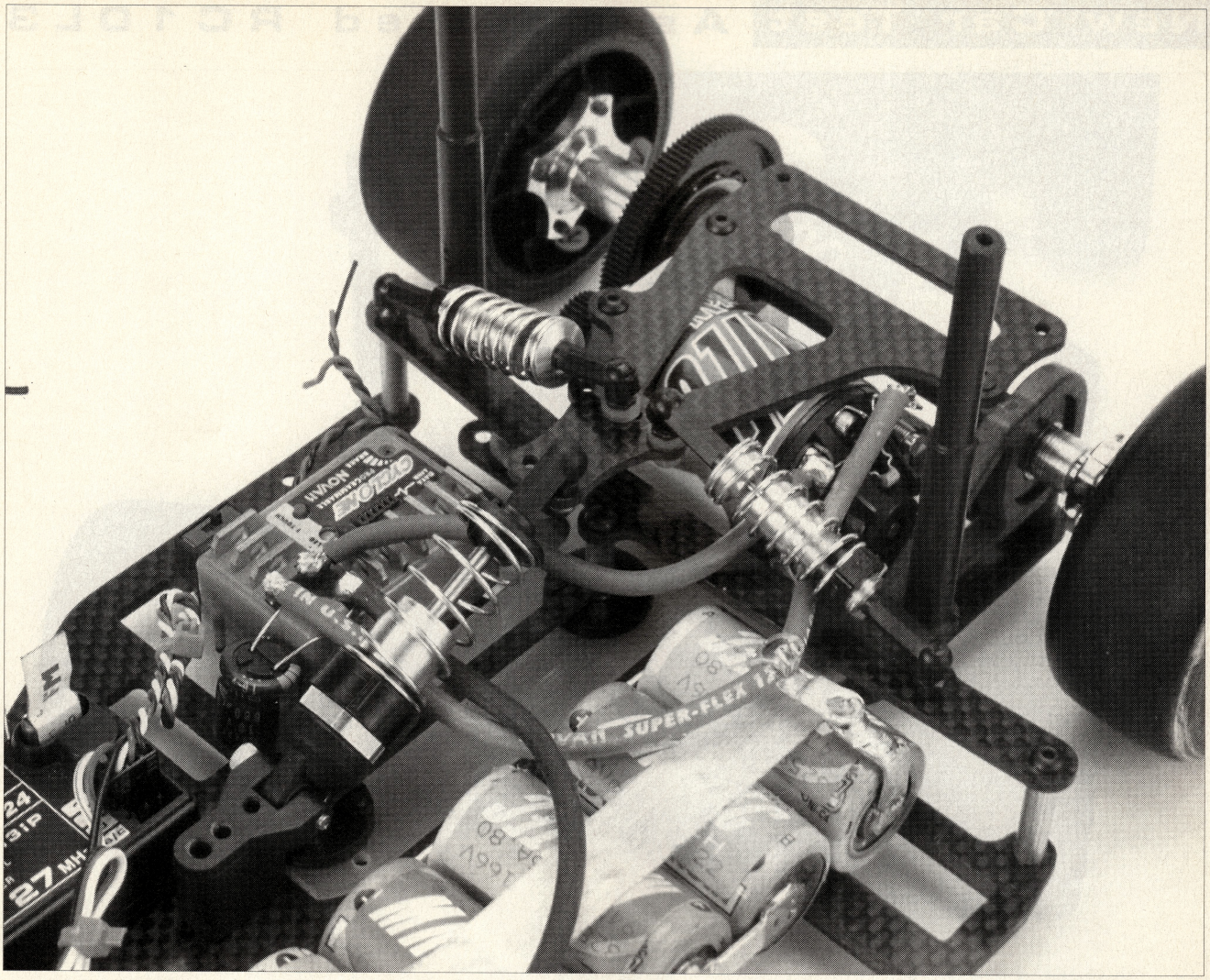
• Use really good radio gear so that the antenna can be kept inside the body to improve the aero even more (yes it does make a difference!) Good luck and hang on! ●

which uses a fixed lower "arm" and an articulated upper wishbone to control the movement of the front kingpin. This design lets you easily adjust the amount of caster and camber, and it has proven to be quite durable.

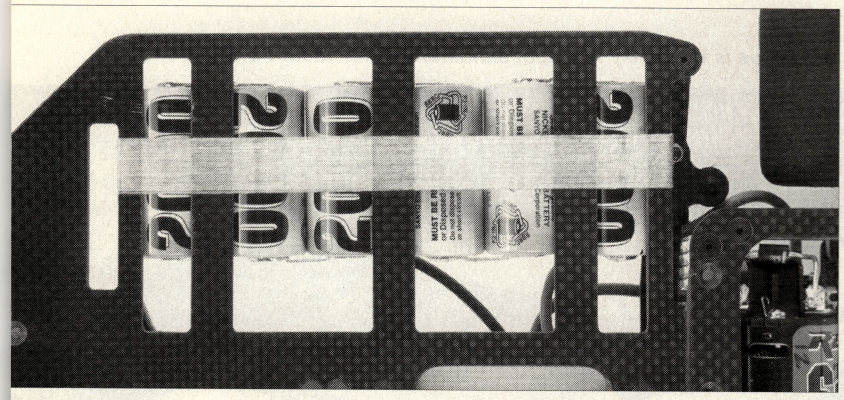
Yet another thing Associated has done right is to include a pair of Wolfe Motorsports' green, progressive springs as standard equipment. The kit also comes with on-center spindles for more aggressive turn-in steering, and an aluminum cross-brace tube between the front uprights to stiffen the front end.

## Power pod

In the rear, the tech-heads at Associated have developed a clever way of playing the weight-shift game by providing two sets of mounting holes for attaching the motor pod to the T-plate. This allows you to move the motor closer to the left for tight, flat ovals. Use Associated's right-side hub (no. 8459) for this application. To ensure the proper suspension geometry, the upper pod-plate also has an additional set of holes in which to



*At last! A triple-shock rear pod from Associated! Clever engineering lets you change the pod's offset without altering the shocks' geometry.*



*Wide slots provide ample room in which to mount the battery to alter the car's left/right weight distribution.*

attach the three shocks when using this alternate pod position.

For you weight-conscious racers, Associated offers a magnesium motor plate (no. 4538) and a carbon axle carrier (no. 4541) for the left side. These two parts remove over half an ounce from the rear pod.

New to Associated is a clamp-style hub for the rear axle—very nice! This type of hub fits the rear axle much more precisely than the "setscrew" type.

## Shocking developments!

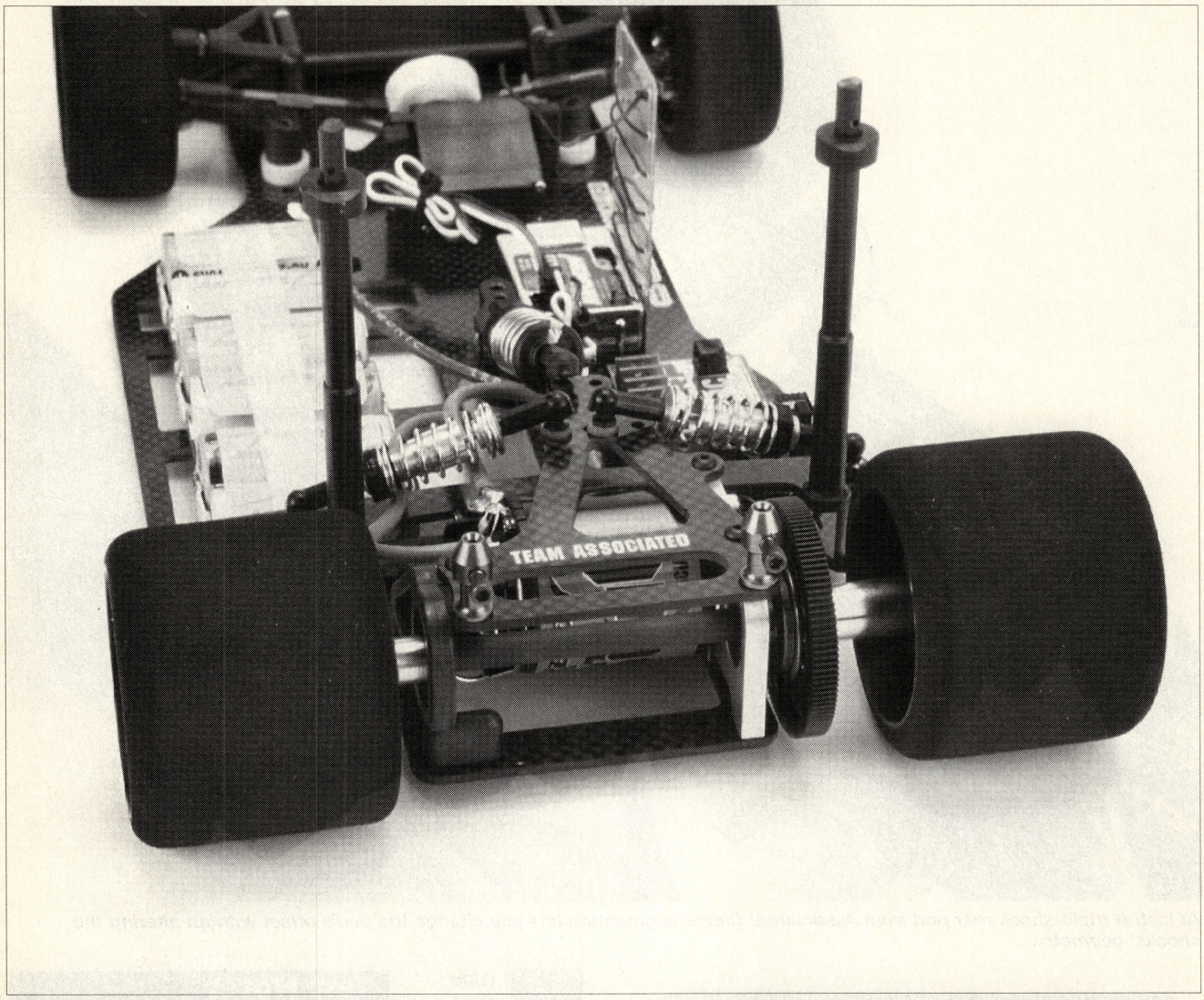
Associated also developed all-new shocks for this car and they are trick! The new VCS (Volume Compensating Shocks) shocks have a larger oil volume for improved damping, are super easy to build and rebuild, and they use a larger spring, too. An internal foam insert is used to reduce the amount of air needed inside the shock, and as a result, damping is much more consistent. Look for these neat little shocks to find their way onto other oval cars, and I'll bet onto some touring cars as well!

## Test Notes

• This car handles so well, it plants its tires under acceleration like a drag car!

• There is so much steering and the L3 is so reactive that it will require some getting used to. During our first outing with the 'Drome car, it was apparent that some changes were needed. The front spring rate was dropped from the kit's green springs to Wolfe's reds. The rear needed to be stiffer, so we fitted Associated's Gold springs (no. 8453) to the side shocks. Oil weights did not change. The body was raised 2mm in the rear and the battery position was identified and marked.

• On the 'Drome track this car was very stable, tracked straight, and was really smooth. Horsepower was very strong and the 2000mAh batteries were awesome! In our first race outing, we sat on the pole during the sixth race of NORRCA's oval series at the Encino Velodrome with the second fastest time ever set there, and finished second in the Expert A-Main. ●

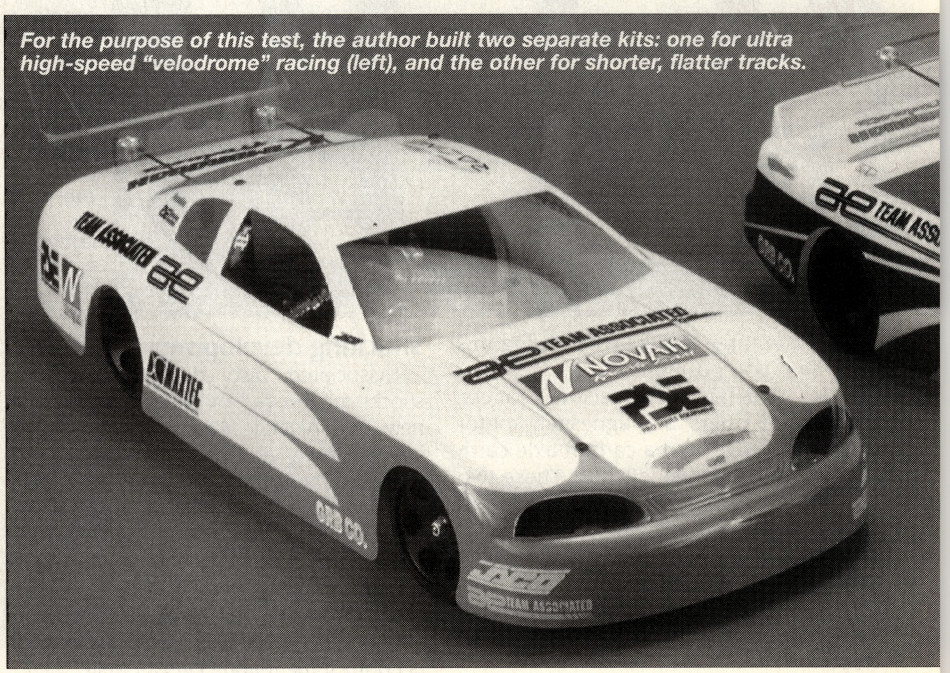



*A super-true, lightweight graphite axle is standard on the L3, as is the nicely finished, aluminum motor-mount plate.*

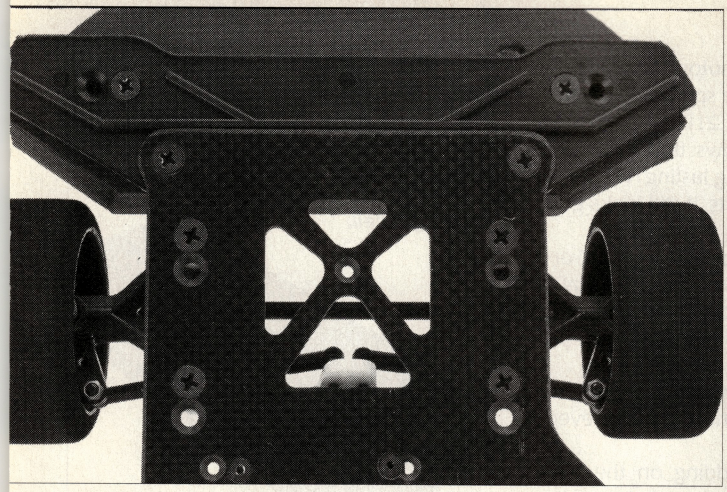
## Options We Used

■ **Short track setup**
- Reedy "S" 12-turn Sonic motor
- Reedy Zappers 2000mAh matched batteries
- LRP ICS V6 digital speed control
- Novak Mercury 27mHz receiver
- Futaba 3002 steering servo
- Airtronics Caliber 3PS transmitter
- Parma/PSE Hot Dam wing

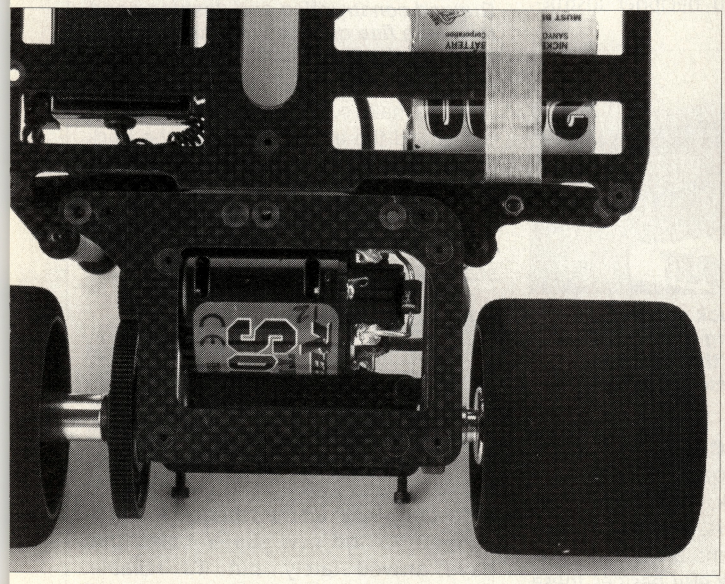
■ **Velodrome setup**
- Maxtec Shockwave 13-turn motor
- Maxtec Voltage Enhanced 2000mAh batteries
- Novak Cyclone speed control
- Futaba 9603 steering servo (new model!)
- Futaba PCM 27mHz receiver
- Futaba Magnum 3PJ transmitter
- Parma/PSE Aero Monte Carlo body
- Parma/PSE Hot Dam wing
- Jaco VR tires ●



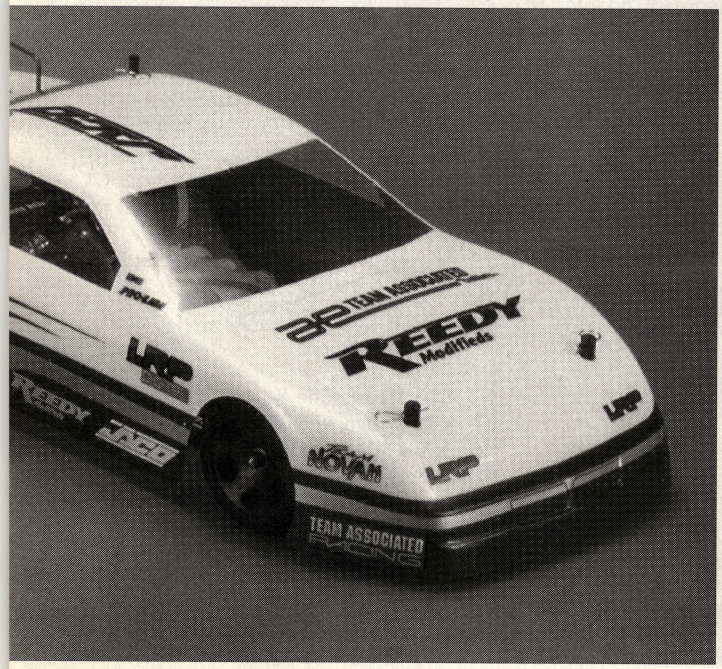

*For the purpose of this test, the author built two separate kits: one for ultra high-speed "velodrome" racing (left), and the other for shorter, flatter tracks.*



*The front suspension can be attached in one of two sets of holes to alter the car's wheelbase.*



*Rear-pod offset, a useful tool when tuning the car to different types of tracks, can be changed by installing the pod to one of the two sets of mounting holes provided.*




## Associated RC10L3

**Type:** 1/10 scale solid-axle pan-chassis, high-performance oval racer.
**Manufacturer:** Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax • *www.rc10.com*
**Price:** $285 (est. street price $170-190)
**What you get:** A complete rolling chassis with full ball bearings and Jaco foam tires. You will need to purchase a two-channel radio system, electronic speed control, steering servo, motor, battery, battery charger, and wing.

| | |
|---|---|
| **Length** | 14.75" |
| **Width F/R** (at tires) | 7.5"/7.25" |
| **Wheelbase** ('Drome, short track) | 10.25"/10.19" |
| **Front track** | 6.375" |
| **Rear track** | 6.19" |
| **Weight RTR** ('Drome, short track) | 43.3 oz./42 oz. |

### What we like

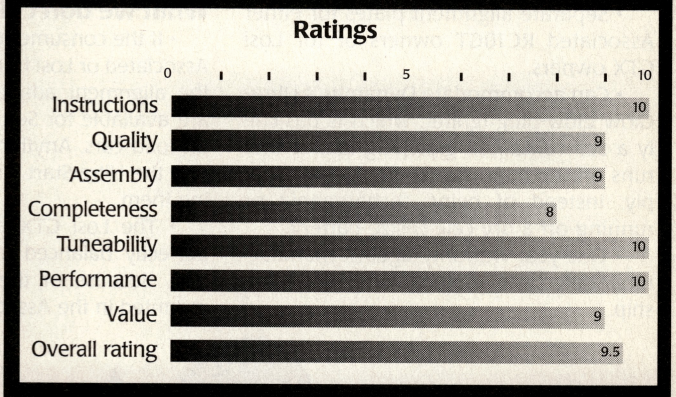
- Outstanding instructions.
- First rate quality parts.
- Lots of graphite.
- Cool, blue-anodized aluminum parts.
- Fantastic little shocks.
- A terrific tunable chassis with lots of factory hop-up parts.

### What we don't like

- The rear body posts are too flexible.
- No wing mounts provided to attach the wing to the chassis (for short-track cars).
- The diff axle does not allow the use of a bearing in the spur gear.

### What we really think

Associated has a real killer here. This car is so well refined, stable and adjustable that it will definitely rewrite the record books in upcoming major events across the country. We proved this our first time out!




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

### Sources

**Reedy**, distributed by Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax • *www.rc10.com*
**Maxtec**, 3609 W. MacArthur Blvd #807-808, Santa Ana, CA 92704 • (714) 427-5180; (714) 427-5190 fax
**Futaba Corp. of America**, P.O. Box 19767, Irvine, CA 92723-9767 • (714) 455-9888; (714) 455-9899 fax
**Parma/PSE**, 13927 Progress Pkwy., North Royalton, OH 44133-4394
**Jaco**, distributed by Pro-Line, P.O. Box 456, Beaumont, CA 92223 • (909) 849-9781
**LRP**, distributed by Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax • **Novak Electronics, Inc.**, 18910 Teller Ave., Irvine, CA 92612 • (714) 833-8873; (714) 833-1631 fax • *www.teamnovak.com*
**Airtronics**, 1185 Stanford Ct., Anaheim, CA 92805 • (714) 978-1895; (714) 978-1540 fax ◆

Product Test

# Dynamite Ultra-Start Deluxe Starter Box

## What it does

Starts engines in nitro powered vehicles that don't have a pull start and have a back-plate.

## What it has

• Two 540-size electric motors that are powered by two 7.2 volt (six-cell packs) batteries with wiring hook-ups and Tamiya style battery clips. The two motors turn 22-tooth police and attach to the main 45-tooth starter wheel with twin belts. The main starter wheel rides on two ball bearing.

• The motor mount assembly, starter wheel, end caps and alignment plates are injection molded. The end caps are red and the main assembly black.

• Separate alignment plates for either Associated RC10GT owners or for Losi GTX owners.

• Can accommodate Dynamite's Ultra-Glow glow-plug igniter, which is basically a self-contained glowplug igniter that runs off the main starter box power supply, instead of being rechargeable or running off a dry cell, D-size battery.

• One-year warranty against manufacturer defects in material and workmanship.

## What we like

• The twin 540 motors are like tiny Clydesdales, they have spun the flywheels on .12, .15 and even a .21!

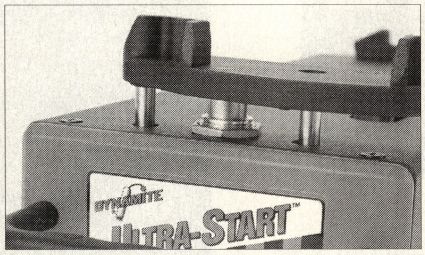
• The packaging says that the starter wheel is coated in "long lasting" rubber. So far, after countless starts, it still looks good and operates well.

• If you own a Associated RC10GT or a Losi GTX gas truck, you're in luck because the injections molded plastic alignment plates are spot on and align the truck perfectly.

• The two 7.2 volt batteries are secured by a nice battery mount that keeps everything tightly in place.

• The option of adding on the ultra-glow glowplug igniter, meaning one less thing to forget to pack on race day.

• Easy to read and decipher instructions.



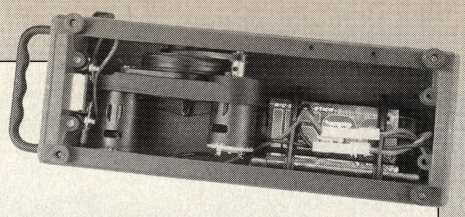

*Associated or Losi truck adapters screw right onto spring-loaded posts that recess to trigger the ignition switch that can be raised or lowered to the desired height.*

## What we don't like

• If the consumer doesn't have either a Associated or Losi truck, you have to order the alignment adapters. Additional ones are available for Serpent, BMT, and Picco on-road cars. Anything else besides these and the Ultra-Start will have trouble starting them.

• The Losi GTX alignment adapter is perfectly balanced in the middle of the box. Because of the way the engine is mounted in the Associated, when pushing down to make contact between the starter wheel and the engines flywheel the truck is way over the right hand side of the box and wants to roll off.

• Two of the mounting screws were absent from our kit. All the bags were sealed upon opening.



*Twin 540 motors can be fed from either dual 7.2 volt batteries or a more rugged 12 volt gel cell.*

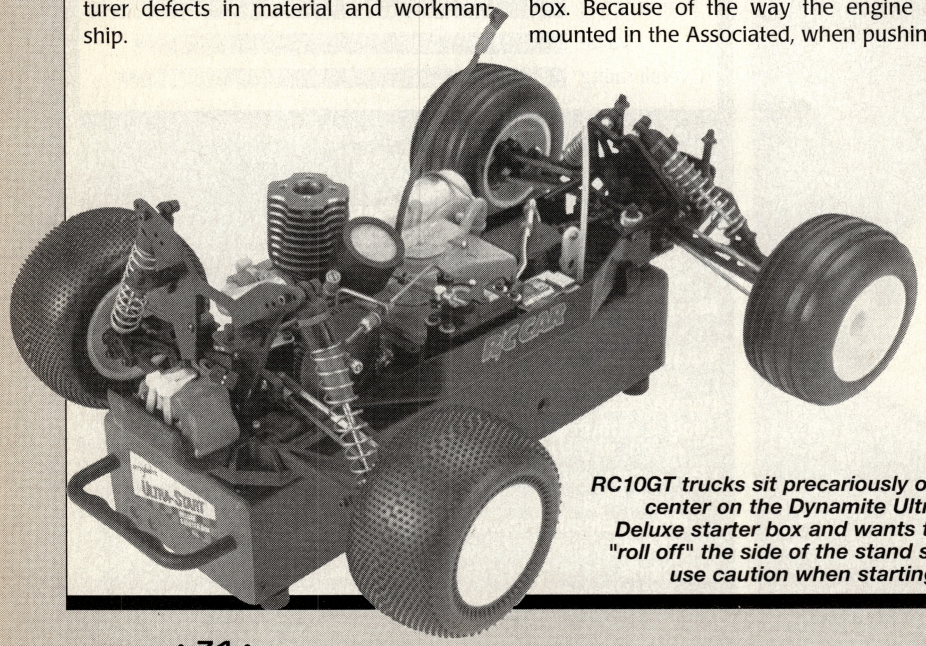


*Rugged construction and dashing good looks are fine qualities to find in your R/C car, significant other and of course—starter box.*

## What we really think

Those new to the hobby and interested in nitro racing should definitely look into Dynamite's Ultra-Start, deluxe starter box. It has a one year-warranty, replacement parts at darn near every hobby store in the world, and looks great too! It doesn't necessarily have all the whistles and bells of some of the new starter boxes that have arrived lately, but it's reliable. Because all the latest and greatest items in the world of R/C inevitably come through our doors, some people at the local track wondered why we were so sweet on the Dynamite starter box, and not coveting the latest widget box from brand X that promised the world when starting our car? "Heck," somebody said, "that thing only starts a couple kinds of cars well..."

"Exactly," we said as we placed our GT on the box and fired it up to head out for the A-main. "Exactly." ◆



*RC10GT trucks sit precariously off center on the Dynamite Ultra Deluxe starter box and wants to "roll off" the side of the stand so use caution when starting.*

info

**Manufacturer:**
Horizon
4105 Fieldstone Rd.
Champaign, IL 61821
**Part no.:** DYN 5700
**Price:** $149.95
**Recommended for:**
1/8 and 1/10 scale nitro powered vehicles with side to side engine mounts without pull starters.
**Rating:**

Complete catalog available online at www.integy.com

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With Internal Cooling Fan

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INDI Octane Discharger 0.6V/cell cut-off (2.5A)



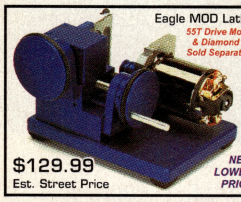
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INDI Booster Discharger 0.0V/cell cut-off (5.0A)



NEW $45.99 Est. Street Price — 5.0 Amps DISCHARGE CONDITIONING

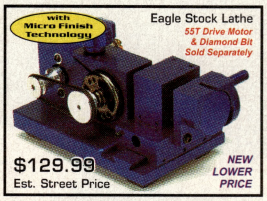
Eagle MOD Lathe — 55T Drive Motor & Diamond Bit Sold Separately



$129.99 Est. Street Price — NEW LOWER PRICE

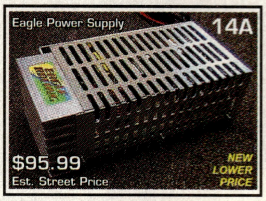
with Micro Finish Technology

Eagle Stock Lathe — 55T Drive Motor & Diamond Bit Sold Separately



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Eagle Power Supply — 14A



$95.99 Est. Street Price — NEW LOWER PRICE

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-M60- Aerospace Material — More Speed With Harder Acceleration

T3598 TOP RACING

Aluminium Steering Block For RS4 Sport, RS4 Pro & Nitro RS4



$19.95 Est. Street Price — T3815 TOP RACING

Light Weight Engine Mount For Nitro RS4



$17.99 Est. Street Price — T3804 TOP RACING

Rear Hub Carrier For RS4 Sport Nitro RS4 & RS4 Pro



$19.95 Est. Street Price — T3814 TOP RACING

Aluminium Rear Block For Nitro RS4



$39.95 Est. Street Price — T3813 TOP RACING

Aluminium Center Block For Nitro RS4



$19.95 Est. Street Price — T3812 TOP RACING

Light Weight Fly Wheel For Nitro RS4



$13.50 Est. Street Price — T3805 TOP RACING

Aluminium Arms For RS4 Sport, RS4 Pro & Nitro RS4

Rear T3810



$19.95/pr. Est. Street Price

Front T3809

Castor Block For RS4 Sport, RS4 Pro & Nitro RS4



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4mm Super Chassis For Nitro RS4 With Counter Sink

Nitro Mini T3799



T3802

NEW LOWER PRICE

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Tune Pipe Set For Nitro Touring Car

Perfect Fit Nitro RS4



T3803

NEW LOWER PRICE

$59.99 Est. Street Price — TOP RACING

More Speed With Harder Acceleration

Super Light Weight Diff For RS4 Sports, RS4 Pro, TF2 & TF3

Reay to run

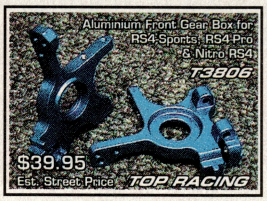


-M60- Aerospace Material

$36.99 Est. Street Price — TOP RACING

Aluminium Front Gear Box for RS4 Sports, RS4 Pro & Nitro RS4

T3806



$39.95 Est. Street Price — TOP RACING

Aluminium Rear Gear Box for RS4 Sports, RS4 Pro & Nitro RS4

T3807



$39.95 Est. Street Price — TOP RACING

Super Steering Bell Crank for RS4 Pro, RS4 Sports & Nitro RS4



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Outdrive For YR4M, YR4II(R), YR4M2, RS4 Pro & TF2,TF3

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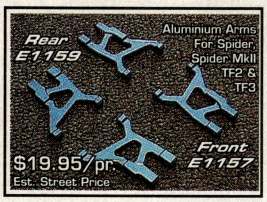
More Speed With Harder Acceleration



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Rear E1159

Aluminium Arms For Spider, Spider MkII TF2 & TF3



Front E1157

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Aluminium Castor Block For TF2, TF3 Spider & Spider MKII



$19.95 Est. Street Price — E1156 TOP RACING

Aluminium Rear Hub Carrier For TF2, TF3, Spider & Spider MKII



$19.95 Est. Street Price — E1158 TOP RACING

Aluminium Steering Block For TF2, TF3 Spider & Spider MKII



$19.95 Est. Street Price — E1155 TOP RACING

4mm Super Chassis For Spider & MkII With Counter Sink

T3801

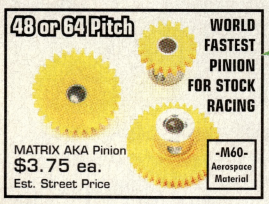


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WORLD FASTEST PINION FOR STOCK RACING



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More Speed With Harder Acceleration

M 60 Super Gear Adaptor For Yokomo

T3602



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Aluminium Castor Block For Yokomo

TOP RACING



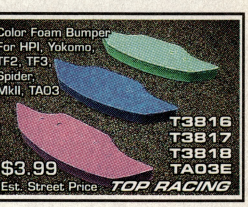
$39.95 Est. Street Price — T3596

TOP RACING Aluminium Arms For Yokomo YR4(M)(2)



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Color Foam Bumper For HPI, Yokomo, TF2, TF3, Spider, MkII, TA03



T3816 T3817 T3818 TA03E

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Front Insert=TOP3396 Extra Hard 27mm
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2. Car=1/10 Electric Track=Parking Lot
Front Tire=EAGLE103B-24R Belted 24mm
Rear Tire=EAGLE103B-24R Belted 24mm
Front Insert=TOP3399 Extra Hard 24mm
Rear Insert=TOP3398 Hard 24mm

| | |
|---|---|
| 101-20R | Nitro 20R 27mm |
| 101-23R | Nitro 23R 27mm |
| 101B-25R | Nitro 25R 27mm Belted |
| 102B-25R | SN Slick 25R 21mm Belted |
| 103-24R | Contour 24R 24mm |
| 103B-24R | Contour 24R 24mm Belted |
| 103-28R | Contour 28R 24mm |
| 103B-28R | Contour 28R 24mm Belted |

TOP RACING

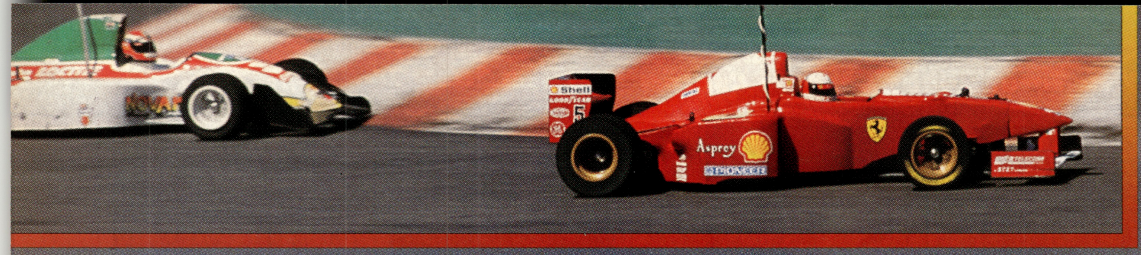


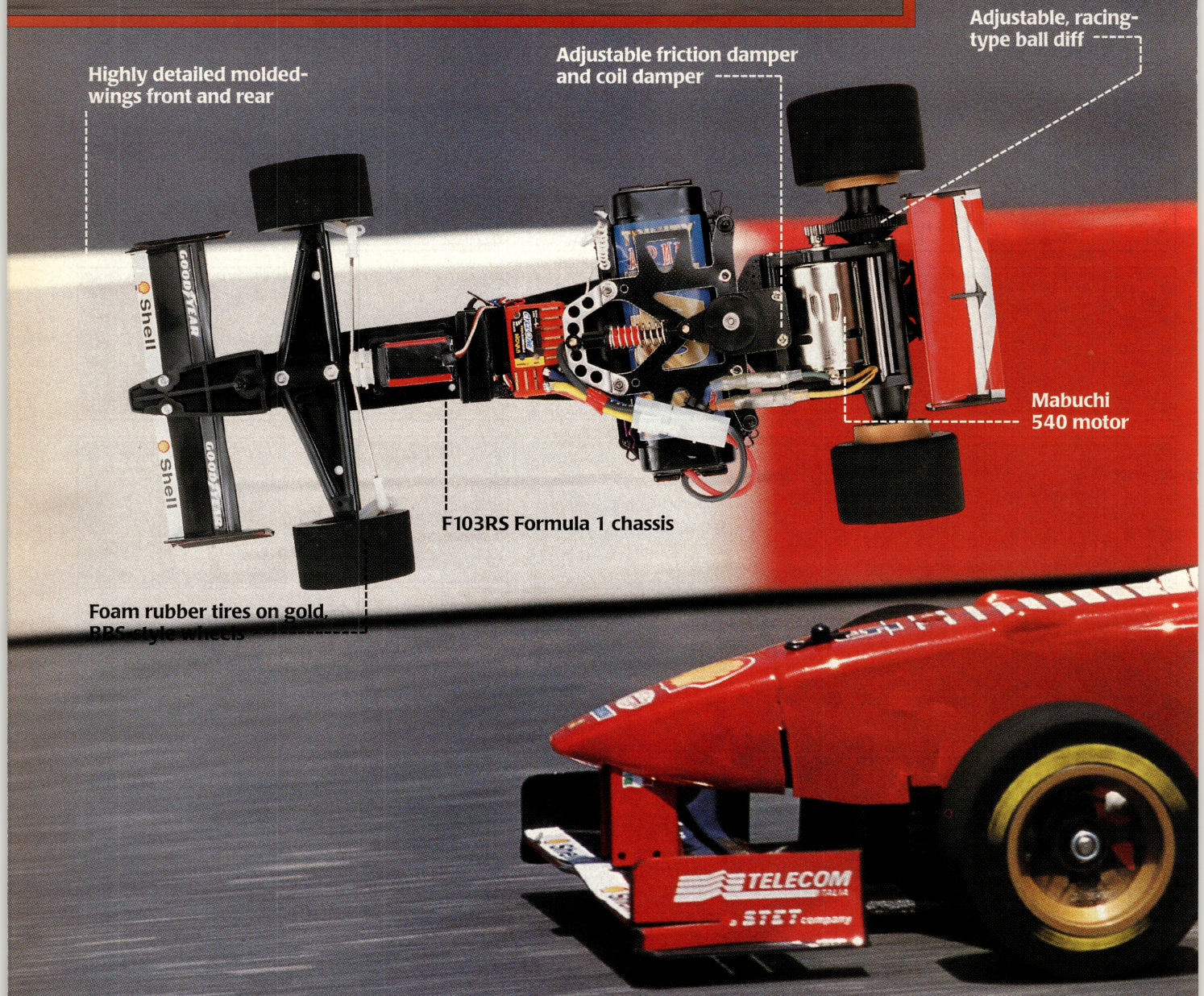
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**Formula 1 is to the auto racing fan what the NBA is to followers of the sport of basketball—the ultimate, the top, the "it doesn't get any better than this!" Among the ranks of the R/C enthusiast lie a small, but severely dedicated,** bunch of F1 fanatics that simply will not own any other type of model car. Period! There are just enough of these racing connoisseurs to create a demand large enough to keep Tamiya in the F1 kit business.

FAs this is a very small niche in today's hobby market (at least here in the States), nearly every other manufacturer has chosen to pursue greener pastures, such as 4WD touring cars, so the F1 fan should be grateful to Tamiya for keeping the flame burning!

Tamiya's F1 kits generally share a common platform, with the addition of fully scale bodysets and details being the largest difference between models. The latest F1 chassis is the F103RS (Tamiya's third-generation F1 chassis), and the newest bodyset to adorn this capable platform is that of Ferrari's F310B, the car that Michael Schumacher almost drove to victory in last year's F1 season (if it weren't for a certain blond-haired Canadian!).

## Formula features

The F310B is molded around Tamiya's F103RS chassis, but with some minor additions. The optional friction-adjustable damper plate is included in the kit, as well as stylish front and rear F310B spoilers.

Starting with the front of the car, coil-over kingpins do the suspension work, and an upright servo is mounted for steering control. The front of the car comes with

# Tamiya Ferrari F310B

## 'Realism at its best'

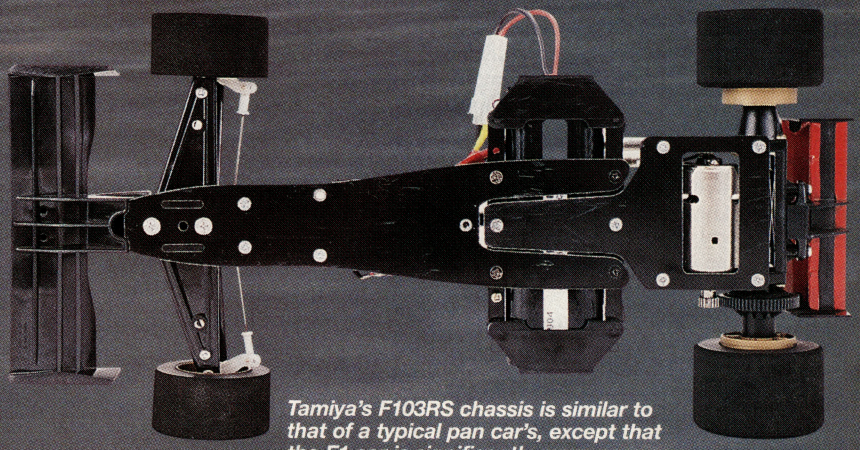
By Jeremy Reitman

one-piece, BBS-style gold wheels and foam tires.

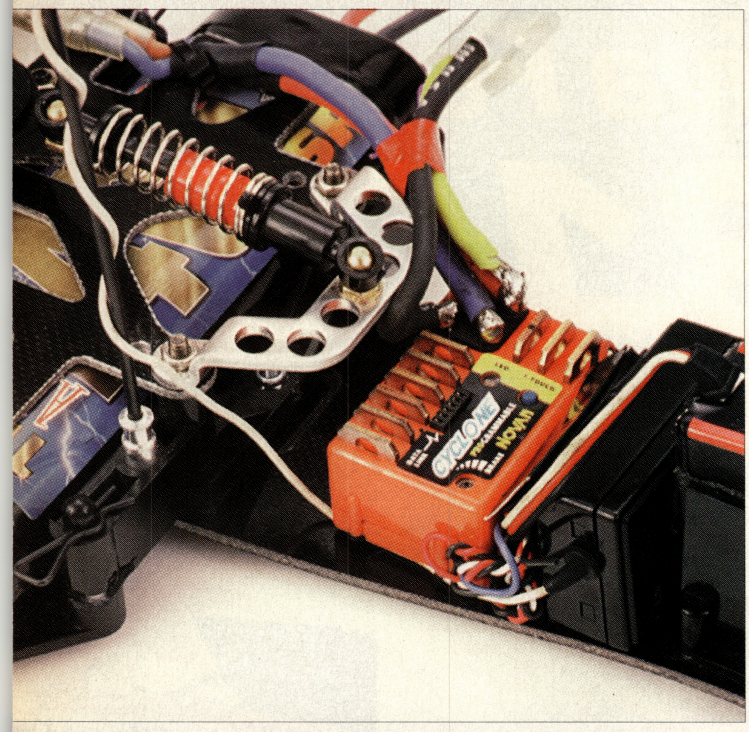
Moving to the rear of the vehicle you will find the newer, semi-double deck F.R.P. (fiberglass-reinforced plastic) chassis. The rear of the car pivots on an adjustable, friction-damper plate, while a single, spring-loaded shock controls the fore-aft movement of the rear motor pod.

### Test Gear

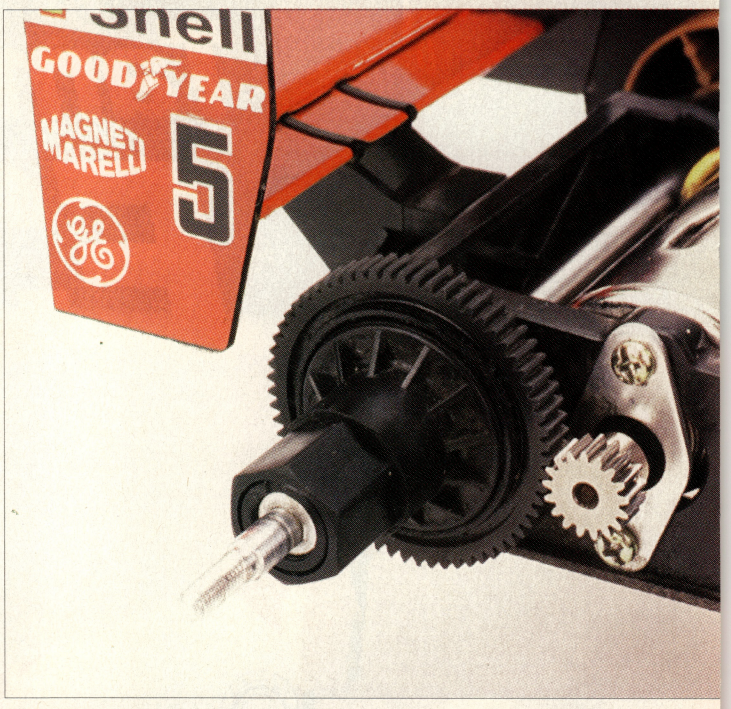
- Futaba Magnum 3PJ FM radio & 75 MHz receiver
- JR-Racing 4735 steering servo
- Novak Cyclone programmable speed control ●



*Tamiya's F103RS chassis is similar to that of a typical pan car's, except that the F1 car is significantly more narrow.*




*No room to spare: the steering servo's mounting position requires that you grind off the servo's ears.*




*A racing-type adjustable ball diff is standard on the F103RS. The kit gears are metric, so you'll need special pinions if you want to change the gear ratio.*

The kit comes with a stock 540 Mabuchi motor that I installed for the Tamiya race at which I intended to test the car. Transferring the power from the motor to the wheels is a ball differential located on the one-piece, rigid rear axle. I believe that Tamiya can still better its differential design in the fact that no matter how good you build the diff, they all have the same "flat spot" feel when you rotate the wheels.

Inside one of the rear wheels is a thrust ball assembly. Holding the axle in place are two ball bearings one located in each hub. In the rear are two-piece, BBS-style gold wheels that match the fronts except that they're much wider. Overall this car is very basic, much like a pan-style on-road car, yet it still offers many adjustments for the racer.

## Building—what a breeze!

You may be wondering how long it takes to build a sophisticated vehicle like this? It shouldn't take the average builder longer than a couple of hours to assemble. It took me a little under two hours to build the car itself without the body and decals. That is saying a lot considering it is the first F1 car that I have put together. Tamiya has always been known for great instructions geared for the beginner. The most difficult part to assembling this car is applying the decals—doing this properly will take a couple of hours if realistic appearance is your goal.

## Tamiya, here we come!

I had built this car knowing that it was going to be run at the TCS Qualifying race at Tamiya America's Aliso Viejo, CA, headquarters. To race F1 in the Tamiya series, the car must be kept almost box stock. You are allowed to add bearings, true the tires, and use pretty much any electronics you want to as long as you use the Tamiya bullet motor-connectors and Tamiya battery connectors.

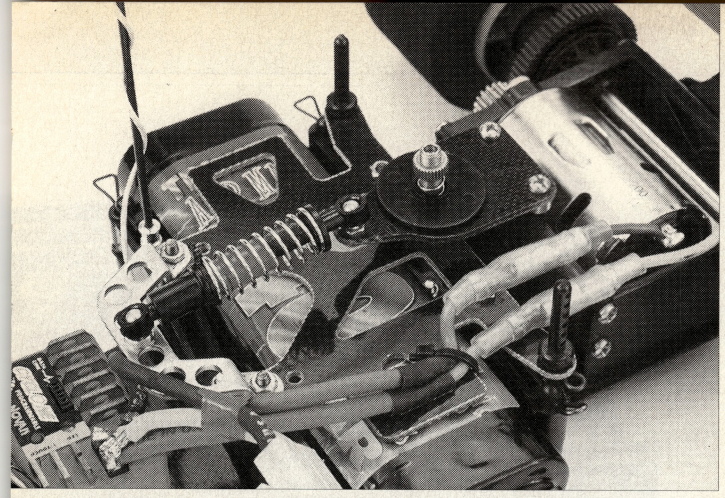
I installed the best electronics I had. For smooth acceleration I used the Novak Cyclone set on program no. 2. I used my high-speed JR-Racing 4735 servo for steering, and my Pro Match batteries for high speed. I would not recommend using the 4735 servo for this car because it is a bit of an overkill. Instead, I recommend a mini high-speed servo. The F1 uses lightweight steering components so a high torque servo is not really necessary. The lighter the car, the faster the acceleration, and when your milking a Mabuchi for everything it has, going lighter is better.

## And the race is on!

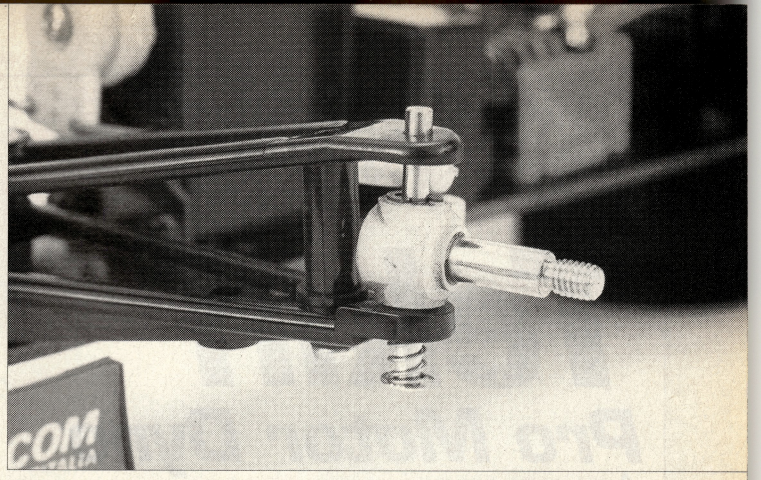
Arriving at the beautiful Tamiya track, practice was not an issue, but rather getting the electronics into the car was of my main concern (I had just completed the kit the previous night, and hadn't yet finished installing the electrics). When everything was finally ready, I set the car down on the track for the first time. What a sight! The car looks so real going around the track. When I was driving around the sweeper I felt like I was watching a qualifier right out of an ESPN broadcast. The car looks so realistic it is incredible. From the decals on the tires, to the driver figure in the cockpit,

## Building Tips

- Use a very thick grease on the friction plates (such as very thick silicone fluid). This makes for quicker response when going through tight spots on a track such as a chicane or an S-turn.
- Use a small amount of CA (cyanoacrylate super glue) on the driver figure's helmet to keep the halves tightly joined.
- Instead of the recommended double-sided tape for mounting the rear halves of the body, use a small amount of Shoe Goo to further reinforce the halves. One hit by another driver on the track could possibly rip the double sided tape right of the body halves and your race would be over.
- Be careful when attempting to snap the shock assembly onto its mounts—one wrong move and you could possibly snap the whole post right off its moorings.
- Out of the box, the spring-tensioner nut is very loose and could slide right off. To prevent this, use an O-ring to hold the nut in place once you've adjusted its position.
- I personally don't trust servo tape to hold my steering servo in place. No matter how well you mount it, the servo still tends to "squirm" back and forth. To solve this problem, use Shoe Goo to mount the servo in the upright position against the servo mount. This ensures stability and the Goo can be easily peeled away if you wish to remove the servo. ●



*The movement of the car's rear motor-pod is controlled by this arrangement of friction plate and coil-spring damper.*



*Front suspension action and damping are provided by this sliding kingpin and coil spring. Additional damping can be attained by coating the kingpin with thick grease.*

Tamiya is great at making its cars look as realistic as possible.

As for the car's handling, that was another story at first. It felt more like a contest of who could do more donuts in five minutes rather than who can do more laps. The car needed a few minor adjustments. I pulled it in and spoke to one of the local F1 drivers to pick up some tips. He told me to tighten the tension nut about 3mm from the top instead of the stock recommended 2mm. Also, the two screws on the bottom plate need to be tightened farther because the chassis flexed side to side. He had also given me one last tip, and that was to use thick silicone grease in between the friction plates. These changes made the car handle much more consistently through the turns and onto the straightaway.

When my heat was finally up, I was very enthusiastic to finally race against other similar F1s. When all cars were on the starting grid, that was a sight to see. It is hard to understand what I am talking about with out really seeing first hand what these cars look like on the track.

When the tone to start the race finally sounded, I was very cautious. Everybody jumped off the line in a hurry, and I was the guy who waited in the back of the pack to go around the first corner pileup. The car weaved in and out of the other cars like a dream. When it came time for the wide sweeper, I got on the gas too early and pushed out toward the outside. As soon as I touched the white-painted border surface, it was donut time for me. Glazed donut that is. If I brought the car to far off the groove, it felt like it was on ice. I learned how to keep the car on the right track and my lap times were consistent after about the second qualifier. With this car you have to feather the gas very gently whenever you want to accelerate. If you want to learn how to keep speed through a tight track, I highly recommend trying F1.

Oh, and by the way: I eventually finished in seventh overall, and qualified to compete at Tamiya's Nationals in September!

## Tamiya Ferrari F310B

**Manufacturer:** Tamiya America, Inc., 2 Orion, Aliso Viejo, CA 92656-4200 • (714) 362-2240; (714) 362-2250 fax • www.tamiya.com

**Price:** $198

**What you get:** complete rolling chassis with three-step mechanical speed control and Mabuchi 540 electric motor. You must purchase a two-channel radio system with two servos (one servo if you are planning to use an electronic speed control), battery and charger, and paint.

| | |
|---|---|
| **Length** | 16.1" (410mm) |
| **Wheelbase** | 10.3" (262mm) |
| **Width** | 7.9" (200mm) |
| **Height** | 3.9" (100mm) |
| **Weight** | 3 lb. |

### What we like

• Overall this car was really a joy to work with. It is very simple to build, and it brings a whole new meaning to the word "realism."

• Tamiya is one of the best companies at creating a simple, easy to follow instructions with each and every one of its car kits.

• The wheels on this car are really detailed to match those of the real Ferrari F310B.

• The car is fully adjustable to meet every F1 racer's needs. This car is competitive with any other F1 on the market today.

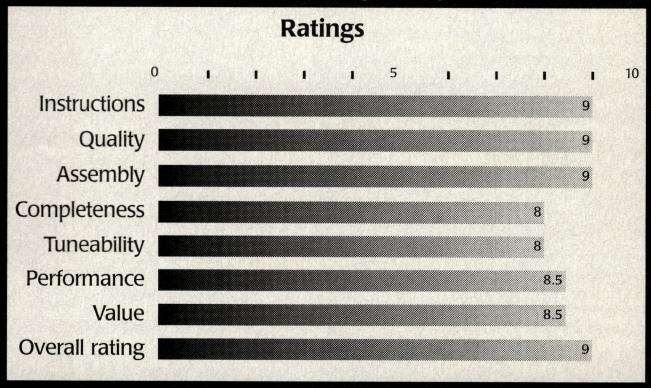
### What we don't like

• Mounting the side panels to the main portion of the body doesn't create a very sturdy assembly. One side swipe from another vehicle and a panel is likely to be lost.

• If the rear tires are not mounted perfectly, the vibration from the axle can cause an inconsistent gear mesh.

### What we really think

After all the building and testing had been completed, I looked back on this test as one of my favorites. I had never driven an F1 car competitively, and now, after driving the Tamiya Ferrari F310B, I think I am going to race this car whenever I get the chance. The car handled well right out of the box, and it looked so realistic that I kept on thinking I was watching another ESPN F1 series race. Well I won't go that far, but trust me, F1 R/C racing is really fun. I'm hooked!




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

### Sources

**Futaba Corp. of America**, P.O. Box 19767, Irvine, CA 92723-9767 • (714) 455-9888; (714) 455-9899 fax

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

**Novak Electronics, Inc.**, 18910 Teller Ave., Irvine, CA 92612 • (714) 833-8873; (714) 833-1631 fax • *www.teamnovak.com* ◆

Product Test

# Tekin

## Pro Motor Dyno

*An inexpensive way to rate your motors*

**By Jeremy Reitman**




### What it does

The Tekin DYN 900 motor dyno allows you to check your motor's performance without even running it in your car. The dyno can measure amps, volts, rpm, peak horsepower output, and it all fits into a small compact unit.

To run Tekin's Dyno, you need a constant 12V, 25 amp DC power source, and a "slave" motor (more on this later).

### What it has

• Large LCD screen for easy viewing of motor performance. The display can be

### Reading the Readings!

● A motor dyno can be a very useful tool when tuning your car for its best performance. Here are the "highlights" of how the information provided by the Tekin Pro Dyno can be of use.

• Rpm gauge. The Tekin Pro Dyno can measure rpm very accurately. By using an improved, reflective optical pickup, the dyno is able to calculate the rotations of the motor in either a loaded or unloaded situation. This enables a more accurate reading of how your motor will work out on the track. A motor under a loaded simulation is equal to your car accelerating through a sweeper or entering a straightaway.

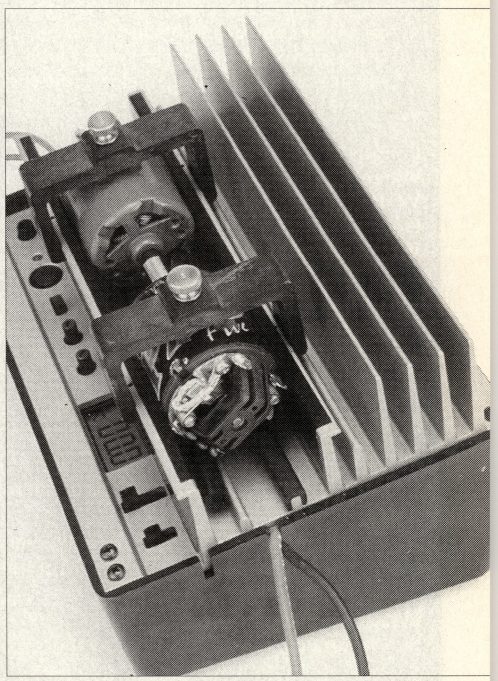
I have noticed many people first look at the rpm reading on their dyno sheets included with their newly purchased motors; little do they know that this reading is of the least importance. Measuring rpm is mainly useful in deciding gearing for your vehicle. Two cars that have the same power rating but different rpm readings would need to be geared differently in order to achieve the same axle rotation.

• Efficiency by timing adjustment. One of the more important measurements is that of efficiency. Maximum efficiency can be obtained for your motor with the timing set to neutral, or zero degrees. The Tekin dyno can accurately tell you exactly where your neutral setting is located—and you can adjust the motor's end-bell while the motor is installed on the dyno. This allows you to quickly adjust the timing and retest the motor again and again.

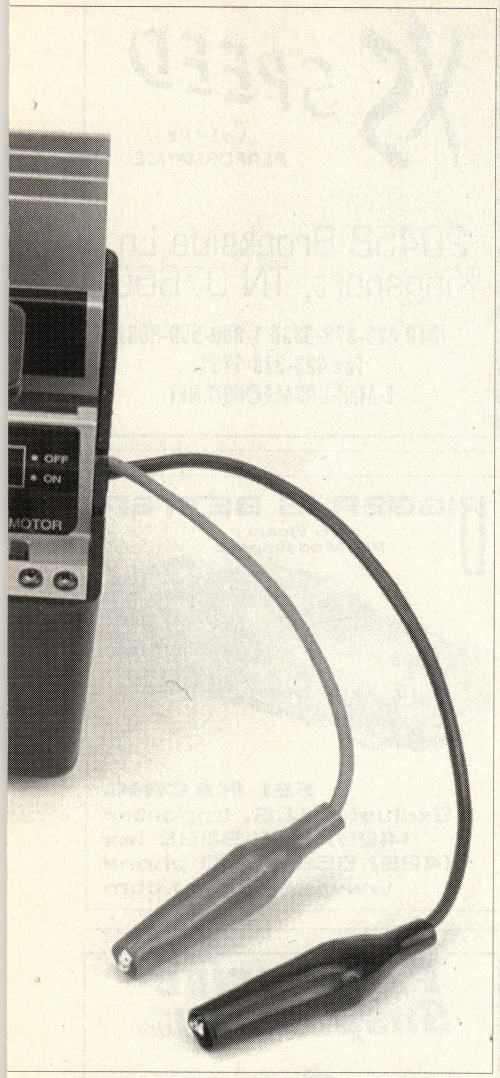
Also remember that neutral timing may not be the most efficient for your type of vehicle. Tekin recommends 1/16 inch timing advance for on-road racing, and 1/8-inch advance for off-road.

• Efficiency by amp draw. This reading is the no-load power draw at five amps. This measures the motor's efficiency as no-load amp draw is consumed within the motor without it being delivered to the output shaft. If you have a few motors that have the same power rating, the one with the lowest amp draw will be the most powerful and most efficient out on the track.

• Power Rating (rpm x torque). This is the dyno's most important rating. This rating is the product of rpm multiplied by the torque. With a greater power reading, the motor is going to be quicker off the line, and yet it will maintain a high top-end as well. With this tool you can decide which motor would be the best choice for a particular track, and for your vehicle selection.



*Look how big those heatsinks are! They do an excellent job of dissipating heat from the motors.*




*Although the knobs might be small and a bit difficult to adjust, The DYN 900 has many adjustments necessary to get different types of readings.*

switched to show either amps, volts, or rpm.

• Alligator clips to attach to the motor endbell (no soldering necessary, although the dyno's readings will be more accurate if you remove the clips and solder the wires directly to the test motor).

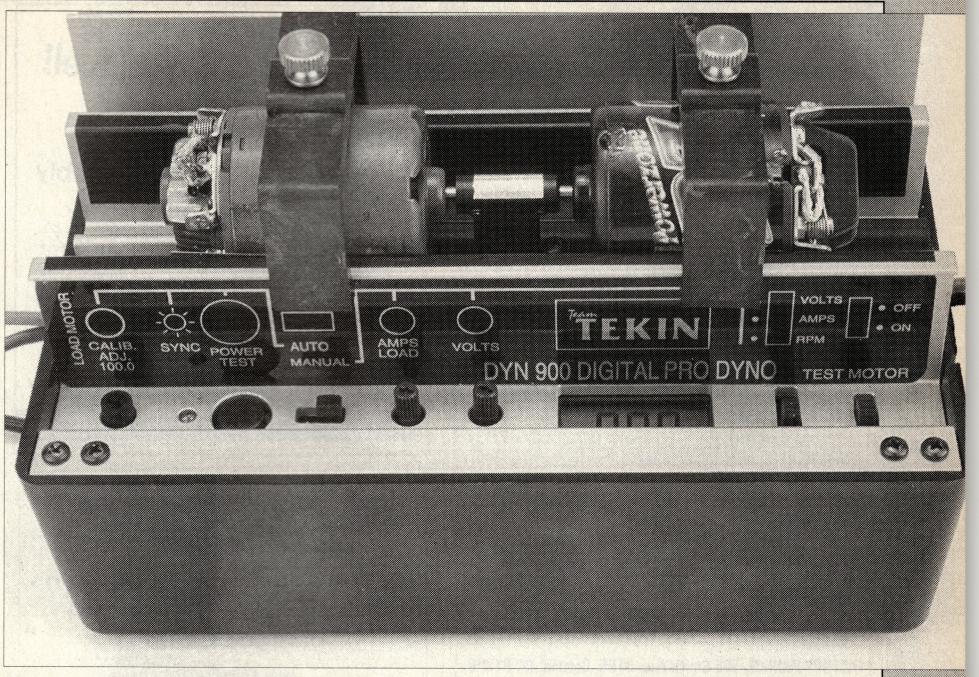
• Large, extruded aluminum heatsinks to keep the unit running cool.

• Adjustable amp and voltage output so that you can tailor your testing to the type of motor and your performance requirements.

• A self-contained voltage regulator for motor power ensures a greater degree of precision of the dyno's readings.

## What the Tekin Dyno can do:

• Tekin uses something called a "peak horsepower reading" that can measure the torque of the motor and how the motor will accelerate the vehicle.




***Check out the rpm pickup. It's a unique way of getting an accurate rpm reading from your test motor.***

• Measure rpm to accurately set your gearing.

• Measure amp draw to determine the motor's efficiency.

• Sensitive electronics find changes in brushes, windings, magnets, bearings, and commutator condition.

• The Tekin DYN 900 uses a slave motor to draw power of the motor being tested. With Tekin's new technology, the slave motor does not affect the reading accuracy of the motor being tested.

## What we like

• The Tekin DYN 900 is a great tool for big races. It is compact and light enough to carry along with all of your R/C equipment.

• The Dyno can accurately tell you which of your motors will be the best overall. The accuracy of this little piece of equipment is very intriguing. The rpm and amp ratings were always right on the money when I compared them with other dyno tests already performed on the motor.

• The (comparatively) low price for this high-tech piece of equipment makes this one of the least expensive dynos available.

## What we don't like

• If the slave/load motor is not in perfect condition, the Pro Dyno will not work properly. The display on the unit has a red light that will come on to let you know if the load motor is synchronized properly. For the slave motor, you need to put a stock armature into a modified can so you can set its timing to zero degrees. The bearings have to be in good condition as well as the brushes, otherwise the synchronization light will not work properly. This became a pain for me as I went through three armatures and five motor cans until I found a setup that worked properly.

• I found the adjustment knobs to be a little bit on the small side even though I have small fingers. It was a bit difficult to adjust the amps and volts because of this minor problem.

## What We Really Think

Overall this piece of equipment is very handy. It does exactly what Tekin claims. It is a great tool for measuring the capabilities of modified and stock motors alike. Although it is not of the greatest accuracy due to its sometimes fluctuating readings, it does give you a good idea of which of your motors are going to be better than the others. This is the type of equipment that I like to have with me at big races when every bit of power is needed. ◆

**info**

**Manufacturer:**
Tekin Electronics, 940 Calle Negocio, San Clemente, CA 92673 • (714) 498-9518; (714) 498-6339 fax
**Part no.:** DYN 900
**Price:** $350 [estimated street price]
**Recommended for:**
Intermediate, to very experienced racers.
**Rating:**

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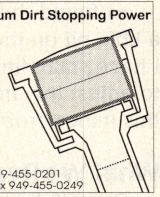
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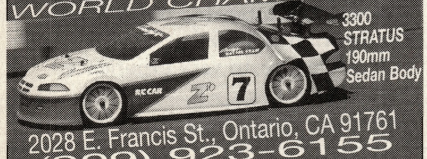


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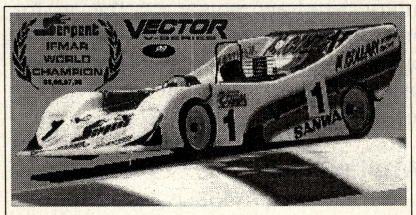
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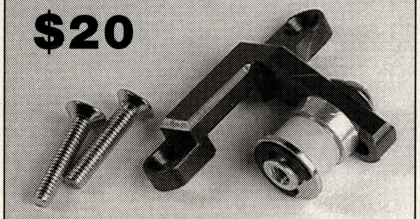
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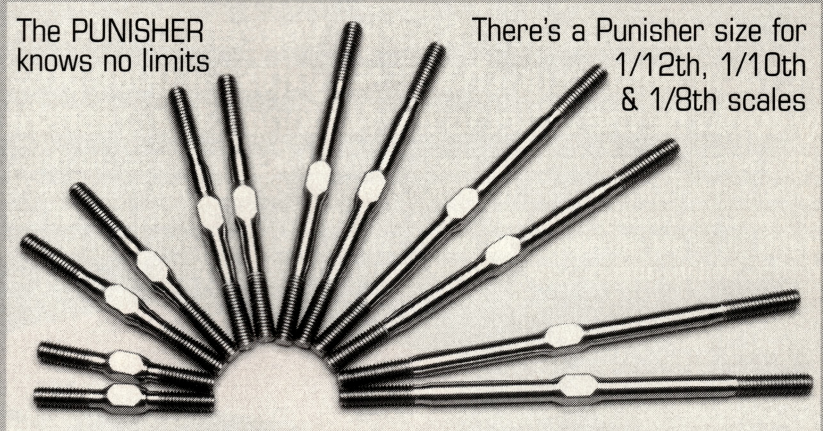
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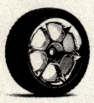
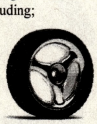


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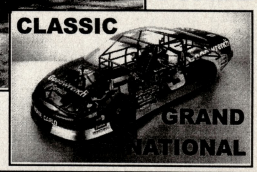
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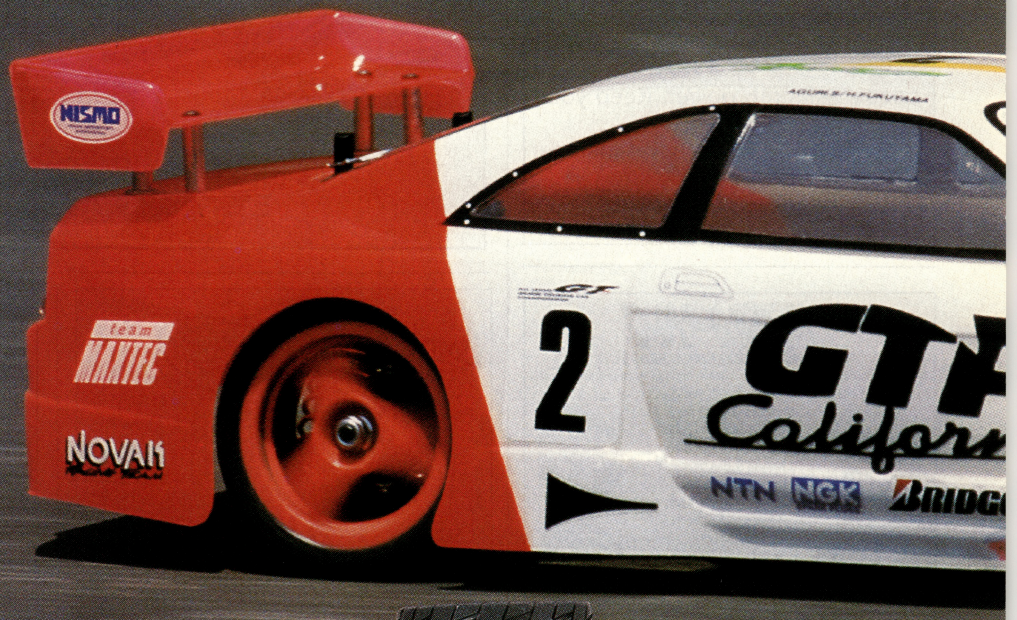
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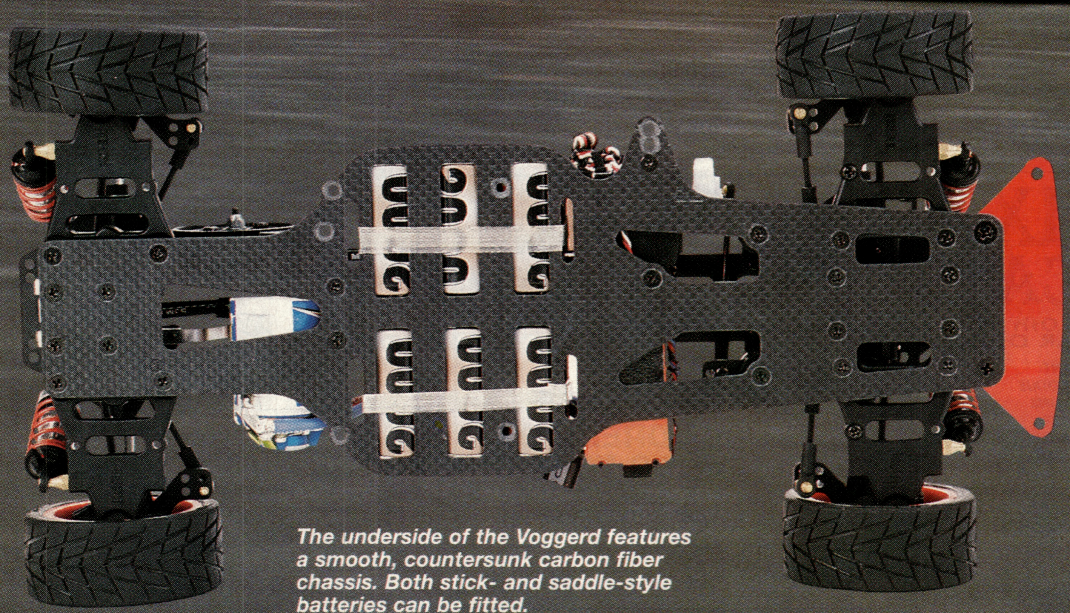
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Now before you sell the house, quit your job and build a race trailer to go on tour around the country, let us warn you that this car is not intended to be your first R/C sedan, unless your resume includes a degree in race car chassis engineering. Tech racing has engineered this car to be the most adjustable sedan available to date, so it can be setup to almost any track or driver style.

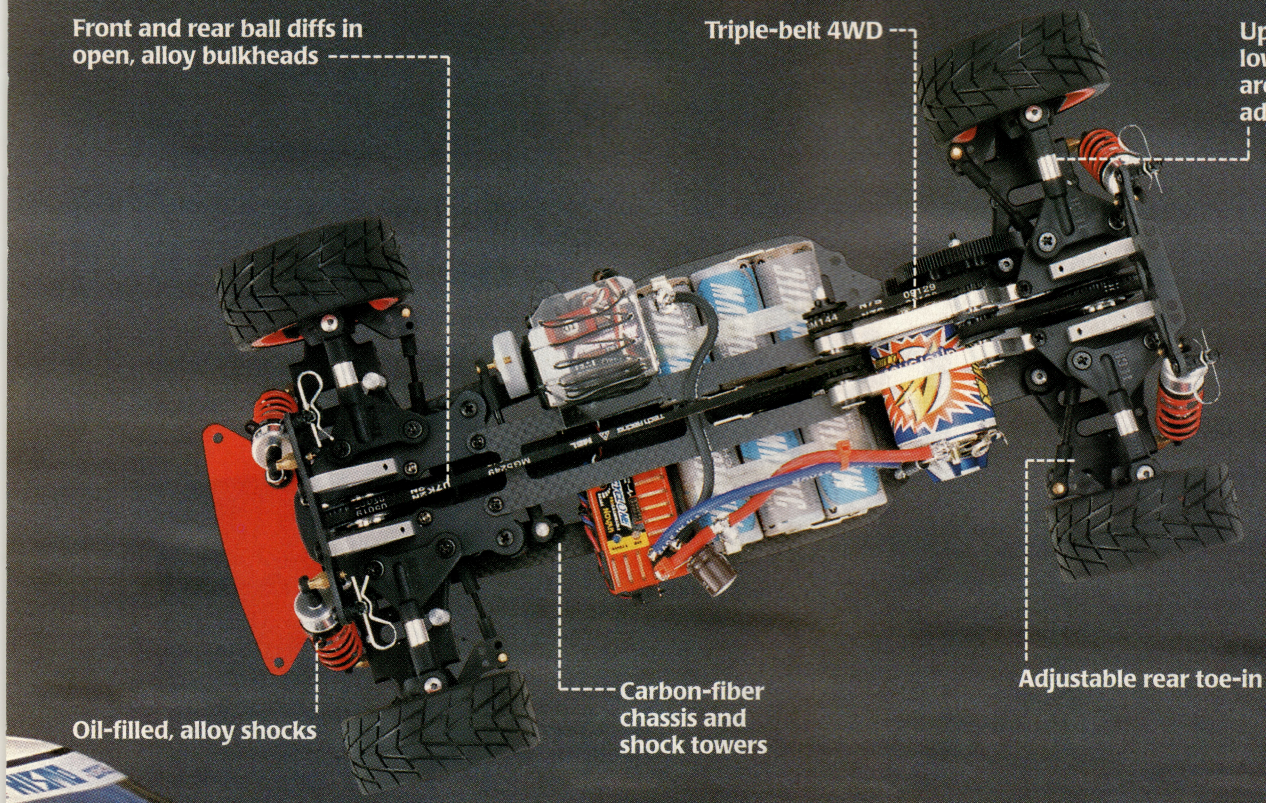
The kit is full of cool stuff, e.g. full bearings, CV joint half shafts, lots of graphite, nicely milled billet aluminum motor and suspension parts. The shocks too are trick machined aluminum units. Even the chassis is cut for either saddle-pack or stick arrangement batteries, thus keeping with the manufacturers philosophy of tunability. The kit is not available with tires or body, but this does allow the owner to select his/her own favorite combination. For our test car, GTP California, the U.S. importer, set us up with the latest "S" compound Grooved Ride tires and Cross Racings beautiful Nissan Skyline GT body.

The Voggerd suspension is pretty typical of sedan cars but it has even more adjustment capabilities most notably rear toe, and like we said earlier, the racer



*The underside of the Voggerd features a smooth, countersunk carbon fiber chassis. Both stick- and saddle-style batteries can be fitted.*




with some chassis tuning ability will be able to play with the car's roll centers since the upper A- and lower A-arms can be spaced up or down.

The chassis could be fitted with sway-bars since there are holes in the arms and chassis available but none are included in the kit. The shocks are very nice machined aluminum, and the springs are fairly stiff. Our only complaint is the kit comes with only one style of shock pistons(?)!

We can go on and on over whether three belts are the hot setup or not, but the Voggerd drive system is quite free. The use of three belts here does allow Tech racing to get the cars center of gravity a little lower. Ball diffs at both ends, central motor placement, a very ridgid chassis with machined aluminum motor and diff carriers, beefy upper and lower arms, and nearly 50/50 weight distribution are just a few of the tricks in this kit.

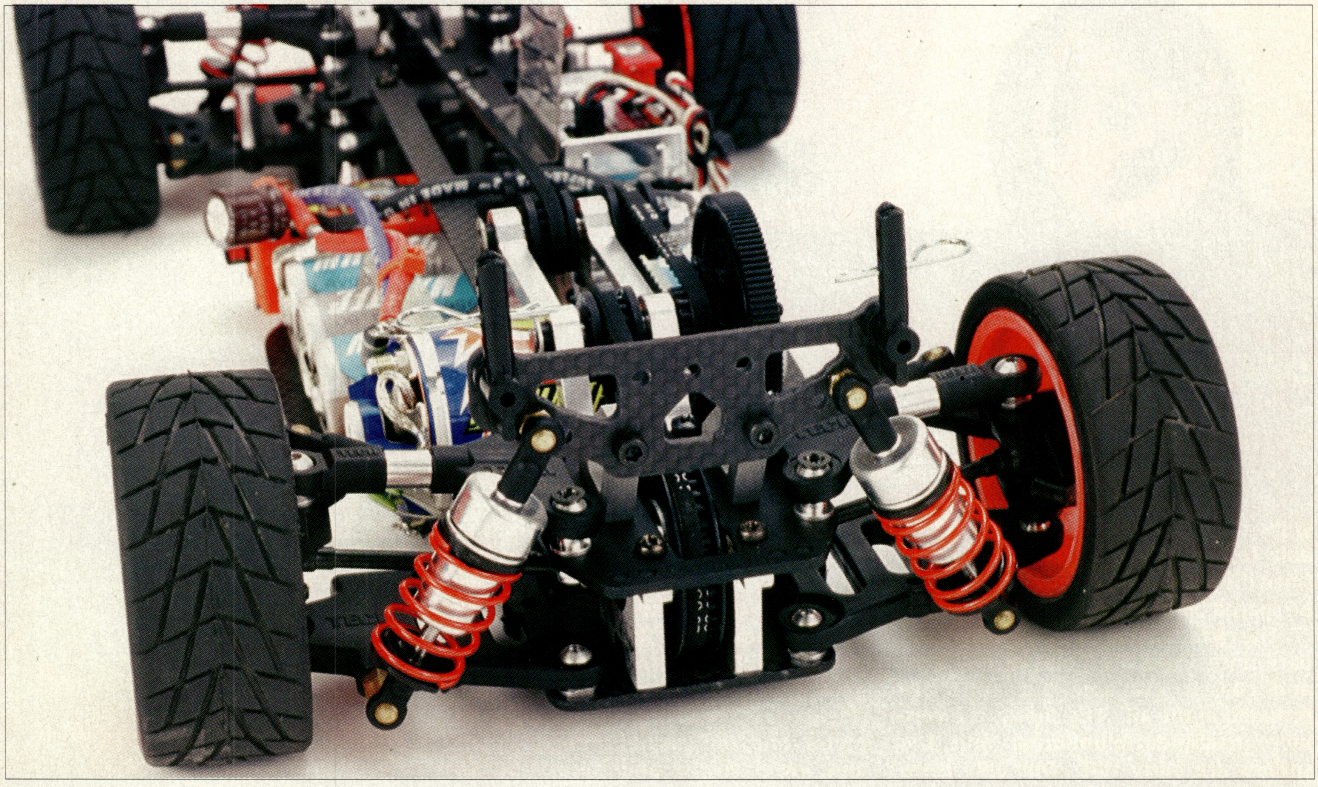
## Options we used

- Airtronics Cs2p TX
- Novak Mercury 27mh RX
- Novak Cyclone ESC
- Futaba 9601 steering servo
- Maxtec Voltage enhanced 2000mAh batteries
- Maxtec Aftershock 24-degree stock motor
- Kimbrough 64 pitch gears: 37-112
- Associated 80wt shock oil. ●

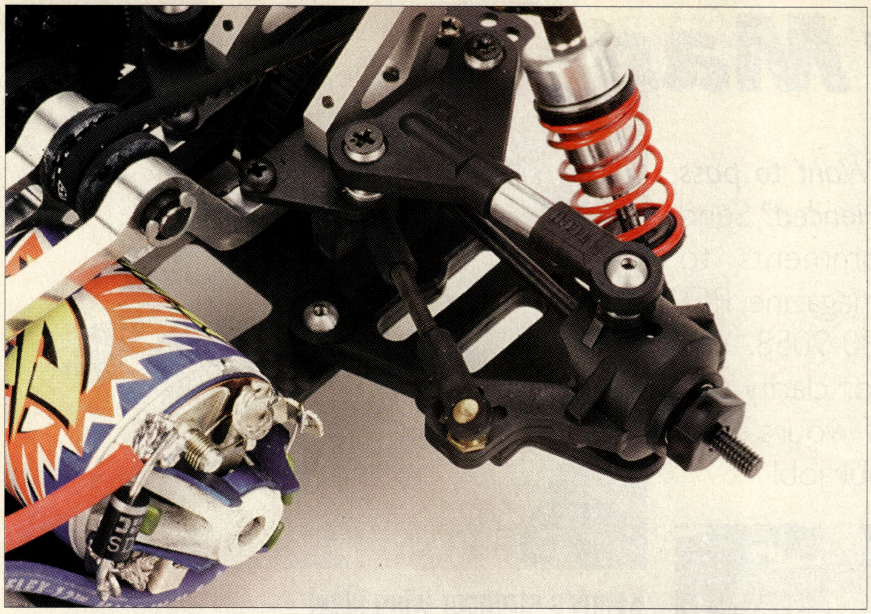
# Tech Racing Voggerd GT



*Beautifully finished alloy and exotic carbon fiber abound. The Voggerd's mini bumper really isn't—its purpose is to allow the use of a foam-rubber bumper.*



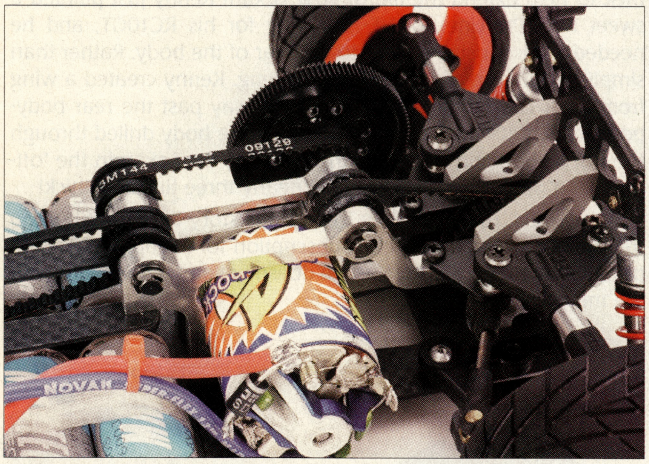
*Open diff-housings won't collect dirt that can destroy the belts and pulleys. Large-capacity alloy shocks are very smooth, although Tech includes only one type of piston in the kit.*



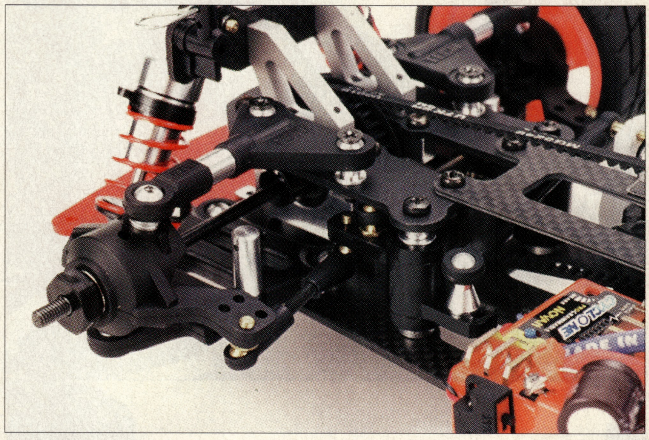
*The Voggerd is the most adjustable chassis available. The rear suspension allows for adjustment of toe-in, and upper and lower arm attachment heights.*

## Test notes

• Off to the local track for some hot laps. After some electronic adjustments (recentering the steering servo saver) and setting the ESC to our old style Airtronics TX, we're off! First thing we noticed is that this car has heaps of on throttle understeer. Low speed steering is very good even with the grooved tires. Turn the rate trim up on the TX and the thottle understeer gets better but it's still there. The low speed steering is real touchy with this much throw. Less rear toe-in will help this…adjust, adjust, adjust…now we're cooking. The motor is by far the best 24-degree we have driven to date (wait till the oval guys get hold of this motor) and although overkill for a stock motor car the 2000s were dynamite. First impressions are that the car in capable hands will be immediately competitive!—**Frank Killam** •



*Three belts are used for power delivery. CNC-machined alloy serves as an effective motor-mount/heat sink.*



*The front steering arm provides four holes in which to attach the steering rod. This allows you to adjust the car's steering Ackerman angle to customize its steering "feel."*

## Tech Racings Voggerd GT

**Type:** 1/10th scale 4WD electric sedan racer
**Manufacturer:** Tech Racing (distributed by GTP Racing, 600-A Anton Blvd., Costa Mesa, CA 92626; (714) 756-1219; (714) 756-1227 (fax)
**Price:** $399.99 (est. street price $250-280)
**What you get:** Complete chassis kit, including bearings. You will need tires, body, two-channel radio with steering servo, ESC, motor and batteries.

| | |
|---|---|
| **Length** | 13-3/4" |
| **Width** | 7-3/8" (190mm) |
| **Wheelbase** | 10" |
| **Front track** | 6-5/16" |
| **Rear Track** | 6-5/16" |
| **Weight** | 52.3 oz. |

### What we like

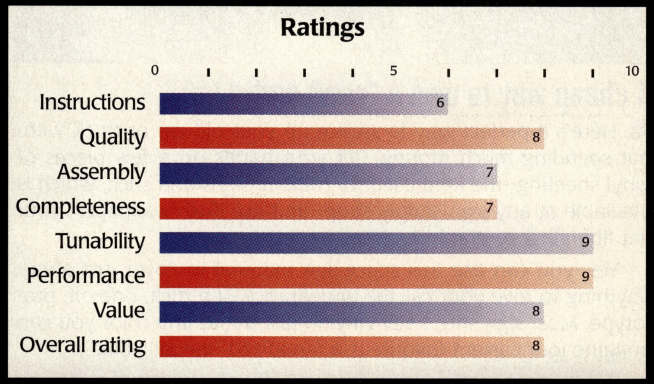
Super adjustable design, nice machined parts. Very stiff chassis with good quality graphite components. Low center of gravity and excellent weight distribution.

### What we don't like

Instructions need help. In a kit this adjustable it was suprising not to have turnbuckles for all the upper arms, front steering and rear toe links (okay, we have to have some factory hop-ups...). Tough RX placement, and as we mentioned earlier, no tires.

### What we really think

This car has terrific potential and in capable hands could be awesome. The importer, GTP California, has great customer support with all the factory options and nearly unlimited spares. Since the car is so new here in the U.S. we have no race history with it but there is potential!




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

# Answer Man

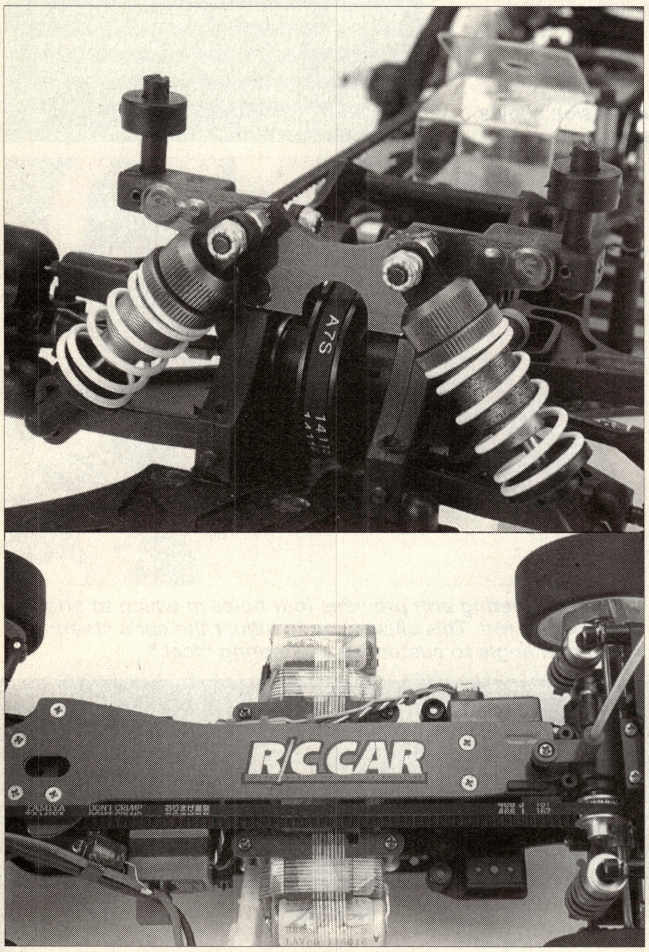
*Got a problem with your car? Want to pass some advice onto the less experienced?* Send your tips, questions or comments to **Answerman**, c/o **R/C Car** magazine, P.O. Box 958, Valencia, CA 91380-9058. We reserve the right to edit tips for clarity and length. So don't get mad if yours gets "butchered"; we're just doin' our job!




## Kenny's stronger wing idea!

Our local body painter, Kenny Carcellor, thought up this neat trick to help extend the life of your Lexan! Kenny just painted a sweet new Pro-Line Ford F-150 body for his RC10GT, and he needed to also install a wing to the rear of the body. Rather than simply tacking on a standard Lexan wing, Kenny created a wing from thick Lexan that extended all the way past the rear body-post holes. With the holes for mounting the body drilled through the truck body and the rear wing material, the Lexan in the "oft-damaged" rear mount area is now nearly three times as thick!

We would, of course, like to end this story by informing you that Kenny will receive a free subscription for his tip, but with all of the painting he does for us, he doesn't even have time to read the magazine!

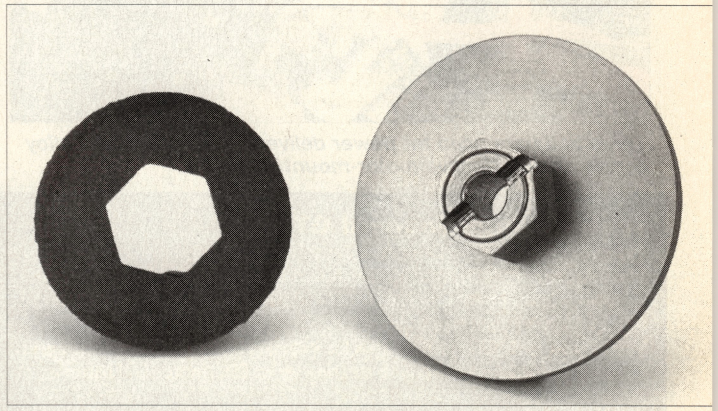



## A cheap way to own a "new" car!

Here's a perfect way to spruce up your old car or truck without spending much money. Get your hands on a few pieces of vinyl sheeting—the kind used for making signs and such, which is available at any sign-supply shop—and use it to "wallpaper" your flat fiberglass or graphite pieces.

Yes, you can use this space-age material to cover just about anything to give your car the appearance of a trick, one-off, prototype. Most sign shops sell vinyl in just about any color you can imagine (our current favorite is a "anodized" metallic blue!).

If you want to give your "budget" fiberglass parts the look of more expensive parts, try covering them with HPI's new "carbon fiber" trim tape (check with your local hobby shop for availability and pricing).



## Associated GT brake improvement

If you're a gas truck racer, then you know the importance of having good brakes. Proper braking is essential if you want to go fast; and because gas trucks have little to no "engine braking," as electric cars have, making sure your disc brake is in top shape should be your number one priority.

With Associated's RC10GT nitro truck, the stock plastic hex-piece that keys to the inside of the brake disc can become so severely worn that you might actually lose the ability to stop! To remedy this, swap the plastic hex with Associated's optional aluminum brake hub (part no. ???). This will prevent one area from wearing out.

To go one step further, apply a small amount of CA to the inside of your new brake disc before you install it to the hex. The glue will protect the inside of the disc from wearing out too quickly against the new aluminum hub. Happy stopping!◆

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# MULTIPLEX®

**DIGITAL!** *3 times the input Holding Power [Hold.Pwr.] of a normal servo*

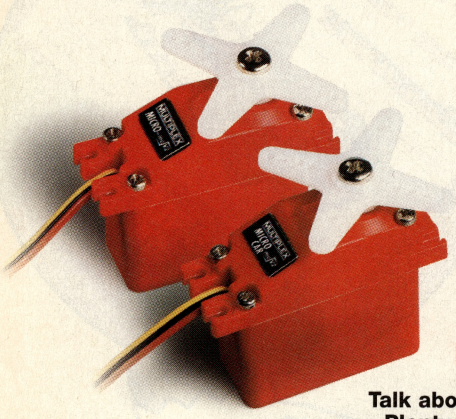


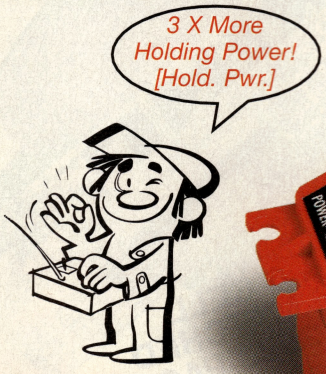
**mc V2**

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- *No Servo fade!*
- *Can be used with ANY brand RX!*
- *Cool COLOR! [Style is everything]*

## PROFI 3BB*

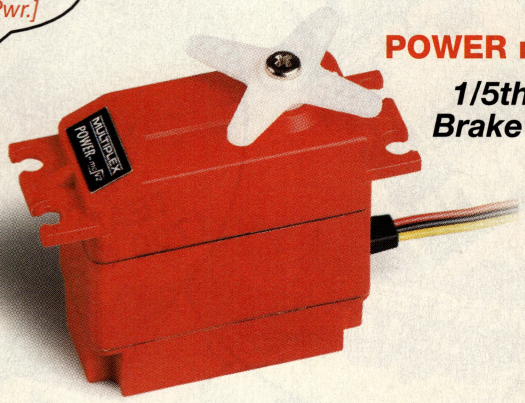
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***1/5th scale Brake Servo***



## MICRO mc/V2

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**Less weight for 1/10th scale Cars/Trucks**

## JUMBO
## the steering servo

***1/4th or 1/5th scale Cars and Trucks***



## PROFI mc/V2

***—Adios,* so-called Torque servos! MPX has the Real Power!**



## PROFI mc/V2 Speed

**—When speed and power matter— 1/8th scale On- or Off-Road FASTER on short inputs than Non-thinking servos! Lock to Lock: 0.09**

**Profi 3BB is NOT digital or programmable*

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| **Torque** | 60 in/oz | 42 in/oz | 56 in/oz | 62 in/oz | 75 in/oz | 135 in/oz | 297 in/oz |
| **Hold. Pwr.** | **180 in/oz** | **165 in/oz** | **126 in/oz** | **186 in/oz** | **225 in/oz** | **405 in/oz** | **891 in/oz** |
| ***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
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# R/C CAR &

THE RADIO CONTROL CAR MAGAZINE



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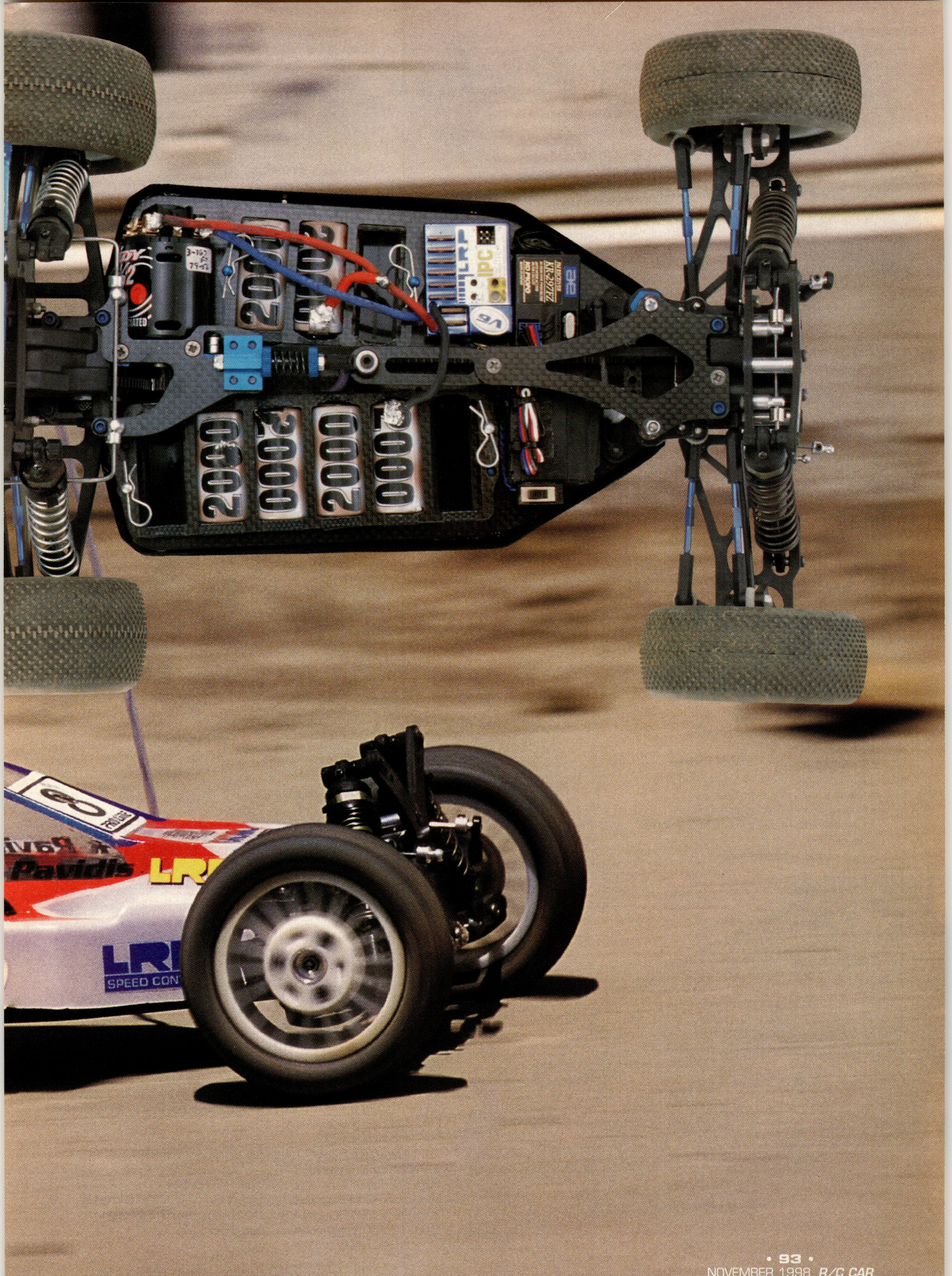
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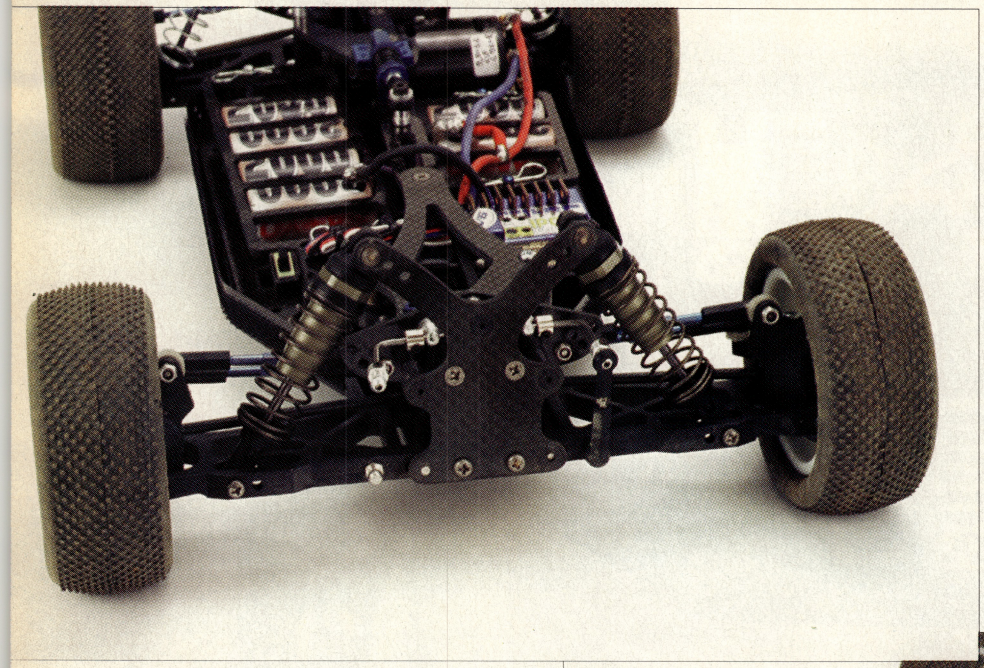
# Factory Ride

# Mark Pavidis' Yokomo MX-4

**Throughout the weekend at the '98 Reedy Race of Champions held at M-n-M Hobbies in Corona, CA, Team Associated's Mark Pavidis was the only Yokomo driver that had his MX-4 on pace with the front-runners. Mark, the '95 4WD IFMAR World Champ, was right up there for the overall at the race, and he showed them that he could throw his Yoke around the tight, high-bite track with the best of them. Currently, Mark practices with his MX-4 at SoCal Raceway on Wednesday before the racing action kicks off, and he shared his latest setup with us.**


2000
2000
2000
2000
LRP
IPC
ae
Pavidis
LRP
LRP
SPEED CON

# Factory Ride



## Front End:

- Tires—Pro-Line cut Square Fuzzies M3 (one bar and one spike cut out)
- Foam— Pro-Line cut foam
- Wheels—Standard

**Suspension:**

Shock bodies—Team Associated .89
Oil—35wt Associated Silicone oil
Piston—#2
Shock Shaft—.81 Unobtanium (Mark modified a 1.02 to make the shock the right overall length)
Spring—Prototype Yokomo (firm) from IFMAR Worlds
Limiters—None

- Mounting position—Outside on top of tower/outer hole on suspension arm
- Toe—0-toe
- Camber—2° negative
- Anti-roll bar—Disconnected (only tested on extremely high-bite tracks)
- Caster blocks—Standard (ground down for more steering throw)
- Caster block/hinge pin—Upper hole
- Camber link—Lower inside hole on bulkhead

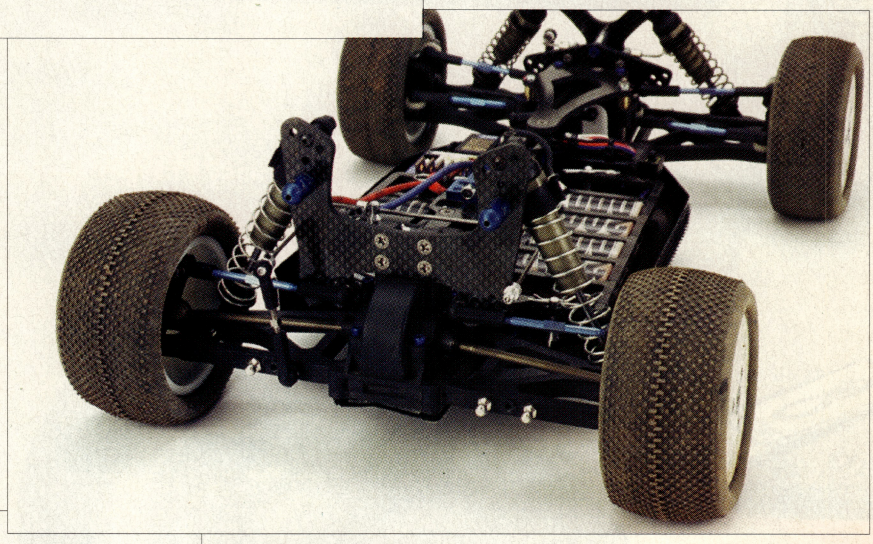
## Rear End:

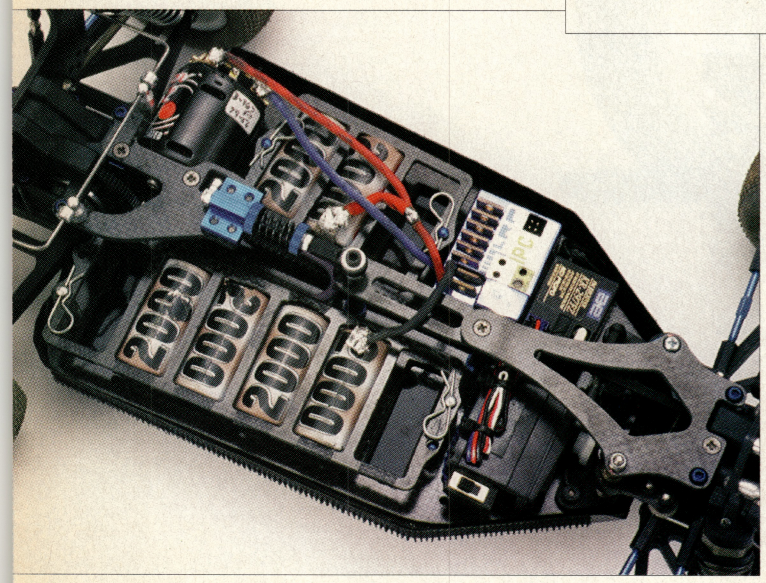
- Tires—Pro-Line Square Fuzzies M3
- Foam—Standard Pro-Line
- Wheels—Standard

**Suspension:**

Shock bodies—Team Associated 1.02
Oil—25wt Associated Silicone oil
Piston—#2
Shock shaft—1.02 Unobtanium
Spring—Team Associated Silver
Limiters—None

- Mounting position—Middle hole on tower/outside hole on suspension arm
- Camber—2° negative
- Anti-roll bar—Disconnected
- Camber link—Lower inside hole (closest to center)
- Hub carrier—Middle hole



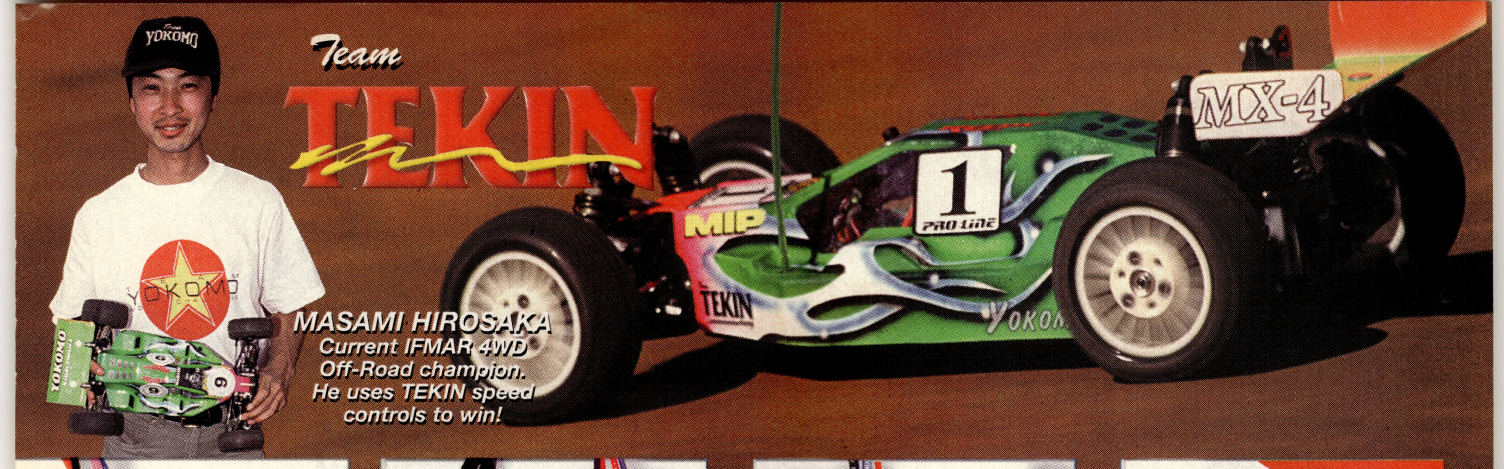


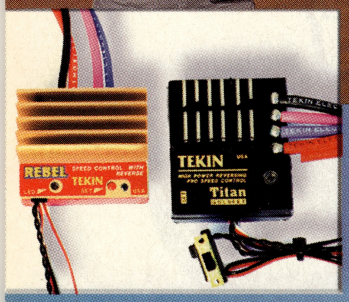
## Electronics:

- ESC—LRP IPC V6 (full linear)
- Motor—Reedy Sonic II (10x2)
- Brushes—7060X
- Gearing—18/84
- Batteries—Reedy Zappers 2000 (two cells on the left placed forward/four cells on the right spaced in the middle)
- Radio—Airtronics M8 (27mHz)
- Steering servo—Airtronics 94257
- Receiver—KO Propo KR-297FZ

## Miscellaneous:

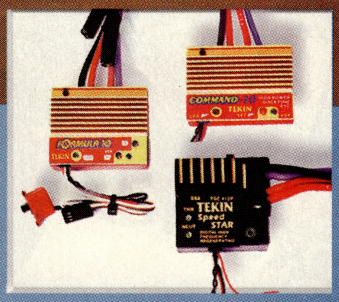
- Center shock—Standard length
- Team Associated diff and thrust balls are used in both front and rear diff
- Yokomo graphite upper deck (with graphite cross brace), and graphite front and rear shock towers
- MIP Aluminum CVDs
- Team Associated Factory Team blue titanium turnbuckles
- Yokomo titanium screws
- Mark anodized all the stock aluminum pieces blue
- Sponsors—Team Associated, Yokomo, Reedy Modifieds, Pro-Line, LRP, Airtronics, MIP, Thunder Paints, Mechanix Wear, Kimbrough, Oakley, Ceet, Doug Dubach's Used Bikes




## REVERSE ACTION

● The REBEL, speed control reliably delivers high speed forward/reverse/ and brake action at a low price. Unique Thermal Transfer Technology for no over-heating, even with a 10-turn motor. Easy push button setup. Now with new GoldFET III transistors to increase power 40% and reduce heat. ● The TITAN pumps out maximum amperage with two rows of GoldFET transistors. It can power 10-turn or even dual mild motors, with blazing speed. Built in motor and battery plugs. Adjustable reverse delay 0-5 seconds, plus lock-out.




## DRIVING FUN

● The FORMULA-10 and 412P SPEED-STAR are both great heavy duty electronic speed controls at a practical price. No motor worries, the High Torque output won't overload, even with 10-turn modifieds. Smooth proportional throttle control from a slow crawl to wide open. Powerful, adjustable braking. Built-in motor diode. Simple manual adjustments. Genuine high frequency operation gives 25% more run-time, plus your motors last much longer. ● The COMMAND-10 includes QuickTune one-button setup, and brake light activating wire. ● (Lights available.)



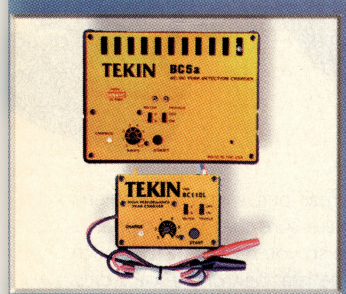

## COMPETITIVE ADVANTAGE

● The P-12 and G-12, our most advanced style, use only the best quality electrical components, with patented circuitry, to maximize power and run time. They deliver the precise control and maximum performance top racers demand. ● G-12c III adds new CoolSwitch circuit, TurboStart mode, more speeds for smoother operation, and PowerDrive motor interface. NEW anti-glitch software. The G-12c III is the Highest Amp-Flow (torque) speed control made, for extra acceleration. No motor limit. 1997-8 World Champion. ● The G-9 is the only SuperSonic bypassed speed control, for the extra regenerating power and run time to win the biggest races. 1996-7 World Champion. ● ROAR Champion. Fast for stock motors too.




## TUNING SPEED

● The G-10 brings advanced tuning capabilities to the speed control. ● Programmable read and set for all critical parameters, including throttle curve, drag brakes, neutral/brake, plus dual current limiters with timer. Easy operation, adjusts in seconds. Over 600,000 possible setups. Systematically designed to cover adjustments required for optimum performance in any situation. Back mounted, vented CoolSwitch Replaceable power wires. Exclusive advanced internal circuitry handles the most rigorous racing and performance demands. ● Already three time National Champion.



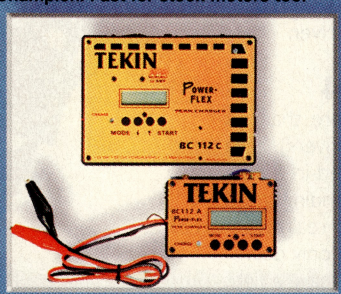

## PEAK CHARGING

● For basic charging with high-tech circuitry, it's the BC5A or BC110L. Reliable performance and rugged durability with Tekin design. Unique adaptive peak sensing circuit delivers better charges and longer battery life. Easy to use. Cool, safe operation and complete overload protection. ● The BC110L DC charger is a full 0-10 amps. The BC5A has a solid 0-6.5 amp AC/DC power supply built-in. ● NEW- BC120L compact 0-10 amp computer charger with built-in trackside auto-cutoff discharger.



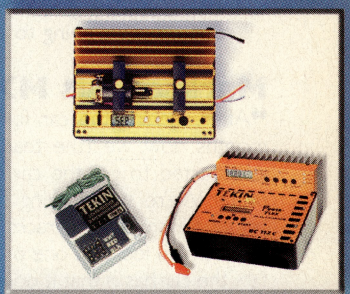

## DIGITAL CHARGING

● Custom LCD displays and microcomputer operation give you an inside picture to what the cells are doing. BC 48 is 0-8 Amp DC. BC 67 is AC/DC, with 5 Amp power supply built-in. Both feature 4 function LCD digital display, 3 charge profiles modes, and fully automatic operation. ● Reliable Adaptive Peak Sensing means your batteries are in safe hands. High performance Linear Current outputs for long, powerful runs. Gets you charged properly, reliably, and fast. 4-8 cells.




## POWER-FLEX PRO CHARGING

● The 112s deliver the best charge with Power-Flex circuitry that conditions the cells internally, so they produce more power with lower resistance, while also extending the battery life noticeably. Charges 1-12 cells, at up to 10 amps. LCD has 5 display modes, and 3 charge profiles with full settings. Connects to optional discharger for a complete high-end battery maintenance/test system. ● BC112A accepts 10-24volts DC. BC112C has a 24 volt, 10 amp AC/DC power supply built in. ● World Champion.



## RADIO ACCESSORIES

● DYN900 motor dyno tests and tunes your motors to peak power. Proprietary design has tuned World Champion motors. Digital LCD display. AM and FM chrome micro receivers are super small and light, just 1.4" square, .45 ounce. Perfect for any vehicle. ● NEW DIS-350 battery Discharger/ Cycler (shown with BC 112 charger attached) accurately tests and rates batteries. Use alone to discharge packs or cells, or with the BC112 for complete cycling system. ● Portable. 0-30 amp output with adjustable settings and LCD display. 45 amp stress test mode.

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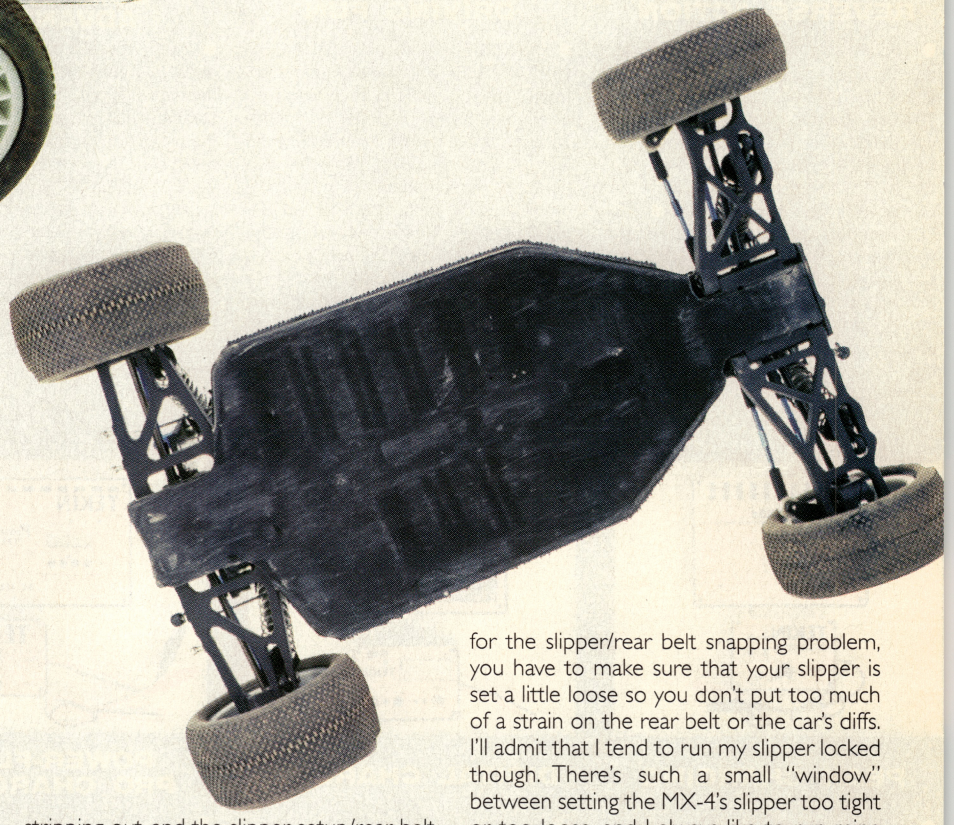
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# Factory Ride




## Mark Pavidis

- Age—26
- Occupation—R&D assistant at Team Associated
- Lives in—Costa Mesa, CA
- Been racing for . . . ever
- Hobbies—Riding dirt bikes, racing 1/8 scale off-road, going to the river.



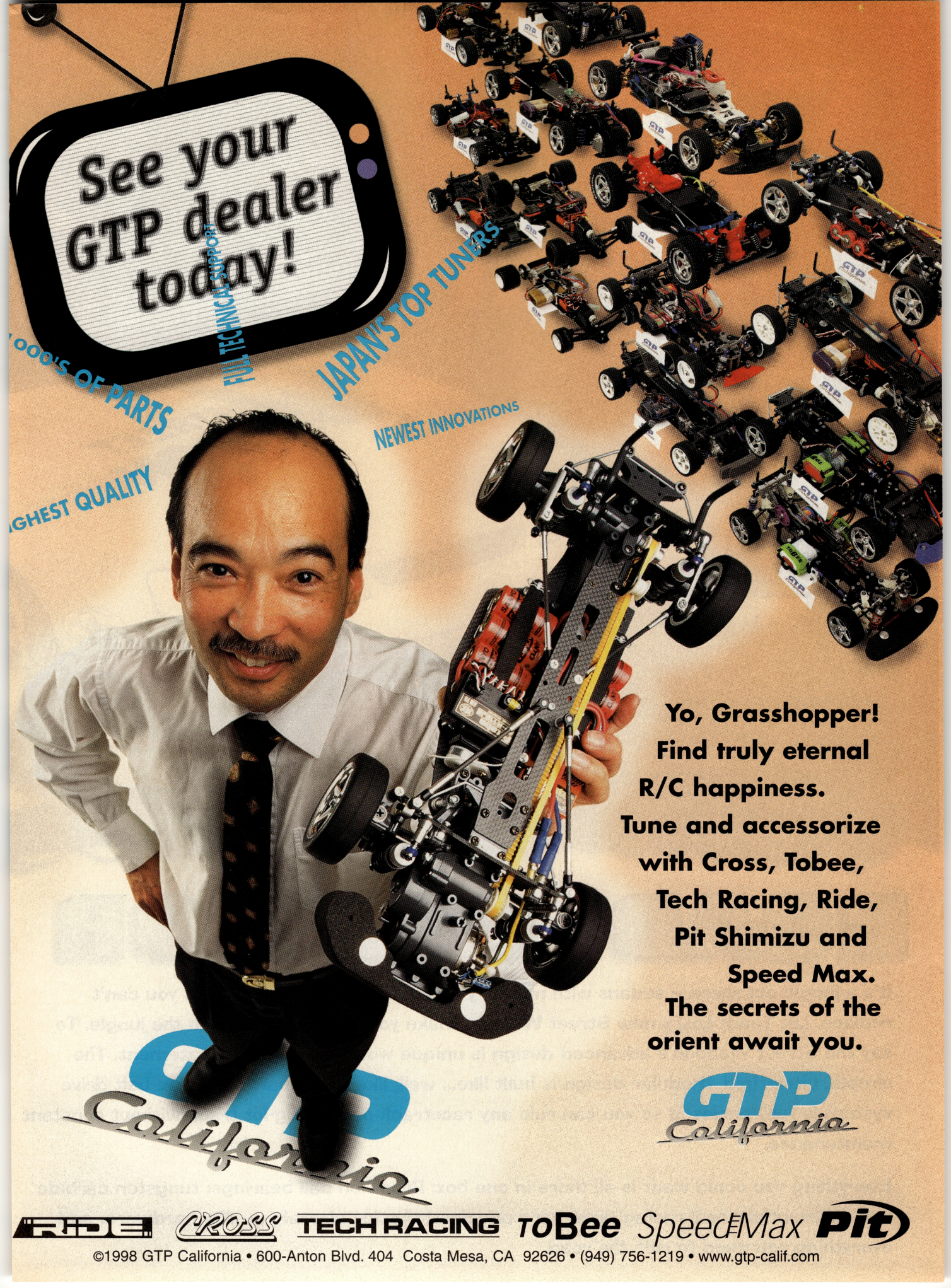
### Mark on his MX-4

"After running the car for more than six months now, we (the team drivers) have just started to get the car dialed-in a little better. We're still working on finding good setups for small, tight tracks and really high-bite tracks. I feel that one of the only downfalls the car has is that it doesn't have a tight steering radius. Other 4WD cars have a tighter turning radius and they have an advantage on tight, twisty tracks. The MX-4 can be improved though if you cut down the caster block to give it more steering throw.

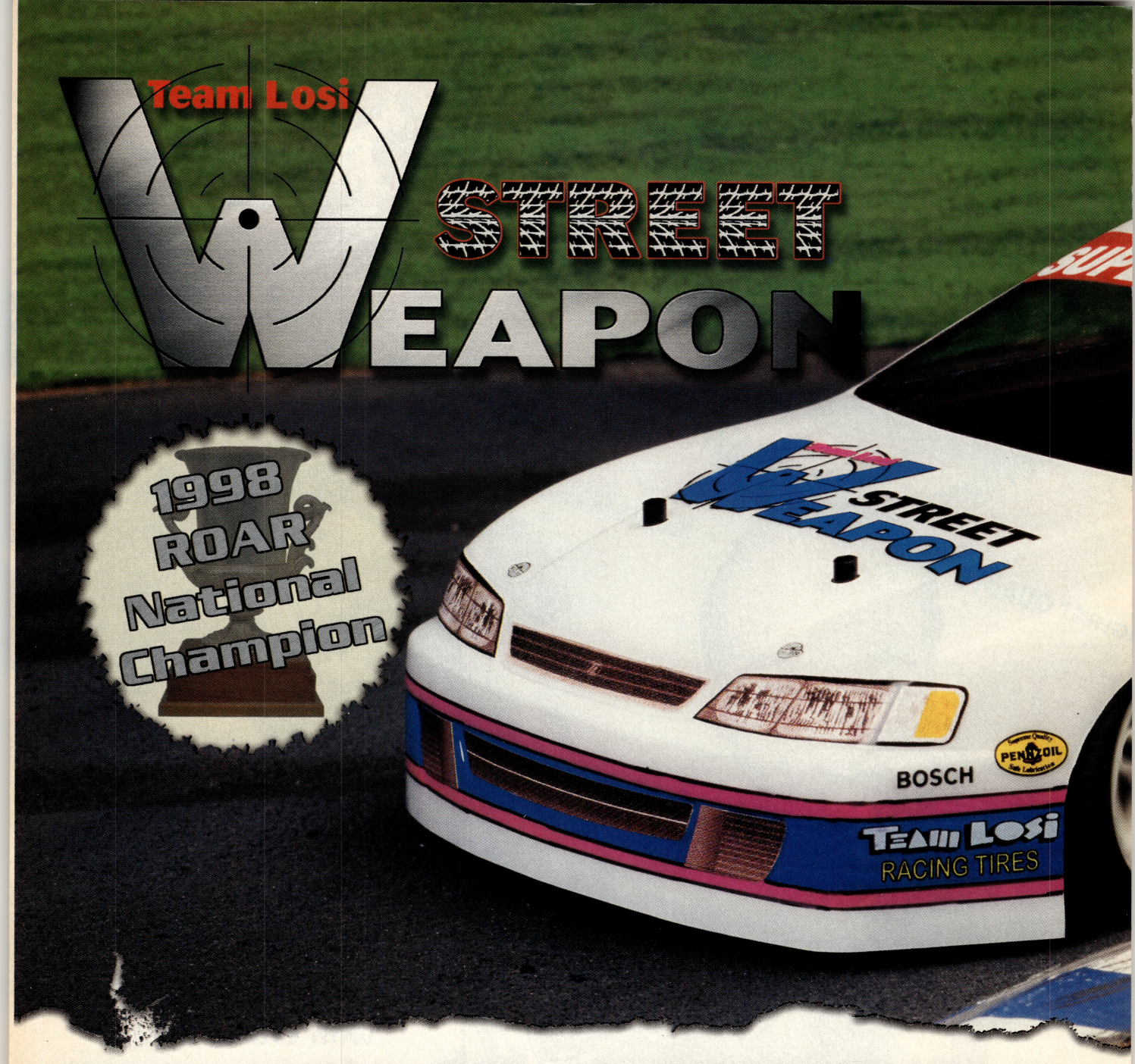
Compared to my last Yokomo 4WD car, the MX-4 is way more adjustable. The new car really excels on bigger tracks such as The Ranch, and the track at the Lake Park facility (Florida Winterchamps track). It jumps very well, and it seems to handle rough tracks better, which I'm sure is due to the car's longer wheelbase.

I've heard of two problems with the car from new MX-4 owners—the spur gear stripping out, and the slipper setup/rear belt snapping. Both problems are easily solved though. The spur gear sits almost flush with the bottom of the chassis—there's a small slot in the chassis where the spur goes through. If you case a jump hard and hit it right on the open spot on the chassis, you'll damage the spur. I recommend you take an extra piece of thick Lexan and glue it to the bottom of the chassis where the gear is exposed. Also, pay attention to your pinion/spur gear mesh and make sure there's not to big a gap between them. As for the slipper/rear belt snapping problem, you have to make sure that your slipper is set a little loose so you don't put too much of a strain on the rear belt or the car's diffs. I'll admit that I tend to run my slipper locked though. There's such a small "window" between setting the MX-4's slipper too tight or too loose, and I always like to run mine a little tight so the car has more "snap." Most racers should set their slipper a little loose so it saves rear belts and diffs. It's easier and cheaper to replace a slipper pad than it is a belt or a diff!

While this may not be the ideal "first time racer," it is a good, fast car. Once you get your feet wet in other forms of racing and you become more familiar with building and setting up cars and you want to step it up to the next level, then I'd say you're ready for an MX-4." ◆




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*The front end of the Street Weapon has been optimized to offer the best possible suspension geometry. One look tells you that this car means business. Fully adjustable camber and toe-in are standard features here.*





*The fully-sealed drive train of the Street Weapon results in more racing and less wrenching. Conquer parking-lot tracks with confidence. No need to worry about rocks or other debris getting caught in the belts and pulleys.*

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# 1/12TH EUROPEAN CHAMPION
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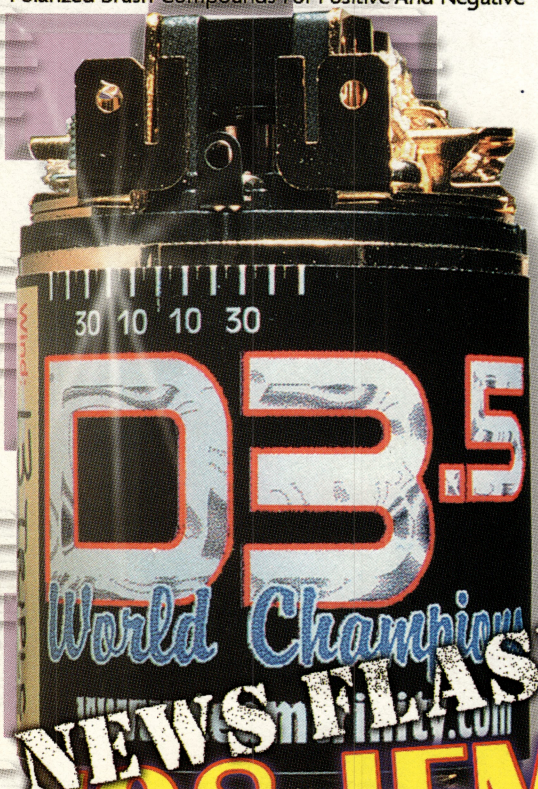
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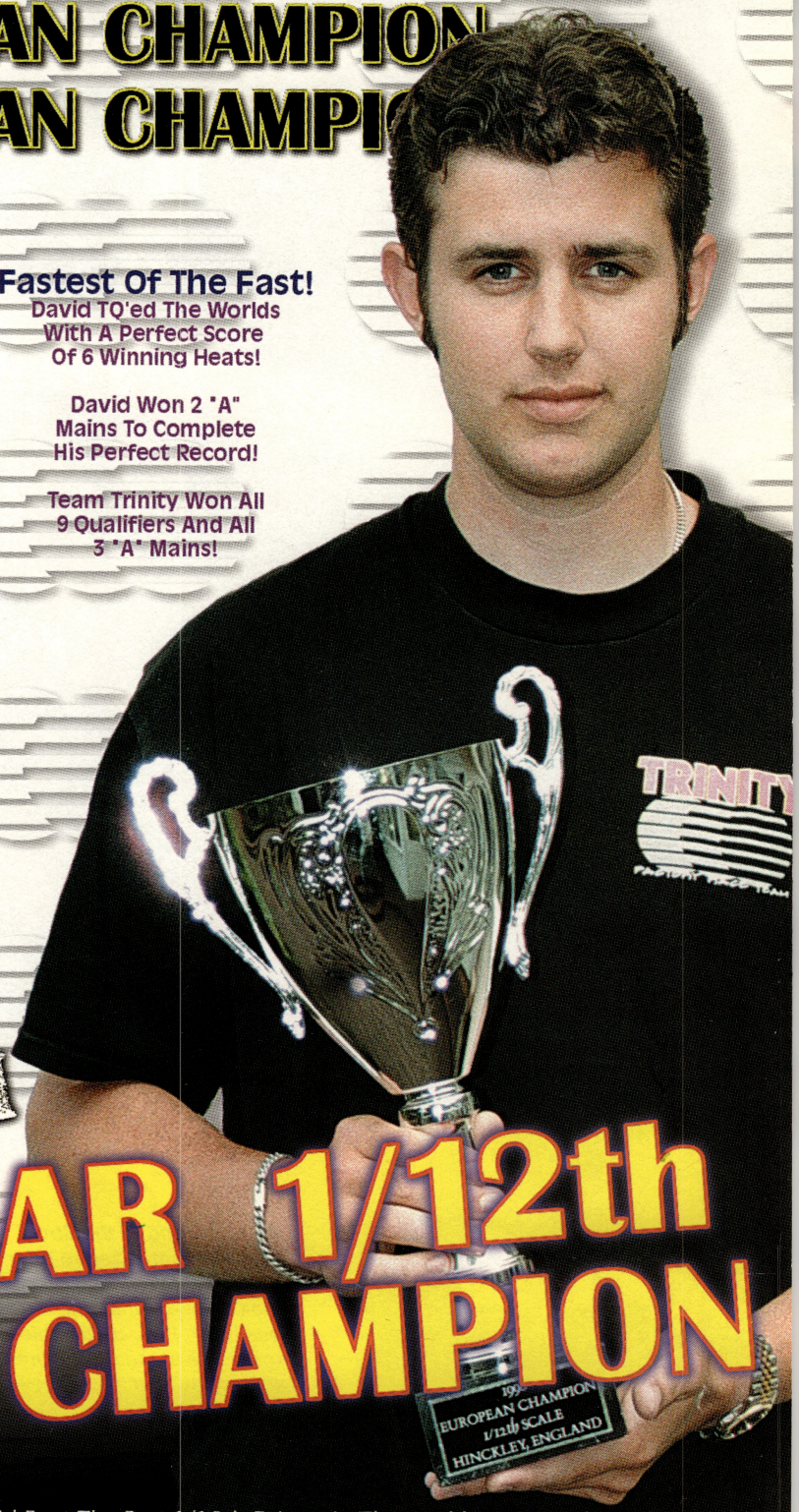
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