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R/C CAR

THE RADIO CONTROL CAR MAGAZINE

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HI-TORQUE'S
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THE RADIO CONTROL CAR MAGAZINE

July 2001, VOLUME 4, NO. 7



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On the cover: The Triple-XT truck of Team Losi's Jimmy Babcock gets in the cameraman's face at a local skatepark (photo by Adam Booth). Hardcore Racing's incredible big-block T-Maxx becomes an earth-mover (photo by Doogie).
On this page: Project S-II Maxx lifts its front wheel in an awesome display of power. Kyosho's Honda S2000 RTR goes wet. Hardcore Racing's big-block T-Maxx conversion lays down the smack, while the Tamiya Mammoth Dump Truck awaits its next payload (all photos by John "I remember my Tonka trucks" Howell).

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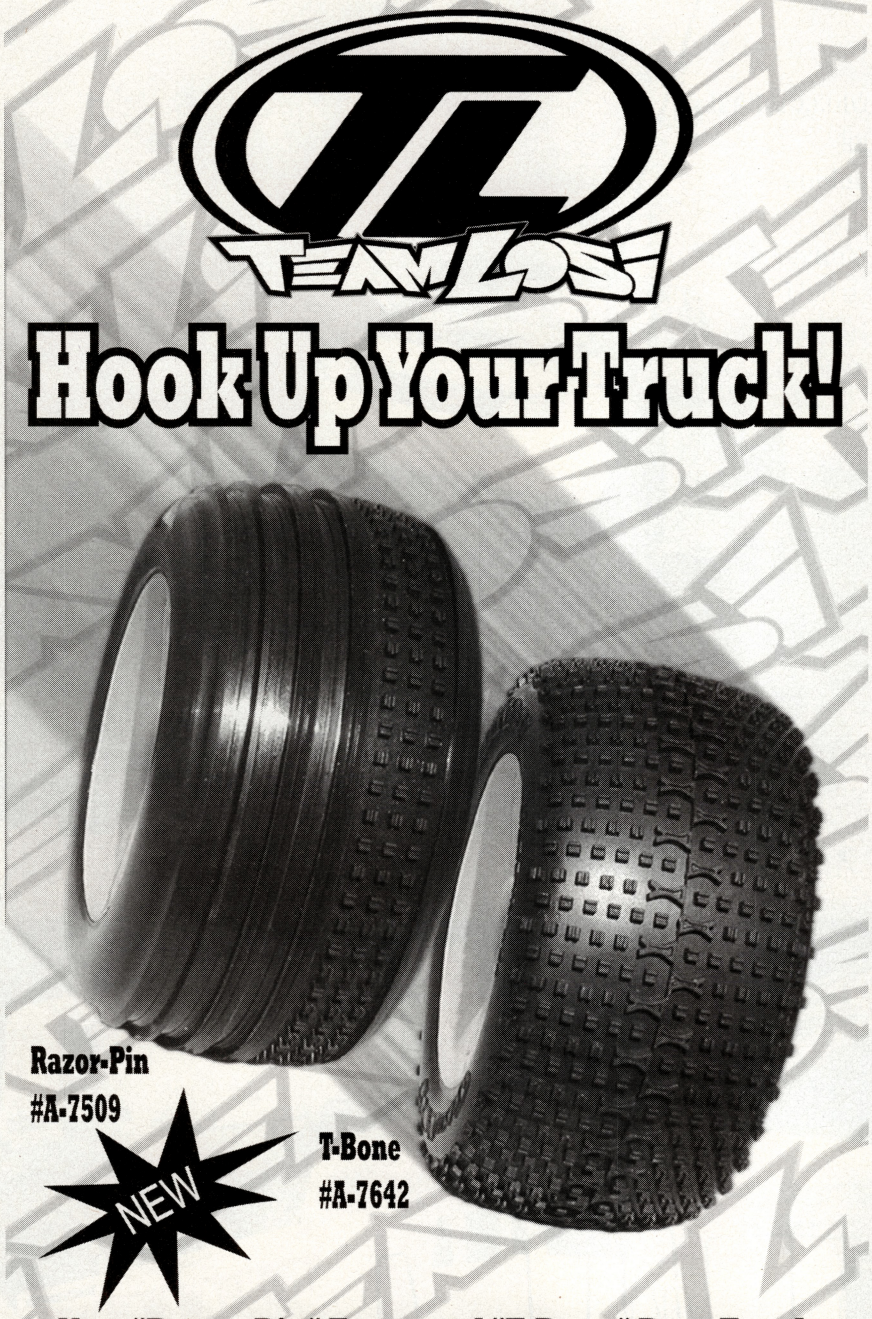

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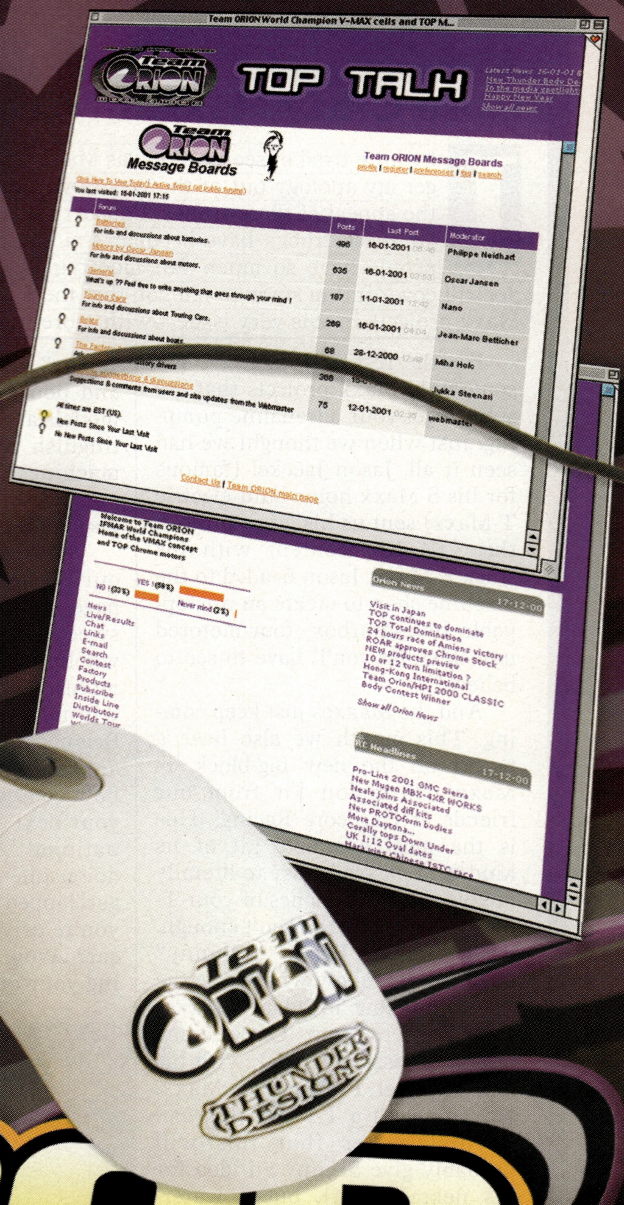

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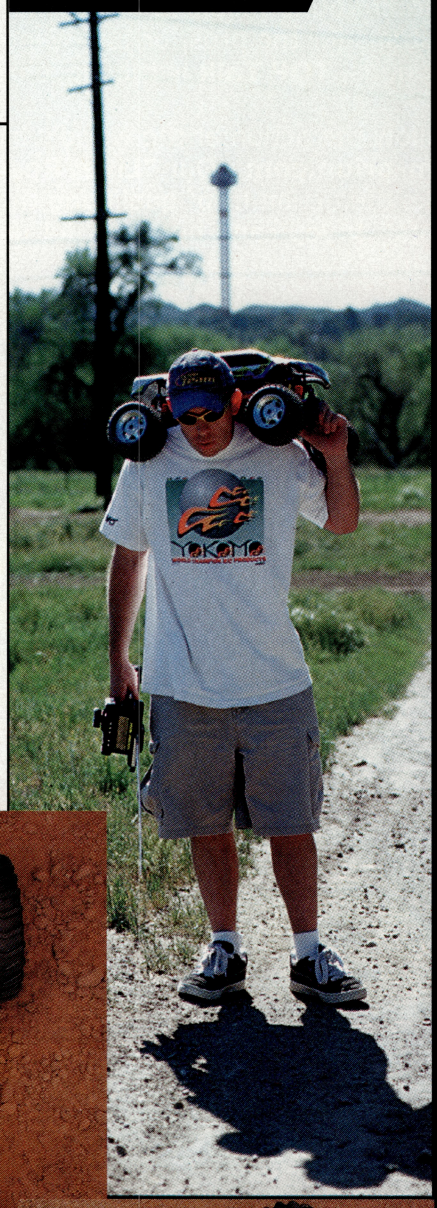
Team ORION

More Crazy Maxxes—Can you stand it?

BY FRANK MASI

If you're tired of seeing Traxxas Maxx trucks in these pages, let me get my apology out of the way now: I'm sorry that you don't see the appeal of these trucks. I'm sorry that you can't see how popular these trucks have become. I'm sorry that you can't see why people have so much fun modifying their Maxxes. And if that doesn't cover it, I'm sorry to tell you that there are several T-Maxx and E-Maxx projects in this very issue—with more to come in future issues!



For the rest of you, we've got some wild Maxx projects that are sure to get your adrenaline pumping. Just when we thought we had seen it all, Jason Jaeckel (famous for his S-Maxx home-built electric T-Maxx) sent us his latest project, the S-II! Not content with his stock E-Maxx, Jason headed to the machine shop to create an unstoppable twin-gearbox, four-motored monster that you'll have to see to believe!

And the Maxxes just keep coming. This month we also have a report on the new big-block T-Maxx conversion kit from our friends at Hardcore Racing. This is the most complete kit of its kind, and makes it easy to literally double the cubic inches of your T-Maxx! And if this weren't enough, our buddy Brian "Skinny" Skinner, the fellow who wrote the article on how to adapt Traxxas E-Z Start to your O.S. engine (April '01 issue) is back with his latest project, Project H_2O Maxx. No, this isn't a T-Maxx that can go underwater (but this will probably give Skinny an idea for his next project), but a water-cooled conversion that's actually quite effective and simple!

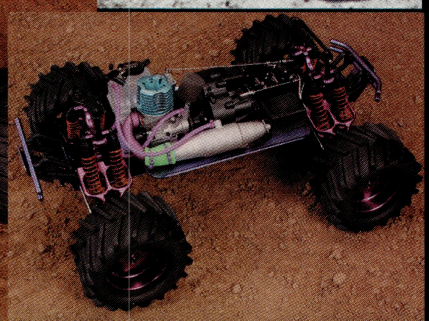
More RTRs—should you chuck your tools?

If you're new to the hobby and are looking for your first sedan, boy, have we got a lot of new sport models for your consideration this month! We've got tests of not one but two new RTR rally/touring cars from CEN, and a swoopy new nitro-powered Honda S2000 and sport version of the awesome V-One nitro sedan from Kyosho. I tell you, the quality and features of sport-level kits and RTRs are getting better and better. I remember when "sport" meant lousy performance and poor durability! Today's sport models are almost impossible to distinguish from more expensive race machines!

Last chance to be fast!

Your time is running out to enter our Win-Kinwald's-Car contest (see page 90). Response to last month's sweepstakes ad has been overwhelming, and with just one more month left before we choose the winner, your chances to win Brian's actual Losi Triple-X buggy are getting slimmer! Think about it: how cool would it be to show up to your next club race with the national champ's car? On the downside, how bad would it be to get lapped by a 12-year-old when you're driving the national champ's car? Avoid the humiliation by honing your driving skills now! ◆





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*Due to the plug update on the C2 and TC2, original Pit Wizard users will require the special Pit Wizard-to-C2/TC2 Adaptor Harness (#5710).

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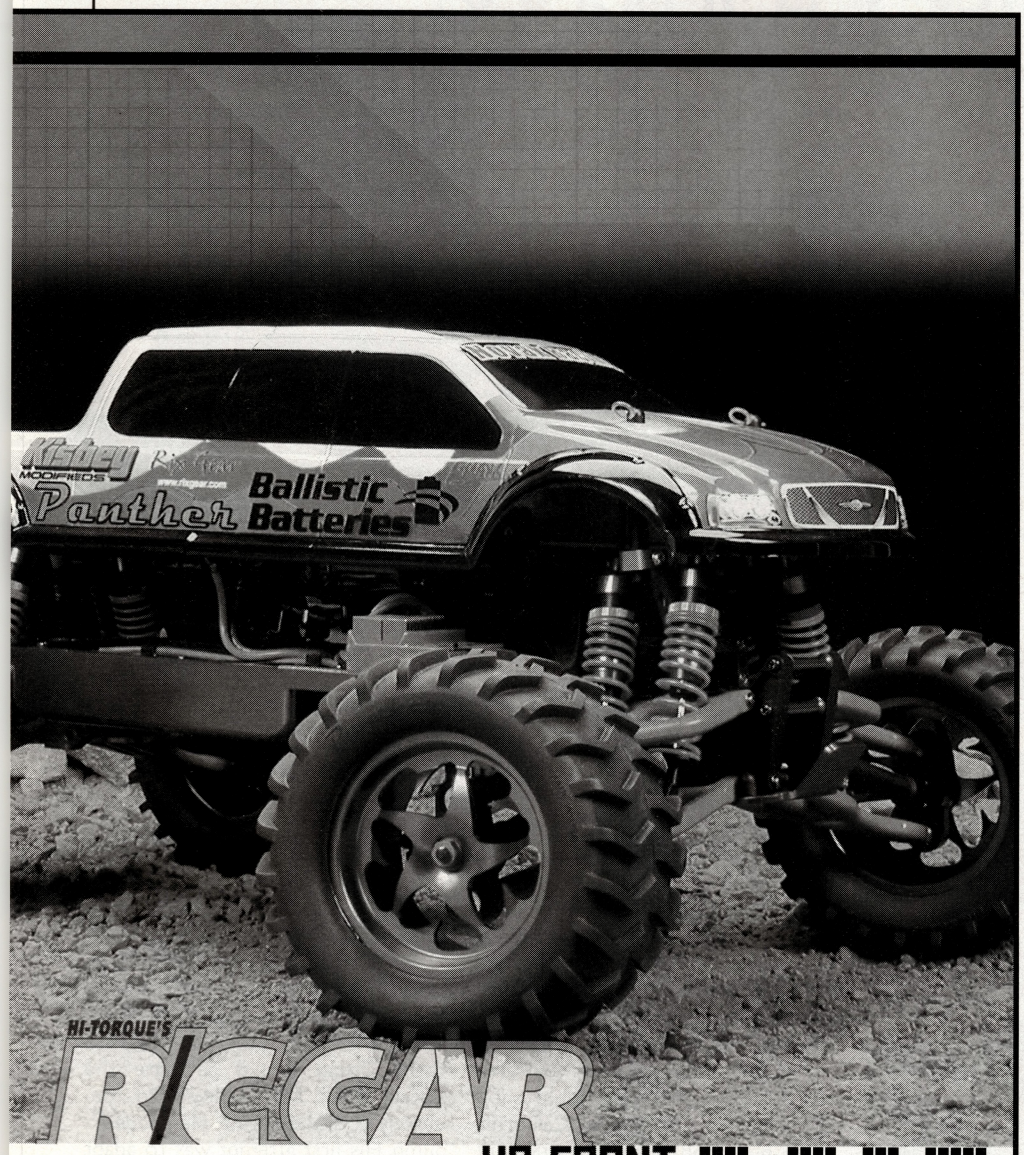
UP FRONT





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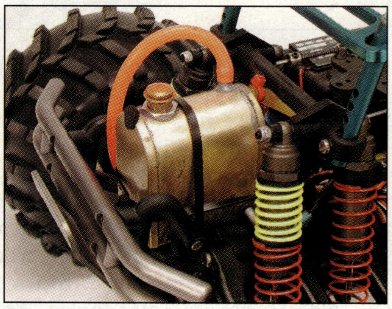

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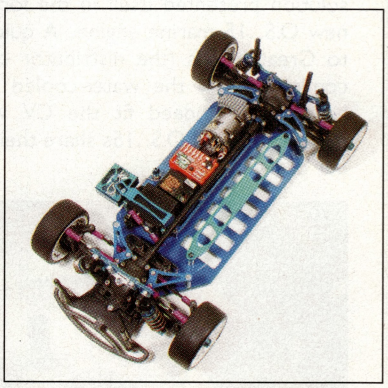

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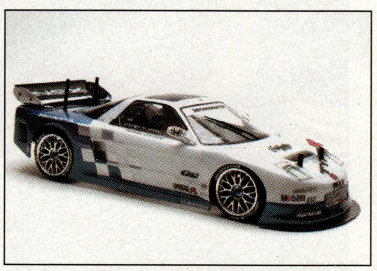


DETAIL SHOP [PAGE 20]

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

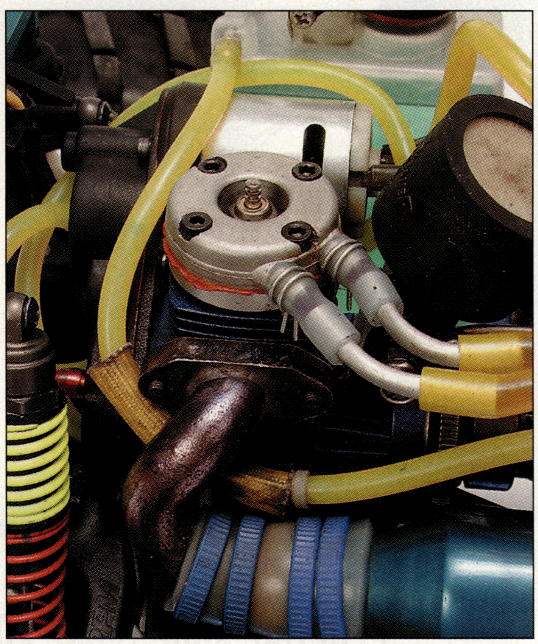
PROJECT H_20 MAXX

Brian Skinner (aka Skinny) from Canoga Park, California, is one of those guys who just can't stop tinkering. Actually, "tinkering" is too mild a term for what Skinny does; "redesigning" is more accurate. Witness his latest project, the H_20 Maxx. This project came about when Skinny decided that his stock T-Maxx was running too hot. "Motorcycles are water-cooled," he says "even Porsche has made the switch. So why not R/C?"

The first thing Skinny needed was a reliable way to cool his O.S. .15 CV engine. The solution presented itself in the form of a new O.S. .15 marine engine. A quick call to Great Planes (the distributor of O.S.) confirmed that the water-cooled marine head would indeed fit the CV without modification (all O.S. .15s share their cylinder designs).



Project H_20 Maxx proves that water-cooled engines work in R/C. The builder of this truck completed the conversion for less than $100.



The heart of the conversion is this water-cooled cylinder head from an O.S. marine engine. It bolted right to the O.S. .15 used in the project truck.

The next step was to procure a suitable reservoir for the coolant. A plastic model-airplane fuel tank was tried, but since plastic isn't a very effective conductor of heat, Skinny swapped the plastic tank in favor of an old-style 3-ounce brass fuel tank he had found at a local hobby shop (Hobby House in Reseda, California (818) 609-1968). The brass tank fit perfectly between the truck's front suspension bulkheads, and brass is great at pulling heat from the liquid coolant. The only modifications Skinny had to make to the tank were the relocation of the fittings (to accommodate the chassis) and the addition of an overflow fitting (to prevent over pressurization).

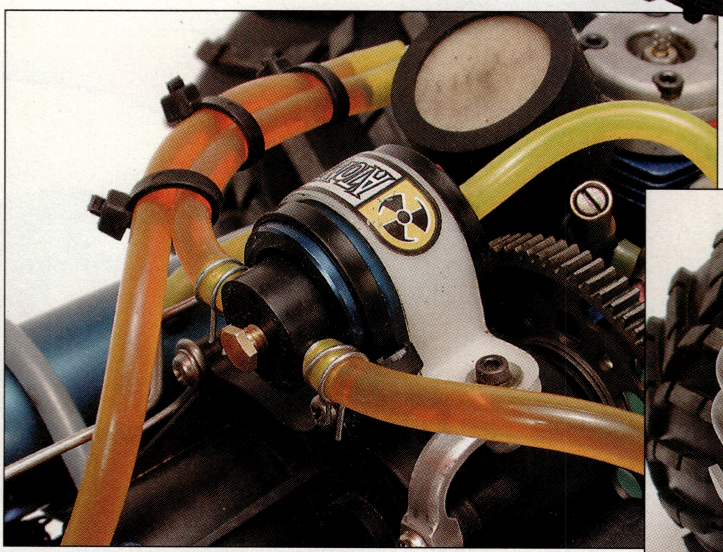
From the onset of the project, Skinny knew that thermostatic exchange (where heat and cold operate against each other to create a vacuum that would circulate the water) would be insufficient to adequately cool the engine. He needed a pump. His first attempt was to adapt a model-airplane fuel pump—the kind that modelers use to pump fuel from the bottle to their model's tank—between the water-cooled head and the reservoir tank. Power for the pump was supplied by the transmission's jackshaft (Skinny

designed a power take-off using belts and pulleys); however, this idea proved unsound as the pressure of the cooling system dropped too drastically with engine rpm.

Skinny searched the Internet for pumps, eventually being steering to a company called Perry by a fellow he met on a submarine website (!). Research revealed that Perry had gone out of business. But the good news was that Conley Engines had purchased what remained of Perry and had begun offering a version of Perry's pump that worked off engine crankcase pressure. According to Skinny, the folks at Conley weren't sure if the pump could withstand hot liquid coolant, but told Skinny to keep them in the loop to see if it would work. It did.

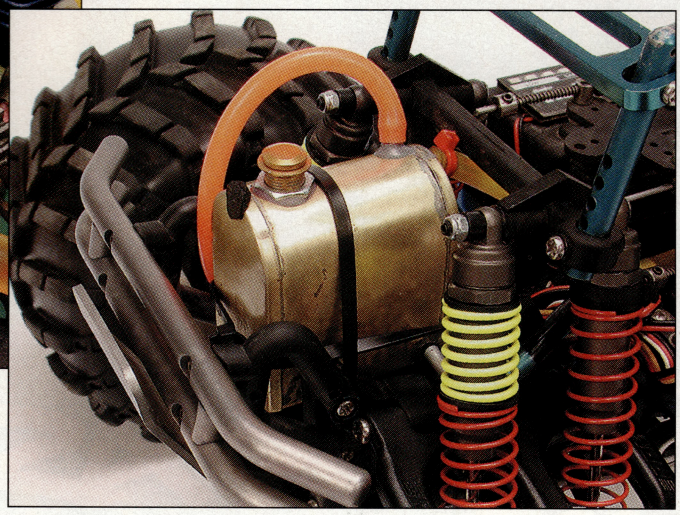


The H_20 Maxx is topped off with a pre-painted T-Maxx body from Atomik R/C.



This pump from Conley Engines relies on crankcase pressure from the engine. Skinny drilled a hole in the engine case just above the mounting ears to install the pump's pressure fitting.

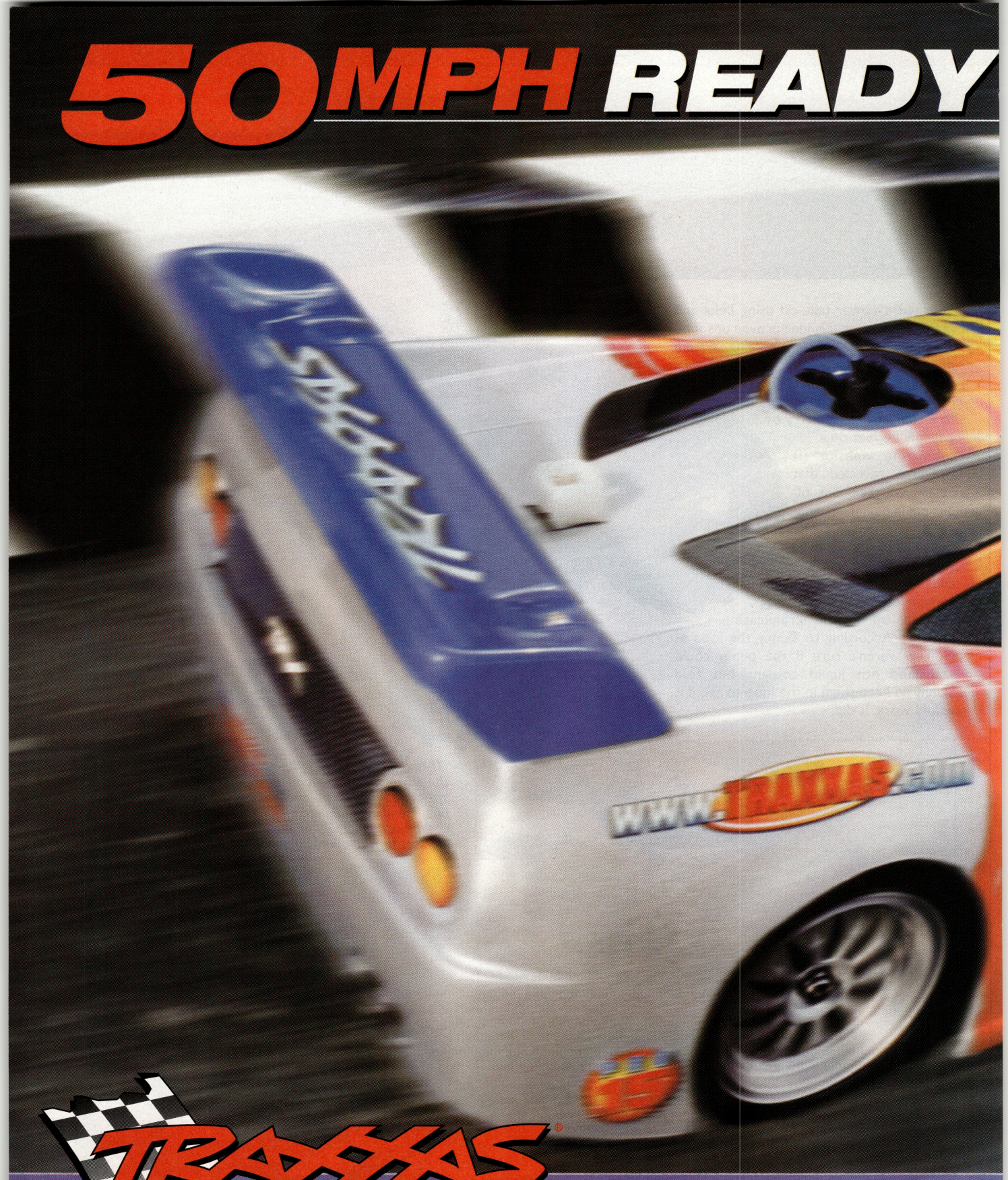
This old-style brass airplane fuel tank now serves as the truck's coolant reservoir. The tank is filled with a special race-engine coolant from the Toyota factory, but Prestone will also work. The fitting atop the tank is an aircraft fuselage access plug (from Hobby House) that allows the coolant level to be checked.



DOES IT REALLY WORK?

Decide for yourself. According to Skinny, his initial "high idle" bench test results had shown that the water-cooled conversion was responsible for a 102-degree reduction in head temperature. On the track, the H_20 Maxx rarely exceeds 195 degrees when tuned for maximum performance with 30-percent nitro fuel. Water enters the cooling tank at about 100 degrees. Once inside the tank, the water is cooled to about 78-80 degrees before being circulated back through the cylinder head. The skin of the brass tank, however, remains at about 100 degrees during operation. So yes, Skinny's H_20 Maxx proves that liquid cooling is viable for R/C—and it only cost him about $100 for everything! Atomik R/C is possibly offering a kit of this conversion—(805) 499-7003.

50 MPH READY



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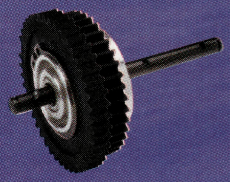

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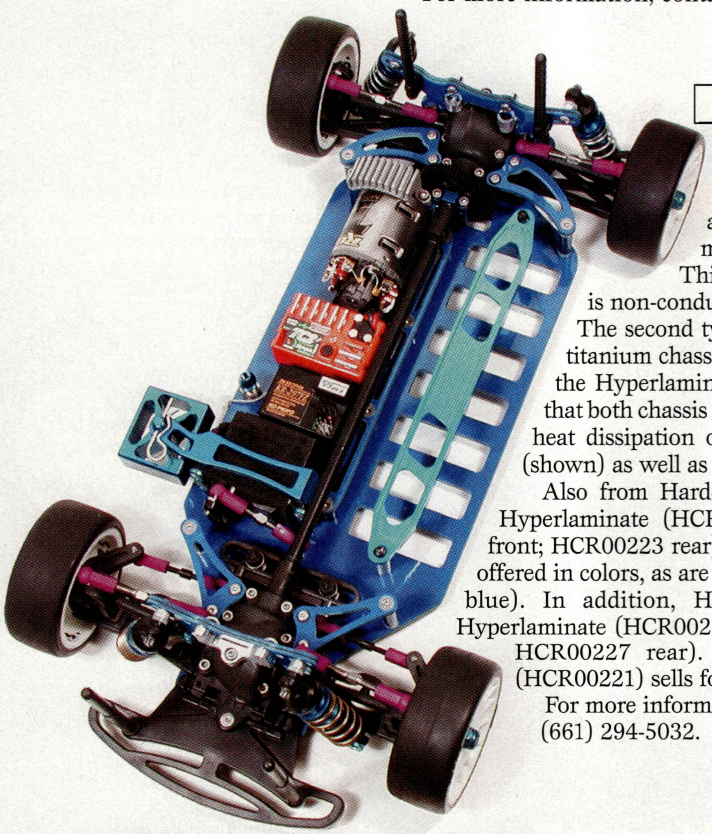
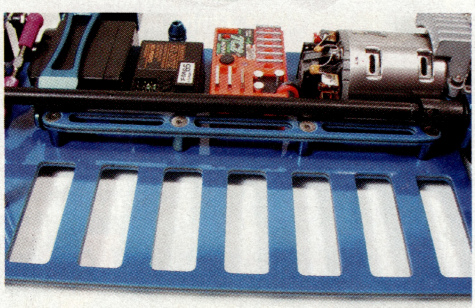


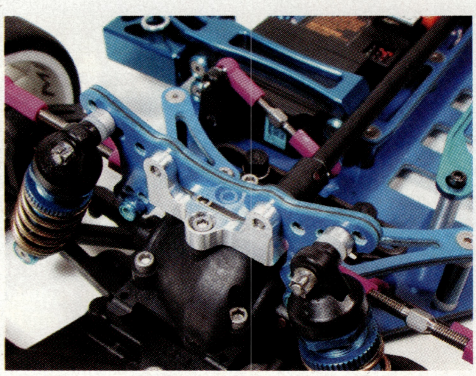
HARDCORE FOR THE TC3!

Hardcore Racing has introduced a complete line of aftermarket racing accessories for the immensely popular Associated TC3 touring sedan. There will be two types of aftermarket chassis available. The chassis kit shown here is made from Hardcore's exclusive Hyperlaminate material. This high-tech blue laminate offers the rigidity of graphite but is non-conductive, so there's no need to worry about shorting your cells. The second type of chassis material is Hardcore's staple—titanium! The titanium chassis kit will be offered in purple, blue, green or silver, and like the Hyperlaminate, it's non-conductive. Word from the Hardcore camp is that both chassis will come with a billet two-piece motor mount (for improved heat dissipation over stock) and be available in standard seven-cell form (shown) as well as nine-cell for those insane speed freaks!

Also from Hardcore for the TC3 are replacement shock towers in both Hyperlaminate (HCR00232 front; HCR00233 rear) or titanium (HCR00222 front; HCR00223 rear). Both types of tower come with a billet standoff, which is offered in colors, as are the titanium towers (the Hyperlaminate is available only in blue). In addition, Hardcore is offering replacement diff braces in both Hyperlaminate (HCR00237 front; HCR00234 rear) and titanium (HCR00224 front; HCR00227 rear). Hardcore's billet aluminum servo/transponder mount (HCR00221) sells for $32.

For more information, contact your dealer or call Hardcore at (661) 294-5032.





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#378	12 Dbl.
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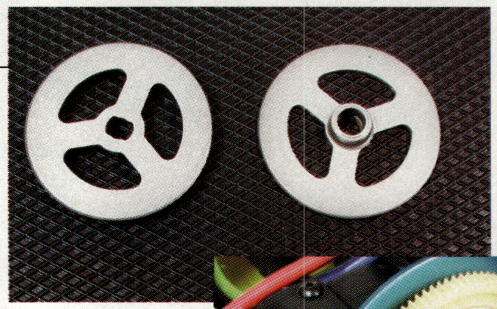
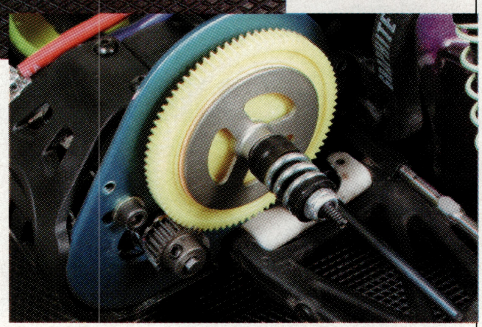
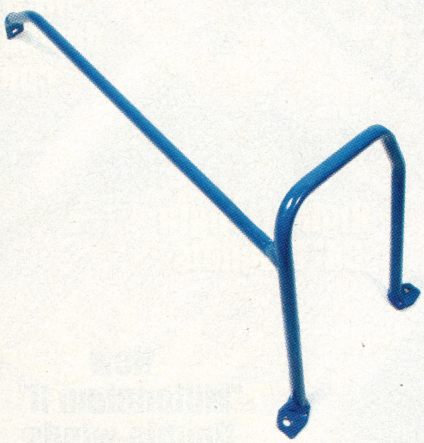
SHED UNWANTED WEIGHT FROM YOUR LOSI

Serious racers know that to get the quickest acceleration, you must have two things: tons of horsepower and a transmission with low rotating mass. Team Kinwald now offers a pair of its ultra-light slipper-clutch plates for all Team Losi dual-disc slippers, as well as a single plate for standard slippers. The plates are machined from billet stock and hard-anodized for extra durability. They are also direct bolt-on replacements for the stock pieces, so no extra parts or tedious modifications are needed to get the lowest possible rotational weight and the fastest acceleration. The slipper plates (TK5058 for two; TK5058S for one) sell for $24.99 and $13.99.

Contact your dealer or Trinity at (732) 635-1600 for more information.







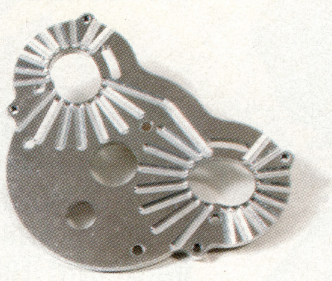
A NEW ERA FOR THET/E-MAXX

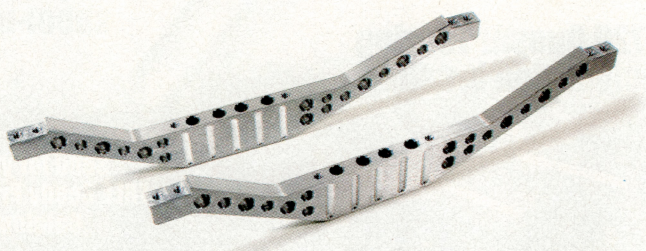
Due to the incredible popularity of its chromoly steel tubular roll bar for the Traxxas T-Maxx, New Era Models has released a similar roll bar for the new E-Maxx. Although it weighs just 2.5 ounces, the New Era roll bar not only protect your motors, gearbox and electronics during a crash, but it also stiffens the chassis. The E-Maxx roll bar/brace (TRE910) comes finished in a brilliant blue powder coat for added durability.

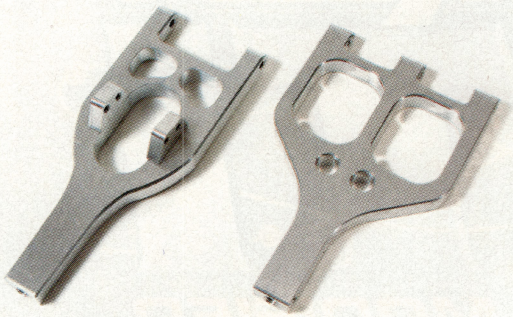
Also available is an Air Cooled CNC aluminum motor mount plate that features New Era's exclusive Airflow Paths which direct cool air through the motors. New Era claims as much as a 20-degree reduction in motor temperature!

Additionally, New Era is now offering racing versions of its billet aluminum suspension pieces that will fit both the T-Maxx and E-Maxx. These parts feature a no-nonsense brushed aluminum finish for the serious competitor. Available are both upper (TRM332R) and lower (TRM333R) suspension arms featuring New Era's exclusive pivot-ball lock system, and a set of lower chassis braces (TRM326R).

Contact your dealer or call New Era at (603) 888-4453.







TEAM ASSOCIATED'S

Billy Easton



AND HIS

TC3

SWEEPS Cleveland!

2001 U.S. Indoor Championships



The team does it again! Billy Easton takes both the Modified and Stock Touring classes with his Reedy-powered, LRP-equipped Factory Team TC3. And congratulations to the other TC3 drivers in the Modified A-main...Mike Dumas, Mike Blackstock, Walter Henderson, and Mike Lufaso... and **ALL TEN** of the Stock Touring Class A-main finalists!

And this just in... at the third Triple Crown race in Gaithersburg, MD, Associated TC3's were in 18 out of 20 A-main positions... eight in the Modified A-main and **ALL TEN** Stock Touring Class finalists!

U.S. Indoor Champs

Modified A-Main

1.	**Billy Easton**	TC3
2.	Josh Cyrul	
3.	**Mike Dumas**	TC3
4.	**Mike Blackstock**	TC3
5.	**Walter Henderson**	TC3
6.	David Spashett	
7.	**Michael Lufaso**	TC3
8.	Brian Kinwald	
9.	Mike McMahon	
10.	Jacob Pritchard	

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Dressing Up Your Sedan

By Ian Aquino

CUSTOM WHEELS SETUP

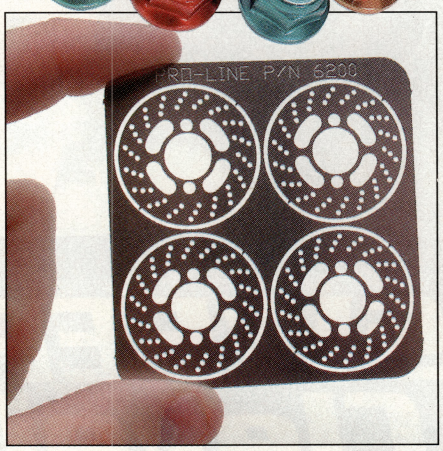
Nothing gets attention on an automobile more than a set of wheels. In a smaller scale, nicely designed wheels on a 1/10-scale car attract attention like no other. Forget the aerodynamics; ignore the paint job…touring car wheels and tires are in a world of their own. Regardless of what body type you choose, these rolling wonders can transform any car into an ultimate dream machine. And of course, it also does make a great topic to start off this next installment in detailing your sedan.

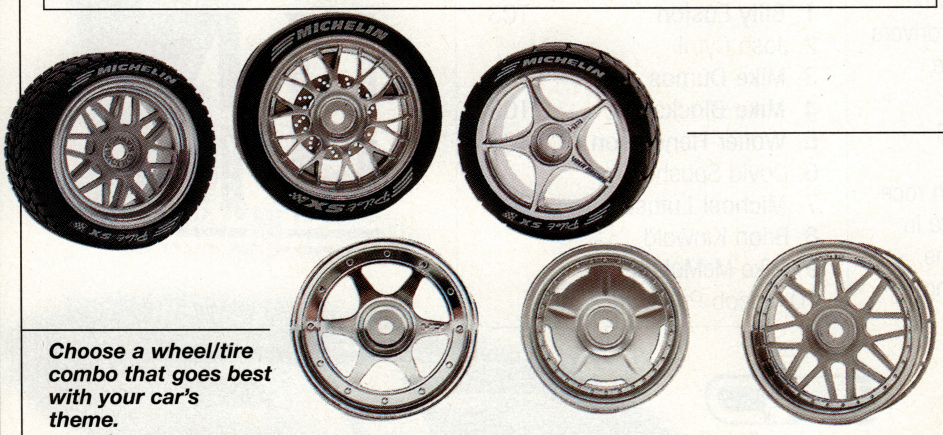
There really are no set guidelines in choosing the right wheels for your tourer. What looks good to you will work best in most cases. 10-spokes, 5-stars, aero dishes—these are just some of the designs you can readily pick up at your local hobby store. Whether they're chrome-coated, matte colored or natural plastic finish, it's all a matter of preference. As a rule of thumb, I usually go for the realistic look. I prefer chrome-plated wheels against plastic finished ones because they add a degree of realism and brilliance in such intricate works of art. You never know, they might put a sparkle in the concourse judge's eyes! But for the ultimate in realism, a set of machined aluminum rims is the way to go. Companies like HG (Hammad Ghuman Inc.) currently offer a variety of styles for the most demanding R/C enthusiast. Just a word of advice; try not to run these gems if you don't want your investment to be obliterated. Sure, it's tempting, but trust me, real aluminum does deteriorate too!

If you want your sedan to look right, tire choices shouldn't be ignored. Again, realism is the key and, crazy as it may sound, off road tires on a touring car just won't cut it. If your theme is street legal, go for the treaded type, but for most of us who want to be able to use the tires for racing, slicks are the perfect choice. I still put inserts in to have the tires appear blown up as opposed to looking deflated. Sponsor decals on the tire walls can then be added for that finishing touch. In recent concourse competitions, I have seen racers affix detailing accents like brake rotors, calipers and even brake lines to complement the wheels of their choice. I'm sure you have seen this trick before. Pro-Line offers scale drilled brake rotors (part no. 6200) for R/C cars. And with a few modifications, these beautifully machined pieces will surely distinguish your sedan from the rest of the field. Lastly, anodized aluminum locknuts add to that eccentric look you yearn for. And after everything is said and done, we are pretty sure that accolades from fellow racers will soon follow.



Anodized wheel nuts add flair!





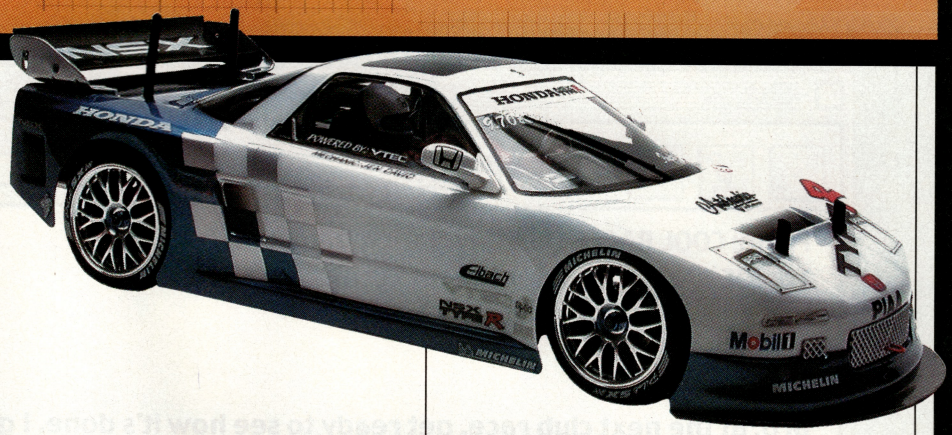
Choose a wheel/tire combo that goes best with your car's theme.

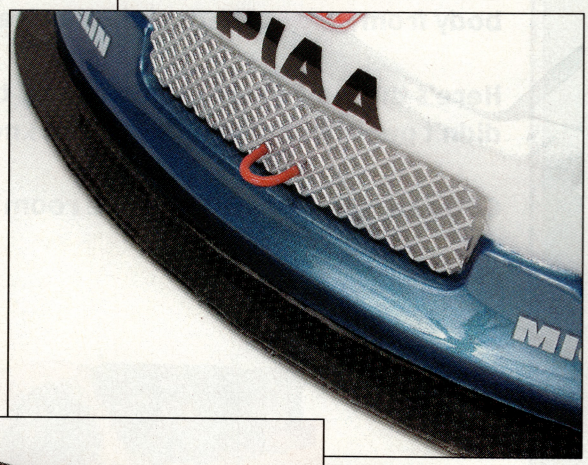
Steps in Dressing Up Your Wheels:

- Choose the right tires and wheels for your application; the more realistic, the better.
- Wash the tires with detergent soap to remove oil residue from factory molds. This will help the decals stick to the tire walls much longer.
- If you are to run the car, apply CA glue in-between the tires and rims. Don't use too much, to avoid glue showing on the outside. Remember, your goal is to have a clean looking set of wheels.
- If installing Pro-Line's disc rotors, it is best to glue them on the hex adapters rather than on the wheels. This way, you have the option of using any wheels you may want to put on your sedan in the future.
- Lastly, apply sponsor decals to the tire walls and use colored aluminum locknuts to complement your concourse body.

CARBON FIBER TRIMS

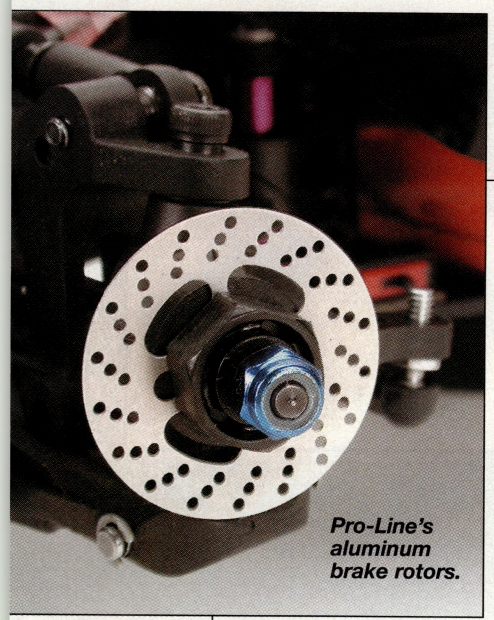
There is just something about carbon fiber that attracts attention. Browsing through import car magazines, it is apparent that automotive aftermarket companies are using this material as the foundation for their top-of-the-line products. The reasons? Not only does it have light yet strong characteristics, but we all have to admit, anything built around carbon fiber looks extremely good! And guess what? The latter is the reason why the subject of carbon fiber made it to this column. Forget the lightness and rigidity factor of this extraordinary material; if you want your sedan to have a hint of excellence on the outside, the look of carbon fiber is the way to go. And remember, you don't even have to spend hundreds of dollars molding and cutting this expensive material for your custom add-ons. A trip to the local hobby shop is all you need to pick up a couple of HPI's or Parma's carbon fiber imitation sheets. Slap these on the right places and you're off to a good start. And again, that's one step in achieving the ideal concourse look.







A bit of faux carbon-fiber in the right places adds realism.



Pro-Line's aluminum brake rotors.

Suggestions in Carbon Fiber Decal Trims:

Simulate body kits by applying carbon fiber decals to the back, front, and lower side of your sedan. Quarter to half-inch inch high side skirts should do the trick.

Touring wings are assets to R/C bodies. Make yours stand out with that exotic carbon fiber look! Not only will it appear flawless, it might even spell out expensive in the eyes of many!

Carbon fiber hoods are getting popular in the import scene. Update your touring car to meet the changing times in this fast paced automotive industry.

Other places where you may want to try carbon fiber decals are: gas doors, windshield visors, air vent openings, window dividers and even headlights!

If you have an interior set such as HPI's, there are tons of ways to use carbon fiber decals. Dash layouts are obvious; but carbon fiber shift knobs, handbrakes and even steering columns should surely set your ride apart from the crowd. ◆

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Hard Drive

Race Secret

COOL RACER, FRIDAY, GOT SPEED?

GOT SPEED?

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

YO JOEY,

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

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

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

Later,
Cool Racer



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Trash

R/C Alaskan-style

Hello from Alaska, I have a question for the experts. I have an original RC10 buggy and an RC10T2. I like the buggy better personally, but what I want to know is why should a person go out and spend all the money for an RC10B3 when to me it looks virtually the same. I understand that the new ones are lighter with all the graphite stuff, but as far as the basic hardware, what is the difference? My buddy has a B3 and I smoke his "newer RC10" every time he brings it over. Mine has some good upgrades and a nice motor, but I need to know if the new ones are that much better than my classic? I'm trying to get more people around here interested in R/C cars. I would like to make an indoor buggy/truck track and a banked asphalt oval for the speed demons. Any info about starting and getting a track sanctioned would be great.

Joel Price
via *rc-car.com*

Joel, the original RC10 was a great car, but in terms of performance, it is at a disadvantage against today's race buggies. In comparison, the B3 provides greater mechanical grip in the turns, steers more quickly, is vastly superior in bumpy conditions (thanks to its long-arm suspension) and offers more tuning options. Our guess is that you can beat your friend's car because you are a better driver, not because your car is faster. The bottom line is this: if you like your car, keep it. If your friend starts kicking your butt with his B3, and you can't figure out how, then get a new car. For information on race tracks, visit ROAR's website (www.roarracing.com).

Dumping Tamiya

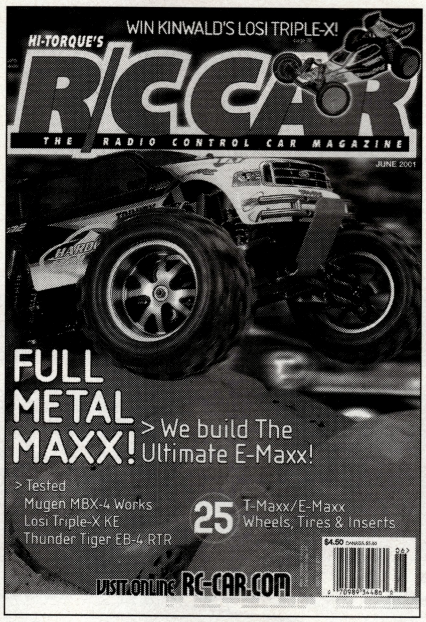
I have a Tamiya TL01 and a TA03. I race on carpet using a 15-turn motor and a 1700MAh battery pack. My problem is that I can't finish a five minute race! Why is this? Do I need to change something?

Daniel
via *rc-car.com*

Yes, you need to use a smaller pinion gear. Are you still using the pinion gear that came with your car? If so, you should know that Tamiya usually supplies gears which are suitable for stock 540 motors. So when you installed a 15-turn modified motor, you should have gone down at least two teeth on the pinion.

Fried green motors

I race my Losi Triple-XT on a tight indoor track with what I thought was



pretty conservative gearing (17/84). I've already burned up two Trinity Green Machine 3 stock motors. I really need to find a more reliable and more torquey stock motor. What would you suggest? I'd really like to try an Orion Chrome Stock RS, but will it be powerful enough for my truck in a competitive stock class? I'd really like to go with the Orion, but my backup choices are a P2K Pro or an MVP Plus.

Brian Horne
via *rc-car.com*

Brian, although the Green Machine 3 is biased toward high-rpm performance, we're surprised that you've gone through two of them—especially with the way you had geared them. For a tight track, we would recommend the P2K Pro over the GM3 (especially in a truck). The MVP and Chrome would also be good. Of the three, you should gear the MVP the most conservatively. The P2K and Chrome can probably pull a slightly larger pinion. Good luck.

Stuck stock

I recently bought a Reedy MVP motor (no. 299) which should be dyno tested and broken in. I noticed that it was stuck and would not rotate, so I followed the usual break in techniques and it finally started to turn, but it does not turn smoothly; it kind of makes a clicking noise. Nothing is attached, just the pinion gear. Any thoughts?

Sal
via *rc-car.com*

That's very strange. Did you take it apart when it wouldn't turn? Reedy includes capacitors with its motors (which you must solder in place); perhaps one of them became lodged inside the can. If you haven't disassembled the motor, do so. If there's nothing stuck inside, you should contact your hobby dealer and try to get them to give you a new motor (or at least fix the one you have).

To break-in or not to break-in

I just got a Kyosho PureTen Alpha Subaru nitro car. I was wondering if I need to break-in the engine first, and if so, is it okay to do a stationary break-in?

Justin
via *rc-car.com*

There are many schools of thought on engine break-in. Some believe that you should run the engine for a few tanks with just a slightly rich carb setting. Others believe that you should run the engine extremely rich—so much so that it runs at nearly a four-cycle pace. Additionally, we've seen several engine manuals which suggest that you run the first tank of fuel with the car's wheels off the ground. In reality, there is no single "right" way to break-in an engine. The engine should be allowed to reach a high enough operating temperature so that it's internal parts can "heat cycle," i.e., they can expand from heat and then be allowed to cool, without overheating. The break-in process is also essential because it allows the engine's parts to work themselves in. This process alone can cause lots of friction and heat. This is the main reason why most engine manufacturers insist that you run the first several tankfuls at partial throttle. We've tried all of the

break-in methods, and if done correctly, they all work well. Just make sure that the engine is rich (lots of blue-gray smoke from the exhaust) and that you avoid full-throttle for at least four or five tankfuls of fuel. After this, slowly lean the carb's high-speed needle until the engine produces good power and high rpm. One more thing: even at its optimal setting, your engine should still produce some smoke—again, a sign that it's getting enough lubrication from the fuel's oil package.

Looking for more run time

How do you get your batteries to last a long time? My batteries only last about five to ten minutes. Even my new battery runs low after this period of time. The instructions told me to charge it for 14 to 16 hours, and after charging the suggested amount of time, it still had a short life span. The name on my battery is 1500 Sport Pak Plus by Sanyo. I am looking for an affordable way to drive my car for longer than five to 10 minutes. Can you suggest anything to help?

Jake Lamont, via rc-car.com

Jake, we hate to tell you, but five to 10 minutes is normal for a six-cell pack such as yours (the most common type of pack, by the way). In fact, most of us would be doing cartwheels if we could get 10 minutes of run time! What you'll want to get is a fast-charger. It's sounds as if all you've got is a plug-in, overnight wall charger which charges the pack at a very low amperage. A fast charger only takes about 15-20 minutes to charge the entire pack. And as long as you allow the battery to cool to room or ambient temperature, you can re-charge it one or more times during the same day. Take our advice and get yourself a budget peak-detection charger such as the Super Brain from MRC or the Rhino from Novak.

Two questions

1) Which will take a better beating: the Thunder Tiger EB-4 or OFNA 1/8-scale buggy? I have had my eye on the Limited Edition EB-4 for a while, but one of my track friends brought an OFNA and thrashed it something hard! But I still like the EB-4. What would be the most horsepower engine that I could buy

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for around $185 and $215? I have a JR R-1 radio so that not a problem!

2) I have added a lot of aluminum parts to my HPI Nitro MT. What are some tips or tricks that I can do to it to get even more speed and handling out of it? I have everything that the Racer has plus quite a few other hop-ups! I am open to suggestions.

Eric Allmond, via rc-car.com

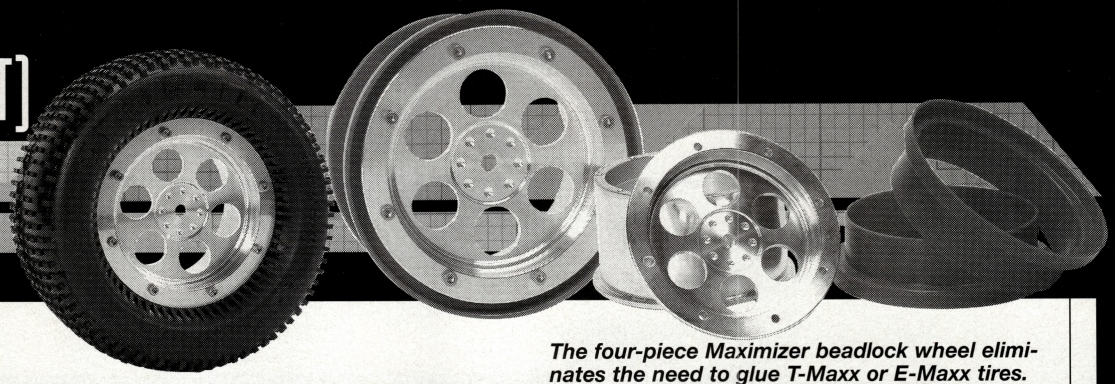
Eric, the OFNA buggy represents a good value, but it's been our experience that the Thunder Tiger EB-4 is more durable and is capable of higher performance. Although the initial cost may be higher, in the long run, you'll be happier you spent the extra money up front. Before you make any purchases, check out the new EB-4 RTR (tested in our June issue). We really liked it. We've also heard that Kyosho is coming out with a sport version of the World Champion MP-7.5. If you decide to go for a kit and need an engine, look at the O.S. RG-B, which is a sport version of the RZ-B. Also, look into Thunder Tiger's Omega engine line (made by Picco). Some people have also had luck with the OFNA/Picco .21 engine. For off-road racing action, we recommend that you stiffen your Nitro MT's suspension by adding stiffer springs and thicker shock oil. Aside from this, make sure that you are using the right tires. Pro-Line's Bow Ties are good overall tires, and they are the ones that come with the Racer kit.

Errata

In the First Look of the XRay T1 in our April issue, we mistakenly stated that XRay Model Racing Cars is a division of Hudy Special Tools. In actuality, XRay is a separate company, founded last year by Ing. Hudy Juraj, who designed and developed the T1. We apologize for the confusion this may have caused.◆

E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@pacbell.net or Doogie at doog2@earthlink.net. If you're going the old fashioned route, send along your letters to R/C Car at 25233 Anza Dr., Valencia, CA 91355. Check us out on the web at www.rc-car.com.



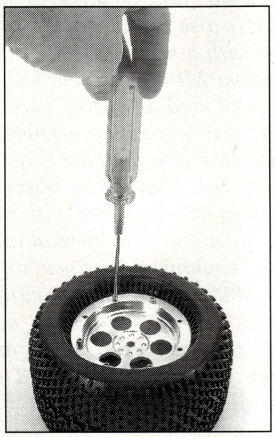


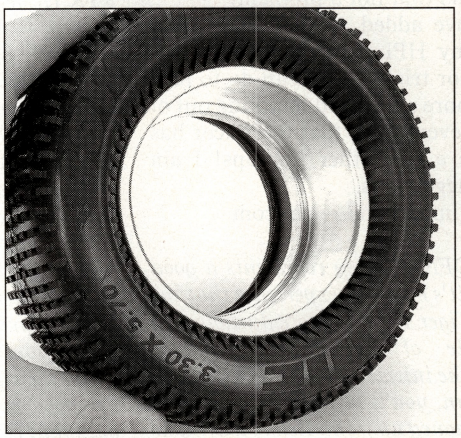
The four-piece Maximizer beadlock wheel eliminates the need to glue T-Maxx or E-Maxx tires.

Maximizer Beadlock T-Maxx Wheel Set

In case you happened to miss it, last month we brought you a comprehensive wheel/tire buyer's guide for the Traxxas T- and E-Maxx. One of the more interesting wheels profiled in the guide was the Maximizer Beadlock alloy wheel, distributed exclusively by Stormer Racing. The Maximizer completely does away with the need to glue your tires ever again—they are true, functional, four-piece beadlocks! The wheel set we received featured Maximizer's six-hole pattern (a solid center and a five-spoke design are also available). With our new wheels in hand, we decided to "bolt up" a set of Pro-Line's new Bow-Ties for our E-Maxx. Here is what we learned about the beadlocks along the way.

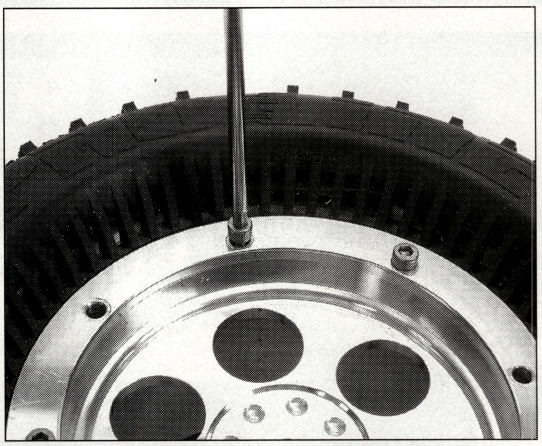
- The first step you need to do is place the two blue plastic insert pieces inside the tire/foam arrangement and then slide the alloy inset (the backplate, or rear half of the rim, so to speak) through the foam. You need to make sure the two plastic pieces stay put and the foam insert does not bunch up past them.
- Carefully slide the insert between the two plastic pieces—do not force it through, or you will displace one, or possibly both the plastic pieces.
- Once the insert is in place, it's time to finish the wheel by screwing in the wheel's center section to the rear piece. We found this to be the most awkward step in the entire procedure—you have to make sure the screw holes in the wheel center section line up perfectly with the insert's holes. You also need to make sure that while you're doing this, that nothing slips out of position (i.e. the inserts). While this step proved to be a little awkward while doing the first wheel, by the time we got around to the last wheel, we had become seasoned veterans! And they're not really that difficult to assemble—you just need to take your time and do it right.
- While the instructions tell you to attach the center wheel section by putting in the screws in a criss-cross manner, we tried it by doing one screw at a time, then the next one, in a complete circle. It seemed to work fine that way too.

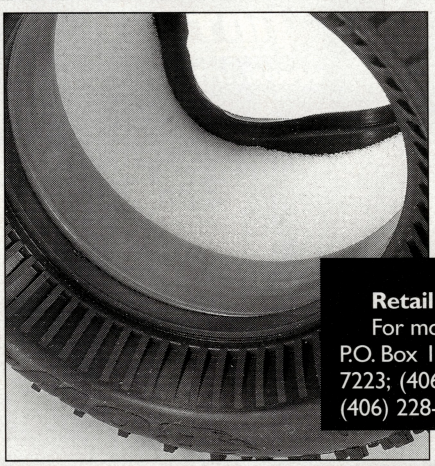




Once the plastic inserts are in place over the foam, the wheel insert is slid between them.

With the top piece of the wheel in place, install the eight stainless steel screws and you're done. It's recommended to assemble the screws in a criss-cross manner, but we didn't find this step essential.





Make sure the blue plastic inserts are positioned properly—you don't want the foam to slip out from beneath the plastic piece.

Final Thoughts

The Maximizer beadlock wheels are very cool—once assembled, we tried to force the tire out of the wheel, and it was impossible. The tire would rip before coming out of this setup! In addition, at $180, the wheels are competitively priced in the world of T-Maxx alloy wheels, and the inserts are also available separately so you can easily replace parts, or set up another set of wheels for spare tires. Overall, we were very impressed with our set of Maximizers, and plan on running them on our project trucks in the future!

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TEST DRIVE

Tamiya Mammoth Dump Truck

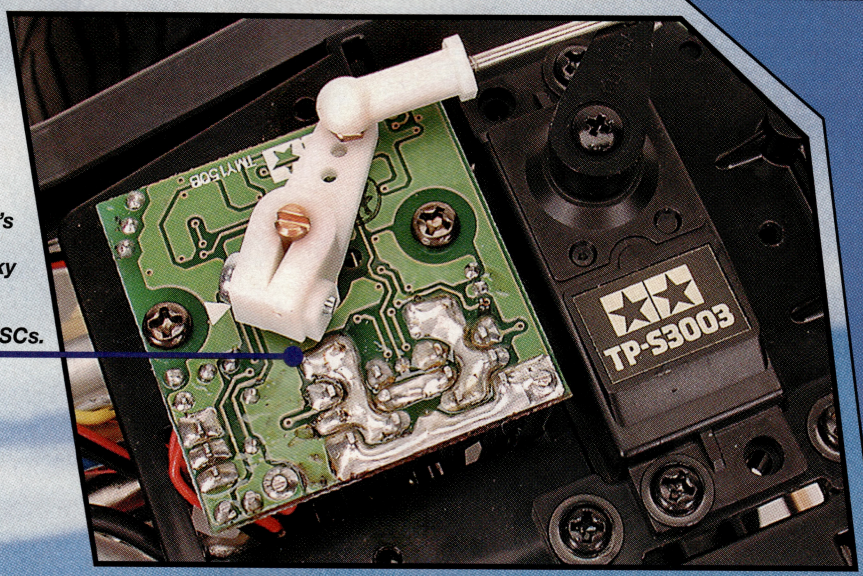
Things you'll need

- Model cement
- Six-cell battery pack
- A two-channel radio with two servos (one for steering, one for throttle) and eight AA batteries

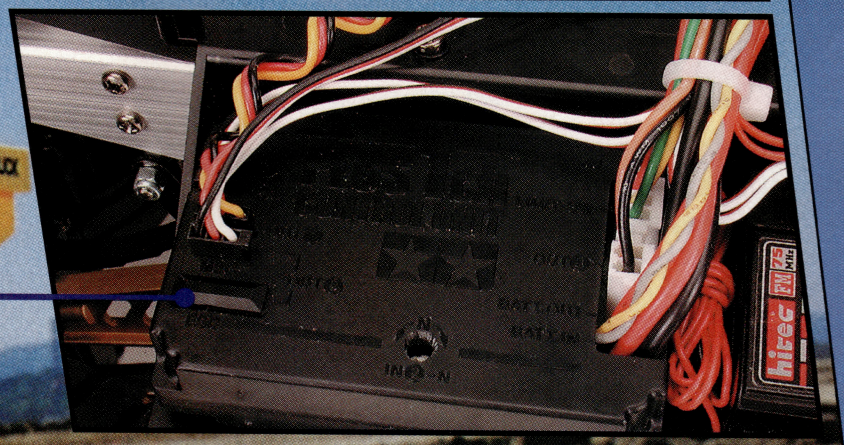
How do the good folks over at Tamiya keep doing it? Year after year we're blown away with their ultra-unique scale creations, and this newest release is one of their best efforts yet. Yes, we're talking about the 1/20-scale Mammoth EM-120 Dump Truck kit. The full-size Mammoth EM-120 is one of the baddest dump trucks in existence—it's definitely not your average construction yard clunker. The titanic-scale EM-120 is mostly used in large-scale construction (i.e. dam building, or large scale mining efforts), and is so large, the main body of the truck is brought to the work site disassembled and is then reassembled on site—you definitely won't be seeing this truck on your local roadways any time soon! Well, luckily for us, the R/C version of this impressive earth mover was released in all it's yellow glory at the Chicago Hobby/Model show this past Fall. The scale-looking body set (complete with functional dumping bed) rides atop a mildly modified Juggernaut 2 chassis. But don't be fooled into thinking it's a "parts bin" machine—this truck has quite a few tricks up its sleeve. Let's take a closer look at this top-notch terra mover!



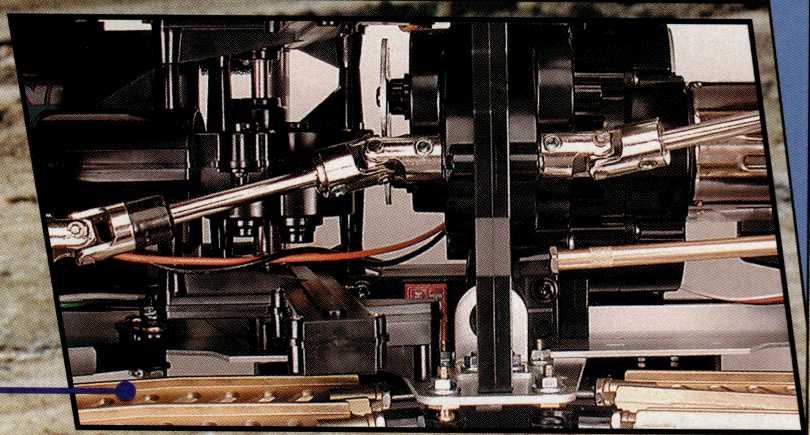
TONKA GLORY DAYS REVISITED!



The Mammoth comes with Tamiya's new MechaTronic Speed Control (MTSC), replacing the rather clunky three-step units with smooth response and a variety of speeds that rivals some budget-priced ESCs.



Tamiya's innovative Plus 1ch unit adds third-channel versatility to your 2-channel radio, allowing the Mammoth's bed to be raised and lowered without the need for a more expensive three-channel radio.

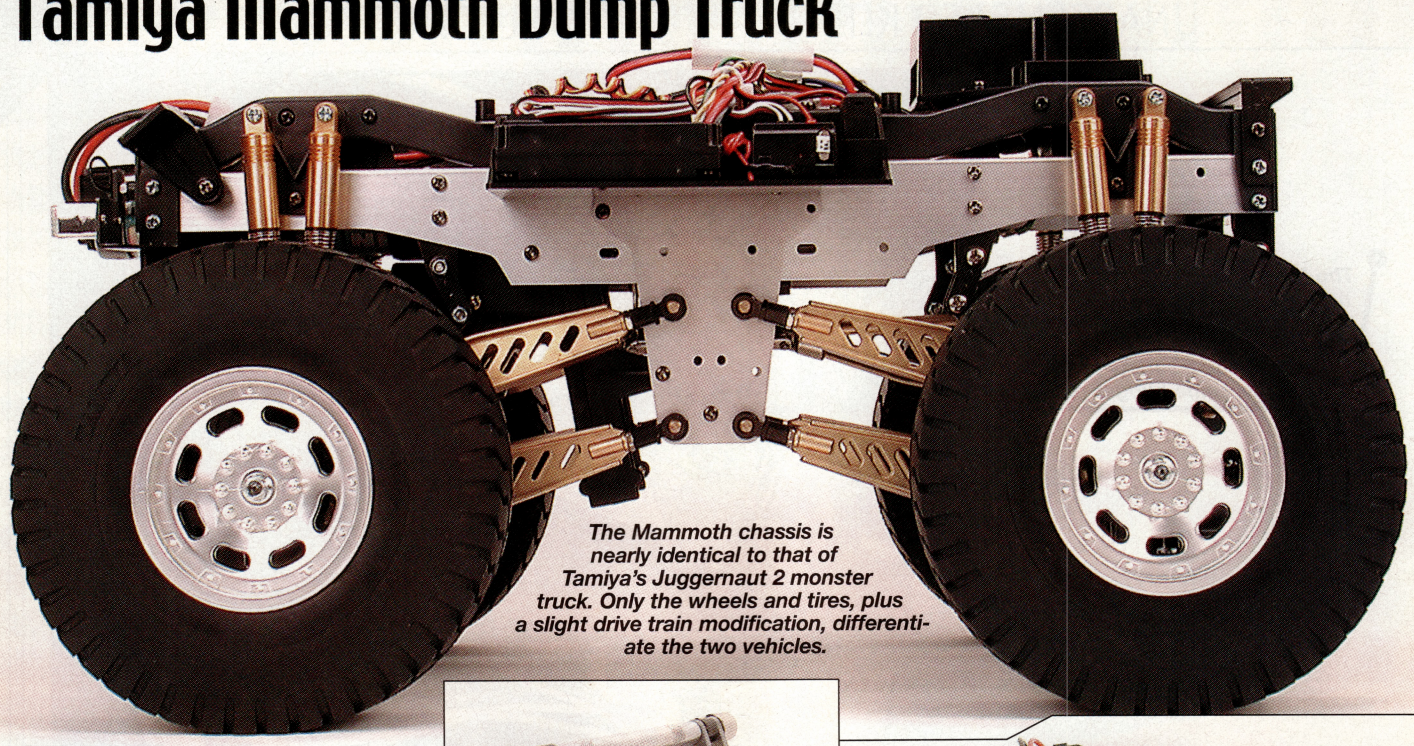


Unlike the Juggernaut 2 on which it's based, the Mammoth's gearbox is powered by a single 540 motor; the Jug uses two. Speed is not a requirement of Earth Movers.



This lever-switch tells the Plus 1ch unit that the bed has been fully raised or lowered, and that it's time to turn-off the power.

Tamiya Mammoth Dump Truck



The Mammoth chassis is nearly identical to that of Tamiya's Juggernaut 2 monster truck. Only the wheels and tires, plus a slight drive train modification, differentiate the two vehicles.

SPECIFICATIONS
Tamiya Mammoth Dump Truck

Type	4WD scale dump truck
Scale	1:20
Retail price:	$692.00
Average street price:	$460.00
Length	525mm
Width	295mm
Wheelbase	280mm
Weight (RTR)	5.5kg.

Transmission

Type	Shaft Drive 4WD
Differentials	Enclosed Planetary gear differentials
Driveshafts	Solid axles front and rear
Bearings	Bushings/bearings

Suspension

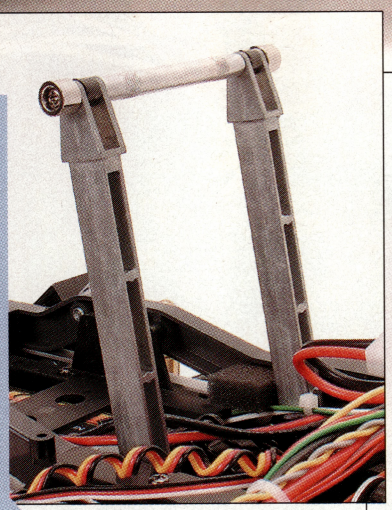
Type	Non oil-filled coil over
Material	Plastic/Steel

Front end

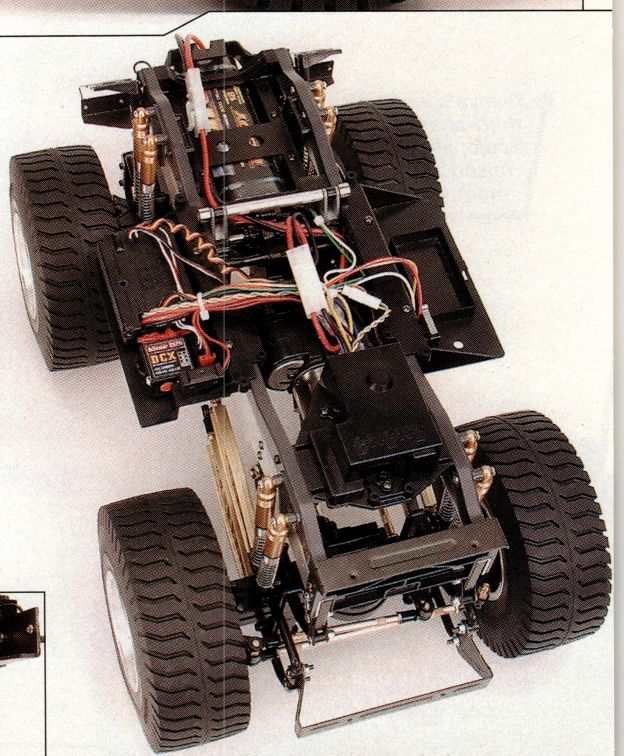
Caster	Non-adjustable
Camber	Non-adjustable
Toe	Non-adjustable
Down-travel	Non-adjustable

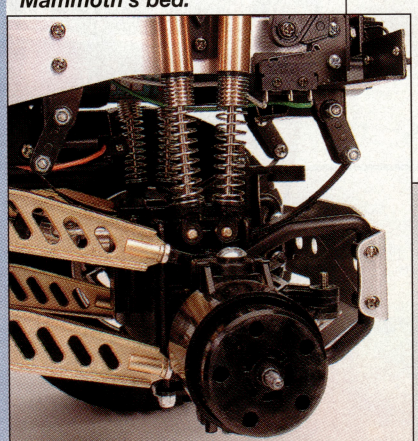
Rear end

Anti-squat	Non-adjustable
Camber	Non-adjustable
Toe	Non-adjustable
Down-travel	Adjustable
Shocks	Spring dampers
Springs	Kit
Wheels	One-piece silver
Tires	Earth-mover tires
Insert	None
Body	Mammoth EM-120



A separate electric motor and transmission are used to operate this arm, which in turn raises and lowers the Mammoth's bed.





The Mammoth's suspension consists of scale-looking leaf-springs damped by a pair of friction shocks at each wheel. Tamiya's optional gold-anodized aluminum oil dampers and gold anodized suspension links are shown.



FEATURES AT A GLANCE

The Mammoth Dump Truck rides atop a modified Juggernaut 2 chassis—we're here to show you what sets the two apart.

■ **Chassis**—As we mentioned, the Mammoth shares most of its chassis with Tamiya's popular Juggernaut 2 monster truck, but the Mammoth features a mildly modified version of the rigid aluminum and ABS plastic ladder-style chassis (a few extra holes are here and there for mounting extra items found on the Mammoth kit). The main critical areas in the chassis are made from aluminum material while the less stress-prone areas are manufactured from plastic. The biggest difference found between the two is the additional upper plastic "mechanism decks," and the new rear-mounted rack gearbox assembly unit that controls the bed's dumping action. The upper right mechanism deck is used to hold the new Plus 1ch Control Unit (more on this later), while the upper left mechanism deck anchors a micro switch in place (which shuts off power to the dump truck bed motor once the bed hits it).

Oh, you did catch that part about the bed-moving action didn't you…c'mon, you didn't think that Tamiya would put all that work into a dump truck that didn't actually work, did you? The Mammoth features a very unique rack gearbox assembly that actuates the bed movement up and down. This is accomplished from a signal sent through the included Plus 1ch Control Unit. With this setup, you can activate the bed action without the need of a three-channel radio. All you have to do to activate the system is to turn the wheel on your radio to the right and hold it for more than one second and the bed will begin to raise. To lower the bed, all you have to do is simply repeat the process, but this time turn the wheel to the left instead. Truly a very innovative setup—in the end it will save people extra money, since they won't need to purchase a more expensive three-channel radio when a typical two-channel radio will suffice.

■ **Drivetrain**—As with the chassis, the Mammoth also uses a mildly modified version of the Juggernaut 2's main transmission—a mid-mounted transmission using heavy-duty nylon gears is powered by a single RS540 electric motor (whereas the Juggernaut 2 uses twin 540s). The motor/transmission assembly is placed high in the center of the chassis, completely out of harm's way. The transmission case powers two steel universal driveshafts—each going to separate front and rear gearbox/axle assemblies. Inside each assembly is a set of ultra-rugged die-cast steel bevel gears mated to solid steel axles. The entire drivetrain features a mixture of bushing and bearings (bearings are used in high-stress areas in the center transmission).

■ **Suspension**—The suspension found on the Mammoth is virtually identical to the one found on the Juggernaut 2—a coil-spring/leaf spring combo helps the truck tackle rough terrain. As with the monster truck version, the Mammoth's suspension is so stiff and rigid that the truck bounces over terrain more than it drives over it. The Mammoth doesn't really reach high enough speeds where it matters, though, so it should be of no consequence in the end.

■ **Electronics**—Aside from the new Plus 1ch Control Unit, the new Mammoth features Tamiya's new MTSC (Mechatronic Speed Controller). The new mechanical speed control is much smoother than previous "light-switch-style" three-step mechanical units, providing a wide range of speeds, from a low crawl to cruising speed. As with all other mechanical speed controls, the new MTSC unit is controlled by a regular servo.

■ **Body Set**—Both the cab and the dump body are molded in shock-resistant ABS plastic—both items are already finished off in a bright yellow, which saves you quite a bit of painting work! You have to really look close, though, to appreciate all the fine detail work that went into creating this beast—from the clear headlights to the diamond-plate panels and removable upper generator cover, to the steel handrails abundantly placed throughout the cab area, this is a scale-modeler's dream come true. With some work, this R/C kit could give a static model a run for its money. The rear bed can be loaded up with whatever you please, dirt, rocks, etc., but it should not exceed the 4kg. load limit or you risk damaging the bed and/or the rack gearbox assembly.

THE GOOD

- Amazing scale looks and quality—one of Tamiya's coolest releases ever!
- We can relive our old Tonka glory days!

THE BAD

- A trifle on the expensive side, but hardcore scale dump-truck enthusiasts will most likely look past the price.
- The instruction segment covering the Plus1ch Control Unit is a little lacking. We had a hard time getting ours to work at first, but through trial and error we were able to finally get it working right.

Performance

Like its full-sized counterpart, the Mammoth Dump Truck is meant to haul dirt, not haul....well, you get the idea. We brought the Mammoth to a nearby construction site for our test drive (we just had to bring it there to get into the earth-moving mood!) and with a charged Reedy 3000 sport pack the machine set out on its maiden voyage. Over mildly rough terrain, the Mammoth was able to hold its own, but once the ruts, rocks, and general rough stuff started getting a bit more challenging, we decided it was time to back off and start moving dirt. The stiff suspension doesn't seem to like it when the going gets rough, similar to the Juggernaut 2. For the next couple of minutes we piled up rocks and sand in the bed and turned the radio wheel and held in in place, and voila! The dump truck bed started raising and dumping the debris out onto the lot in a nice little pile—mission accomplished! We had a blast driving the dump truck throught the construction lot (which seemed to draw a few dozen interested bystanders), and were always in awe at the scale-realism the truck provided. If you're a fan of heavy-machinery, have a passion for dirt movers, or like us, are from the "Tonka" generation, we have a feeling that you'll really get into the Tamiya Mammoth Dump Truck.

THE VERDICT

The Mammoth EM-120 Dump Truck is truly an amazing piece of work—Tamiya has outdone themselves once again. So many people stopped and stared whenever we took it out in public and drove it around. And while it is a little on the expensive side, in our opinion, it is worth every penny! So now you'll have to excuse us—we have to go excavate our backyard…

SOURCES

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Wow! Gas Main Events Sure Are Long

Beating the odds in a fuel off-road main event

By Jack Johnson

It seems that gas racing—primarily 1/10-scale truck and 1/8-scale off-road—is becoming increasingly popular. Many of the participants are crossovers from electric racing where the main events are much shorter than gas-powered main events. Electric mains tend to average five minutes, but it isn't uncommon for gas mains to run as long as an hour.

So, how exactly do you prepare for one of these marathon main events when you may only be accustomed to running for five minutes? The answer can be found in this article. We'll try to pass on a few tips for pre-race preparation as well as race-time strategy.



Nitro buggies and trucks often compete in gruelling hour-long main events on brutally rough tracks. Durability becomes as important as speed in these races. Is your buggy or truck ready?

Preparation is the key. In between each run, you must go over the entire chassis from stem to stern. Things to look out for include loose screws, missing E-clips, bent hinge-pins and cracked suspension pieces.

PRE-RACE PREPARATION

● Preparing your equipment for a long main event can actually be more important than what you do during the race. The attrition that goes along with these long events can work in your favor if you are prepared. Let's face it, it's much better to be racing for position at the end of a long race than watching from the drivers' stand after your vehicle has failed—to quote an old adage, "In order to finish first, first you must finish." With this in mind, here are a few pointers for preparing for the long main event.

1. Charge Your Batteries.

I know, I know, you're thinking, "This is a gas race, why do I need to worry about batteries?" We're talking transmitter and receiver batteries here. If you're using rechargeable batteries in your transmitter, charge them to full capacity. If you're using alkaline batteries, install a fresh set before the main. And don't forget about your receiver batteries! First of all, make certain that you have a receiver pack with enough capacity to last the entire main event. If the main is an hour long, nothing less than 1000MAh will do. Like the transmitter pack, charge the receiver pack to full capacity.

2. No, You Don't Have a Screw Loose

Take some time and check all of the screws on your vehicle. Make sure everything is tight. I would highly recommend using thread-lock on any screws that thread into metal. If a screw that threads into plastic is a bit loose, you may want to place a drop of tire glue on the threads—not too much, you just want to hold the screw in place during the race. You'll still need to remove that screw at some point in the future.

If you have enough time before the start of your main event, you may want to rebuild the diff(s) as well. Just remember, if you are rebuilding a ball diff you will need to properly break in, or seat, any new parts. This will ensure that the adjustment remains consistent throughout the length of the main. For 1/8-scale cars, having fresh fluid in the diffs prior to the start of the main can go a long way in keeping the car handling consistently.



It takes teamwork: having a reliable and knowledgeable pit man is as important as having a fast car. You and your pit man must function as a team if you are to be successful!

3. Rebuild the Shocks

If it's been a while since you've performed a complete shock rebuild, now's the time to do it. If the seals (O-rings) are fairly fresh, you'll at least want to replace the fluid. Something you may want to try is running the fluid a little heavier than your normal setup. Why, you ask? Well, consider this. Try to imagine how many times your shocks will compress and rebound throughout the course of a long main event. All of this movement will cause heat. As the shock bodies heat up, the shock fluid will heat up and thin. (Don't believe the hype! Even the best shock fluids out there thin with heat.) I suggest you start the main with the fluid about 2-1/2 to 5 weight heavier than your normal setup. After about ten minutes into the race the shock fluid will have thinned and the vehicle will be handling as it was with the normal fluid setup.

4. The Details

This is the time to think of any other preventative maintenance you can perform to prevent failure or problems during the course of the main event. Here are a couple of examples of these details.

a. E-clips

One way to keep those pesky E-clips on place is to put a thin coat of either Shoe-Goo or silicone sealer over the clip and on the exposed end of the hinge pin. This is particularly effective on the inner front hinge pins of the 1/10-scale trucks. If one of these E-clips comes off during the race, the hinge pin can migrate out of the bulkhead. This is guaranteed to cause a front suspension arm to break. It's a good idea to apply this insurance policy to all of the exposed E-clips — particularly the ones attached to suspension components.

b. Tie-Strap the Body Clips

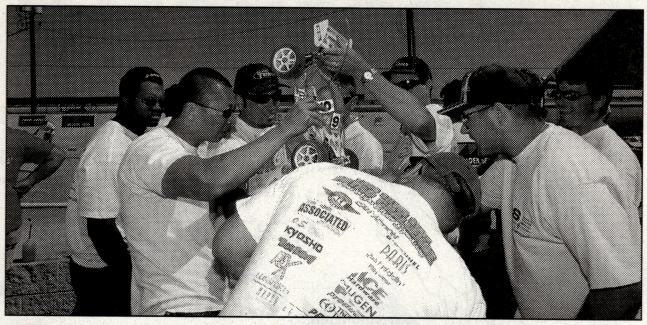
Are you running a 1/8-scale car with a rear wing that attaches with body clips? If so, I am sure you have lost one of these clips during a race as a result of a flip. This can cause the rear wing to swing all over the place. This can be prevented by securing a small tie-strap around the end of the body clip. When you want to remove the body clip after the race, simply cut the tie strap. You can also perform this little trick to the body clips holding the body on either your 1/8-scale car or your 1/10-scale truck.

5. Most Importantly

Last, but certainly not least, is probably the most important factor in winning a long main event. What is this, you ask? A good pit person. There's much more to a good pit person than simply filling your tank up quickly and getting you back on the track in minimal time. A good pit person also "reads" the track and calls you in for your pit stops to try to maximize the time you spend on a clean, open track out of traffic. A good pit person can also make slight needle valve adjustments during the course of the race to keep your engine running as temperatures, humidity, and other factors change the tune of your engine. And don't forget about minor repairs that may need to be made. Having someone in your pit who can make minor repairs quickly is invaluable.

ONCE THE RACE STARTS

Of course, all the pre-race preparation in the world won't help you if you don't also have a strategy once the race gets underway. The most important thing to remember here is that gas main events are long. If you are accustomed to running electric main events, you are likely of the mind that the start is very important. While it's still nice to get a good start in a gas main event, it is certainly not detrimental if you get held up a bit. Just keep in mind that there is no reason to try to win the race on the first lap. It is far more important to survive the first lap unscathed. If it is necessary to slow down and take jumps one at a time instead of nailing the triple to avoid a crash, so be it. There will be plenty of laps to make up a position or two that you may give up to keep your vehicle in one piece and running.



When good cars go bad: when something does break during a race, don't give up! Long mains mean high attrition, and if you can get back out on the track, you could end up taking the checkered flag!

Since this race will go on for quite some time, you should consider tire wear. Most off-road events don't allow for tire changes during the main event. Even if tire changes were allowed, without the quick-change hubs used for on-road cars, a tire change would certainly put you out of contention for the win. You are much better off pacing yourself and being smooth on the throttle. The less you spin the tires, the longer your tires will last.

There is another plus to being smooth on the throttle and not overdriving; this is fuel economy. The less horsepower you waste spinning your tires, the better gas mileage you will get. It's not uncommon for two drivers running the same vehicle, fuel, and engines to produce more than a minute difference in run time on a tank of fuel. The difference in these varying run times? Driving style. Smoother throttle response with less tire spin will produce longer run times on a tank of fuel every time.



Ten drivers. Who will win? Most likely, it will be the one who has taken the time to prepare his car for the extreme conditions found in nitro racing.

Smooth driving will also keep you off of your lid and running. All those crashes start to add up after a while. As holes begin to develop in the track, alter your line a bit to avoid them. Even if the laps are a bit slower, the consistency will pay off in the end. Consider this: If a driver is two tenths of a second a lap faster than you and crashes every 8-10 laps but you never crash, guess what? You will win the race. Every crash will cost a minimum of three to five seconds for the turn marshal to right your vehicle—and that's a minimum. Crashes can cost much more time if a marshal needs to wait for an opening in traffic to get to you. Or worse yet, what if the marshal isn't paying attention? Nah, that never happens.

Continue driving smoothly and pacing yourself for at least the first three quarters of the main event. Your only objective for the first three quarters of the main event should be not to allow the leader to get too far ahead. If you can manage to drive smoothly while conserving fuel and tire wear and maintain the lead, great! If not, you should at least try to remain on the same lap as the leader. If you are on the same lap as the leader at the three quarter mark, you should be able to begin pushing a little harder

At this point in the race, many of the other drivers will have likely burned up their tires, broken their vehicle, or crashed several times. But you read this article and are well on your way to winning the main. You still have some tires left, your vehicle has been properly prepped and will finish the race, and you know how to avoid the holes so you can make the pass when you catch the leader. ●

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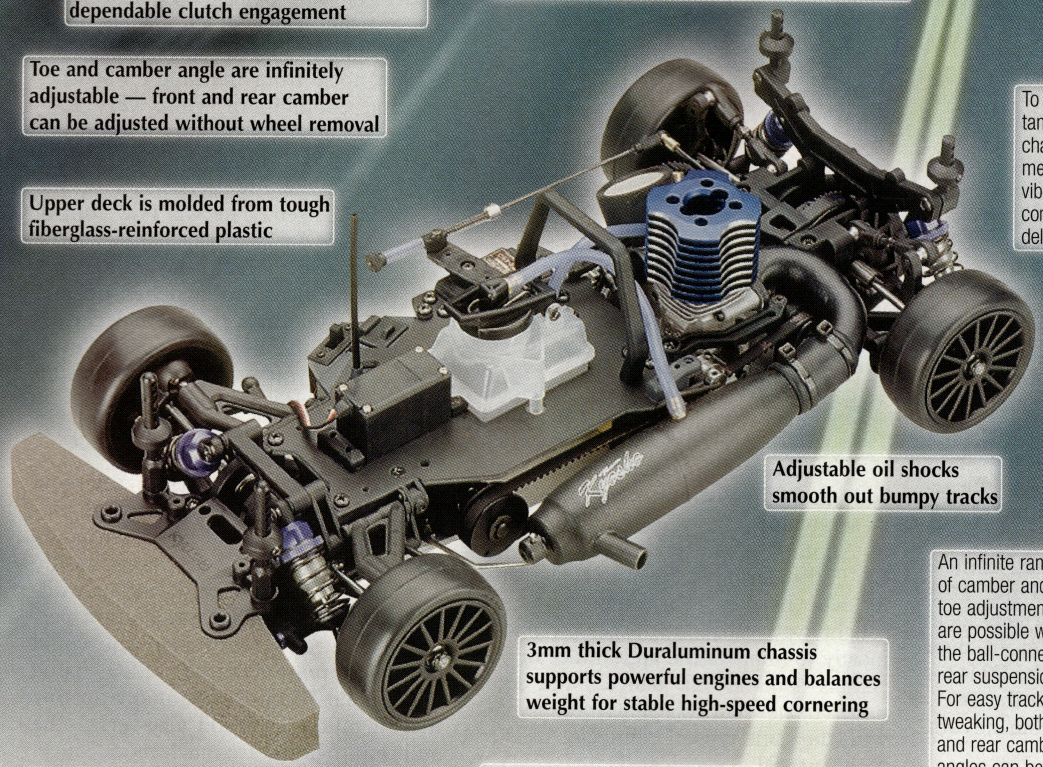
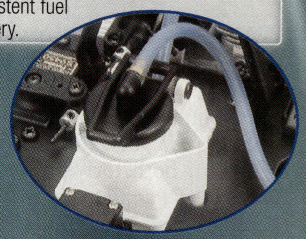
Toe and camber angle are infinitely adjustable — front and rear camber can be adjusted without wheel removal

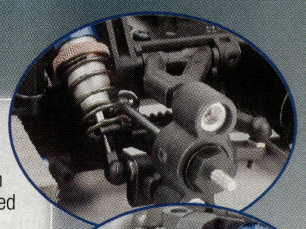
Upper deck is molded from tough fiberglass-reinforced plastic



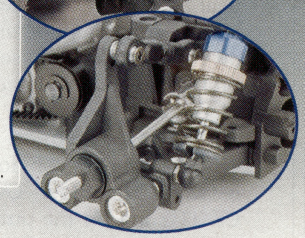
To protect on-board components, the fuel tank drains overflow to the bottom of the chassis. Inside the tank, bulkheads and mesh filters eliminate air bubbles, prevent vibration-induced foaming, and maintain consistent fuel delivery.



Adjustable oil shocks smooth out bumpy tracks



An infinite range of camber and toe adjustments are possible with the ball-connected rear suspension. For easy trackside tweaking, both front and rear camber angles can be adjusted without removing the wheels.



3mm thick Duraluminum chassis supports powerful engines and balances weight for stable high-speed cornering

Includes aerodish wheels and high-grip tires

Countersunk screw holes help to avoid hang-ups

Kyosho knows exactly what it takes to win in 4WD nitro racing. The legendary 1:8 scale Inferno buggy's FIVE consecutive firsts at the IFMAR World Championships are all the proof you need. Now Kyosho engineers turn their talents to 1:10 scale touring action and present the V-One R — a vehicle that adapts proven 1:8 scale on-road technology to meet IFMAR 1:10 GP Touring Car specs...and gives drivers who demand #1 all they need to assume the lead!

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Novak's New Cyclones

Pushing ESC technology to the limit



Although the new C2 and TC2 are identical ESCs, their internal softwares' performance profiles are different. The C2 is for general applications, while the TC2 is more suited for use in touring sedans.

When first introduced, Novak's Cyclone ESC set new standards in programmability, ease-of-use, features and packaging. With 256 steps for both forward and brakes, an external adjustment pot for brake strength and three built-in software "profiles" to tailor ESC performance to individual conditions, the Cyclone quickly became a favorite among racers. Years later, Novak gives us its second-generation Cyclone, or Cyclones, as there are two models: the C2 and the TC2. Although externally and internally identical, the new Cyclones differ in their built-in software programs—the C2 is for off-road and general use, while the TC2's profiles are more tailored for touring cars.

External Changes

The most obvious differences between the older Cyclones and the C2/TC2 are on the outside. First, you'll notice that the new Cyclones don't seem to have an on/off switch. It's there, but now Novak has streamlined the Cyclone design by merging the power switch with the One-Touch Setup button. Most of us attach our power switch to the ESC's case anyway, so this change makes perfect sense. To turn on the C2 or TC2, you simply depress the large button once. If you accidentally press and hold the button, the ESC may enter the Setup mode, and you'll have to re-program it to match your transmitter's trigger (don't laugh, we did this during initial testing!). When your run is over, press the button again and the ESC shuts off. We really like this change; it makes it much easier to find the switch when reaching under a tight car body, and the switch can't be ripped from its servo tape.

Another great new feature of the C2/TC2 exterior is the user-replaceable receiver harness. For years, we have sought ways to reduce excess wiring—mostly to improve the appearance of our chassis—and Novak delivers the solution. The new harness plugs into the ESC with the same type of connector used to plug into the receiver. The C2/TC2 comes with a 9-inch harness, and Novak currently offers an optional 4-1/2 inch harness. And if the harness wires ever become damaged, there's no need to send the ESC in for service; just order a new harness through your Novak dealer and replace it yourself.

One of the more significant hardware changes made to the C2/TC2 is the redesign of its DataLink socket (the link between the ESC and Novak's optional Pit Wizard handheld programming device). The original Cyclone's socket was rather frail and could be easily damaged if the Pit Wizard's connector wasn't inserted just right. The new socket is much more rugged, although you'll need Novak's optional Pit Wizard-To-C2/TC2 Adapter Harness (no. 5710) if you own an older Pit Wizard.

Internal Changes

The changes made to the outside of the new Cyclones are great, but what racers care most about is the inside of an ESC! First, the C2/TC2 feature lower on-resistance (0.00049 ohm) courtesy of their new HyperFET III transistors, which help to improve the efficiency of the ESC—and of your motor and battery.

Noise reduction has also been improved with the C2/TC2, and we don't mean that your car will run quieter! "Noise" in this case refers to electronic spikes that can interfere with radio performance and cause glitching. The most common sources for these spikes are noise from the motor's brushes and commutator, from very low-turn motors or motors with lots of advanced timing, and noise from the switching transistors of the ESC itself. The C2/TC2 control noise in two ways: first by the way in which the transistors themselves are switched on and off, and through internal capacitors. With the new Cyclones, Novak tells us that you won't need to install motor capacitors anymore!

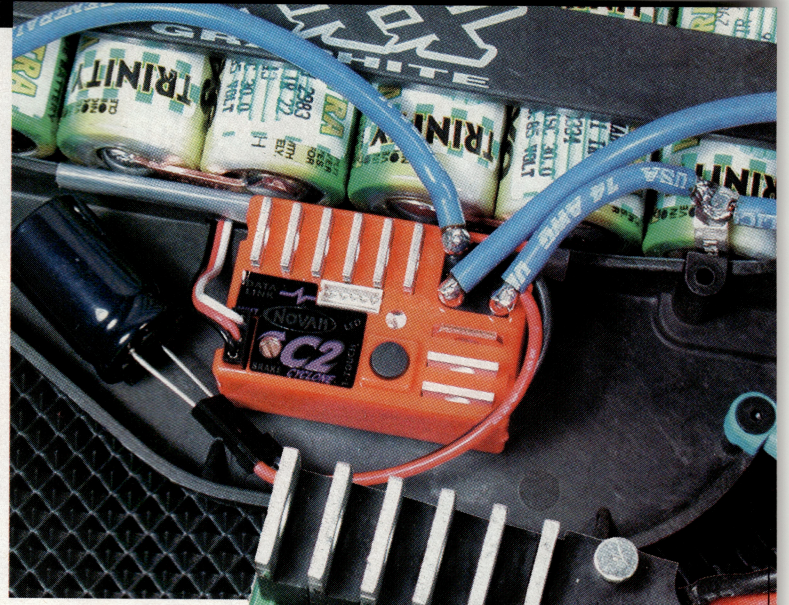
Software Changes

The biggest news inside the new Cyclones are their updated software profiles. As we mentioned in the introduction, the C2 and TC2 are mechanically and electronically identical; the only differences are in their three built-in performance profiles. Although you could easily reprogram either ESC using Novak's Pit Wizard—essentially turning the C2 into a TC2 and vice-versa—the built-in programs are much more convenient and are the result of Novak's factory drivers' years of testing.

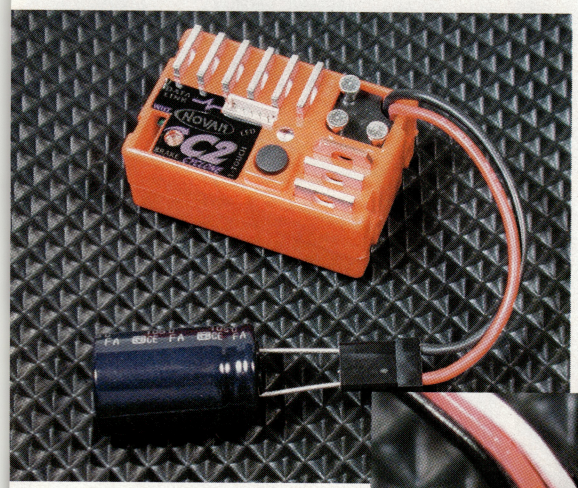
The C2 has three profiles: Profile 1 is for use with modified motors. It features a higher drive frequency (15.60 kHz) and ultra-low minimum drive (two percent) for greater throttle control. Profile 2 is for stock motors. It features a lower drive frequency (5.86 kHz) and higher minimum drive (six percent) to improve acceleration. Profile 3 is for when you need drag brakes, such as when racing on very high-bite or tight courses. The drive frequency (7.8 kHz) and minimum drive (four percent) allow this profile to work well with both stock and mod motors. All three profiles use a fairly tight five-percent deadband.

The TC2 also has three performance profiles: Profile 1 is called World Cup,

and it is identical to the C2's first profile (Modified). Both are also the C2/TC2's default profiles. Profile 2 is for high-traction conditions. It features a fairly high drive frequency (11.70 kHz) and low minimum drive (three percent) for when conditions allow you to really lay down the horsepower! Profile 3 is called Touring Stock, and as it's name suggests, it's the profile best suited for stock racing. It has a low drive frequency (7.8 kHz) with a high minimum drive (five percent) to get your touring sedan moving in a hurry. But because stock motors inherently have greater drag off-power, Profile 3's brake frequency is higher (11.70 kHz) to allow greater control under hard stopping.

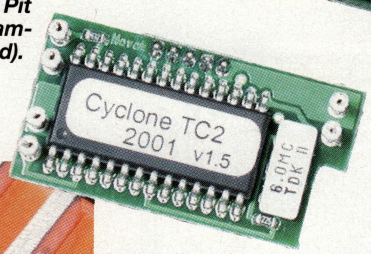


We tested the C2 in a Team Losi Triple-X Kinwald Edition buggy. The C2 delivers all the performance features that we liked so much in the original Cyclone, but with improved efficiency and updated throttle profiles.



Novak includes a larger power capacitor that will handle even the most insane six-turn mod motor. Capacitor installation is made easier with a new plug-in lead.

The new Cyclones feature dual-deck circuit boards for improved packaging (fitting more in a small space). The smaller board (below) is the "brain board," which holds the ESC's microprocessor and E-Prom (which stores your throttle programs when Novak's optional Pit Wizard handheld programmer is used).





New external features make the new Cyclones even more user-friendly. The input harness plugs into the ESC for easy replacement, and the One Touch Setup button now pulls double-duty as the on/off switch.

What's with that big power capacitor?

● Although they might look like an afterthought on the part of the ESC designer, power capacitors are necessary—make that essential—to an ESC's performance, especially when low-turn mod motors are used. "The demands placed on an ESC by an ultra-low turn motor (some as low as six-turns) are almost ridiculous," says Novak's Tyree Phillips, "People are running fewer and fewer turns because they now have the battery technology to do so. These motors are drawing between 40 and 80 amps, and this places a strain on the ESC's ability to handle the inefficiencies inherent in electric motors." Power capacitors reduce this strain and can lower the operating temperature of the ESC by as much as 10 to15 degrees, which allows the ESC to retain its efficiency.

The new C2/TC2 ESCs come with extra-large power capacitors that can handle the hottest motors. And instead of having to solder the capacitor in place, Novak has added a clever plug-in system that allows you greater flexibility in capacitor location. ●

C2/TC2 SPECIFICATIONS

Input voltage	4-7 cells (1.2 volts DC per cell)
Case width	1.69 in./43mm
Case depth	1.11 in./28mm
Case height	0.76 in./20mm
Weight (w/o heat sinks)	1.33 oz./38g
On-resistance*	0.00049 ohm
Rated current*	480 amps
Braking current*	160 amps
BEC voltage	6 volts DC
BEC current	3 amps
Wire length (batt/motor)	9 in./230mm
Signal harness	9 in./230mm

* at 25-degree Celsius transistor junction temperature.

SOURCES

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

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TS4n SC SUPER COMBO sport

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- **Powerful PRO-15 Pull Start Engine Included & Installed**
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The TS4n Super Combo comes with either the Viper or Mercedes body. Seven other painted bodies are available separately.

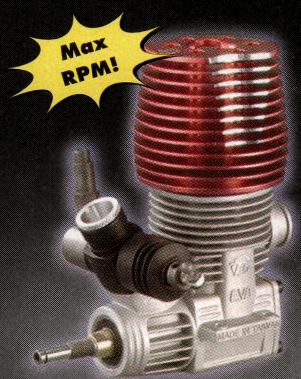
TTR 6181-F TS4n Mercedes Super Combo
TTR 6186-F TS4n Viper Super Combo



PD1101 Alfa Romeo



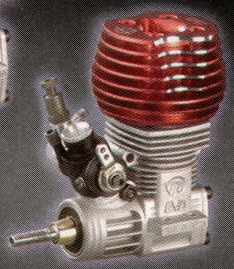
Wheelbase: 265 mm
Front Track Width: 200 mm
Rear Track Width: 200 mm
Weight (dry): 1660 grams



EVO COMPETITION ENGINES

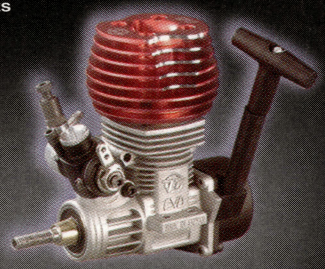
No. 9470 EVO-21RL
2,500~31,000 Practical RPM
2.1/29,000 Output (BHP/RPM)

No. 9471 EVO-21RS
3.000~40,000
2.1/31,000



No. 9460 EVO-12 (P)
2,500~31,000 Practical RPM
0.8/30,000 Output (BHP/RPM)

No. 9464 EVO-12
2,500~31,000
0.9/30,000



No. 9461 EVO-12X (P)
2,500~31,000 Practical RPM
0.8/30,000 Output (BHP/RPM)

No. 9465 EVO-12X
2,500~31,000
0.9/30,000



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Starting Accessories Included

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Thunder Tiger TEAM INTERNATIONAL



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PD1095 Honda Accord



PD1068 Subaru Impreza



PD1097 Volvo S-40



PD1091 Dodge Stratus



PD1065 Ford Focus

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EB4 Super Combo

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- Hitec Lynx Sport Radio is Included & Installed
- High Torque Steering Servo HS-605 Installed
- Powerful PRO-21 Pull Start Engine Included & Installed
- Starting Accessories Included

Super Combo EB4

1/8th Scale Nitro Powered 4WD Racing Buggy

Ready-to-Roar with Engine, Radio, and Painted Body

Wheelbase:	Adj from 324 mm to 329 mm
Front Track Width:	Adj from 260 mm to 268 mm
Rear Track Width:	261 mm
Front Caster:	Adj from 18°-25°
Rear Toe-In:	3 Settings, 2°, 1.5° and 1°
Front Kick-Up:	5°
Rear Anti-Dive:	2°
Weight (dry):	3300 grams

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TEST DRIVE

Kyosho Pure Ten Alpha Honda S2000

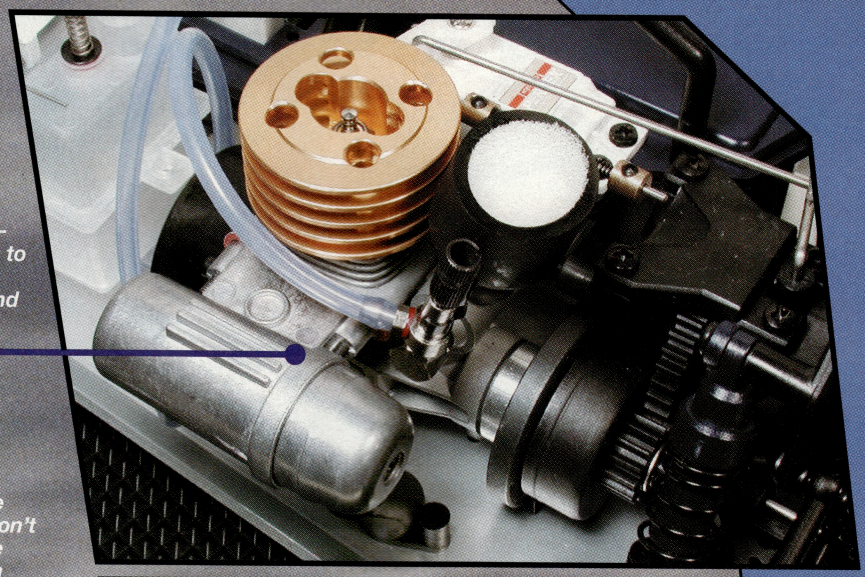
I want a Honda S2000! I have ever since the first spy photos were published. Unfortunately, my local Honda dealer has told me that he can't get one. Supply is short, and demand is high. And this comes as no surprise, especially considering that the sporty Honda makes an incredible 240 horsepower from just two naturally aspirated liters, has a responsive rear-wheel drive chassis and aggressively sculpted body panels that make me drool whenever I see some lucky stiff behind the wheel of one. Okay, so if I want to enjoy the thrill of driving an S2000, I'll either have to fork over a hefty premium in addition to the sticker price or wait forever on my dealer's list, right? Not exactly. Kyosho has come to a rescue of sorts with a new 1/10-scale version of the S2000, based on the Pure Ten Alpha platform. Kyosho offers the S2000 with either the EP (electric power) Alpha or the GP (glow-engine power) Alpha chassis. We chose the GP version as we generally find that sport-level nitro models are far faster and more fun than their electric counterparts.

Things you'll need

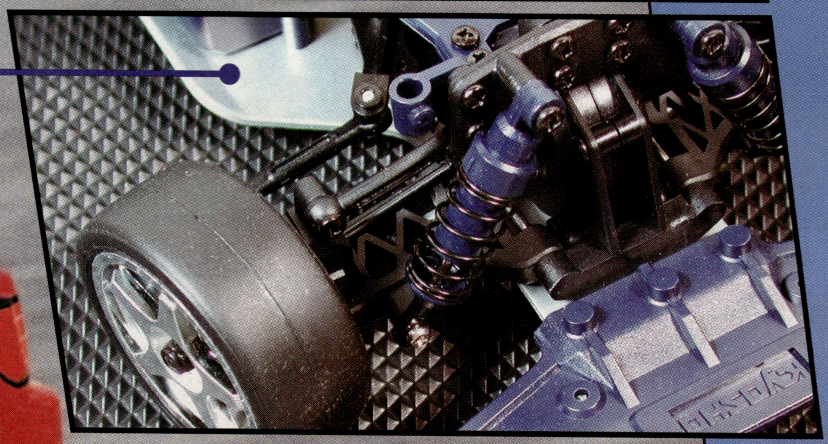
- 12 AA batteries
- CA glue for tires
- Glow fuel and fuel bottle
- Glow plug igniter



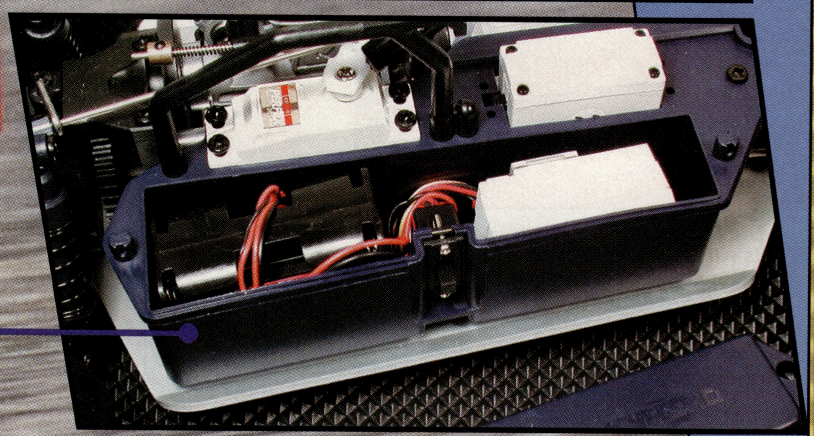
JAPAN'S SNAPPY SPORTSTER GETS 4WD!

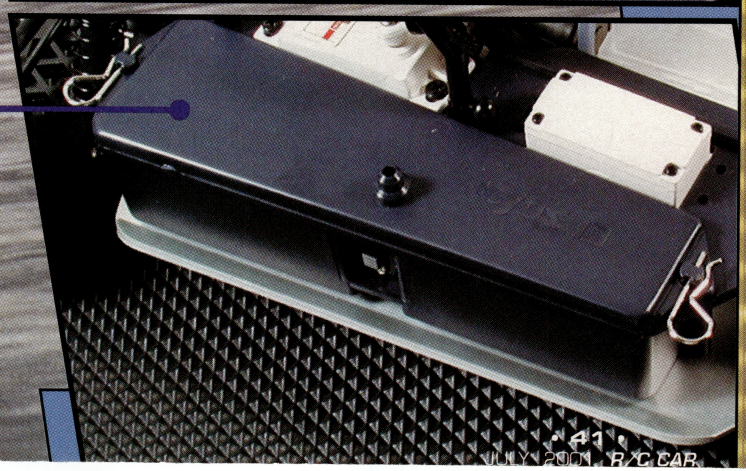


The included Kyosho GX12-CR engine features a ball-bearing supported crankshaft and a handy pull-starter. Expect speeds comparable to those of a stock electric sedan, as the engine's single-needle carb and restrictive exhaust limit power.



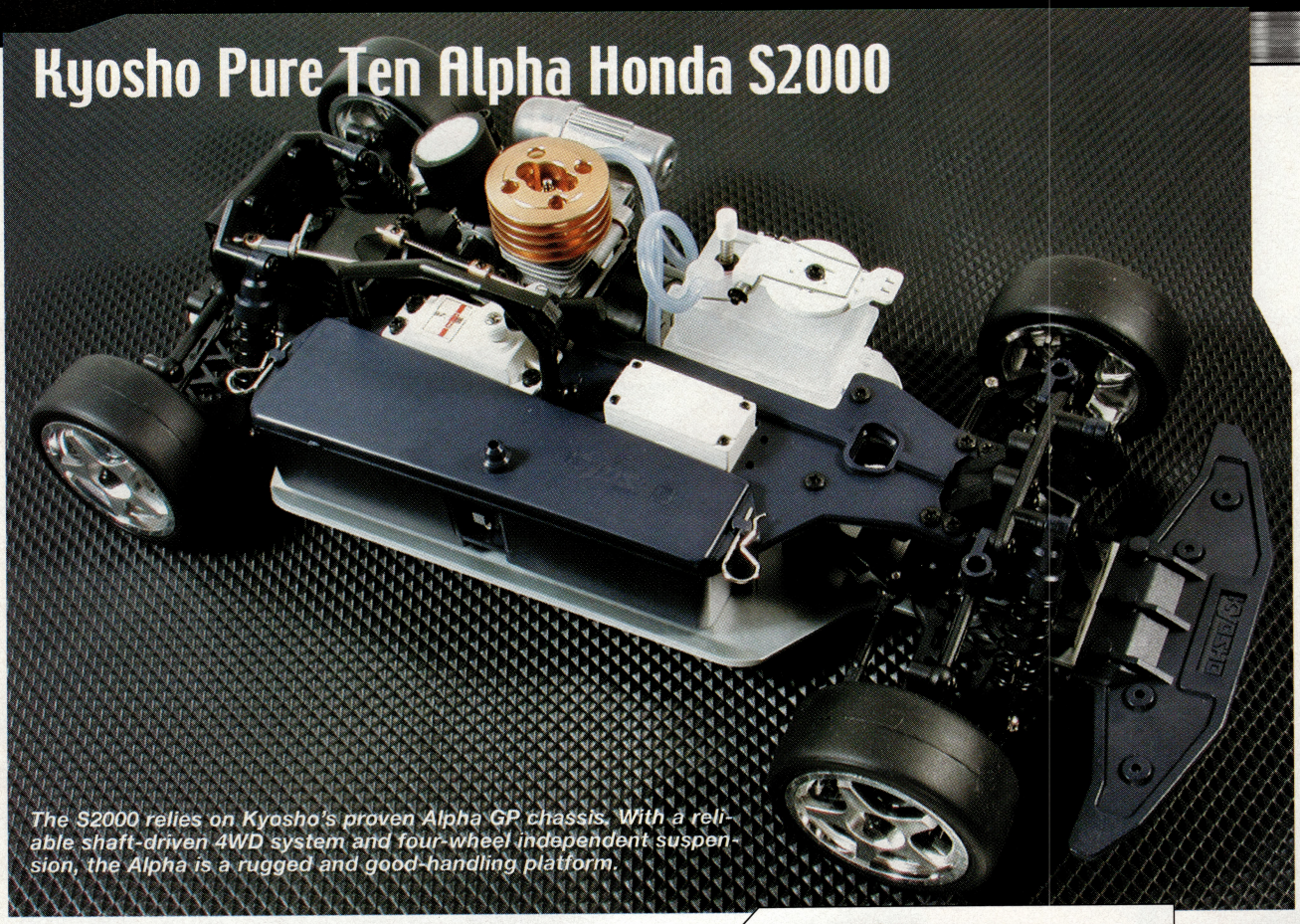
Fixed-length tie-rods provide the correct suspension setup, but don't provide for any adjustment. The shocks are non oil-filled friction dampers—they work okay, but we'd prefer oil-filled shocks.





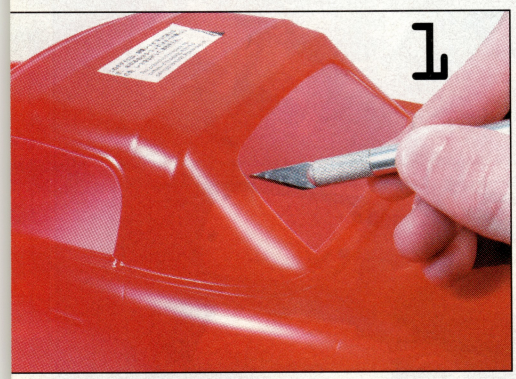
This spacious molded radio box provides ample protection for the receiver and battery pack. The S2000 comes ready-to-run with Kyosho's Perfex radio system installed.

Kyosho Pure Ten Alpha Honda S2000

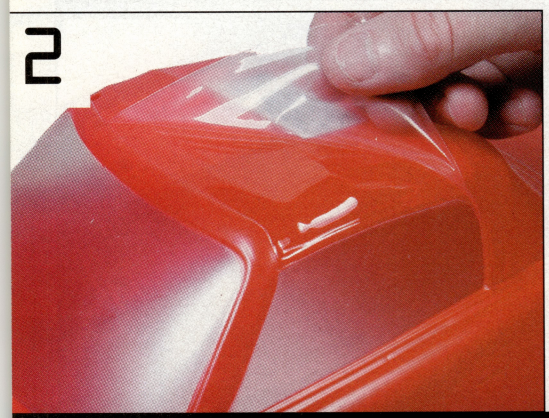


The S2000 relies on Kyosho's proven Alpha GP chassis. With a reliable shaft-driven 4WD system and four-wheel independent suspension, the Alpha is a rugged and good-handling platform.

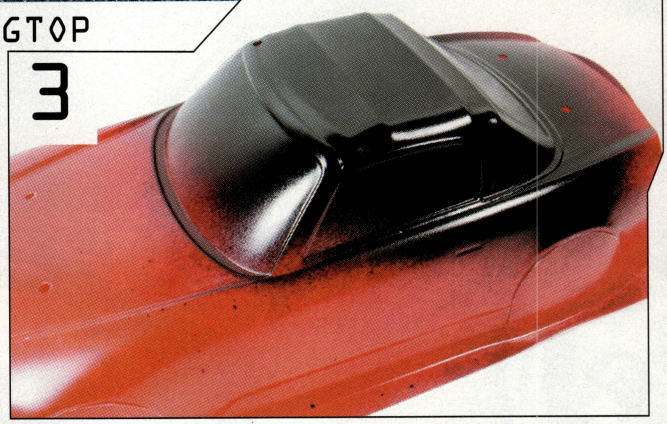
A MORE REALISTIC RAGTOP



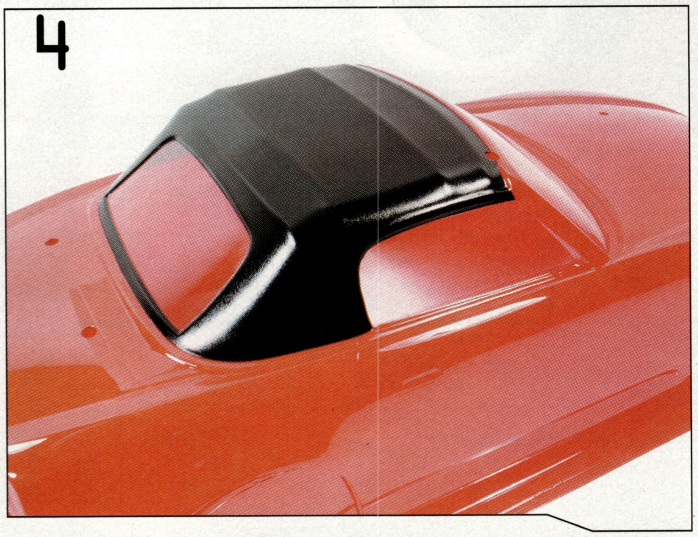
The S2000 body comes pre-painted (in racing red) with its wheelwells pre-trimmed. To simulate the the S2000's fabric convertible top, Kyosho provides a large set of decals. We opted to paint the top for a more realistic appearance. This is made easy by using the body's plastic overspray protective film as a mask. To begin, carefully cut the plastic film using a sharp hobby knife (don't cut too deeply or you'll score the Lexan). Cut the outline of the top as well as the back window.



Next, carefully remove the film to reveal the bare Lexan. Pull the film away slowly to avoid removing the part of the film that will act as a mask in case you didn't cut properly.



With the film removed in the roof area, go ahead and spray the outside of the body with black paint (or whatever color you choose). Allow the paint to dry completely before you remove the remaining film.



With all the plastic film removed, we now have a perfectly painted convertible that looks much better than the stock decals. This trick will work with any body that comes with protective film.

Specifications
Kyosho Pure Ten Alpha Honda S2000

Type.....4WD nitro-powered touring car
Scale.....1:10
Price.....available at $219.99

Length.....14.8 in/377mm
Width.....7.9 in/200mm
Wheelbase.....10.2 in/260mm
Track (F/R).....6.8 in/173mm
Weight (RTR).....3.7 lbs.

Transmission
Type.....shaft-driven full-time 4WD
Differentials.....four-gear bevel (F/R)
One-way.....no
Driveshafts.....steel dogbones/steel axles
Bearings.....metal bushings

Suspension
Type.....independent lower H-arm with fixed upper links
Material.....molded nylon

Front end
Caster.....non adjustable
Camber.....non adjustable
Toe.....non adjustable
Down-travel.....non adjustable

Rear end
Anti-squat.....non-adjustable
Camber.....non adjustable
Toe.....non adjustable
Down-travel.....non adjustable
Shocks.....plastic friction dampers
Springs.....Kyosho firm silver
Wheels.....26mm silver five-spoke
Tires.....Kyosho slick
Inserts.....none
Body.....Honda S2000 (pre-painted)
Engine.....Kyosho GX12-CR
Manifold.....side-exhaust
Pipe.....“model airplane” style w/extension tube
Clutch.....two-shoe w/spring

Plus, we know how to tune engines, so although the electric version would be easier for a novice, we expected no problems. The S2000 is part of Kyosho's Readyset Series, which means that it's an RTR (ready-to-run) vehicle. When you open the box, you'll discover that the entire chassis has already been built for you. Not only that, but the included Kyosho Perfex radio system has been installed. Additionally, the S2000 body had been pre-painted (I hope you like red, 'cause that's the only color available).

FEATURES

■ **Chassis**—The GP Alpha has a large main chassis that's stamped from 2mm-thick aluminum. The entire suspension and drivetrain attaches to the chassis with self-tapping button-head screws. We prefer the use of countersunk screws, as they are less likely to drag on the ground, but countersinking the chassis is a costly step that Kyosho didn't want to pass along to the consumer. Atop the chassis is a large molded deck made from a bluish-colored nylon composite material. This piece serves both as an upper deck to stiffen the chassis and as the lower portion of a cavernous radio box into which the receiver and battery pack are installed. A large molded lid seals the box and is held in place by two body clips for easy access.

■ **Suspension**—The four-wheel independent suspension of the Alpha chassis is as beginner-friendly as you can get. By “beginner friendly,” I mean that nothing on this suspension is adjustable—the upper camber links and steering tie-rods are fixed, the shocks are oil-less and there is no way to adjust spring pre-load. So what we have here is a suspension that can't be screwed up! Sure, you and I won't be able to tune the car to different track conditions (without having to buy hop-ups and accessories), but the first-time owner won't have to learn about suspension settings in order to enjoy his new S2000!

If we could change one thing on the S2000 it would be to replace the friction dampers with a decent set of oil-filled shocks. The stock bouncers provide little if any motion control over bumps, and are non-adjustable. Oil shocks, even an inexpensive set of plastic shocks, would be a vast improvement.

■ **Engine and drivetrain**—The pre-assembled Alpha GP chassis comes with Kyosho's reliable GX12-CR pull-start engine, which sends its power through a rugged shaft-driven 4WD system. We prefer this shaft-drive setup over a belt for this type of car. New drivers tend to venture off-pavement—a lot—and the combination of the Alpha's shaft drive and sealed gearboxes will prevent possible damage caused by small debris. In fact, the S2000 shares its chassis with Kyosho's Alpha rally cars; cars that we've thoroughly thrashed in grueling off-road conditions!

■ **Electronics**—The S2000 comes with a Kyosho Perfex radio system, which has been already installed in the chassis. The transmitter is a pistol-type and features trim adjustments and reverse switches for the steering and throttle channels—this is a system that you'll want to keep and install in another car if you get tired of the S2000. The steering and throttle servos are in their places on the chassis and all the linkages have been factory set. ◆

SOURCES

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

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

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

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

PERFORMANCE

Pre-run prep—Before you can run the S2000, you must install the body-mounts to the chassis, decal the body and install the AA batteries into the radio and receiver box. In addition, you should glue the tires using CA cement and cut an opening in the windshield area to allow air to reach the engine. We also removed a portion of the back window to improve airflow.

Firing it up—The best way to start the GX-12CR engine is to advance the throttle slightly as you give the pull-starter a few tugs. Once running, we found the pre-set carb to be in the correct position for break-in, i.e. rich enough. Raise the car's wheels off the ground and allow the engine to idle through two tankfuls of fuel. Blip the throttle every 30 seconds during this time.

Break-in—After the intitial tanks, we leaned the carb slightly, put the car on the street and ran two additional tanks at partial throttle. The longer your break-in time, the better the engine will run and the more power it will make.

Race tune—Due to its single-needle carb and restrictive muffler, the GX-12CR can only be leaned so far before it overheats. So avoid the temptation to allow the engine to scream; be happy with a fairly rich setting and the engine will last.

Power and speed—The S2000 is about as fast as a stock-motor powered electric car. The difference is that the little nitro engine will run for as long as you keep its tank filled with fuel, and its sound is definitely addictive.

Handling—Considering its harder-compound rubber slicks and that no foam inserts are provided, the little S2000 handles pretty well. Maybe it does because it's just not that fast? But steering is very responsive and traction is plentiful. There's an excessive amount of drive train drag—or at least that's what if feels like—that slows the car abruptly when you let off the gas.

YOKOMO GT-4W

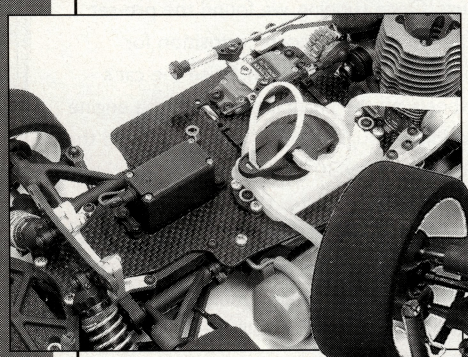
Down the road and back again.

By Lito Reyes

When we first looked at Yokomo's latest nitro touring car, we boldly declared that the GT-4w would come to be one of the most popular cars around.

Okay, so it wasn't so bold of a statement; it didn't take a crystal ball to make that prediction, a couple of tanks of 30-percent is all it really took

But, as with every car, there is room for improvement. It's not that we were really unhappy with the car as it came in its original form, it's just that when people start making hop-ups for a car, we want to try them. And try them we did.



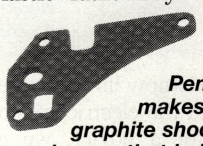
Penguin r/c supplied us with one of their prototype graphite upper decks. Aside from stiffening up the chassis, the graphite deck also drops the fuel tank down a few millimeters for a lower center of gravity.

The first thing we wanted to do was strengthen the front and rear shock towers. There are two sets of products we tried that help out in this department. First, Penguin r/c has front (P1713) and rear (P1714) graphite shock tower braces that stiffen up the car significantly. The front piece goes in place of the thin metal brace that comes standard, and adds two more upper shock mounting locations. The rear one mounts to the existing tower and also adds two more mounting positions. With at retail price of $6.99 each, the price of these braces is hard to beat.

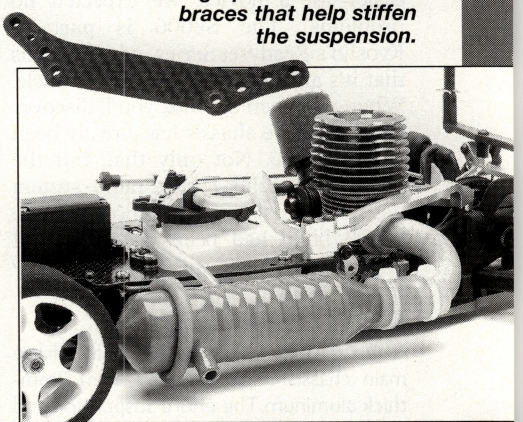
If you're looking for a bit of form to go along with your function, Yokomo USA is offering fully machined aluminum shock towers made from 7075 T6 alloy. Both the front (ZE-017FA) and the rear (ZE-017RA) are priced at $34 each, but they are beautiful pieces and will definitely add some flash to your chassis while getting the shocks to do their job.

At this point, we decided to go whole hog and try every chassis-stiffening device we could get our hands on for the GT-4. And a good starting point was a stiffer chassis. The thickest, stiffest chassis we could find was one made by Wolfpack Radicals. It is made out of 4.75mm-thick 6061 T6 stock and has leading and side edges tapered up to 3mm thickness so it won't drag too much on the track. Saying that this helps make a more solid platform is an understatement. Brian Sohn of Penguin r/c showed us a prototype of a graphite upper deck he was designing. Being quite familiar with how Yokomo's stock molded plastic piece was designed, we were very impressed. Basically, he was able to replace a complex multi-dimensional injection molded part with a piece of flat graphite. Of course, it took a few graphite spacers here and there to get it to work, but once it all tied in together, it felt like a factory part. Penguin's Performance Upper Deck (P1712, $41.99) has the added benefit of dropping the fuel tank a few millimeters for a lower center of gravity.

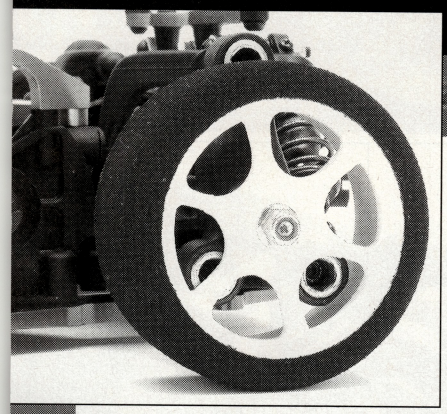
Next on our list was replacing the stock plastic radio tray supports,



Penguin r/c makes a set of graphite shock tower braces that help stiffen the suspension.



Originally, we tested the car with a Mugen engine, but for tight technical tracks, it's hard to beat the stock Yokomo RX-12 engine—it has a ton of bottom-end power that helps it launch out of corners faster. A GPM Racing pipe was added to extract more midrange power.



Super G foams in Double-Orange in front and Orange in the rear trued to a diameter of between 62-63mm worked well on the large track (long straights) that we raced the car on.

radio tray posts, and rear bulkhead support. These parts are key components, since they tie the rear bulkhead to the upper deck. Yokomo has machined ones available, again, from their 7075 T6 stock. With their satin finish, they go nicely with the aluminum front and rear shock towers. The bulkhead support even has a ball bearing added to allow the brake cam to rotate more freely. (ZE-116SLA, ZE-116SRA, ZE-116PLA, ZE-116PRA, ZE-300RSA0—$13.75 to $36.00)

Speaking of brakes, we've had lots of good experiences running Penguin's brake discs in the past, so in went a Performance Brake Disc (P1710). It is made out of specially-textured graphite and doesn't require the use of the fiber pads that you have to glue on the steel shoes. Friction directly from the stock steel brake shoes is all that is needed for consistent braking.

Now that the chassis was as stiff as possible, it was time to re-evaluate the drivetrain. The motor we originally used, Mugen Racing's Novarossi-built rear-exhaust MT-12 engine, was great on long sweeping tracks like the Crystal Park Casino Raceway because of its high-revving design, but technical (read: smaller) tracks favor cars with lots of low-end torque. Even gearing it lower with Yokomo's optional 15/18-tooth pinion combination didn't yield quite the punch that the lighter OB-4s and MTX-2s had.

The engine that Yokomo eventually shipped with the GT-4w kits was their own RX-12 engine. As the name implies, it is a .12-size mill that puts out moderate horsepower. But where is shines is in the bottom end, where it pulls hard. Coupled with an Associated or GPM Racing pipe, the RX-12 has plenty of "get-up-and-go" on smaller tracks where a high-rev engine won't really get a chance to wind out.

The only other chassis modification we did was adding Yokomo's optional wide front bumper (ZE-001L) to help protect all the new goodies.

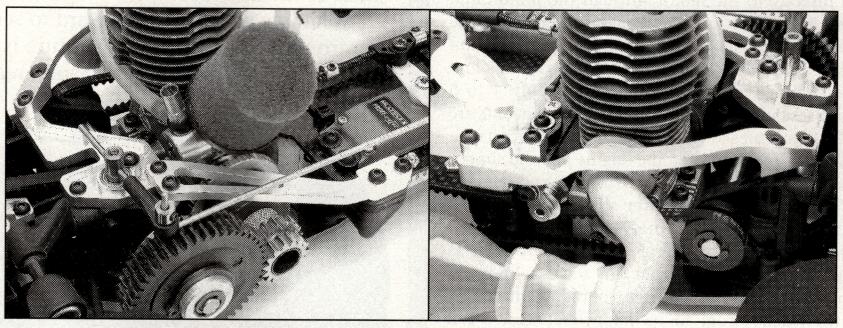
After all these changes, we found that we ended up using the same shock oil and pistons that we started out with. We tried going with thinner oil than we had been using to compensate for the stiffer chassis, but the weight that we added with the aluminum necessitated going back up to thicker oil. It ended up being a wash, as we finished up where we started.

Well, there were a couple of problems that we did find that Yokomo did get sorted out. First of all, there was a problem with the fuel tank leaking. After a while, the material on the cap would start to deteriorate, and eventually weaken to the point of breaking. That was resolved by making tank lids out of a different material. And then the O-ring used to seal the tank shut would swell to the point that the lid wouldn't close, which meant an air leak and fuel spills. New orange O-rings that Yokomo now has in stock solved that problem.

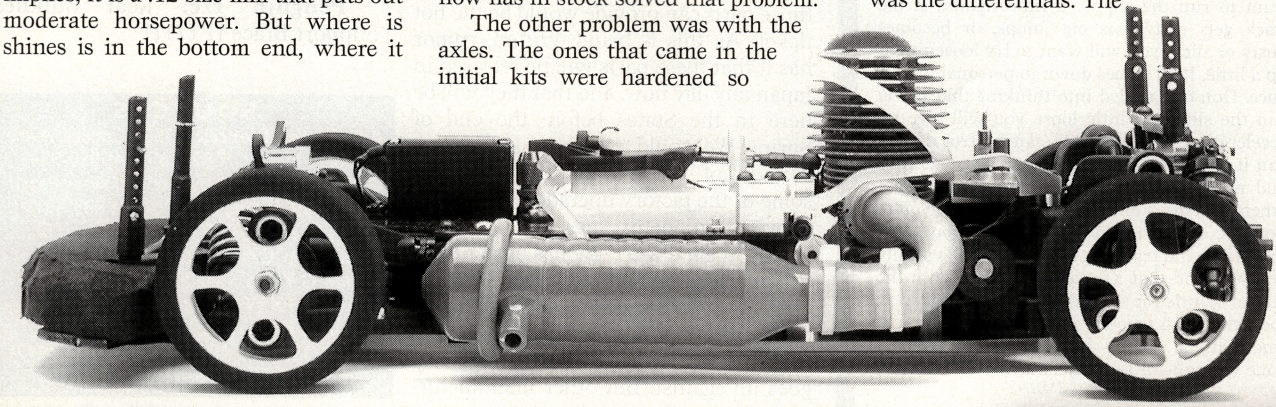
The other problem was with the axles. The ones that came in the initial kits were hardened so much that a severe impact could snap them. A change in the hardening process has yielded new axles that are far more durable. The old ones were a light gray color, and the new ones are black. If you have any of the old gray ones, send them in to Yokomo USA and they will be happy to replace them.

The two setups that were provided in the box and on Yokomo's website have been excellent starting points, as only little deviation from them is required to get dialed in to a particular track. For large tracks that allow foam tires, we found that Super G foams in Double-Orange in front and Orange in rear trued to a diameter of between 62-63mm worked really well for us. We went as soft as Purples in the rear when rear traction was really lacking. We also kept the front shock setup that Yokomo driver Shin Adachi specified, but went with the stiffer dark green springs in the rear. Also, stiffening up the rear sway-bar by moving the end in 1-2mm made the rear end feel more to our liking. And on regular parking lot tracks, the recommended settings with Yokomo 138G or Pit Shimizu 25 tires were the best all-around setup. Pretty much the only things we had to change were the front toe (from out to none, or maybe 0.5-degree toe-in), and the rear camber (between one and two degrees).

One other thing we did play with was the differentials. The



These aluminum radio tray supports and rear bulkhead support from Yokomo help stiffen up the entire package, and also complement the alloy shock towers as well.



Team Losi Tech-Talk

Tech Tips #8

Perhaps the most overlooked tuning item on all Team Losi models is the slipper on the transmission. Every top team driver keeps a 1/4" nut-driver in hit pocket so he can make final adjustments before the start of a race. What makes this most attractive is that it only takes a second and it's free! We all know that as a race day goes on, the track surface dries out, gets hard, blue grooves, or slicks up well. Maximum performance and ease of driving can be easily improved by working with the slipper. This does not mean that you can overlook the obvious things such as shock damping or springs or similar necessities. Keeping the slipper adjusted will help you drive more comfortably through the ever-changing track conditions-it will not overcome a poorly set up chassis.

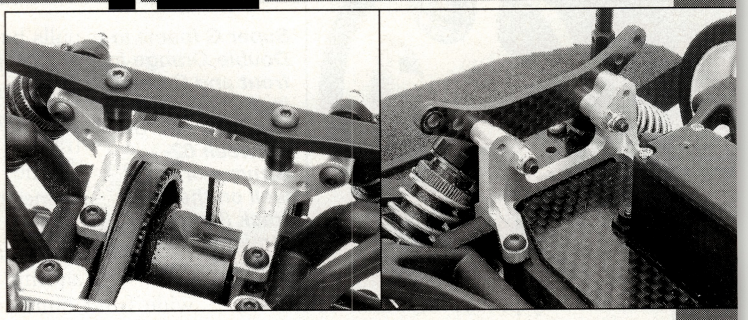
The dual disk type slipper, used on Team Losi vehicles, offers a great deal of adjustment. Don't be afraid to use this feature as you fine tune. Electric vehicles are considerably different from the nitro-powered trucks. The slipper is connected directly to the motor through the pinion and spur gear. Electric motors make maximum torque almost immediately; however, the torque diminishes as the motor gets hot and the batteries lose their charge. Electric races are also only 4 to 5 minutes long, while most Fuel powered events are 7 to 30 minutes long. Nitro trucks also have a centrifugal clutch between the engine and the slipper that can potentially absorb torque and impact. When initially adjusting the slipper for your particular model, follow the kit instructions. You should be able to safely go up to one turn in as well as one turn out from this setting. Make all your adjustments in 1/4 turn increments. The nitro trucks seem to be happy between 5-1/2 turns to 4-1/2 turns out.

Before you do any slipper adjusting, you should first check to make sure that the differential is NOT slipping. First follow the kit instructions for adjusting the diff. Use a Sharpie marker and put a line on the outer pressure plate extending from the inside hub to the outer edge. Now hold both rear tires or push the rear tires firmly to the ground and punch the throttle briefly. You should see the spur gear spin but the pressure plate should not move. This should be easy to observe by watching the line on the pressure plate. If you see the line spin, the diff is too loose and needs to be tightened. You may also need to loosen the slipper slightly, having approached the lock up point. Keep in mind that as you tighten the slipper you may start slipping the diff, which is bad. Always keep the diff adjusted to avoid slippage.

So now you know why and how to adjust the slipper. The "when" is the easy part. If the track is flat, smooth, and has good grip you will want to run the slipper a little tighter. If the track gets rutty, has big jumps, or becomes dusty or slick, you will want to try loosening it up a little. It all comes down to personal preference. Don't be misled into thinking that if you run the slipper a little loose you will give up acceleration. The opposite can be true if you run it too tight, as you will spin the rear tires and not have control. Finding the sweet spot where you are comfortable is the key. If you're not sure of which way to go, get out your 1/4" nut driver and try going a little looser. Typically you will find that it is easier to drive with the slipper a little on the loose side than if it were too tight. With practice and experience you will find that you will be able to find your comport zone with one or two adjustments.

ADVERTISEMENT

GT-4W

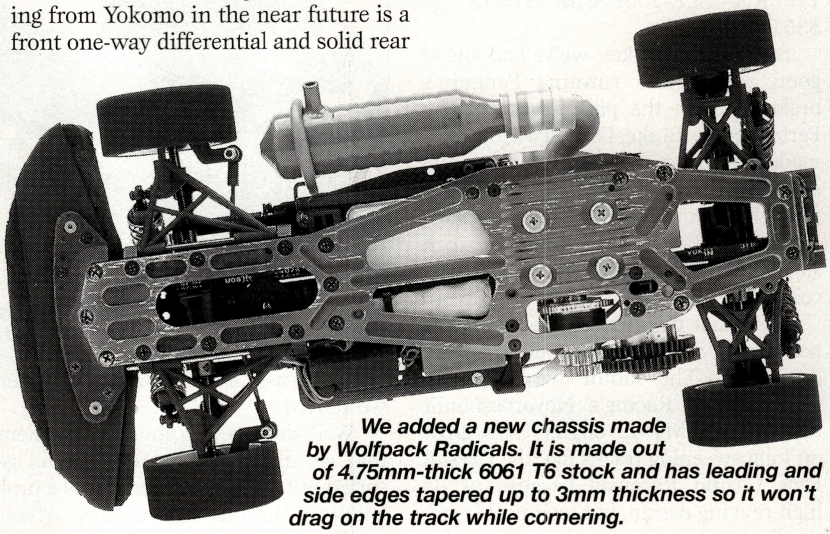


Yokomo USA now offers fully machined aluminum front and rear shock towers made from 7075 T6 alloy. These flex-free pieces help the shocks do their job more thoroughly.

Mugen 100,000wt and 50,000wt diff oils did eventually leak out of the diffs, especially if the car was left to sit in a trunk on an 80-degree day. Yokomo has new diff greases that are similar in use to the Mugen silicone oils, but don't have as much of a tendency to run when heated. We recommend using them in place of the diff oils.

What we are looking forward to seeing from Yokomo in the near future is a front one-way differential and solid rear axle setup like what Barry Baker used to win the 2000 ROAR Gas Nationals. These two parts will essentially turn the GT-4w into a smaller version of a 1/8 or 1/10 4WD open nitro car, like a Serpent Impact or HPI Proceed. Of course that setup won't work everywhere, but we know of a few tracks where the low rotating mass and on-power cornering those parts can provide would be the hot ticket. As this is being written, rumor has it that these parts will be released in Japan any day now, and that they will be here in the States before the end of Spring. We would also like to see a "pro" version of the GT-4w that includes some of the factory upgrades mentioned above, all in one package.

All in all, the GT-4w has been one of the most satisfying cars we've had a chance to work with in a long time. It can more than hold its own against the large field of competition it regularly goes up against. But other manufacturers are "gearing up" to design cars that can compete with the new generation of nitro touring cars like the GT-4w and the Serpent Impulse. Only time will tell if the Yokomo can hold its own against what is coming down the line, but right now the GT-4w is far from dead, and we know that Yokomo will continue to pull more tricks from its sleeve to counter the competition.



We added a new chassis made by Wolfpack Radicals. It is made out of 4.75mm-thick 6061 T6 stock and has leading and side edges tapered up to 3mm thickness so it won't drag on the track while cornering.

Additional parts used:

Yokomo: Center Belt Tensioner (ZE-BTS)

Front Anodized Steel Universals (ZE-010FS)

Clamping Aluminum Wheel Hubs (ZE-011C)

Penguin r/c: Rear Bulkhead Support Brace (P1711)

SOURCES

Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626 (714) 850-9342

GPM Racing/Hobby Etc., 90 West Pearl St., Nashua, NH 03060 (603) 883-4919

Penguin r/c, 1230-P North Jefferson St., Anaheim, CA 92801 (714) 630-9015

Super G Tires, Speedline Distributing, Austin, TX (79936) (512) 326-8481

Yokomo USA, 17951 Sky Park Circle Blvd. 35, Suite K, Irvine, CA 92614 (949) 252-8663

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BMX Plus editor Adam Booth goes for a litte rail grind with the bottom of Jimmy Babcock's Losi Triple-XT chassis.

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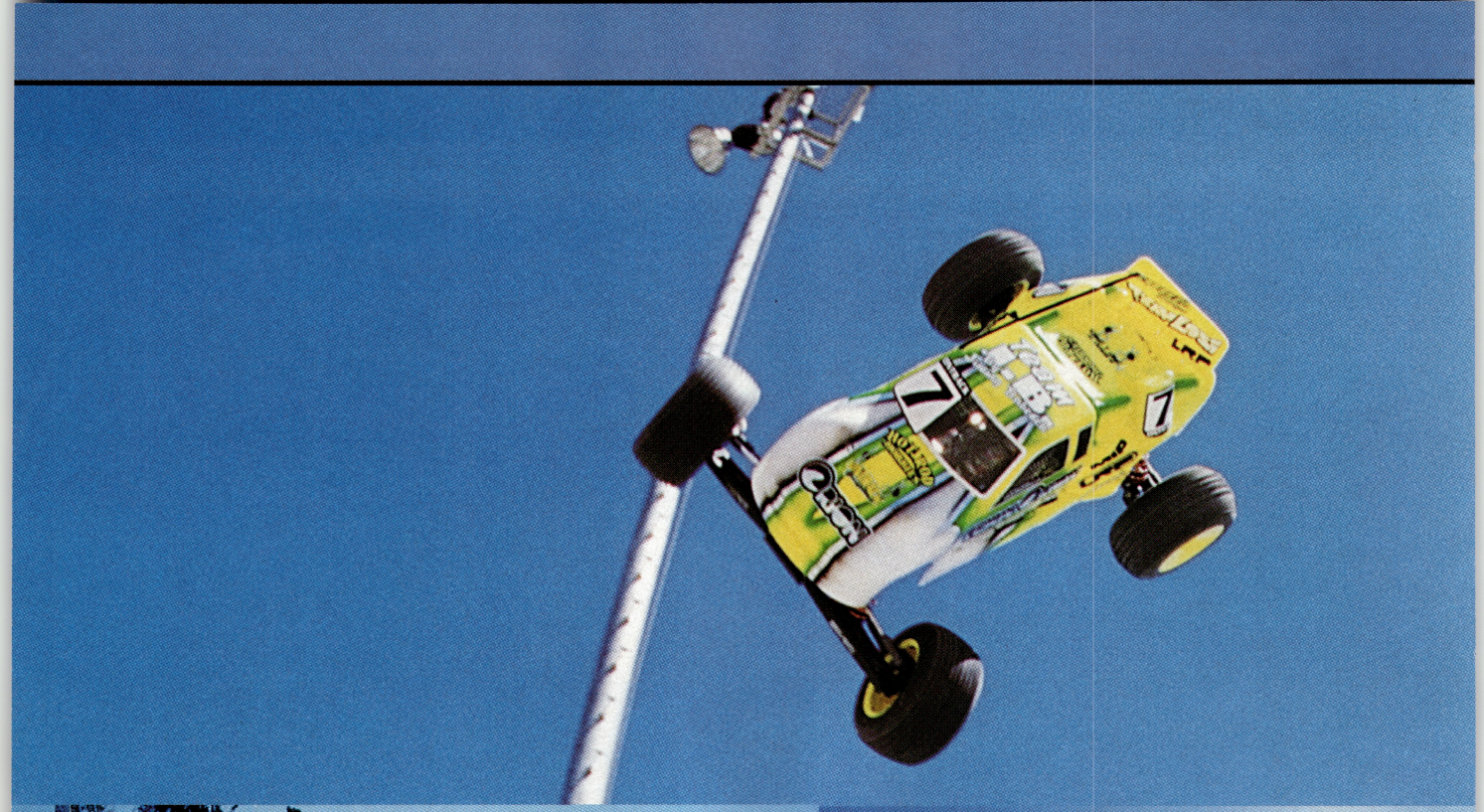
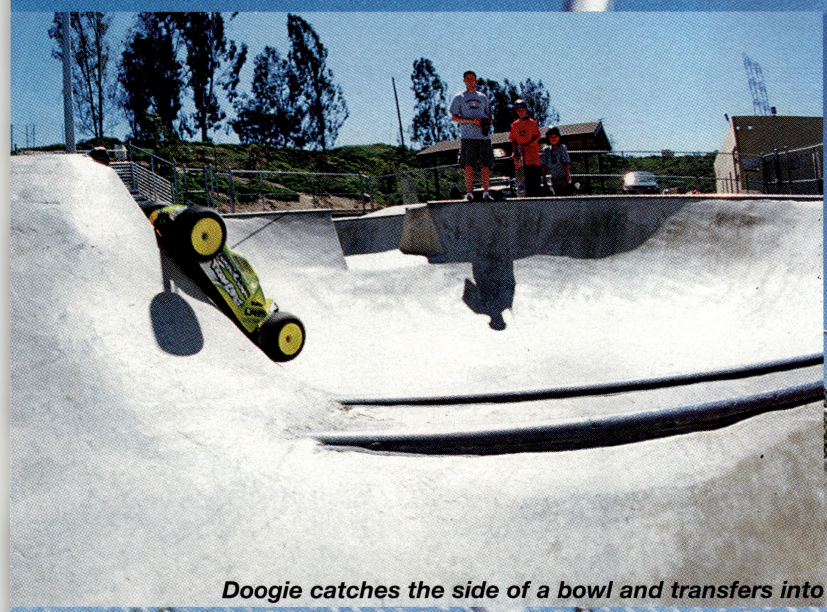
R/C racers love jumping their cars—often it seems that nothing makes them happier than perfectly timing a gnarly set of doubles or triples. We know a few top racers that can whip it better than anyone over jumps. We all started talkin' smack over who could get the best air, so with that in mind, a few of us headed off to a local skatepark to see just how high we could get and who could pull the best tricks without eating it...













Doogie catches the side of a bowl and transfers into the next one while trying to straighten it out.



EXTREME R/C











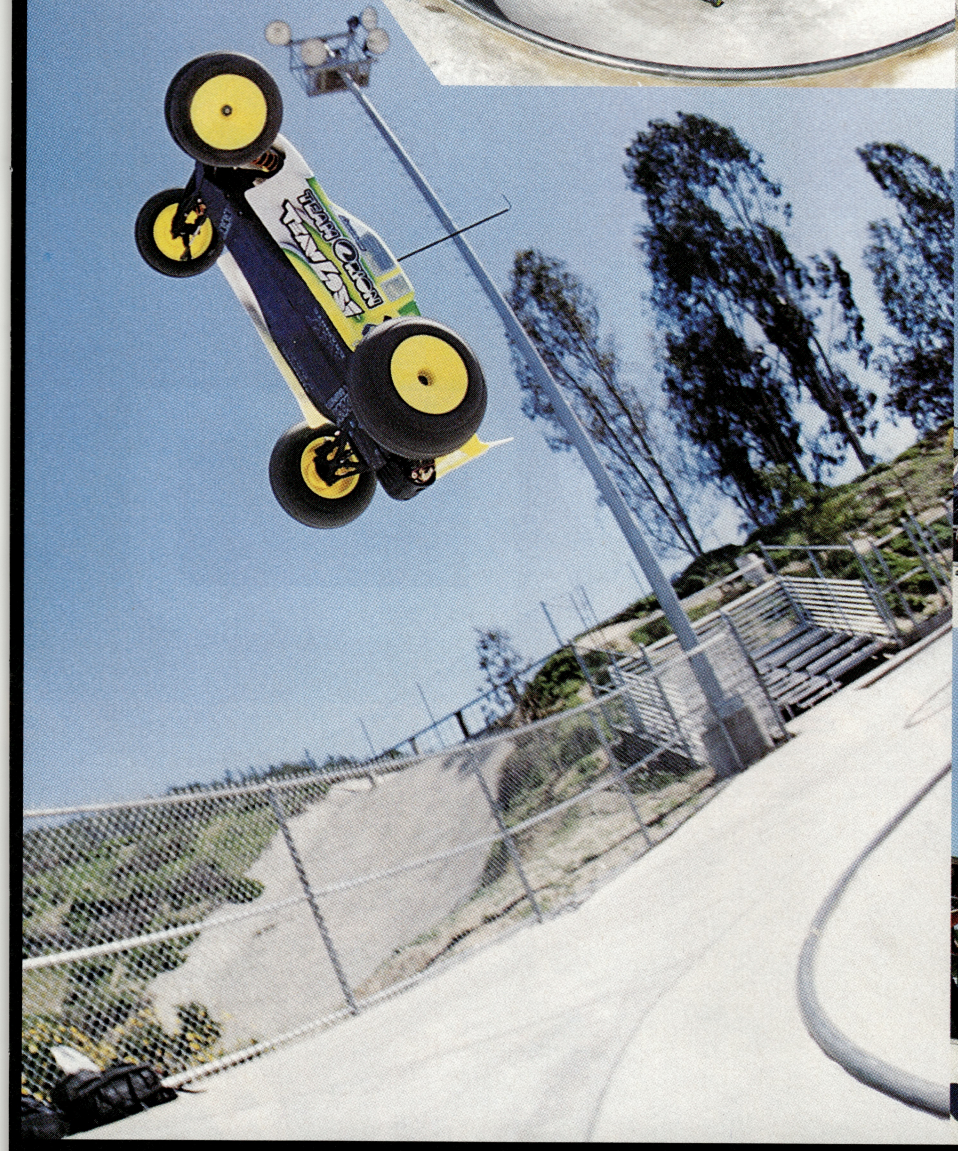


Doogie backside airs the lip of a bowl with Jimmy's truck, lands on the front tires, bounces in the air, lands wheels up and wheelies off into the next bowl—known as "the move of the day"!

EXTREME R/C

Adam Booth goes for his patented "reach for the sky" maneuver as Frank Masi and BMX Plus associate editor Ben Crocket prepare for the truck's landing.

















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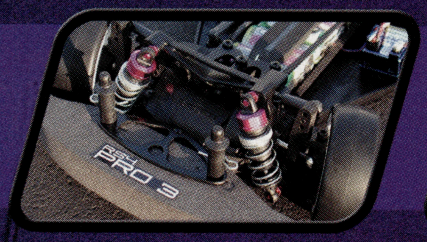
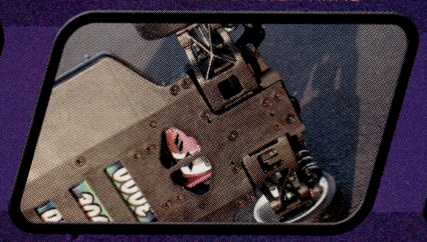


LONG SUSPENSION ARMS



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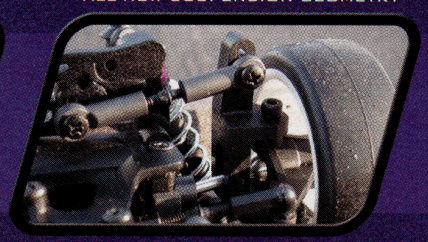

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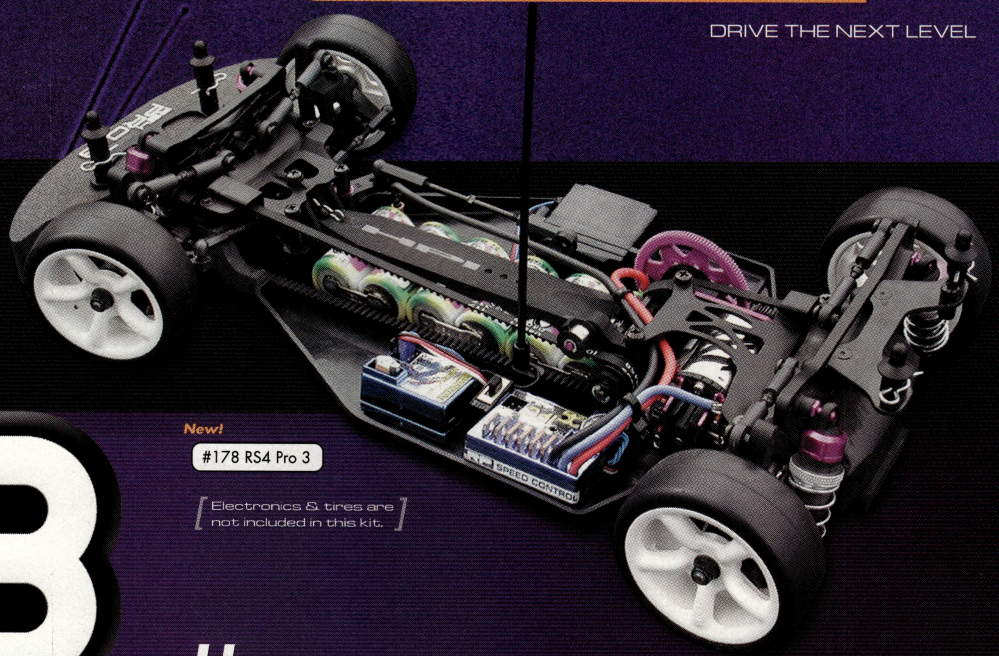

New!

#178 RS4 Pro 3

[Electronics & tires are not included in this kit.]

3

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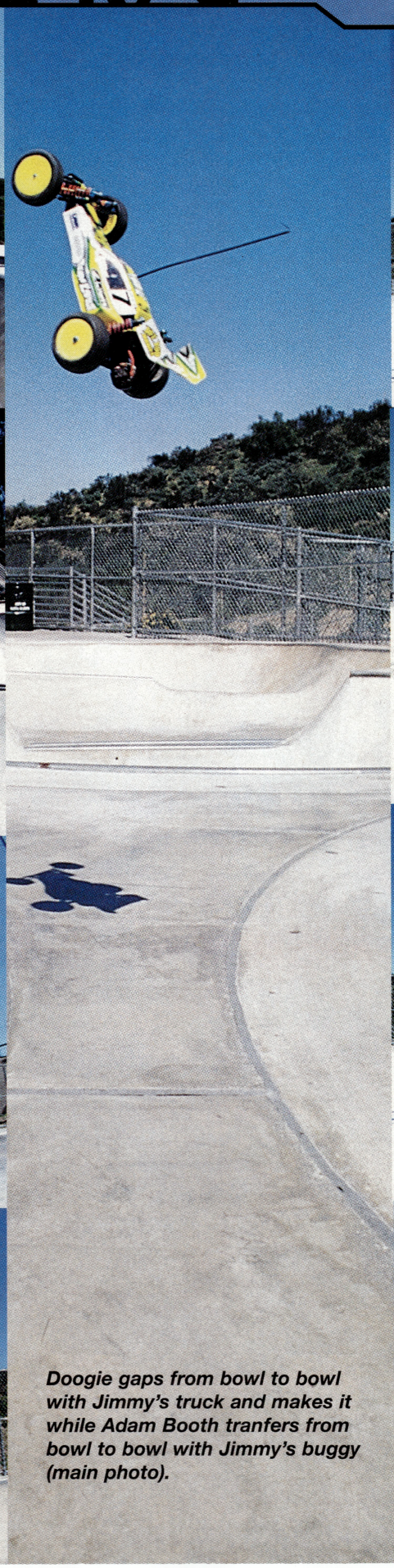

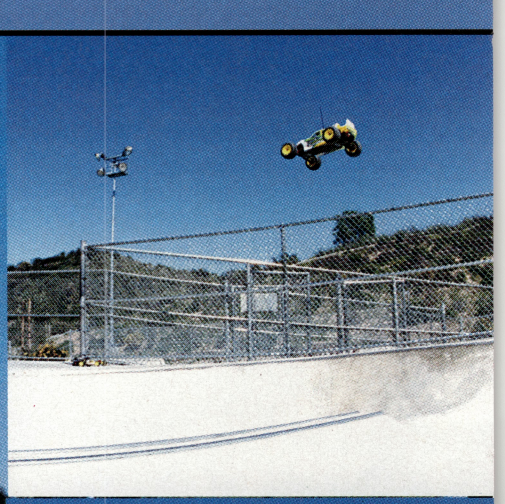







Doogie gaps from bowl to bowl with Jimmy's truck and makes it while Adam Booth tranfers from bowl to bowl with Jimmy's buggy (main photo).

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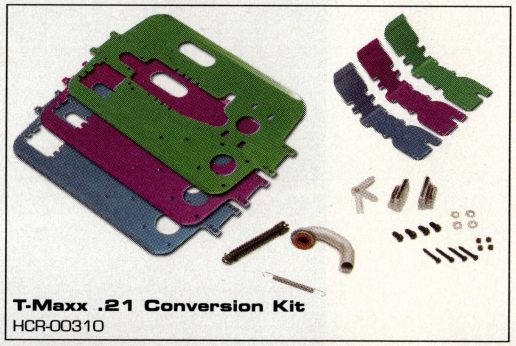
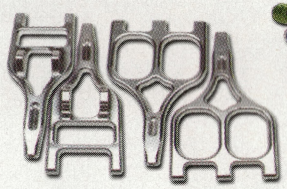


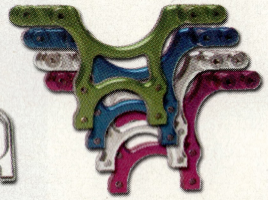
T-Maxx .21 Conversion Kit
HCR-00310

E-Maxx T-6 Aluminum Chassis
HCR-00330

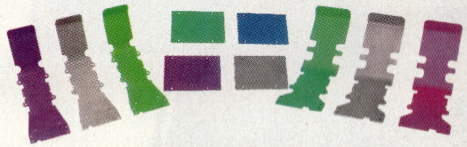




T-Maxx/E-Maxx Billet Aluminum Suspension Arms
HCR-00304



T-Maxx/E-Maxx Billet Aluminum Shock Towers
HCR-00312



T-Maxx/E-Maxx Titanium Skid Plates
Front: HCR-00308
Center: HCR-00307
Rear: HCR-00309



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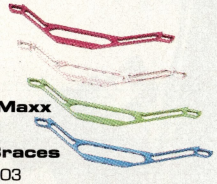
Stomper - HCR-003112
Pounder - HCR-003113



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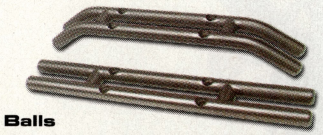

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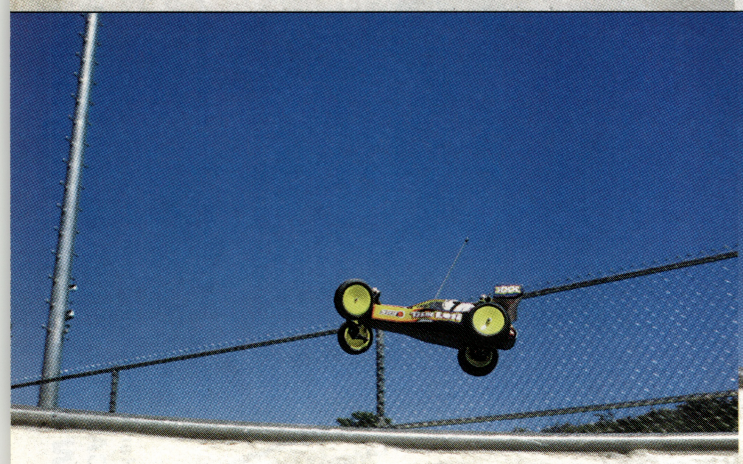



Above: Frank's Triple-X grinds out of the bowl and remains relatively unscathed from the wimpy attempt.

Below: Goin' in for a little nose job—Frank's Triple-X tries to bridge the gap in the bowl, but falls a little short...



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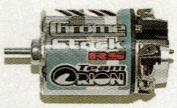

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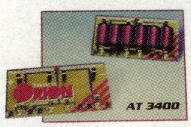

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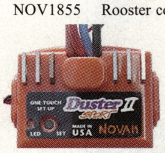

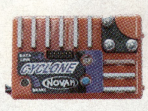

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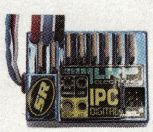

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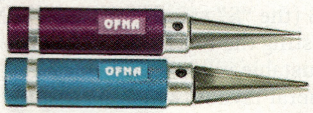

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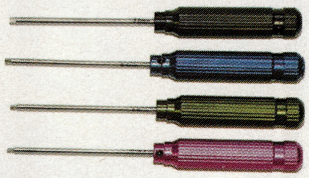

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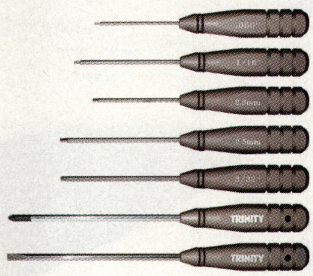

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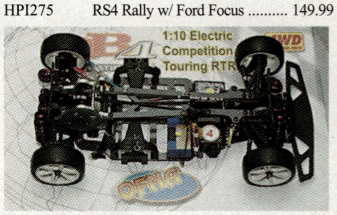

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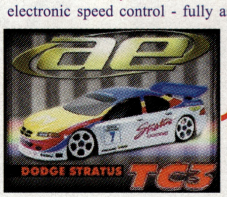

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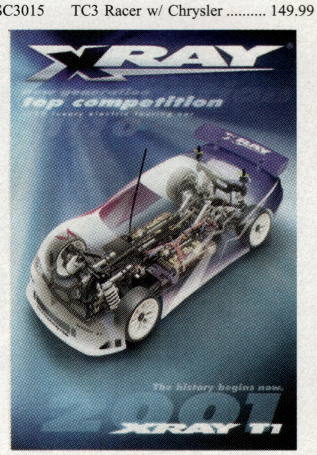

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TEST DRIVE

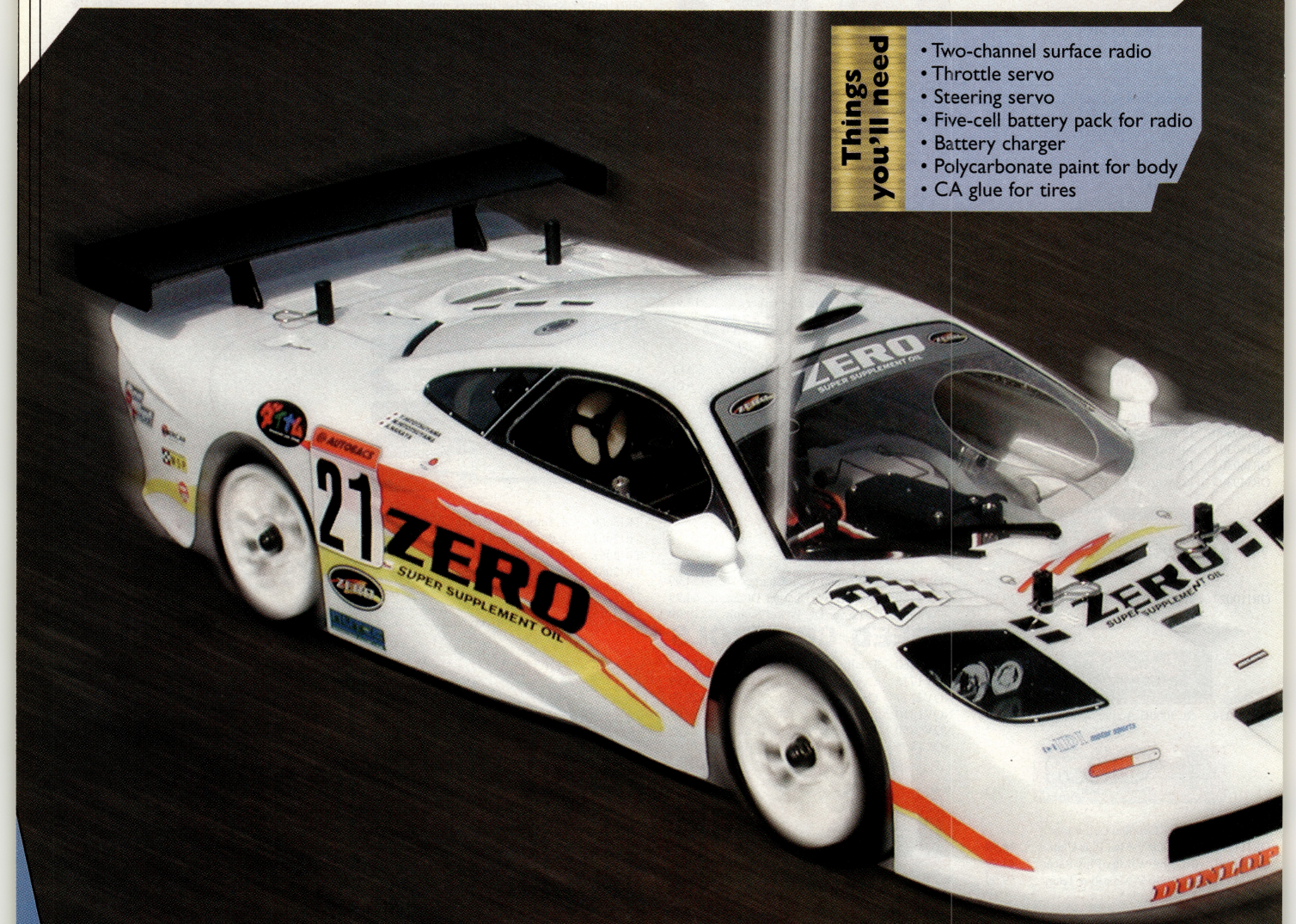
Kyosho V-One S McLaren F1 GTR

Most manufacturers introduce their new models in sport-level trim first, then follow up with the loaded race version. Not Kyosho with its new nitro sedan, the V-One. This kit first hit Japan's hobby stores in full-race V-One R form (see our test in the May '01 issue) as a chassis-only kit. In fact, the "R" model hasn't yet reached the U.S. as of this writing (the kit we tested was obtained directly from Japan). Instead, the first V-One kit we received from Kyosho's U.S. distributor is this V-One S (the "S" stands for "sport") McLaren F1 GTR.

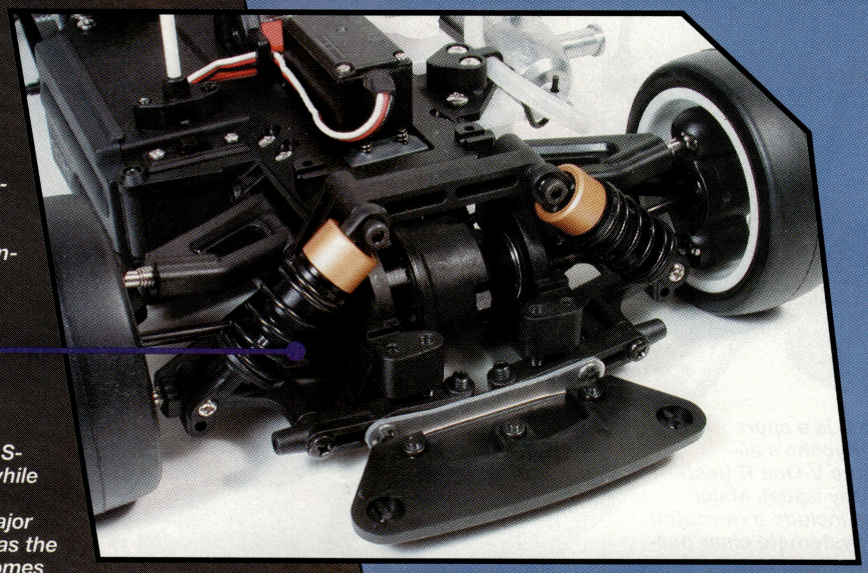
Having had the benefit of testing the R-type, we can verify that much of that model's racing features remain in the S-type kit, which include a highly adjustable pillow-ball suspension system and excellent belt-driven 4WD. Unfortunately, the R's most standout feature—its general layout, which places the fuel tank, servo and battery along the chassis' center—didn't make the cut. But what remains is still a great package for a sport-level nitro sedan, perhaps even the best car in its class.

Things you'll need

- Two-channel surface radio
- Throttle servo
- Steering servo
- Five-cell battery pack for radio
- Battery charger
- Polycarbonate paint for body
- CA glue for tires

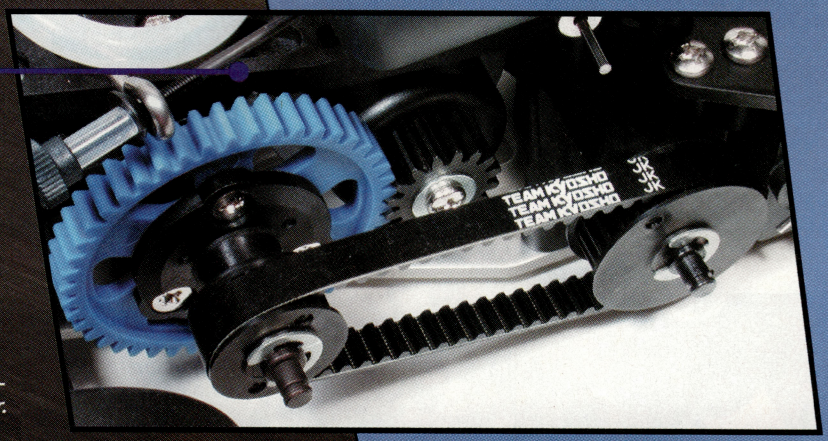


THIS COULD BE THE BEST-HANDLING SPORT NITRO SEDAN EVER!

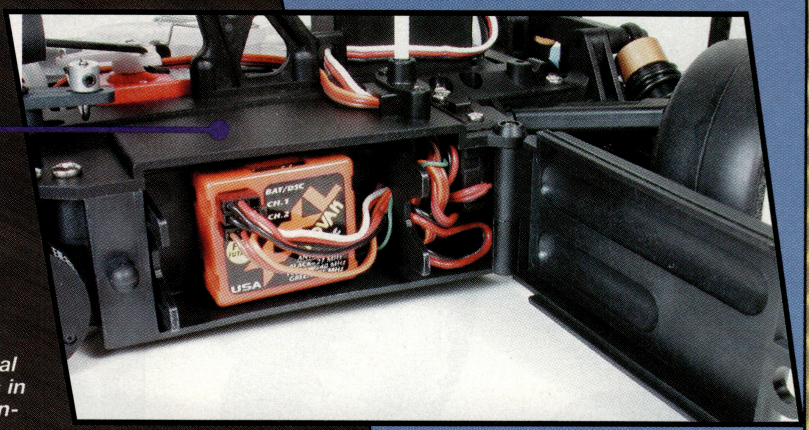


Front suspension carries over virtually unchanged from the V-One R. Caster, camber and toe-in are adjustable, as is the up- and down-travel of the suspension arms.

This is the major difference: The S-model has a short middle belt, while the R-type has a long one. This affects the placement of the major mechanical components such as the fuel tank and battery. The S comes with a single-speed, but an optional two-speed can be fitted.



A cavernous molded enclosure protects the battery pack and receiver. Kyosho's designers made a neat "insert" that holds the receiver. A flat door (shown) is for use with five-cell battery packs, while an optional door provides additional clearance for when four AA cells are used.



The rear suspension is also identical to that of the V-One R. Pillow balls in the lower H-arms allow precise tuning of rear toe-in. An adjustable upper link can be installed in one of four holes to tune the rear roll-center.



Kyosho V-One S McLaren F1 GTR

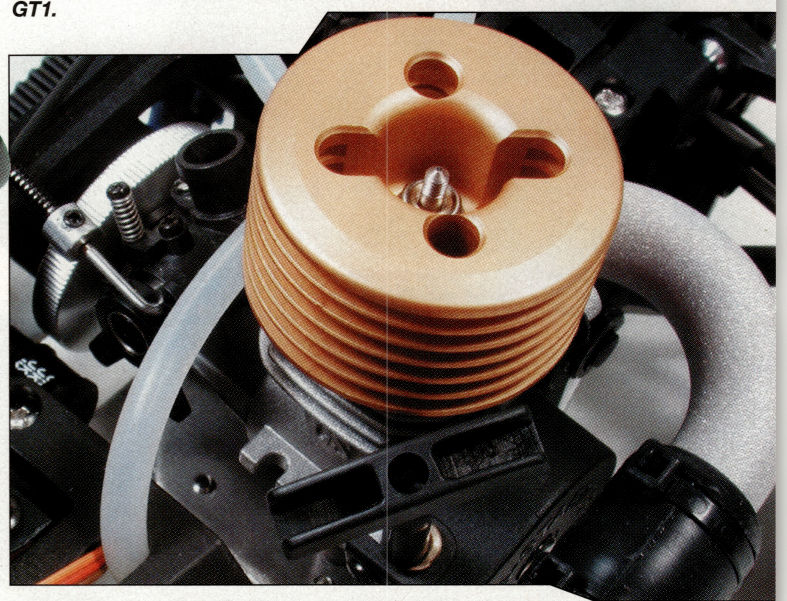


The V-One S is a sport version of Kyosho's all-out racer, the V-One R (tested in the May issue). Major differences include a re-routed belt-drive system (to clear pull-start engines) and plastic oil-filled shocks rather than aluminum ones.



An optional shock tower is included. It provides additional mounting holes and stands the shock more upright for a stiffer spring rate. The stock low-profile tower fits bodies that have very low hood-lines, such as the included McLaren GT1.

Subtle changes: The S-model uses gear diffs similar to those found in the more expensive R-type; however, we noticed that the S-model diffs only have two counter gears instead of the R-type's four gears. The S-model's diffs are O-ring sealed so they can be filled with silicone fluid.



First seen in the FW-04 SuperTen, Kyosho's GS-15R engine has found its way into the V-One S. The larger displacement of this .15-sized powerplant moves the V-One S with authority, while the twin-needle composite carb makes tuning easier.

FEATURES

We felt no need to reiterate May's test of the V-One R. Instead, we've decided to focus strictly on the differences between the R model and the V-One S.

■ **Chassis**—Like the R-type, the V-One S's chassis is stamped from 3mm-thick Duralumin (the S chassis actually registers a tad less than 3mm—about 2.8mm, to be exact). However, the chassis aren't interchangeable; the S-type chassis accommodates a different drive train layout. But it's nice to see that Kyosho didn't skimp on the material—and even the screw holes have been countersunk.

In place of the R-type's fiberglass upper chassis deck, the S-type has a more elaborate piece molded from nylon resin. This new deck accommodates the S-type's new drive train layout (which must route the belts around the engine's pull-starter), and places the steering and throttle servos along the car's center-line, but bumps the 75cc fuel tank to the left side where it can counterbalance the weight of the right-side's battery and receiver.

The result of this rearrangement is that the car's weight is spread out more toward the edges of the chassis, which makes the car less agile during cornering when compared with the R-type. Additionally, since the fuel tank is no longer on the car's center-line, the balance of the S-type chassis will change as the fuel tank is emptied. This is the price of pull-starters!

However, what you get is a really nice box in which to install your battery pack and receiver. This creates a tidy appear-

Specifications
Kyosho V-One S
McLaren F1 GTR

Type .....4WD nitro-powered touring car
Scale 1:10
Price .....$379.99 retail

Length 14.8 in/377mm
Width 7.9 in/200mm
Wheelbase 10.2 in/260mm
Track (F/R) in/173mm
Weight (RTR) .....4 lbs., 0.2 oz.

Transmission
Type .....belt-driven full-time 4WD
Differentials .....four-gear bevel (F/R)
One-way .....no
Driveshafts .....steel dogbones/steel axles
Bearings .....metal-shielded ball bearings

Suspension
Type .....independent upper/lower A-arm (front), lower H-arm/adj. upper link (rear)
Material .....molded composite

Front end
Caster .....adjustable between 6-14 deg.
Camber .....adjustable
Toe .....adjustable
Down-travel .....adjustable (up-travel also)

Rear end
Anti-squat .....non-adjustable
Camber .....adjustable
Toe .....adjustable
Down-travel .....adjustable (up-travel also)

Shocks .....plastic oil-filled dampers
Springs .....Kyosho firm black
Wheels .....26mm white nylon mesh
Tires .....Kyosho High Grip slick
Inserts .....open-cell foam strip (medium)
Body .....McLaren BMW F1 GTR
Engine .....Kyosho GS-15R
Manifold .....side-exhaust
Pipe .....Kyosho Silent Streak tuned muffler
Clutch .....two-shoe w/spring

ance and better protects the receiver from shock and fuel spills. A hinged door provides access to the box in case you want to change crystals or batteries. Kyosho even provides a flat door in case you use a five-cell receiver pack instead of four AA cells.

■ **Drivetrain**—The V-One R uses a pair of short belts at each end which are linked by a long center belt. This is how Kyosho could place the fuel tank, servo and battery down the middle of the chassis. Unfortunately, this setup doesn't provide room for a pull-start engine—and what self-respecting sport kit can't use a pull-start engine? To fix this, Kyosho switched back to a more conventional approach for the S-type, using a long front belt and short center and rear belts.

Don't be too upset by this change, as the S-type still includes the stout metal bevel-gear diffs found in the R-type. Both front and rear diffs are O-ring sealed, which makes them ready to be filled with thick silicone; however, none is provided (get a bottle of 50,000 wt. for the front diff and 5,000 wt. for the rear).

■ **Transmission**—The R-type's automatic-shifting two-speed has been replaced by a 16/46-tooth conventional single-speed clutch-bell/spur gear. This is a good starting ratio for the kit's .15-size engine.

■ **Suspension**—The good news is that everything that could be adjusted on the R-type's suspension remains on the S-type. This includes front toe-in, camber and caster (between 6 and 14 degrees), and rear camber and toe-in. The S-type's pillow-ball suspension makes tuning a breeze; just insert a 2.5mm Allen wrench through the wheel and hub (no need to remove the wheels) to set the camber and rear-toe angles. Threaded tie-rods replace the R-type's aluminum turnbuckle steering tie-rods, making it more difficult to set front toe-in.

Molded plastic shocks replace the R-type's excellent threaded-aluminum dampers. The plastic shocks work well, but the kit-supplied green shock oil is far too thin; 45 wt. silicone oil works much better with the supplied firm black springs.

■ **Fuel tank**—The R-type's baffled fuel tank is missing on the S-type; however, we get the low-profile tank from Kyosho's Ultima gas truck in its place. The new tank lacks the R-type tank's built-in filter and spill gutter, but it does have internal baffles to reduce fuel foaming, and its low design helps during cornering.

■ **Engine**—Kyosho's GS-15R engine is perfectly mated to the S-type chassis. Its larger displacement provides plenty of torque to get the McLaren moving in a hurry, and its temperature-stabilized composite carburetor has both high- and low-speed needles to allow optimal tuning.

The engine is allowed to sing through Kyosho's two-piece Silent Streak tuned muffler which, when combined with the included free-flow manifold, is leaps and bounds better than the airplane-style mufflers used on sport-level Kyosho's of yore. ◆

SOURCES

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PERFORMANCE

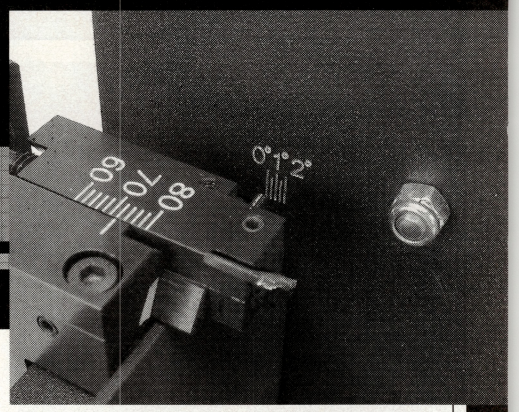
Our track session with the V-One S took place in Camarillo, California at the Ventura Roadrunners permanent asphalt roadcourse. The track is medium-sized with a combination of tight and sweeping turns. The surface was slightly dusty with only residual traction additive from the previous Sunday's race.

Engine—The GS-15R engine is a little difficult to start until it's been fully broken-in. When the carb is richly set, it takes quite a few pulls to get it to fire. Once broken-in, however, one or two pulls are all it takes. The carb is very responsive to tuning, and it's needles hold their settings well. When we adjust the low-speed needle, we noticed that it could be pushed in with the tip of the screwdriver, thus leaning mixture slightly until the tip was removed. This doesn't present a problem as long as you take it into account when tuning.

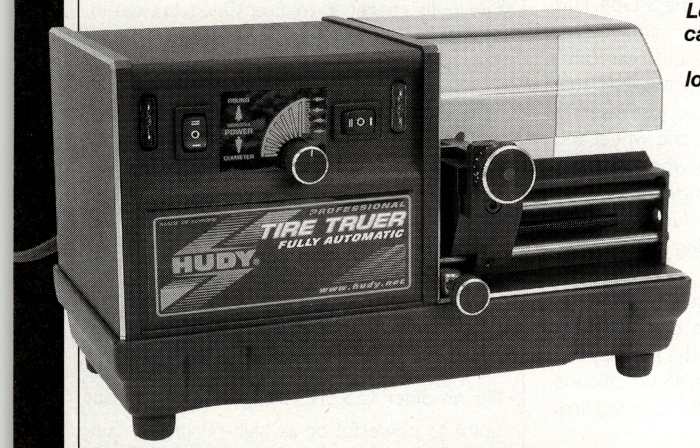
Acceleration and speed—Although considered a sport engine, the GS-15R feels like an older O.S. .12 racing engine—it's not quite as powerful or as high-revving as current O.S. engines, but it's close. Enough so that we're confident that the V-One S is capable of hanging with most racing nitro sedans on all but the biggest tracks. If equipped with Kyosho's optional 2-speed, well, who knows? Because it has a low-speed needle adjustment, the GS-15R can be tuned to have very responsive acceleration; we were easily able to dial-up wheelspin from a standstill. Kyosho's choice of gearing (16/46) is spot-on for most tracks. Our test car was peppy enough in the tight sections, yet had plenty of pull on the straights.

Handling and braking—If you read our May issue, you know that we practically proclaimed the V-One R as the best-handling nitro sedan we've tested. If we didn't know for sure, we could have been convinced that the car we drove this month was an R-type chassis, not an S-type. The McLaren felt so poised, even with its mid-level tires. Left-right balance was good, as was front-to-back balance during acceleration and braking. Complaints? The stock tires are okay to start with, but the foam-strip inserts had a tendency to bunch-up and cause hard and soft spots (yes, we glued their ends together). Also, we noticed on occasion small air bubbles inside the fuel line that were not noticed with the V-One R—obviously there is some degree of fuel foaming. Otherwise, we stand by our claim that the V-One S is at least as good as the best sport-level nitro sedan. In fact, you could easily race this car at all but the highest level (you'd have to upgrade the tires and engine/pipe combination).

Hudy Excellent Tire Truer



With the Hudy truer, you can adjust the cutting angle. The truer has markings etched into it from 0- to 2-degrees in 0.5-degree increments, but the fine-pitch adjustment screw lets you make adjustments smaller than 0.25-degree.



Looking to get into touring car racing with foam tires? Then you might want to look into getting yourself a lathe such as this one, manufactured by Hudy.

Now that on-road "foam" classes are starting to make a comeback, and especially now that foam tires are ROAR-legal for nitro touring cars, tire truers are being seen more often at on-road tracks.

Whether it's at the parking lot or at the permanent track, the distinct sound of a foam tire being trued isn't foreign anymore. And more often that not, the truer being used is made by Hudy, the European company that made a name for themselves with their line of precision tire truers and commutator lathes.

At the top of their truer line is their Hudy Excellent Tire Truer (part no. 10 2002). It is touted as a fully-automatic, high-end truer. Among its features are an adjustable truing diameter (35 to 85mm), adjustable truing angle (0- to 2-degrees), adjustable cutting speed, a built-in waste tray to catch ground rubber, and a clear protective cover.

What you Get

Upon opening the black cardboard box the Excellent Truer ships in, you'll find that the entire truer is pre-assembled. Unlike some manufacturers that cut costs by selling accessories as customer-assembled kits, Hudy believes that the only way to sell a precision instrument like a tire truer is for their own factory-trained technicians to assemble all the parts before it is gets in the customer's hands. Both motors, all the electronics, and the cutting tool are all installed and calibrated before leaving the factory.

The base and the side supports for the truer are made from black-anodized machined aluminum, while the waste tray, motor cover, and clear cover all made of plastic. Also, the guide rods that support the grinding assemble are made of stainless steel. The aluminum base and supports, as well as the steel guide rods, ensure that the cuts the truer makes remain as precise years down the road as they were when the unit was fresh out of the box.

All of the controls are simple, but give you complete control of the truer's cutting abilities. On the face of the unit are a three-position rocker switch to control the direction the arbor shaft spins, a six-position knob that controls the speed the cutting tool moves across the surface of the tire, and another three-position rocker switch that serves to start or abort the automated cutting process. Attached to the cutting assembly is a cutting diameter adjustment wheel, clearly marked in 0.1mm increments for very fine cutting parameters. Below that, attached to the guide rod housing is the cutting angle adjustment wheel. A pair of 12-volt leads with heavy-duty clamps exits from the back of the unit.

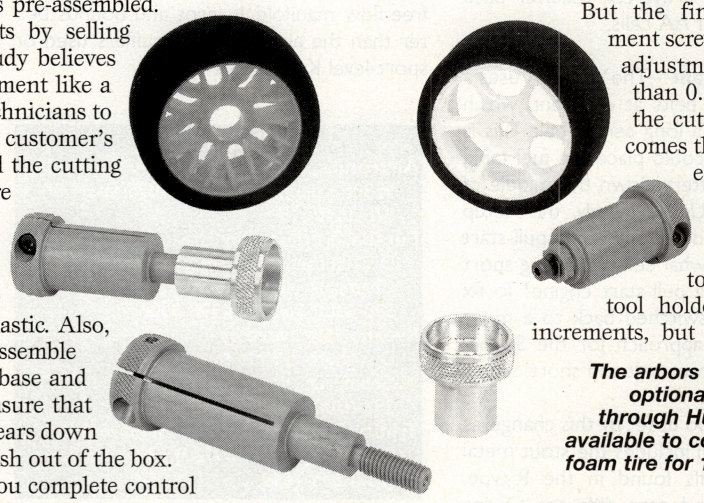
Also included in the package are an instruction leaflet, an exploded parts diagram for replacements, and a Hudy catalog.

How Do You Use It?

The first thing you need to do is connect the Excellent Truer to a 12-volt power source. This can be a DC power supply or a car battery. Actually, the car battery terminal-sized clamps and the high 30A fuse rating on the main motor lead us to believe that it was designed to be used with a car battery.

Once connected to a suitable power source, the arbor that matches the type of wheel you are using can be installed. No arbors come with the Excellent Truer, but a variety of hardened arbors are available to cover any type of foam tire from 1/12 to 1/8 scales. The arbor securely clamps on to the motor shaft. Changing arbors is simple, as it only requires loosening a 4mm machine screw with a 3mm hex wrench. Once the arbor is in place, you just need to place the wheel on the adapter and screw the mounting nut tight to lock down the wheel.

Next, the cutting angle needs to be set. The truer has markings etched into it from 0- to 2-degrees in 0.5-degree increments. But the fine-pitch adjustment screw lets you make adjustments smaller than 0.25-degree. After the cutting angle is set comes the cutting diameter, which is adjustable in the 10 2002 model from 60- to 80mm. The tool holder shows 2mm increments, but the adjustment



The arbors shown here are optional units available through Hudy—arbors are available to cover any type of foam tire for 1/12- to 1/10- to 1/8-scale cars.

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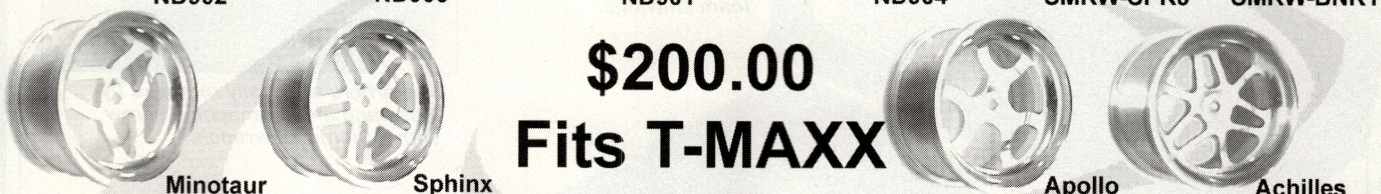

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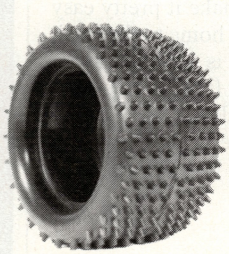
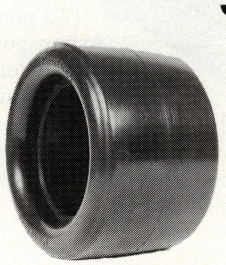
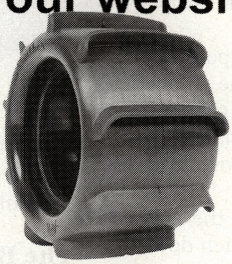


$29.00
Meat Grinder
Fits T-MAXX
Med-Soft
PT950



$29.00
MEGA MAXX Slick
Fits T-MAXX
Med-Soft
PT952



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Fits T-MAXX
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PT850



$29.00
Plow Boy 1
Fits T-MAXX
Med-Soft
PT957



$29.00
Plow Boy 2
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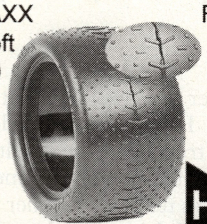
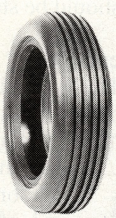
Med-Soft
PT959



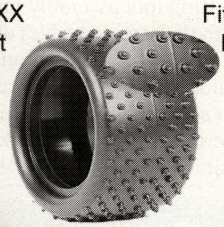
HOT

$14.00
Cheetah
Buggy Rear
Med Soft **PT750**
Soft **PT751**



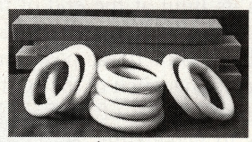
HOT

$13.00
Lynx
Buggy Front
Med Soft **PT700**
Soft **PT701**



HOT

$14.00
Tiger
Buggy Rear
Med Soft **PT760**
Soft **PT761**



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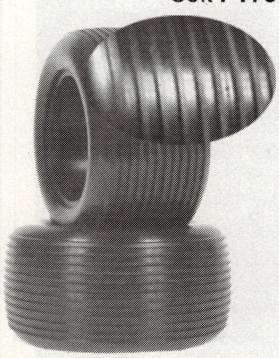
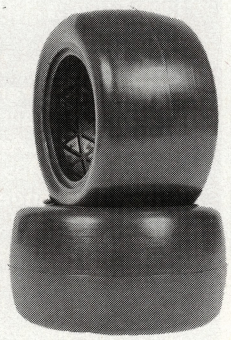
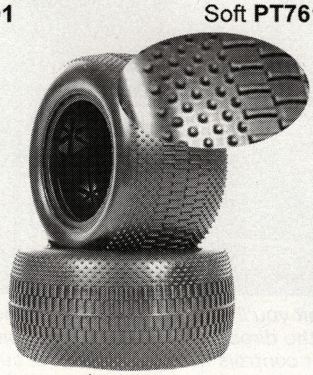


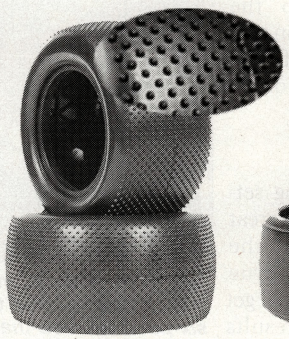
$15.95
Micro Rib
2.2 Truck Tires
Med Soft **PT550**
Soft **PT551**



$15.95
Burner Slick
2.2 Truck Tires
Med Soft **PT450**
Soft **PT451**



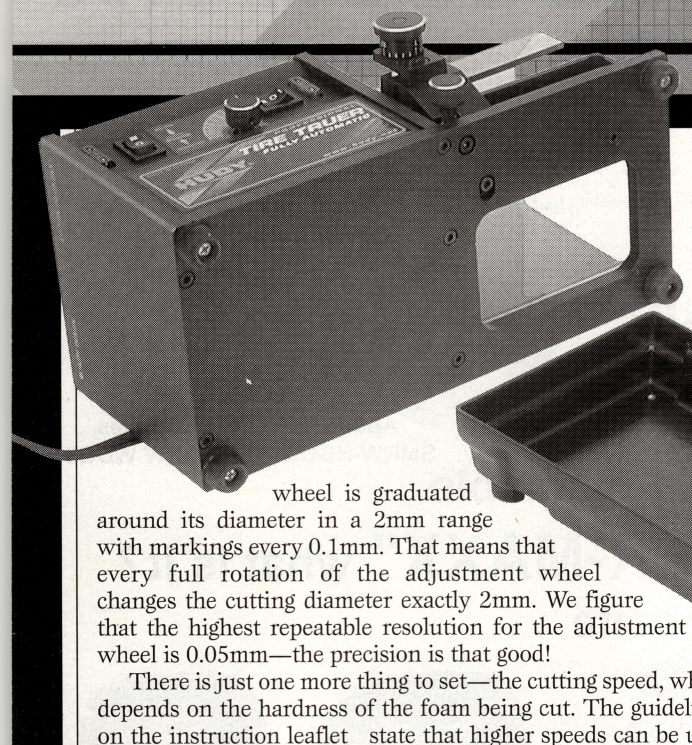
$15.95
Switch
2.2 Truck Tires
Med Soft **PT150**
Soft **PT151**



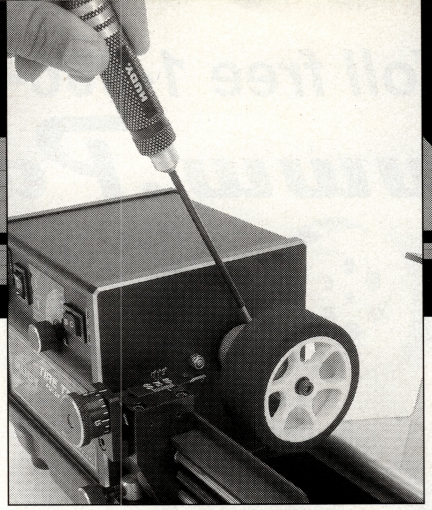
$15.95
Stinger
2.2 Truck Tires
Med Soft **PT250**
Soft **PT251**



$10.50
Super Slick
26mm Sedan
Med Soft **PT350**
Soft **PT351**



The waste tray can be easily removed for quick and easy disposal of the foam shavings.



The arbors are easily removed by loosening a 4mm machine screw with a 3mm hex wrench.

wheel is graduated around its diameter in a 2mm range with markings every 0.1mm. That means that every full rotation of the adjustment wheel changes the cutting diameter exactly 2mm. We figure that the highest repeatable resolution for the adjustment wheel is 0.05mm—the precision is that good!

There is just one more thing to set—the cutting speed, which depends on the hardness of the foam being cut. The guidelines on the instruction leaflet state that higher speeds can be used to grind compounds softer than 35-shore, but harder compounds require a slower grinding speed so as not to overload the motors.

Now that all the adjustments are done, lower the colored Plexiglas cover, move the spin direction rocker switch down to the "Diameter" position (which gets the wheel spinning, so to speak), then move the cutting process rocker switch to the right and the grinding starts. The whole cutting tool assembly moves across the tire in a smooth motion, with the serrated edges of the cutting tool making dust of the surface of the tire. Then, once it reaches its limit at the end of the guide rods, it starts heading back in the other direction, making a second pass at the tire as it gets back to its home position, where it then stops. Flick the spin direction switch to the "Off" position, dismount the wheel, then grab a set of calipers to make sure the cut was the way you wanted it. Then, to finish the tires, remount the wheel, move the spin direction switch to the "Round" position and carefully use a file to round the edges of the tire.



On the face of the unit you'll find a three-position rocker switch that controls the direction the arbor shaft spins, a six-position knob that controls the speed that the cutting tool moves across the surface of the tire, and additionally, another three-position rocker switch that serves to start/stop the automated cutting process.

The Good

- The cutting settings have such great resolution and the arbors run so true that it is easy to get repeatable results week after week and from tire to tire.
- The unit's compact dimensions (10.25x6.0x6.0 inches) and moderate weight (7.3 pounds) make it pretty easy to transport from home to the track
- The whole unit is pretty easy to clean; the waste tray easily (but not too easily) comes off of the base for cleaning.
- Like all Hudy products, the Excellent Tire Truer is made to a level of precision and quality that goes far beyond anything else out on the market.

The Bad

- It doesn't come with any arbors.
- The carbide cutting tool is a pretty inexpensive option that we feel should be standard.

The Verdict

The Hudy Excellent Tire Truer does exactly what it is supposed to, and does it very well. Hudy set out to design the world's first fully automatic tire truer, and the result is a tool that has the best precision and cleanest design on the market. It's really no wonder that most of the top on-road drivers in the world have this truer in their pits. This truer is the standard by which all other tools of this kind are judged against, and it is easy to see why.

Info: 1/10 & 1/8 Scale (part no. 10-2002); 1:12 & 1:10 Scale (part no. 10 2003)

Retail Price: $460

Manufacturer: Hudy Special Products, distributed by Serpent USA, 2830 NW 79th Ave., Miami, FL 33122 • 305-639-9665; 305-639-9658 (fax)

Recommended for: Serious racers—1/12 to 1/8-scale on-road racers who use foam tires

Options: Arbors: 10 2362 1:8 Serpent, Kyosho, HPI, Mugen, Neo; 10 2312 1:10 Serpent, Picco, Mugen, Neo; 10 2352 1:10 Touring car 12mm Hex; Cutter: 10 2067 Carbide Cutting Tool ◆

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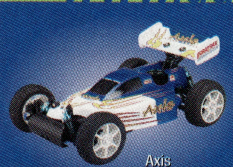

Axis


Street Force GP

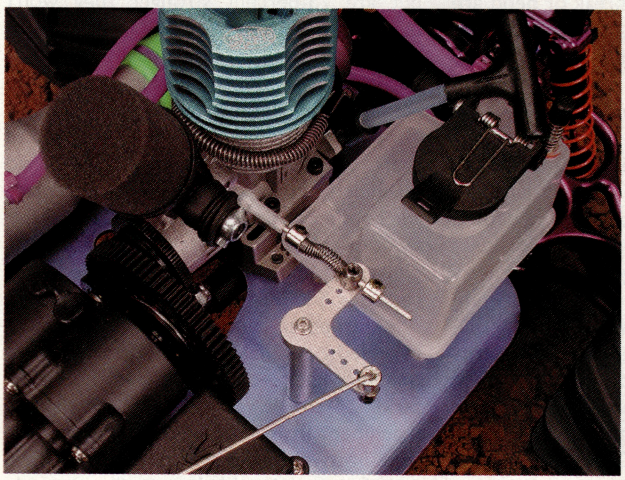
Hardcore Racing .21 T-Maxx Chassis Kit

Last month we showed off what Hardcore Racing can do with the Traxxas E-Maxx.

Nicknamed "The Hulk" around our office, the beautifully green anodized rolling piece of artwork looked so good that we were almost afraid to drive it—we didn't want to put a scratch on it! No matter where we went with our Hardcore Racing Project E-Maxx, it stopped people in their tracks—even non-R/C enthusiasts had to have a peek!

Well, this month we're bringing you another Hardcore Racing project based on their .21 chassis kit (part no. HCR-00310). And while this one also falls into the category of "rolling artwork," there was no way you could keep us from driving this one! C'mon, folks, we're talking a .21-powered T-Maxx—how could you resist!





Hardcore Racing's .21 conversion kit comes with this clean-looking pivot arm and turret for the throttle/brake linkage.

KIT FEATURES

● Here's what you get when you purchase the Hardcore Racing .21 Chassis Kit—

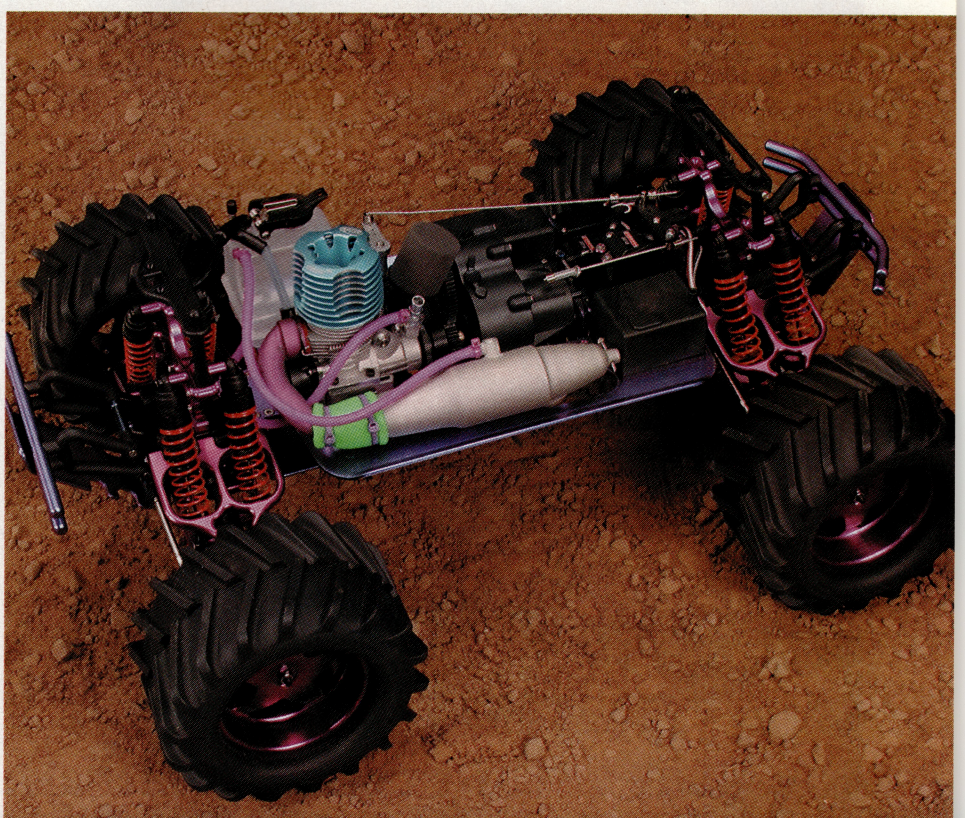
- An extended 2.0mm thick Titanium chassis
- An extended 2.0mm thick rear skid plate
- An extended rear driveshaft
- A pivot arm and turret for the throttle/brake linkage
- An OFNA-style adjustable motor mount
- A clutch nut
- Header

The kit is available in either purple, green, blue, or silver finish, and it retails for $249.00. In typical Hardcore fashion, it is one of the cleanest looking aftermarket chassis sets we've seen—they use high-quality material, and they produce a high-quality finished product. Each screw hole is perfectly countersunk, and the anodized finish is equally well-done. One thing we can say assuredly is that Hardcore Racing .21-powered T-Maxx looks fast sitting still!

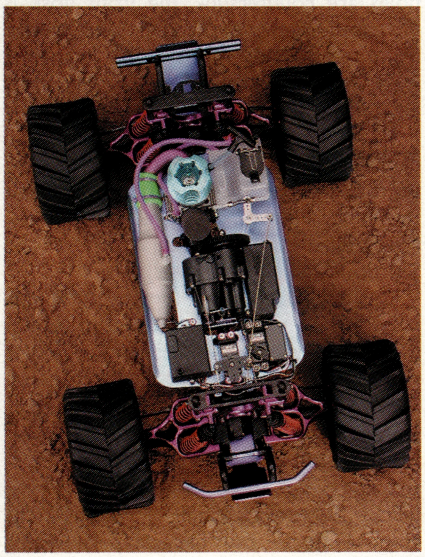
But it's not just about looking good. According to the good folks at Hardcore Racing, they've extensively tested their .21 Chassis Kit and can confidently say that it drastically increases rigidity while at the same time reducing weight. They are certain that the chassis and other titanium components used can easily handle the torque and stress caused when using a high-output .21 engine—the Ti parts won't bend, twist, tweak, or crack!

In addition, we also tested the truck with a few other Hardcore items bolted on for good measure. Complementing the truck were:

- A full set of aluminum suspension arms (part no. HCR-00304) complete with stainless steel hingepins. The suspension arm set is made from 6061-T6 aluminum alloy, accept the stock Traxxas pillow balls or Hardcore's titanium set (part no. HCR-01504/$35.00 for a set of four), are available in either purple, green, blue, or silver finish, and retail for $235.00.
- A 2.0mm thick front titanium skid plate (part no. HCR-00308) increases the rigidity of the front bulkheads, all the mounting holes are countersunk, the front nose is increased in size for added bumper and front-end protection, is available in purple, green, blue, or silver finish, and it retails for $42.00.
- The 2.0mm thick center titanium skid plate (part no. HCR-00307) gives increased transmission protection, adds rigidity to the center braces, is available in purple, green, blue, or silver finish, and retails for $32.00.
- Hardcore's chassis braces (part no. HCR-00303) are made from 6061-T6 aluminum alloy, increase chassis rigidity, will work with Hardcore's Ti center skid plate, is available in purple, green, blue, or silver finish, and retails for $65.00 for the pair.
- A set of Hardcore's 6061-T6 aluminum shock towers were also added to the truck. The towers (part no. HCR-00312) come with all the necessary mounting hardware, use the stock Traxxas bolt pattern, are available in purple, green, blue, or silver finish, and they retail for $49.00 each.
- Front and back you'll find Hardcore's Titanium bumpers. The front (part no HCR-00306) and the rear (part no. HCR-



Hardcore Racing



The .21 big-block fits quite nicely in place on the Hardcore Racing chassis—and believe us, it rips!

00305) are made from dual-railed Titanium, will not break or bend, are available in purple, green, blue, or silver finish, and they retail for $68.00 for the front, and $65.00 for the rear.

• To help stop the truck in a hurry, we used one of Hardcore's brake discs (part no. HCR-00301). The disc is made of a unique carbon epoxied colored laminate that exceeds normal carbon structural strength and durability—in other words, it's stronger and will last longer than your average carbon-fiber brake disc. The 3.5mm-thick disc provides increased braking capability and longer life. In addition, the color (red/blue available only) does not fade. The disc retails for $25. While we were at it, we added a set of Hardcore's Titanium brake calipers (part no. HCR-00302). The calipers weigh half as much as the stock steel units but are 75-percent stronger, they won't bend or overheat, are easily installed with no modification necessary, are available in purple, green, blue, or silver finish, and they retail for $20.00 per pair.

• Hardcore's Titanium bulkhead braces (part no. HCR-00317) include two machined braces and screws, they replace the bumper mount screws, they stiffen your front or rear bulkheads, are available in purple, green, blue, or silver finish, and they retail for $28.00 per pair.

• Rounding out the truck...no pun intended...is a full set of Hardcore's aluminum wheels—Stompers (part no. HCR-003112) to be exact. The wheels are machined from 6061-T6 aluminum, are ultra-lightweight yet are super strong, have a perfect rotational balance, will not crack, bend, break or tweak, are available in purple, green, blue, or silver finish, and they retail for $210.00 for the set of four.





Our test sample was outfitted with an OFNA pull-start .21 that provided plenty of snap. Without a doubt, the T-Maxx becomes a whole new animal when equipped with this much motor!

SOURCES

Hardcore Racing, 25435 Rye Canyon Rd., Valencia, CA 91355 • (661) 294-5032; (661) 294-0770 (fax)

DRIVING IMPRESSIONS

Let me first get through a disclaimer: in stock form, the T-Maxx is darned fast. What you're about to read contains mentions of unbelievable speed and power, and this in no way implies that I or any of the staff consider the T-Maxx slow in stock form. With that said, can I get a "yeeee-hawh"? I won't go as far as to say that the T-Maxx should come with a big-block .21 engine, but the Hardcore conversion is so good, I can't help but wonder if Traxxas doesn't already have a .21 version in the works. If they don't, they should drive this truck!

The key to harnessing the added power of the bigger engine is Hardcore's elongated titanium chassis. The added stability it provides is essential to keeping the truck under control, and despite the long wheelbase, cornering is as sharp as ever (especially with judicious use of throttle-induced oversteer). Where the stock .15 engine may bog slightly (such as dead-stop hill climbs, etc.), the .21 lifts the front wheels, then lurches the truck forward like a track star. Top speed? Forget about it unless you've got a really, really large space. I want one of these!

—Frank Masi

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BUILDING THE ULTIMATE E-MAXX!

Jason Jaeckel's Project S-II is the baddest truck we've ever seen!

Back in our February 2001 issue, we profiled a truck made by Jason Jaeckel—a Traxxas T-Maxx converted over to an electric truck.

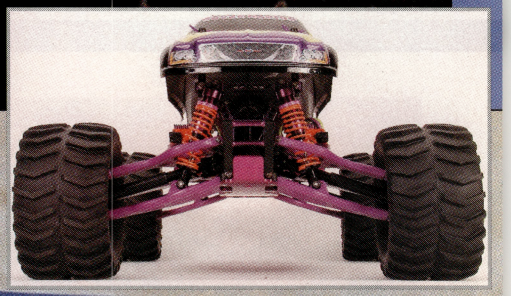
The interesting thing about Jason's truck, named the S-Maxx, was that at the time there was no factory-built E-Maxx yet from Traxxas. The truck was definitely one of the more unique vehicles ever to grace these magazine pages. Since the article was published, Jason has gone on to work for Traxxas—we're sure his wild ideas must have influenced their hiring decision... Soon after starting, Jason started working on his next truck—code named the S-II.

To begin with, Jason wanted to make a truck that no one, and we mean no one, would try to top. In order to discourage any potential competitors, Jason decided to take a unique approach and came up with the idea of making a custom-built, twin-tranny, four-motor monster. It was to be the baddest Traxxas monster in existence. Now before we get into the details about how Jason's project made it from the drawing board to the dirt, we have to pass along a personal opinion—Jason's truck is the most amazing project truck we've ever seen, bar none! Unless you have unlimited financial resources, and access to a CNC milling machine, don't even bother trying to top this work of art.

BUILDING THE BEAST

The first step Jason took towards building up his project vehicle was to purchase two stock E-Maxx trucks (the second was needed to scavenge the second tranny set and miscellaneous other items). With both trucks in hand, he started by disassembling one truck completely to see how the twin trannies would fit. It was at this point that Jason realized there was no way the stock chassis would accommodate the twin tranny setup, not to mention all the other necessary equipment needed to complete the setup. "I was looking at a chassis that was going to have to be three inches longer than stock. The lower braces would also have to be longer as well," Jason tells us.

It was time for a custom chassis and lower braces came into play. But before Jason could come up with a chassis design, he had to measure everything out to finalize the placement of the two transmissions and drivetrain elements—this was the most time-consuming part of the



process. "I measured everything by hand", adds Jason. "I then made a few sketches, and once the measurements were complete, I sent the lower brace dimensions along with my crude sketch to Jason Rix of Rix Gear. I then sent the chassis dimensions to Scot from Rockhoundz! to be laid out on a CNC and milled out from a solid piece of aluminum." Additionally, Rockhoundz! would also be providing the custom-made skid plates for Jason's truck (they also handled the anodizing of the wheels, lower braces, skids, motor mounts, and chassis).

One of Jason's biggest concerns with the truck project was that the steering geometry be similar to his original S-Maxx project truck. For those of you who missed it, Jason mounted the steering servo under the chassis between the lower braces and just in front of the first tranny. Aside from freeing up room on top of the chassis, the positioning of the steering servo underneath the chassis also helps lower the truck's center of gravity slightly.

As you can see from the photos, the first transmission was fitted in the stock position, but the placement of the second transmission was the more difficult proposition. "Since the E-Maxx tranny has two speeds, my objective was to have one servo shift both trannies, to save space and contribute to a neater layout. I placed the servo behind the first tranny and in between the lower braces with just enough room to obtain linkage space. This allowed a lower center of gravity and helped to maintain a clean setup. The second tranny was placed behind the shifting servo with the same room as was allowed between the first, enabling the drive shaft to extend to the diff at an appropriate angle," adds Jason.

Once the chassis, skid plates, and lower braces were finished, Jason's next step was to figure out the electronics issue. "The E-Maxx has a 14-volt system, so I knew it would not work adequately unless I used dual VX12s and 24 cells—which would take away from the clean layout of the chassis," Jason informed us. "I do plan on doing some testing with Traxxas' killer 14-volt setup in the future, though. For this project I decided to stick with the dual Novak Super Rooster setup that I had successfully used on the first S-Maxx. This is where Patrick from Ballistic Batteries comes into the picture. I wanted torque, so I decided to power up each tranny with dual nine-turns wired in parallel. Now being that one tranny was backwards, this meant that two of the motors had to be wound backwards. So Patrick got the help of Dave Kisbey of Kisbey Modifieds to hand wind four custom nine-turn modifieds and dynoed them all together so that I would get the same rpm out of each motor. They are wired in parallel, not series, for more power and speed."



TIME FOR A TEST DRIVE

● During testing, I noticed that the Airtronics M8's third channel was not going to cut the mustard, considering that you must take your hand off the steering to access the third channel (in order to shift the vehicle). Larry, a good friend at Traxxas installed a toggle switch in its place, just behind the LCD. It was now just as easy to shift as on the stock TQ3 transmitter!

At first, I had to just guess what gearing I would need. I started with 14 pinions and the stock 66-tooth spur. I squeezed the throttle, and, well, I was disappointed. It was not as fast as I had hoped, and I was getting heat problems. After consulting with some friends, I decided to go up on the gearing. If you are way undergeared, depending on the timing and so forth, you can have heat problems just as you would if you are overgeared. I went with a 16/64 combo, and that brought the truck back to life! I only did some quick test runs, as I could not afford to get it damaged before sending it to *R/C Car*, but I was pleased with its initial performance.

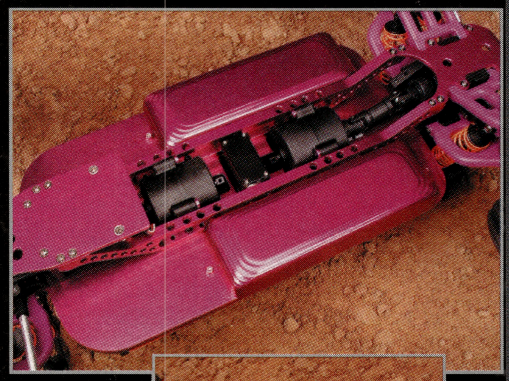
It's a little faster than a stock T-Maxx. I did some straight line testing, then took it inside the warehouse for some killer doughnuts. When the diff unloads, the tires look like pizza cutters! The average run time was at about the five-minute mark. Not bad for two pairs of nine turns in parallel!

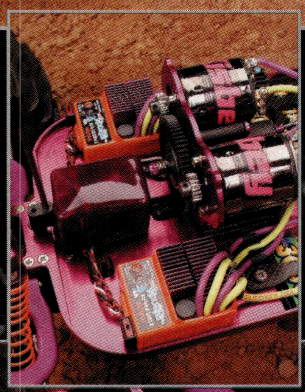
I know I can do a lot more with the gearing. I think I can go even higher, as the motors and ESCs were not all that hot. I plan on a lot more testing once I get it back and can afford to get it scratched.

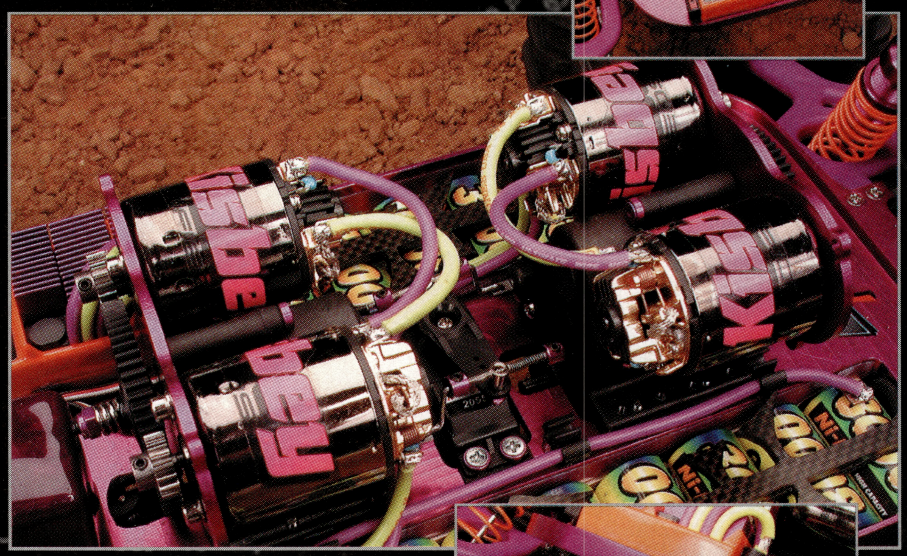
What will I do with it? I don't know. But I think as a puller or a climber, the truck has unlimited potential"—Jason Jaeckel

As for the cells, Patrick convinced Jason to turn to 3000 NiMh batteries for the added run time they would provide. "I allowed myself room on the chassis for two seven-cell setups if I needed them" adds Jason, "so I could always run seven 3000 cells to get the punch I would get from six 2400 cells but still have increased run time. Patrick custom matched some six and seven-cell 3000 packs to make up the different setups." After doing some testing, Jason found that the Super Roosters could easily handle the seven-cell setup, and he settled on seven cells.

After Jason mounted the twin trannies and electronics to the new, longer chassis, he realized that with the additional length, he would need to give the truck a slightly wider stance for added stability. To accomplish this goal, Jason needed to decide whether to go with alloy arms









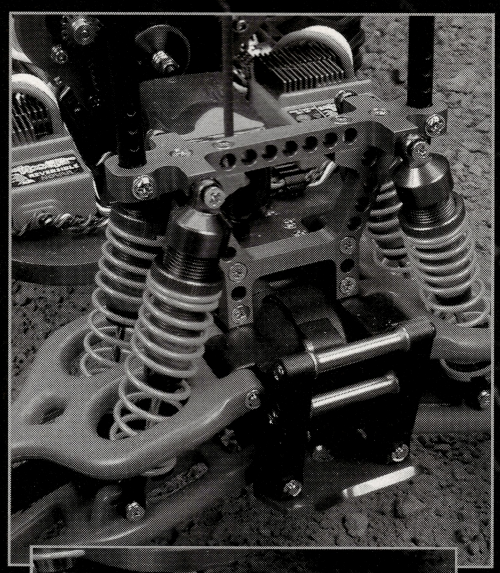


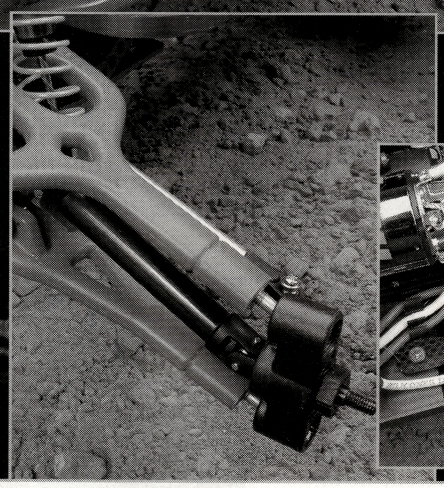
or come up with another solution. "I knew of aluminum A-arms that were longer, but I didn't want the added weight, plus I wanted to originate something myself, rather than just 'bolting on' someone else's work," adds Jason. "However, I did want something stronger than stock, so I decided on a set of RPM's purple A-arms and developed a way of increasing the length. I simply ordered two full sets. I then cut 3/4-inch off the ends off one full set. I went to the hardware store and bought a threaded steel rod that was the same diameter as the ball studs for the spindles and cut eight 1 in. pieces. I threaded 1/2-inch of the rod into the arms. Then the other 1/4-inch into the cut off pieces. I used super glue around the joints to keep them from turning on me. In the end I was able to extend the width a total of 1 1/2-inch As for the turnbuckles, I got some aluminum rod, cut them to the length I needed, threaded the ends, and installed some 1/8-scale ball ends with custom cut threaded rod in between. This provided a clean, extended look."

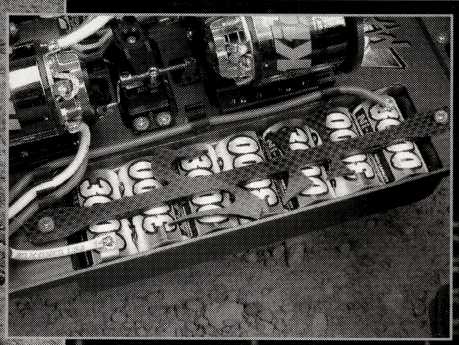
One of the most impressive things about Jason's project truck is the fine attention to detail. The finishing touches are very sharp-looking.

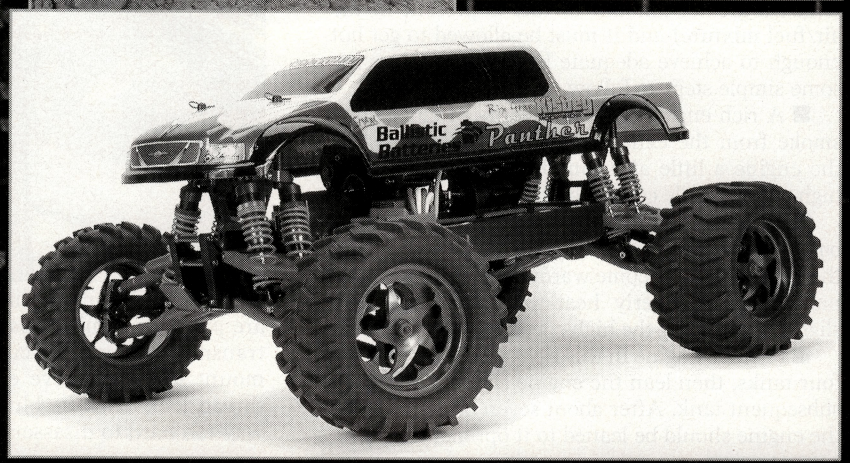
- Rix Gear shock towers grace the truck front and rear.
- A complete set of eight DuraTrax purple anodized, oil-filled shocks (from the Maximum Nitro MT series) with threaded shock bodies, handles the suspension duties. The shocks are filled with heavier 80wt. oil to help provide a "cushier" ride for the close to 13-pound vehicle.
- Miscellaneous Trinity purple anodized aluminum screws are used in non-stress areas on the truck (i.e., body posts, transmission housings).
- HPI purple stand-offs fit perfectly in between the front and rear bulkheads as braces.
- Jason custom cut, out of graphite, two battery hold downs that feature his "S-II" logo on them.
- Racer Edge alloy wheels (anodized purple for Jason by Rockhoundz!)
- Jason chooses Panther tires for all his project trucks—"as far as I'm concerned, no one makes 'em better." Jason picked out a set of Panther's new Plow Boy 2 tires for his S-II.
- Since the truck's chassis is so long, Jason had to come up with a custom-made body. Jason took two E-Maxx bodies and grafted them together, making a six-door S-II body.

So there you have it—as we said before, we doubt many people out there will be topping this machine! Jason would like to thank his sponsors Rockhoundz, Rix Gear, Ballistic Batteries and Panther tires, and *Maxxtraxx.com* for all their help with the S-II project. For those interested in checking out Jason's other projects, or would like to log on to his new forum go to his website at *sofasticantseeit.com* or you can e-mail him at *sofasticantseeit@home.net.*









Modified E-Maxx

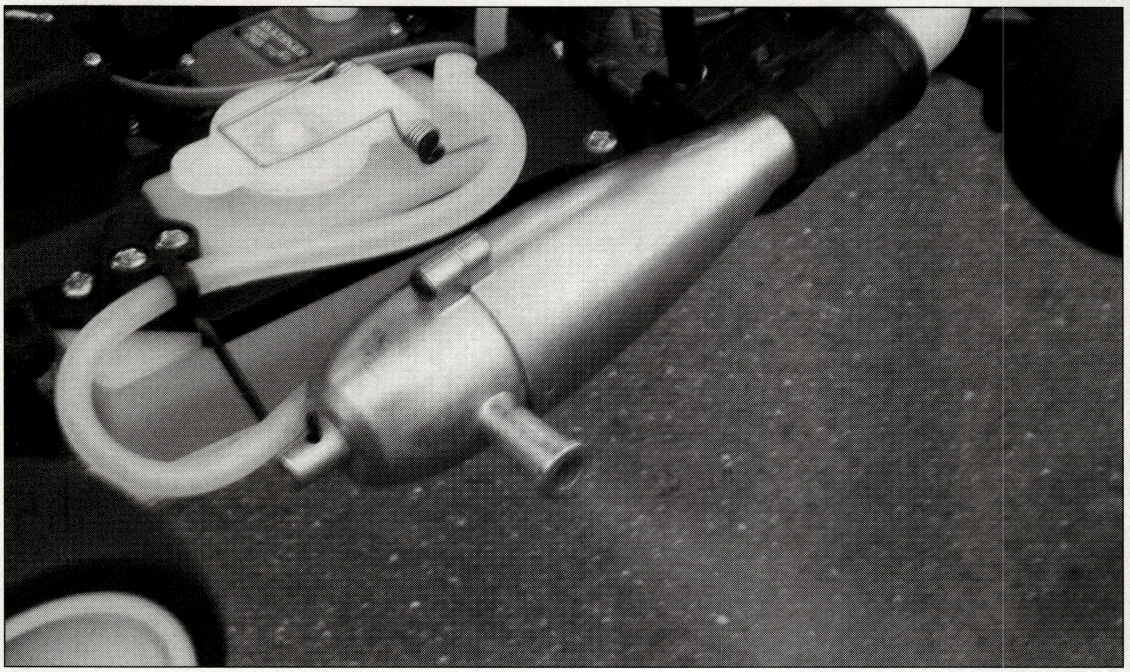
- Quad motors
- Dual transmissions
- Dual ESCs
- 3-1/4 inches longer than stock
- 1 1/2 inches wider than stock
- Weighs just under 13 lb
- Street price—N/A one of a kind!

- Custom skids by Rockhoundz!
- Custom chassis by Rockhoundz!
- Custom battery location
- Custom Rix Gear lower braces
- Rix Gear shock Towers
- Four custom wound 9-turn motors by Kisbey Modifieds
- Custom cut battery hold downs in graphite
- Custom turnbuckles
- Futaba 9404 steering servo
- Modified M8 transmitter
- Kyosho molded receiver cover
- DuraTrax MT purple threaded shocks
- Traxxas aluminum pivot balls
- Traxxas titanium hinge pins
- Trinity Purple aluminum screws
- HPI purple stand-off bulkhead braces
- Two Novak Super Roosters
- 14 Ballistic Batteries custom matched 3000mAh cells
- Custom servo mount
- Racers Edge aluminum wheels
- Panther Plow Boy 2 tires
- RPM 32 pitch pinions
- Custom built body
- RPM purple nylon lock nuts
- Custom modified RPM purple A-arms

Ready to Run Prep

Is that RTR really ready?

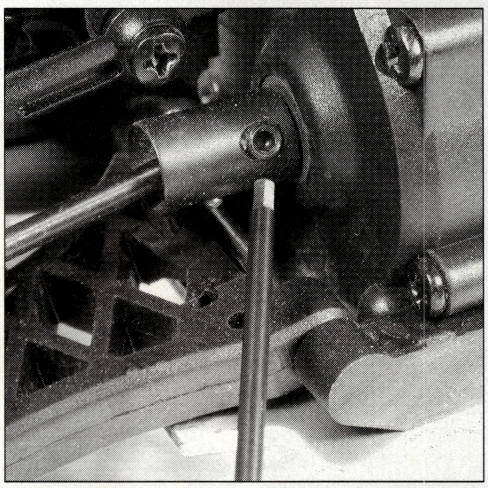
Ready-to-run kits are great. They're perfect for those who hate to build, or for people who aren't mechanically inclined or old enough to adequately construct a kit. But just how "ready to run" are most RTRs? The good news is that most of the ones we've tested live up to the promise of their manufacturers. But once in a while we come across some RTRs that fall short of their billing. And although these occurrences are rare, the problems are often frustrating enough to ruin what should be a fun experience. So how can you ensure that your new RTR will provide the best performance and durability? Follow a few of these simple pre-run tech tips.



Break in that engine

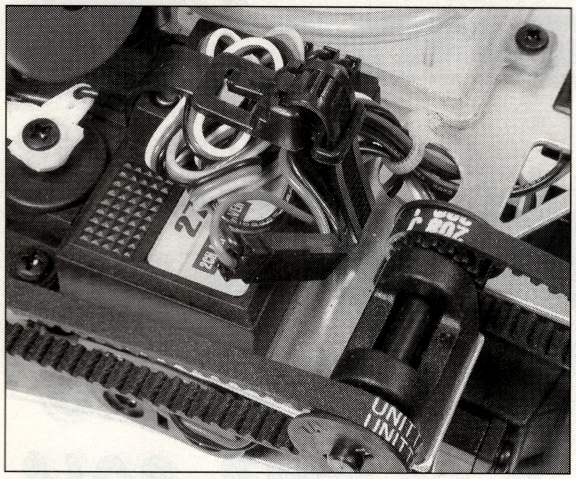
The number one step most RTR owners forget is engine break-in. Many of today's most popular RTRs are powered by nitro engines, which need a period of break-in to work properly. Breaking in a new engine isn't rocket science. The most important thing to remember is that the engine must be run rich (a term used to describe a condition in which a greater amount of fuel is present in the air/fuel mixture) and it must be allowed to get hot enough to achieve adequate heat-cycling. Here are some simple steps to follow:

- A rich engine will emit plenty of bluish-gray smoke from the exhaust. If yours doesn't, richen the engine a little at a time by turning the carb's high-speed needle counterclockwise.
- If the engine is so rich that the car or truck barely moves under its own power, it's too rich, and the engine won't become warm enough for its internal parts to properly heat-cycle. Lean the carb slightly by turning the high-speed needle clockwise.
- Run the engine in this rich setting for three or four tanks, then lean the engine slightly with each subsequent tank. After about seven or eight tanks, the engine should be leaned to it optimal setting.



Lock down those screws

Nitro-powered vehicles vibrate a lot. To prevent them from shaking themselves to pieces, all metal-to-metal connections should be secured with thread-lock, and the RTR manufactures try their best to do this, but unfortunately, some do a better job than others. We don't expect you to go through the entire chassis to apply thread lock, but certain areas are prone to coming apart. In particular, the setscrews that secure transmission outdrive cups have a habit of falling out. Also, engine mount screws deserve extra attention. We recommend a medium thread lock, such as blue Loctite. The extra strong stuff makes it way too hard to disassemble things when it's time for a repair.



Prevent wire damage

In order to be cost effective, RTRs must be assembled in as little time as possible. This is particularly evident if you look at how an RTR's wiring is bundled—big masses of tangled wires, some precariously close to moving parts! We've seen antenna wires and servo leads become caught in drive belts, and trust us, it isn't a pretty sight when your prized R/C car runs amok! We're not suggesting that you take the time to re-wire your entire chassis—we realize that the reason you bought an RTR in the first place was to get it running as quickly as possible—but at least take a few minutes to inspect the wiring. If it comes near anything that can cause damage, move it.

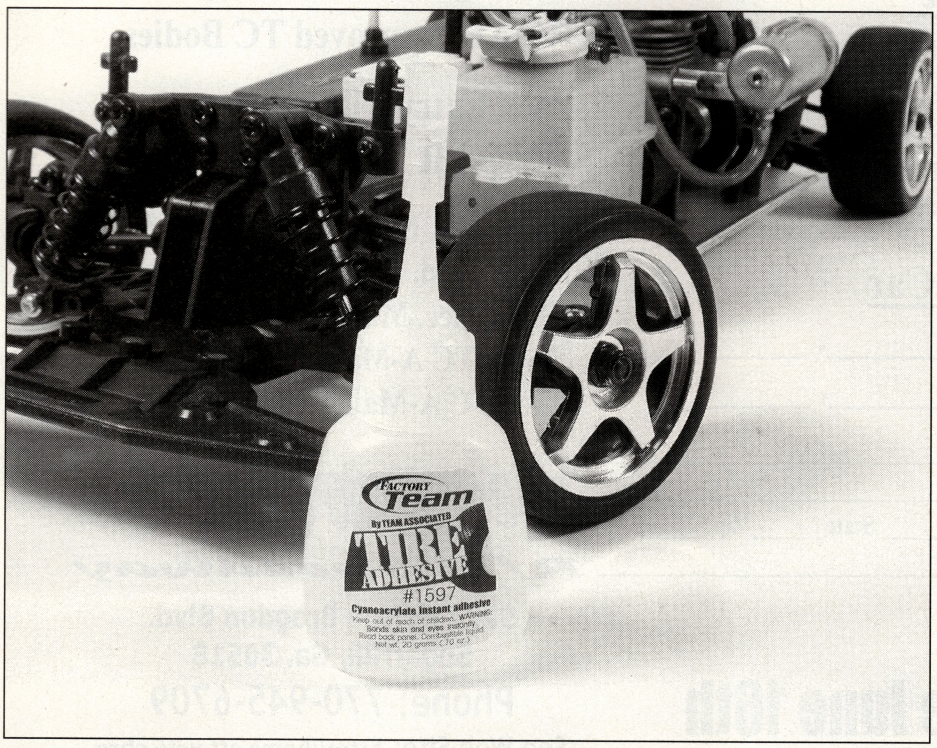
Set your suspension

We're amazed at how well most RTRs are assembled. We suspect that many manufacturers create special jigs to help workers speed through the building process. Most RTRs come with their suspensions set pretty close to correct, but some are just out in left field. Do you need to have perfectly set suspension to enjoy your new RTR? No, but if you want the best handling, perform these simple steps:

(1) With the car or truck in its ready-to-run form, drop it from a height of six inches onto a flat, level surface. When its suspension comes to a rest, look at the rear suspension arms and driveshafts. The driveshafts should be parallel to the ground (when viewed from the back of the vehicle) and the arms should droop slightly. Next, view the chassis from the side; it should be approximately level with the ground. If not, adjust the front shocks' spring pre-load until it is.

(2) Place a can of soda (or can of whatever) next to one wheel. The wheel should be nearly parallel with the can. This would indicate a camber angle of zero degrees. Generally, a camber angle of about 1 or 2 degrees negative is ideal. Negative camber is when the top of the wheels leans inward toward the chassis. Use the can method to set camber; a slight gap between the top of the wheel and the can is good.

(3) Place the vehicle on the ground and stand directly over it. Look down at the front wheels; they should point straight ahead. If the fronts of the wheels point inward slightly, this is called toe-in and will make the vehicle easier to drive in a straight line. If the fronts of the wheels point outward slightly, this is toe-out and will make steering more aggressive.



Prevent a blowout

Some RTRs are so complete that even the tires have been pre-glued. Great news, right? Not all the time. We've tested many RTRs whose pre-glued tires have come loose during the first run. What if you had driven ten miles to an open field to drive your brand-new 1/8-scale RTR buggy, only to be caught without CA cement when one of your tires decides to part ways with the car? When you buy your new RTR, pick up a bottle of CA. Before you run the car, inspect each wheel assembly by tugging at each tire's sidewall. If any portion comes free from the wheel, re-glue it.

RTRs are great for beginners and for more experienced hobbyists who just don't have the time or feel like building a kit from scratch. Each new RTR seems to be better than the last, but if you want to get the most from your new car or truck, a little "up front" work will pay huge dividends down the road. ◆

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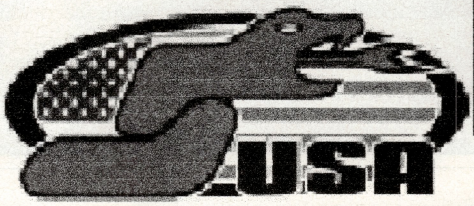

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Sun. July 1st : Mains Events Start @ 10 am

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Classes Are :

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ROAR Rules will be used for all classes.

Touring Car Classes MUST run an ROAR Approved TC Bodies

Each Entry will receive a Free Pit Towel

1/10th Stk. Elec. Mains will be 5 Min.
1/10th Mod. Elec. Mains will be 4 Min.
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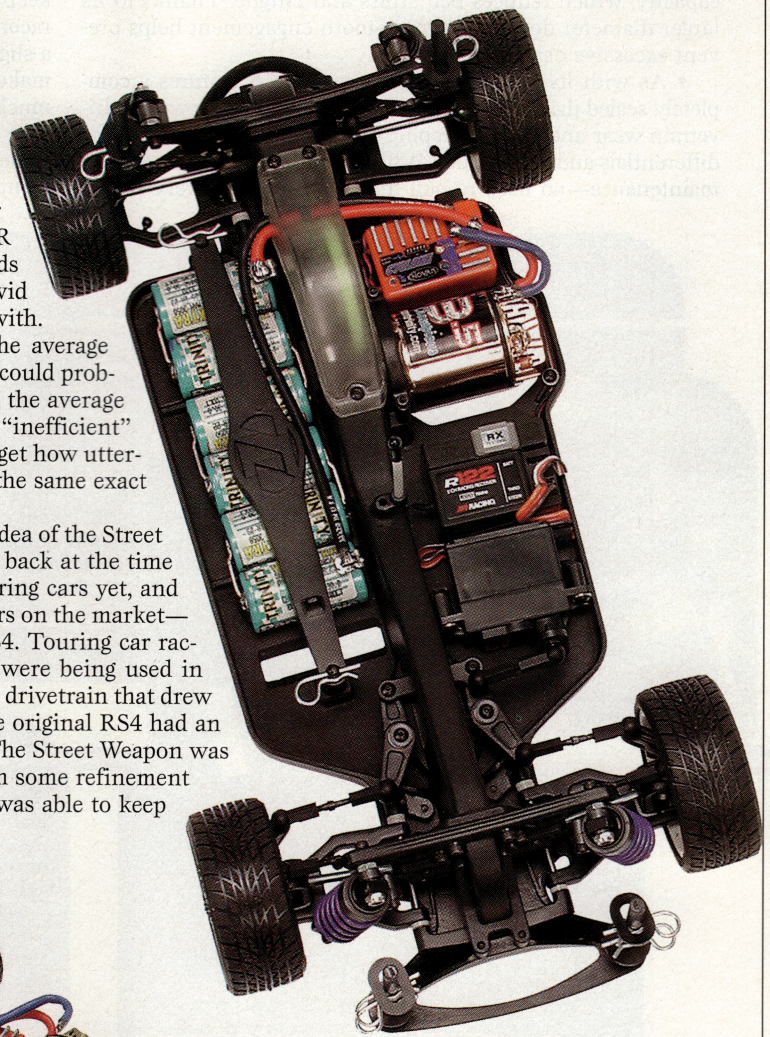
Losi's new XXX-S Touring Car

Revolutionary racer!

The argument over Team Losi's Street Weapon not being a competitive touring car is one we've all heard before. But let's look at the results—multiple ROAR National titles, three British Touring Car Championships, and even a highly prestigious IFMAR touring car title have been won with the car. In the hands of talented team drivers such as Joel Johnson and David Spashett, the Street Weapon was a force to be reckoned with. But that's where the argument starts to get heated. The average racer feels that these sponsored guys with all their talent could probably win races with boxes on wheels... For some reason, the average guy felt the Street Weapon's three-belt drivetrain was "inefficient" and not suited for racing (yet for some reason they all forget how utterly dominant the off-road buggy has been, incorporating the same exact drivetrain).

Still, to understand the whole situation regarding the idea of the Street Weapon as not being a competitive car, you have to look back at the time it was released. There were no competition-oriented touring cars yet, and as a matter of fact, there were only a few other touring cars on the market—most notably, the Yokomo YR-4 and the original HPI RS4. Touring car racing as we know it today was far, far away—these cars were being used in parking-lots for fun, not racing. The Yoke had an exposed drivetrain that drew pebbles and debris to it like flies to a bug zapper, and the original RS4 had an enclosed three-gear gearbox just like an off-road buggy. The Street Weapon was released as a fun car, not a racer. Over time, though, with some refinement and with help from some very talented drivers, the SW was able to keep up with the more modern-era touring cars.



Well, it's no secret that Losi has been working on an all-new sedan (first seen in our February '01 issue)—a car with a drivetrain as revolutionary as they come. The most significant feature of the new car is in fact its single-belt drivetrain. Well, the car we've been hearing about is finally here, and we have the most recent photos and information as the car gets set to ship to the shops.



Understandably, since the drivetrain is the most unique feature found on the XXX-S, we will be spending most of the time discussing the single-belt setup and its advantages. For those who are seeing the production car for the first time (as many of you are), here is the rundown on the car's distinctive drivetrain and other significant features.

• The XXX-S' single-belt drivetrain maximizes motor/battery efficiency by reducing the amount of drivetrain components involved. There is only one large-diameter pulley the belt must pass through, which has a greater load-carrying capacity, which reduces belt stress and fatigue. Thanks to its larger diameter design, the more-tooth engagement helps prevent excessive belt deformation.

• As with its predecessor, the new XXX-S features a completely sealed drivetrain. This inevitably helps cut down on drivetrain wear and tear by keeping dirt and debris away from the differentials and drive pulley. With less wear and tear comes less maintenance—no need to pull the car apart after every run to check on the condition of the belt or diffs! Also, speaking of maintenance, accessing the spur gear is an easy task—and a wide selection of gear ratios will be available to racers.

• An internal adjustable/removable belt tensioner helps keep the belt from skipping or stretching. Stickler stock class racers can remove the tensioner, which will help the car gain a slight amount of acceleration. The removable tensioner also makes for easy diff and one-way removal, and maintenance is much easier.

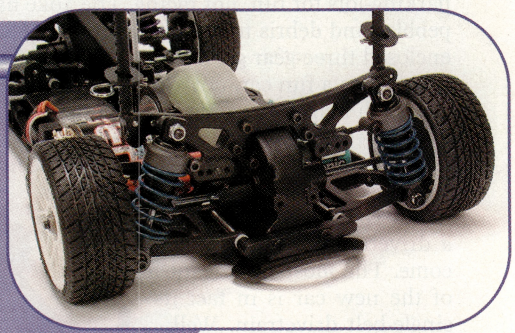
• The XXX-S has a unique feature that allows you to under/overdrive the drivetrain. By changing the size of the front or rear diff pulley (two sizes will initially be available



Like most other Losi vehicles, the XXX-S batteries are held in place with a simple strap. The battery tray was designed to accept racing-style packs as well as sport-oriented packs.

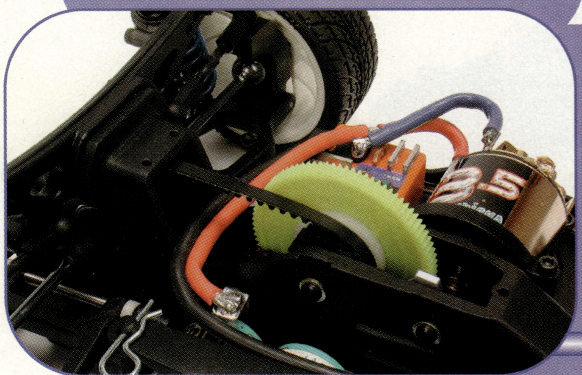


All the car's cells are placed on one side of the chassis, while the electronics are grouped together on the other side to offset the weight of the cells providing better balance.

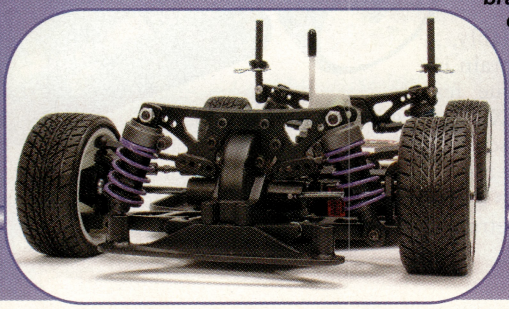


The geometry on this car is completely different from its predecessor—anti-squat is adjustable, and each arm is equipped with a down-travel limiting screw.

You can pop off the top spur gear cover to quickly and easily check on the belt condition as well as the spur gear.

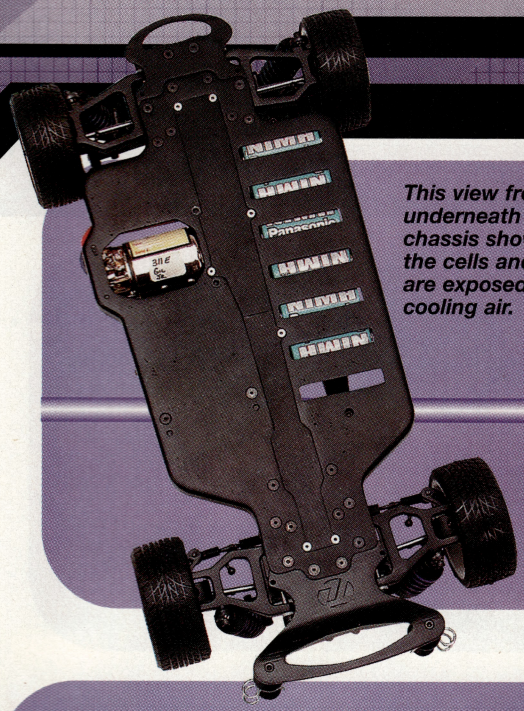


The XXX-S comes stock with a 4-degree front bulkhead angle that can be adjusted between 2- and 0-degrees. As you decrease the front angle, the car becomes more stable under braking as the front of the car will stay flatter. This is good when running on high-bite tracks and should be used with additional caster in the carriers.

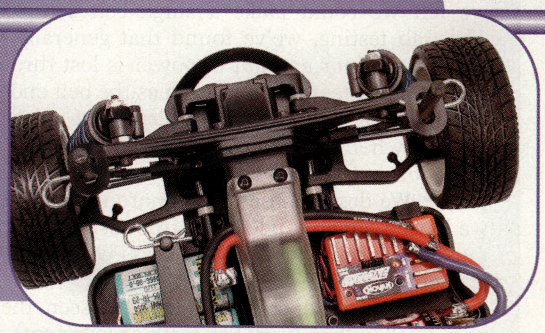


and they will come packaged in the kit), you can underdrive the car (smaller rear pulley), or overdrive the car (smaller front). Underdriving the car will deduct approximately six percent from the front end. When you underdrive the car it loosens the rear-end up for more low-speed corner rotation. Overdriving the front will add six-percent more drive to the front wheels which in effect will give the car more bite, can improve high-speed steering, and it makes the car really smooth and very easy to drive. By giving you the option to change the under/overdrive, it's a quick way to change the handling characteristics of the car without having to change tire or chassis setup.

- A neutral driveshaft angle increases the drivetrain's efficiency, and also helps give the car good, balanced handling characteristics. Additionally, MIP CVDs can be found at each corner.
- One of the biggest knocks against the Street Weapon was that you couldn't use standard aftermarket touring car wheels; you had to use Losi's wheel (3/8-inch hubs). With the new car, Losi gives you the option of using standard Losi or metric hexes, allowing you to run Losi or 0mm offset metric wheels.
- A flexible battery mounting system allows you to use both racing-style and stick packs. In addition, you can run the battery in multiple positions fore and aft to adjust the car's weight bias.
- Adjustable front and rear pin angles allow you to tailor the car's handling characteristics to different track conditions. The car will come with four-degrees front bulkhead angle. As you decrease the angle (you choose between two or zero degrees) the car will become more stable under braking as the front of the car will stay flatter (good for high-bite tracks, and should be used with additional caster in the carriers). In the rear of the car, the kit will come with zero anti-squat with the capability of running two or four degrees. Losi feels that the more anti-squat there is, the more the car rotates coming into the corners, giving it a more aggressive feel.
- The XXX-S' suspension arms have down-travel limiting screws built into the arm which allows for quick and easy suspension adjustment. A droop gauge is included with the kit so you can accurately measure your car setup.
- Mounts and attachment points are included for optional swaybars.
- A one-way front drive will be available as an option to tune the car for a more aggressive handling setup.



This view from underneath the chassis shows that the cells and motor are exposed to cooling air.

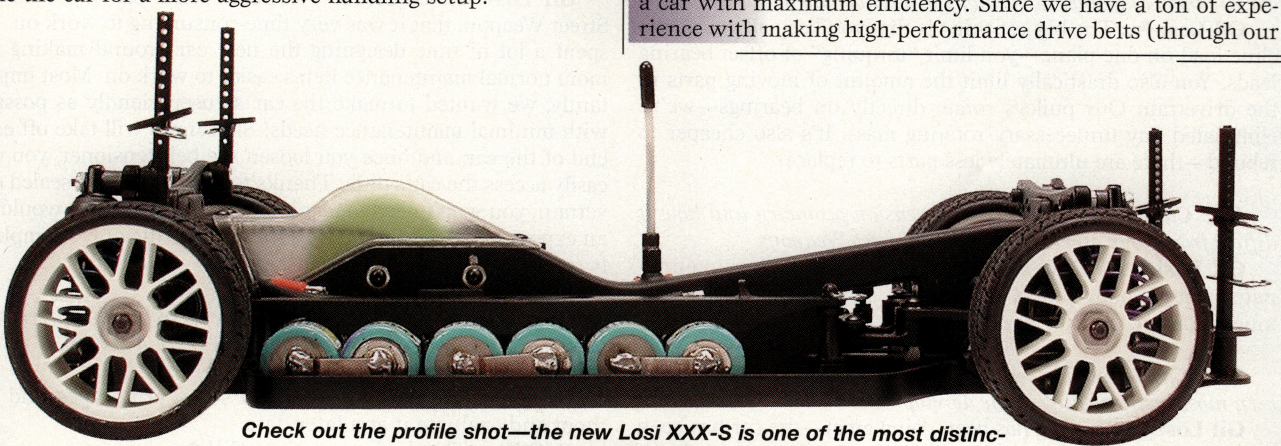


Note the incorporated swaybars mounts in the rear suspension arms. The front arms have the same setup.

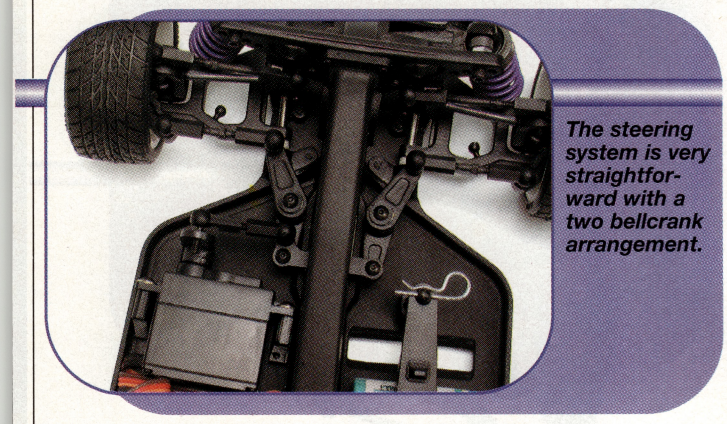
Touring Car Tech with Gil Losi Jr.

R/C Car: *Team Losi has produced some very innovative drivetrains. First the XX-4's triple belt system, and now the XXX-S' single belt setup. Are one-belt touring cars the way of the future? It seems that ever since you announced your intention of producing a one-belt car, a few others have hit the scene.*

Gil Losi Jr.: The triple belt design for the XX-4 was designed to optimize weight distribution for an off-road car, and we carried that design over into our sedan. When it came time to design this new sedan, our first thought was to design a car with maximum efficiency. Since we have a ton of experience with making high-performance drive belts (through our



Check out the profile shot—the new Losi XXX-S is one of the most distinctive-looking touring cars on the market.



The steering system is very straightforward with a two bellcrank arrangement.

extensive R&D with the off-road car and the Street Weapon), we felt we could make a single-belt setup work the best. Through testing, we've found that generally with belt-drive system, a minor amount of power is lost through belt expansion and belt teeth deformation as the belt encounters friction while sliding in and out of pulleys. The teeth deformation is created when the belt is under load and it's more than the tooth form of the belt can handle and as it enters and exits the pulley. We designed our system around a larger pulley. Since we have a larger bend radius (thanks to the larger size of the pulley) you don't lose power as you would with a smaller-pulley equipped car.

As for the other single belt cars I've seen, they are still using very small pulleys (very-few teeth engagement), which provides a very tight bend radius with a lot of belt tooth deformation. Also, belt construction is very important—the Japanese cars I've seen are using standard Neoprene belts and when you bend them back and forth, it reduces a belt's life significantly (almost cuts its life in half). We have proprietary belts that have undergone a ton of testing that are much more resilient than any belt on the market. It will be very hard for companies to match our belts based on performance and reliability.

R/C Car: *Aside from the obvious efficiency factor with a one-belt car, are there any other advantages to having only one drive belt?*

Gil Losi Jr.: The biggest thing is that you keep all your driveline load on one plane—you limit "torquing" of offset bearing loads. You also drastically limit the amount of moving parts in the drivetrain Our pulleys rotate directly on bearings—we've eliminated any unnecessary rotating mass. It's also cheaper to rebuild—there are ultimately less parts to replace.

R/C Car: *Tell us about the suspension geometry and how it differs from your previous sedan, the Street Weapon.*

Gil Losi Jr.: All the roll centers are much higher to eliminate as much body roll as possible which in turn gives the car much sharper, quicker handling.

R/C Car: *How has testing been going with the car? Who's been most instrumental in the development?*

Gil Losi Jr.: Testing has been going great—the car has been very successful wherever its been tested. Initially we got a lot of input from Brian Kinwald, Jukka Steenari, and David Spashett. Early on, though, we lost Spashett to Yokomo so Brian ended up taking over most of the testing responsibility. Brian was the true workhorse of the project—he did an absolutely wonderful job. David has since returned to the team and had his first race with the car a few weeks ago. He broke his previous track record by something like six seconds... David told me that there is a big difference between this car's drivetrain performance and other cars he's tested. Not only did he feel it had more top-end acceleration, but it had much better corner-to-corner acceleration than any other car he's driven. [*editor's note—though Gil didn't really go into detail about David's race, we were told by someone else on the team that David was frighteningly dominant with the car. Apparently, David was so far out in front during the race that he stopped in the middle of the track and started doing donuts so second place could catch up and pass him. According to the team member, David's response afterwards was that he wanted to really push the car and see if he could come back and pass first place and take the win—which he did easily and went on to win by almost a lap*!]

R/C Car: *So David gave up his Yokomo ride so he could run your touring car. That's a pretty good early endorsement, isn't it?*

Gil Losi Jr.: David and I have had a pretty good relationship ever since we worked together at the first Worlds which we won. I think he was disappointed that we did not have a good program together to go to win the next Worlds in Japan, and that, with other factors involved, led to his switch to Yokomo for the Worlds. At the time we had really been pushing our development with our new gas truck and it just happened to push us back on our development with the new touring car. We just didn't have enough testing time prior to get it ready in time for the Worlds. Now that things have calmed down a bit, and our touring car program is heating up, David and I are both excited about working together again—at Team Losi, David is more than a "hired gun," he's part of our development team. David is one of the best technical on-road racers I've ever had the pleasure to work with, and he's a good friend as well.

R/C Car: *One of the things we've heard that will be most appealing about the XXX-S is that is will be extremely easy to work on—as far as maintenance is concerned. Was that a priority to you when designing the car?*

Gil Losi Jr.: Of course—we had such a bad rap with the Street Weapon, that it was very time-consuming to work on. We spent a lot of time designing the new car around making the more normal maintenance items easier to work on. Most importantly, we wanted to make the car as user-friendly as possible with minimal maintenance needs! Six screws will take off each end of the car, and once you loosen the belt tensioner, you can easily access the car's diffs. Thanks to our completely sealed drivetrain, you won't need to tear it down as often as you would on an exposed belt car. I'm pretty sure we have the only "completely sealed" drivetrain on the market.

R/C Car: *On a related note, will we be seeing this drivetrain platform in any other applications...is there a "XXX-4" in the works?*

Gil Losi Jr.: We will build up some prototypes and try them and evaluate it at a later date.

R/C Car: *Thanks for your time, Gil!* ◆

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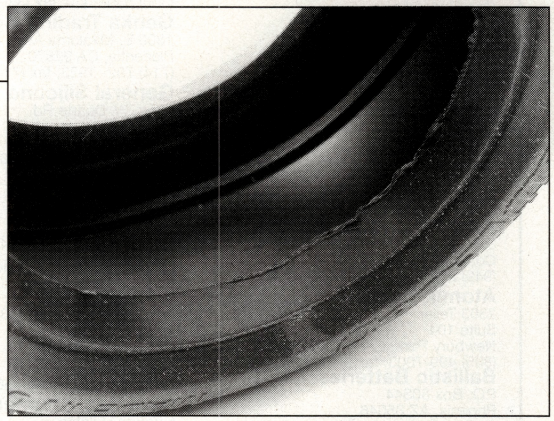
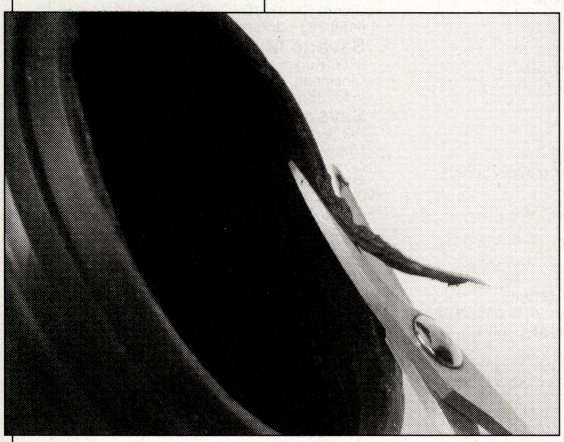
Get a Grip!
6 off-road tire tips

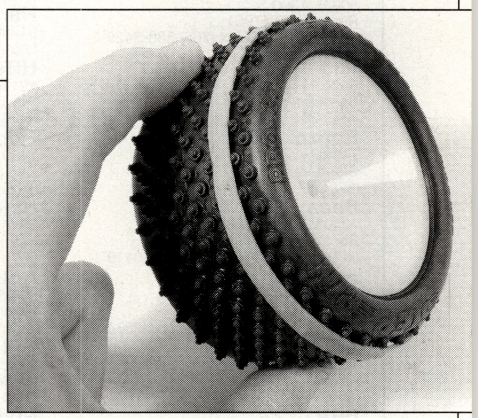
Off-road tire technology has advanced significantly over the past few years; rubber compounds have become softer and stickier, and manufacturers have developed high-tech tread patterns that provide incredible traction. So if you fail to properly install your new tires to their wheels, guess what? All that work that went into the tire's design is for naught! Here are six easy tips that will help you get the most bite from your off-road buggy and truck tires!



SLASH THE FLASH

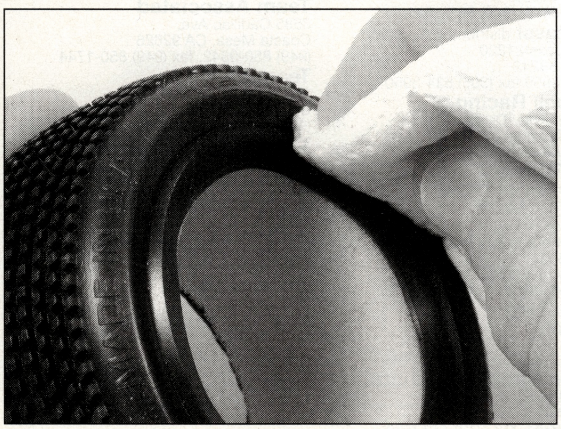
If you experience difficulty getting the tire to seat on the wheel, the problem may be caused by excess rubber that's been left over from the molding process. To get the closest bond between tire and wheel, turn the tire inside out and trim about 1/16 inch from the tire bead using a pair of scissors. Be careful not to remove too much material, as this will weaken the tire/wheel assembly once it's been glued.





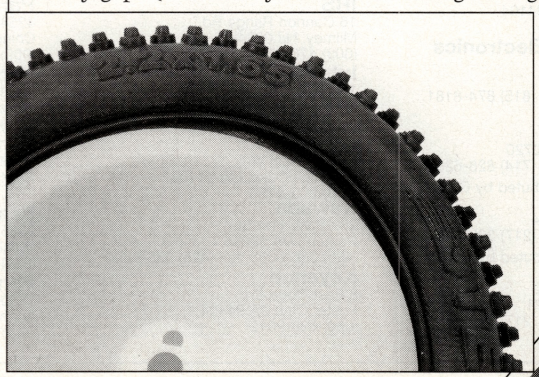
CLOSE THE GAP

The strongest glue bond is achieved when the tire and wheel beads are as close as possible. Any gaps, no matter how small, will weaken the glue joint and cause the tire to separate from the wheel under hard cornering. To ensure the closest fit, wrap several rubber bands around the tire before you apply the glue. Peel away the tire in one area, apply glue, and move on to the next until you've glued the entire bead. As a rule, the less glue you need to make a good joint, the tighter the tire and wheel bead. If you're using half a bottle of glue to do one tire, there are too many gaps (where do you think all that glue is going?).



GET RID OF RESIDUE

Residue leftover from the molding process can interfere with the glue bond. Use a rag or cotton swab that's been dampened with solvent to clean the tire and wheel bead. You'll be amazed at how much brown crud comes off, and at how much stronger the glue bond will be.



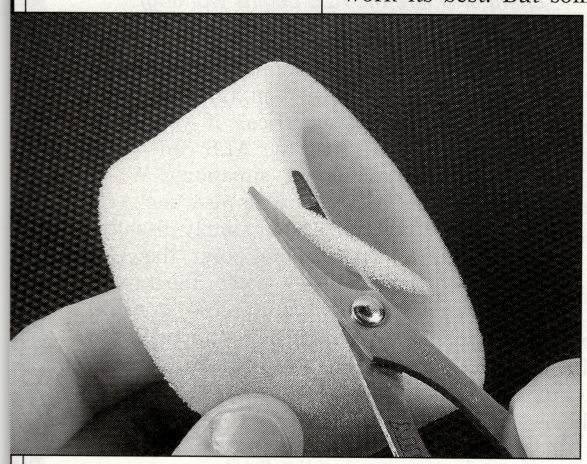


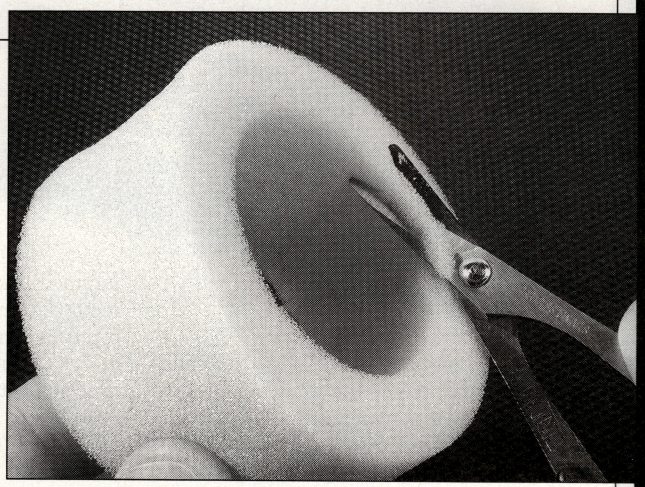
CHECK THE DATE

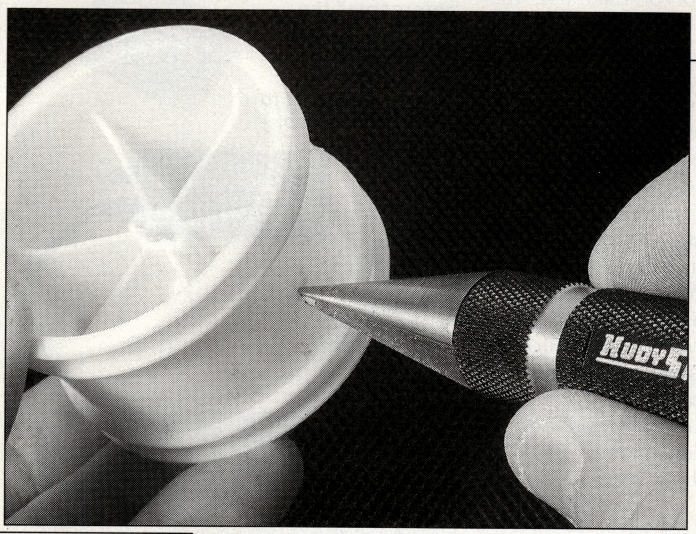
Glue is like milk—it spoils with age. To ensure the strongest bond, always try to use the freshest glue possible. For this reason, avoid buying the large "budget size" bottles; buy only what you'll use for a month or two. You can prolong the useful life of your glue by not leaving it uncapped for extended periods. Instead, make a habit of capping the bottle as soon as you're done using the glue.

SHAPING UP

Tires are designed to have a specific shape, or carcass, that enables their tread design to work its best. But some foam inserts—especially oversized or very firm ones—can distort this shape and make the tire less effective. To eliminate this potential problem, you should trim the outside edge of the insert using a pair of sharp scissors. Trim the insert at a 45-degree angle, and remove about 1/4-inch of material. You can also trim the inside radius of the insert by turning the insert inside-out and performing the same steps.







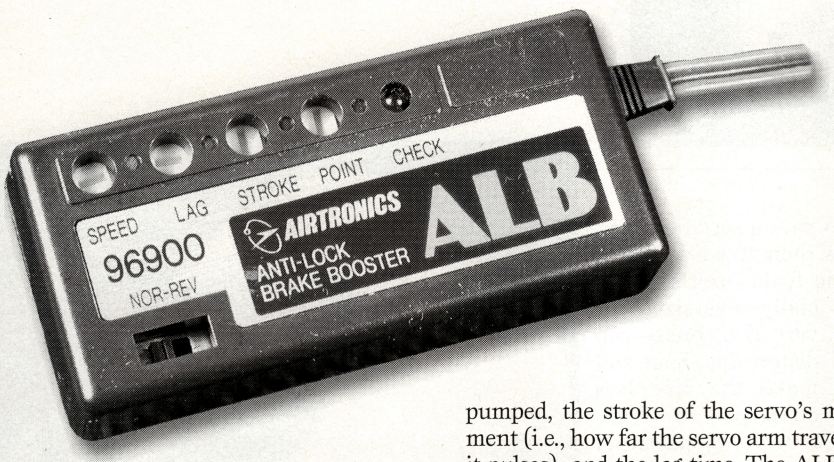
DON'T SUFFOCATE YOUR TIRES!

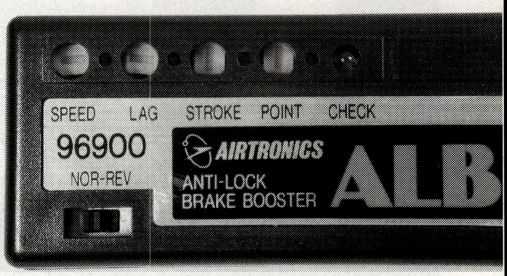
Assembled tires and wheels need to have vent holes in them to allow air to enter and escape as the tire is compressed (as when the car lands from jumps or goes over bumps). There are two schools of thought on tire venting: some people like to place vents in the wheels, while others prefer placing them in the tires. We recommend venting the wheels. Venting the tires can cause inconsistent handling, as it's possible for the vent hole, or holes, to be plugged whenever that portion of the tire is in contact with the ground. Wheel vents will never be covered. When drilling or cutting vent holes, don't make them too large or too small. One or two 1/8-inch holes are sufficient. ◆

Airtronics ALB (Anti-Lock Brakes) for your R/C

More than a novelty!

We know what you're thinking: anti-lock brakes? C'mon, how could that possibly work? In truth, Airtronics' ALB (Anti-Lock Brake booster) works just like the ABS in your full-size car.





These adjustment potentiometers allow you to adjust the ALB's speed, lag (a delay between the time you apply brakes and when the anti-lock kicks-in), the stroke (the distance the servo will travel as it is pulsed) and the point (the position of the brake channel where the ALB begins working).

In automobiles, ABS is used to make up for driver panic; the tendency of most people in an emergency situation is to jam their foot on the brake pedal as hard as they can. This locks up the wheels and results in complete loss of directional control. ABS intervenes by pulsing or "pumping" the brakes, no matter how hard the pedal is depressed. This pulsing prevents the wheels from locking and keeps the tires from losing grip. How does this apply to R/C cars? Although we're not too worried about locking up our wheels and careening off the roadway, R/C car racers can also benefit from ABS in the form of increased control and stability when entering turns.

HOW IT WORKS

The ALB is installed to the chassis and connected between the receiver and the throttle servo. The ALB senses when brakes are applied by monitoring the signal pulses from the receiver. When a "reverse" pulse is detected, the ALB knows that you are applying brakes and acts accordingly. The ALB "pumps" the servo just as ABS pumps the brakes in an automobile. With the ALB, you can set the parameters of the anti-lock process. You can set how fast the brakes are pumped, the stroke of the servo's movement (i.e., how far the servo arm travels as it pulses), and the lag time. The ALB can be set to have a slight delay between the time you activate the brakes and when the ALB begins pulsing them.

DOES IT WORK?

The answer to this question depends on the type of car in which the ALB is installed and how good a driver you are. Although the ALB can theoretically be installed in an electric car (between the receiver and ESC), it is really intended for use in nitro cars. For on-road use, the ALB's operation is nearly transparent; unless you're racing on very slick pavement, it's hard to tell that you've got ABS at all. Where we found the ALB to be most beneficial was with 4WD nitro sedans and 1/8-scale off-road buggies. Both of these vehicles use four-wheel braking, and when the brakes are grabbed hard (as when entering a tight turn following a fast straightaway), the front wheels often lock up and cause the car to push to the outside of the turn. When set correctly, the ALB controls wheel lockup and actually allows the car to steer a tighter radius through the turn. If you're a good driver, the ALB will let you enter turns at a higher speed without fear of severe understeer.

WORTH THE DOUGH?

Surprisingly, we found the ALB to be more than a novelty item. But is it worth the $69.95 asking price? If you're an expert nitro driver, the ALB can be an advantage in certain situations. When conditions don't merit its use, the ALB can be easily removed or simply disabled. And as a further selling point, the ALB features a reversing-switch for the throttle channel in case your radio doesn't, although we can't imagine anyone who would spend 70 bucks for the ALB yet not have a radio with servo-reversing. ◆

The ALB is installed between the radio receiver and the throttle servo. The ALB "intercepts" the command signal from the receiver and modifies it before sending it to the throttle servo.



SOURCES

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

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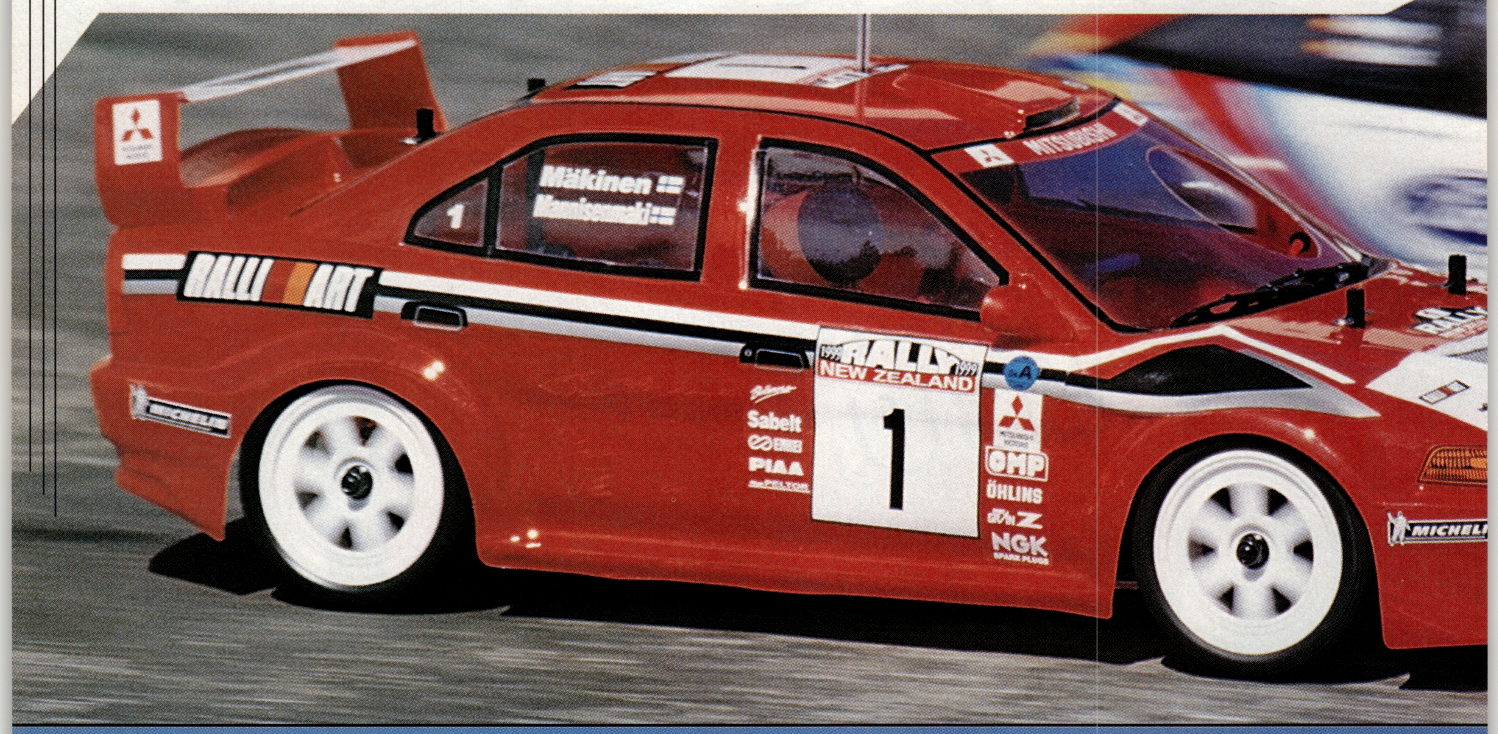
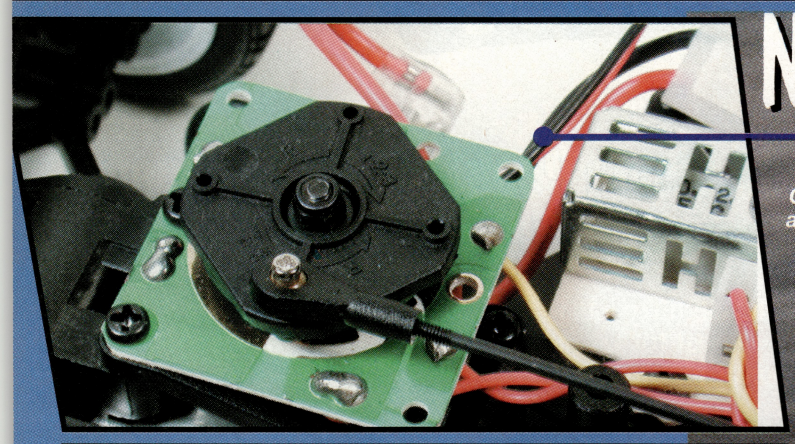
TEST DRIVE

CEN GX1 4WD

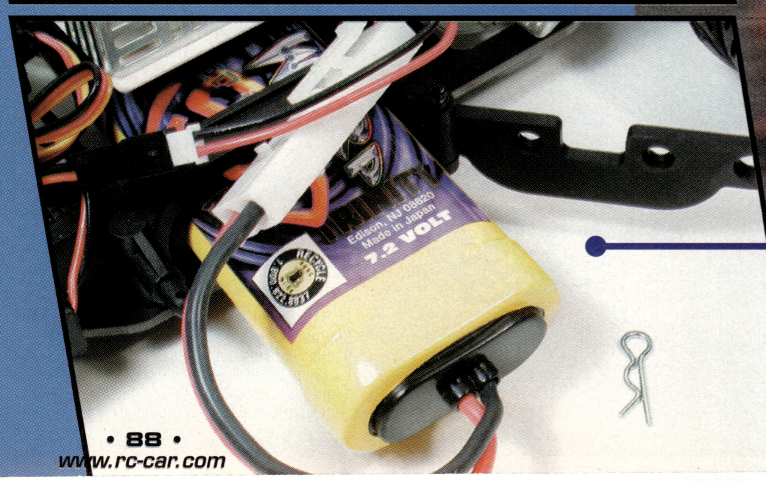
Admittedly, we tend to get caught up in the fervor of the newest and most sophisticated, the cutting edge and, yes, the expensive. We forget that not everyone is looking for top-of-the-line racing machines; that some people just want something that's easy to drive, fun, and most importantly, doesn't cost a lot of dough! If you are in the latter category and are looking for a reliable sedan or rally car that offers a good blend of performance and frugality, then the GX1 from CEN might be the answer.



NITRO OR ELECTRIC—



A three-speed mechanical speed control comes pre-installed in the electric GX1. Although not nearly as efficient as an ESC, the CEN unit does have reverse to help get the car out of trouble.

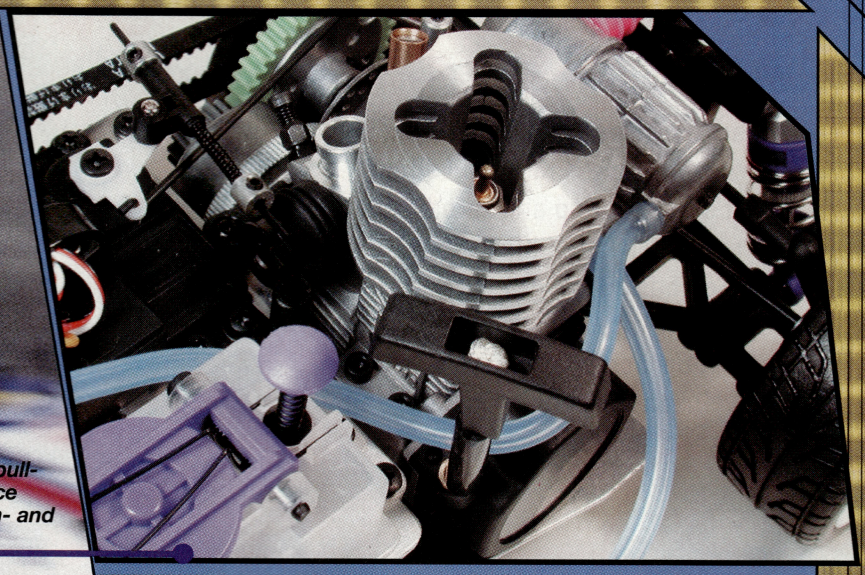


The electric GX1 uses standard six-cell stick packs for power. A nice detail is this hinged battery door that makes it a snap to make fast pack changes.

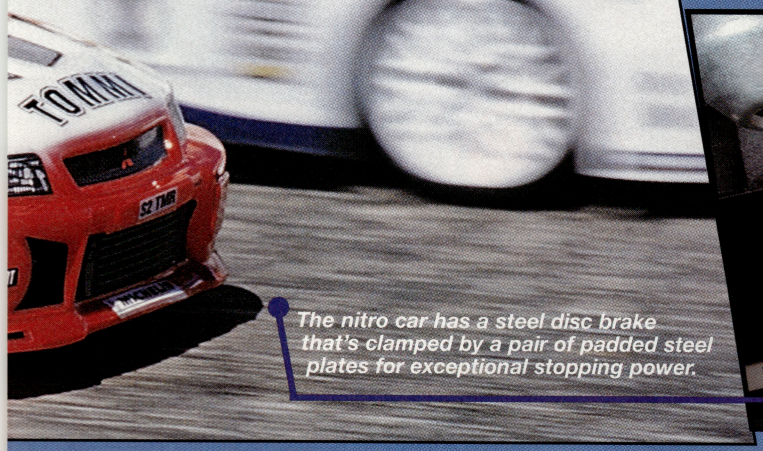
Things you'll need

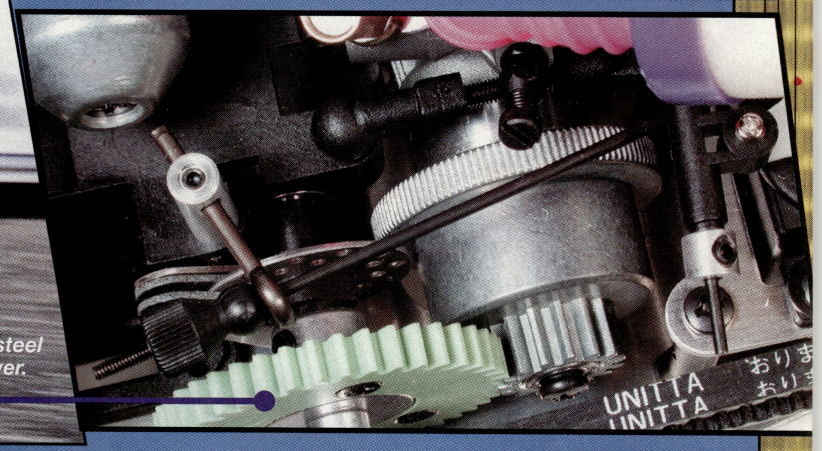
Nitro GX1
- Glow fuel and fuel bottle
- Glow-plug igniter
- 12 AA batteries
- CA glue for tires

Electric GX1
- 6-cell stick battery
- Battery charger
- 8 AA batteries
- CA glue for tires



CEN's NX-12 engine is a gem. A convenient pull-starter and large finned cylinder head are nice features, as is the carb, which has both high- and low-speed needles.





The nitro car has a steel disc brake that's clamped by a pair of padded steel plates for exceptional stopping power.

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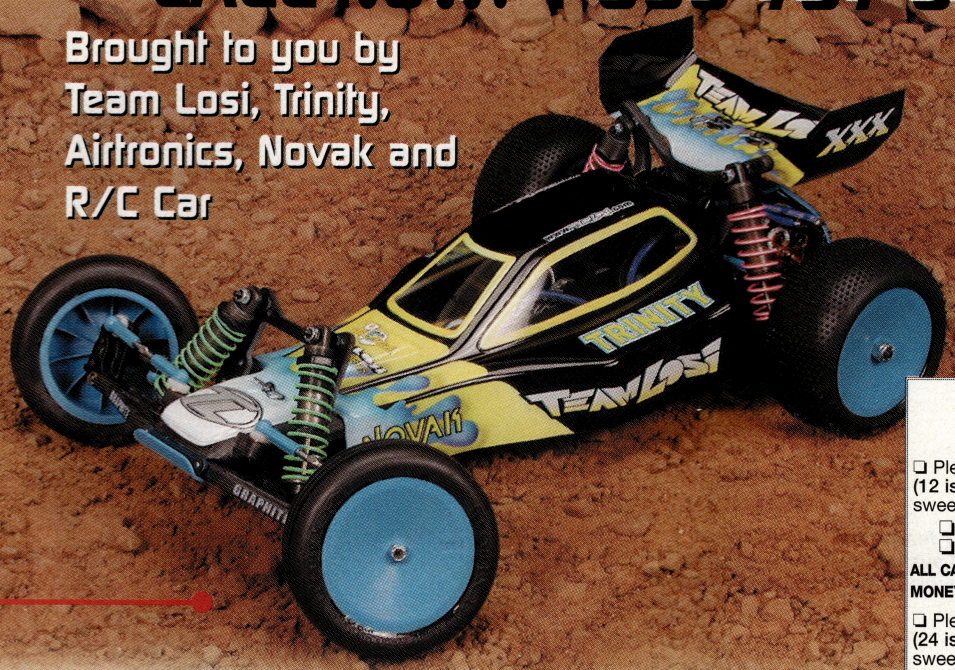

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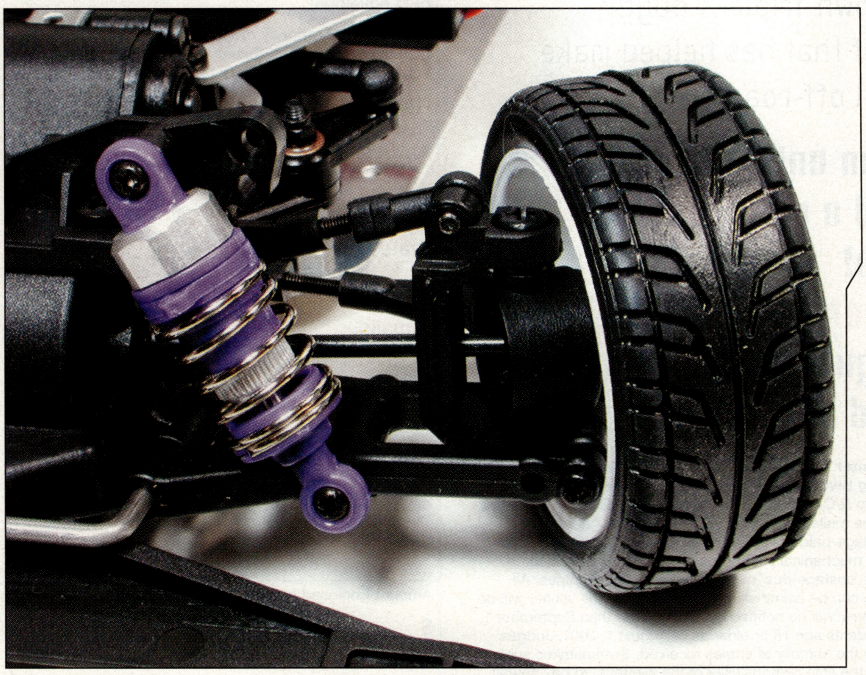
RCLOS

CEN GX1 4WD

The nitro version of the GX1 features a wider 200mm width and a triple-belt 4WD system (common for nitro sedans). The nitro car's chassis is made from aluminum for better heat dissipation.



At first we thought the GX1s have oil-less friction shocks, but we discovered that they are actually intended to be filled with silicone shock oil (supplied).

SOURCES

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

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

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

Specifications

Type	4WD nitro/electric-powered touring cars
Scale	1:10
Price	$219.99 (EP); $299.99 (GP)
Length	14.3in/364mm
Width	7.7in/196mm (nitro); 7.3in/186mm (electric)
Wheelbase	10.2in/260mm
Weight (RTR)	3 lbs, 6 oz.
Transmission	
Type	belt/gear-driven full-time 4WD
Differentials	four-gear bevel (F/R)
One-way	no
Driveshafts	steel dogbones/steel axles
Bearings	bronze bushings/ball bearings
Suspension	
Type	independent lower H-arm w/adjustable upper link
Material	molded nylon
Front end	
Caster	non adjustable
Camber	adjustable
Toe	adjustable
Down-travel	non adjustable
Rear end	
Anti-squat	non-adjustable
Camber	adjustable
Toe	non adjustable
Down-travel	non adjustable
Shocks	plastic oil-filled dampers
Springs	firm silver
Wheels	6-spoke white nylon
Tires	treaded radial
Inserts	open-cell foam donut (soft)
Body	Ford Focus WRC (electric); Mitsubishi Lancer Evo VI (nitro)
Nitro GX1	
Engine	CEN NX-12 pull-start
Exhaust	airplane-style muffler
Clutch	two-shoe w/spring
Electric GX1	
Motor	RS-540
Speed Control	3-step fwd. w/reverse
Battery	not included

The GX1 is a 1/10-scale 4WD sedan platform which CEN offers in either nitro or electric variants. There are actually three "levels" of GX1—Sport, Team and Super—available. We opted to test one of the lowest-cost versions, the Sport, as they represent the true entry level of the hobby.

CEN touts both nitro and electric GX1s as rally cars, but despite their exquisitely painted and finished rally bodies (the electric comes with a Ford Focus WRC and the nitro a Mitsubishi Lancer VI), we recommend a healthy diet of pavement, as this is the surface that's most compatible with the GX1's suspension and tires. Should the GX1 accidentally venture off-pavement, its drive train appears rugged enough to resist damage from minor debris.

We also should mention that the GX1s come as RTRs (ready-to-runs), and as such, can be run literally in minutes once you open the box. The chassis comes pre-assembled with all radio gear and electronics installed. In the nitro version, the engine is in position and all the carb linkage and fuel-line is in its place. The electric version's motor is likewise pre-installed, and even the pinion gear's mesh is pre-set.

FEATURES

■ **Chassis**—This is one area where the nitro and electric versions differ. The nitro GX1 has a 1.5mm-thick aluminum chassis which serves to pull heat away from the engine. The chassis is rather thin, but when combined with an upper deck made from the same material, the overall structure is pretty stiff. The electric GX1 uses a nicely machined piece of fiberglass for its chassis. And what's more, the underside features countersunk screws to give the car a smooth belly that won't drag. The nitro car's chassis uses button-head screws which protrude about 1mm. The electric car's chassis is also stiffened by a fiberglass upper deck that allows a degree of sideways flex, but keeps the chassis very rigid fore and aft.

■ **Drivetrain**—Both cars use belt-driven 4WD systems to transfer power equally to all four tires. However, the GX1 uses a rather interesting combination of belts and gears to get the job done. Both ends of the cars have molded gearboxes which encase two gears and a large, bevel-gear differential. The 'boxes are actually similar to those found in modern off-roaders. Belts are used to send the engine or motor's power to the gearboxes. The nitro GX1 uses a pair of belts in order to clear the engine. The electric GX1 has just one belt that connects the two gearboxes; the main drive gears of both cars are attached directly to the rear gearbox's input shaft—it's actually a pretty efficient idea!

Although the majority of the drive train's moving parts are supported by bronze bushings, the gearboxes' input shafts, as well as the nitro car's middle layshaft, are supported by ball-bearings to ensure longer life and fewer belt problems down the road.

■ **Suspension**—Both versions of the GX1 use identical four-wheel independent suspension systems. The exception here is that the electric version is built using the narrow 190mm suspension, while the nitro version's suspension is the "industry standard" 200mm. This is possible because the suspension arms each have two sets of holes in which the hubs and uprights can be installed. The outer holes provide the wider

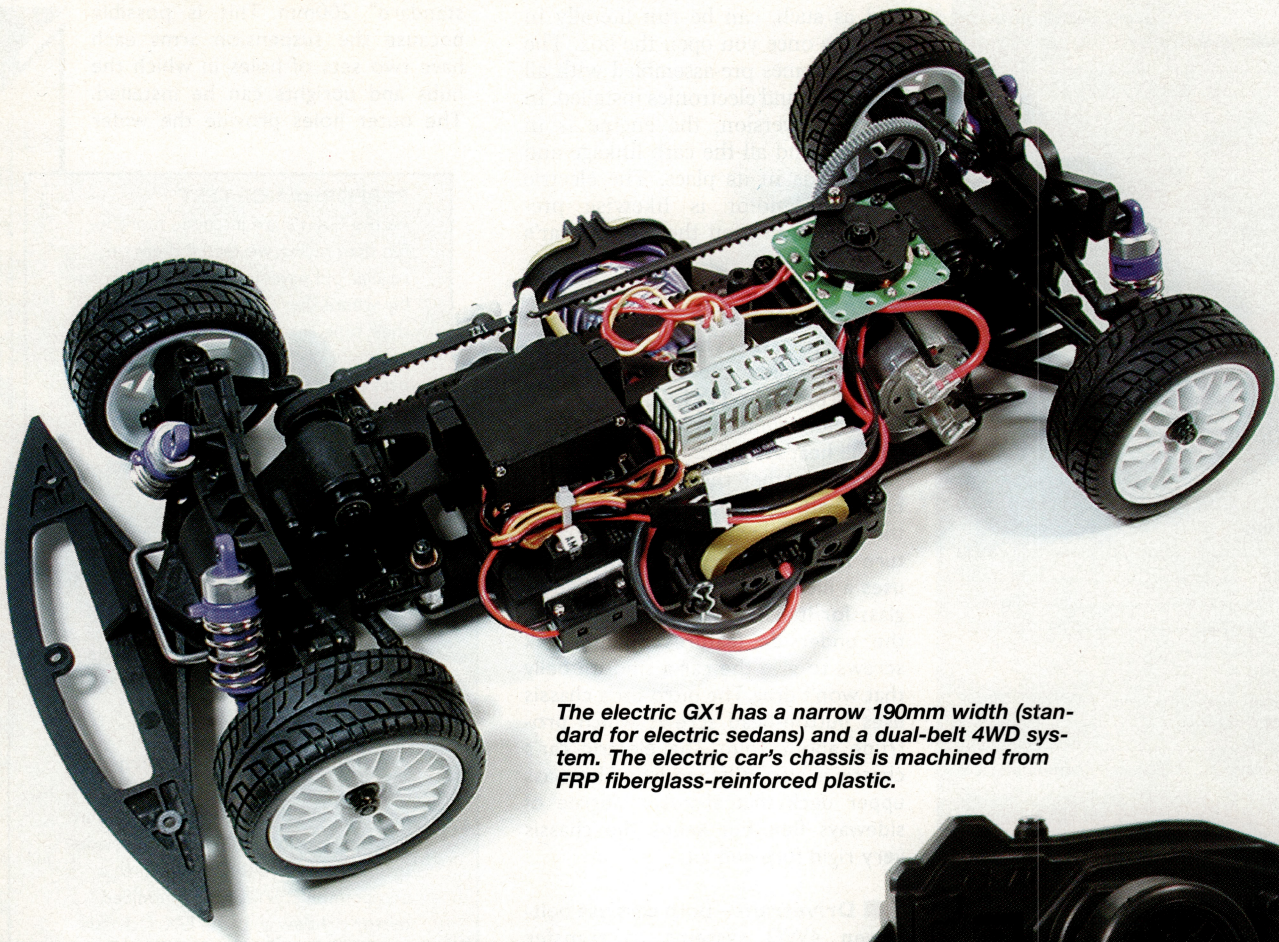
PERFORMANCE TEST

As the GX-1's are intended more for fun than racing, we tested them on regular old pavement—which is probably where they'll be spending most of their time anyway. Despite their detailed rally bodies, the GX1's are best suited for pavement only. You could probably add longer shocks and some treaded tires to partake in very light off-highway use, as the car's drivetrains are quite durable.

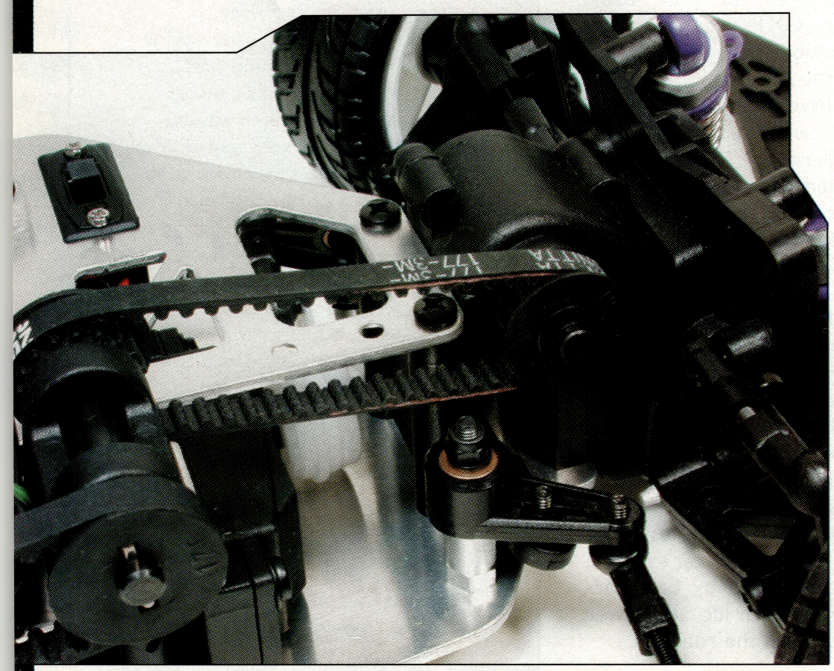
Speed—If you're after top speed, go for the nitro GX1. If you're a little put off by the thought of engine tuning, then the electric car is for you (it's genuinely plug-and-play). The nitro GX1's NX-12 engine is a pleasant surprise in the sport market; it's got a really nice two-needle carb that allowed us to tailor bottom-end response for quicker acceleration without affecting the top-end's fuel mixture. The electric car is powered by an RS540 sealed-endbell motor that's adequate at best. We would switch to a competition stock or mild modified motor right away, as the GX-1 chassis is capable of handling much more horsepower than is provided.

Handling—What a difference oil shocks make! We tried both cars before and after filling their shocks with oil, and the difference was dramatic. Both cars are very easy to drive, making them perfect for novice drivers. Steering is precise and equal in both directions, indicating good chassis balance. The nitro car's brakes are strong and bring the car to a nice straight stop from any speed. The electric GX1 was, quite frankly, a bit slow for us to accurately gauge its true handling, although our prediction is that it should be stable and easy to drive with more power.

Ready-to-run-ness—The GX1s are among the most complete RTRs available. All that's needed to run them is to install AA batteries (not included), glue the tires and mount the bodies. The bodies are pre-trimmed, but you must drill holes for the body mounting posts (dimples in the bodies guide this step). As we mentioned in the text, the bodies are beautifully decaled, however we noticed that many of the decals were coming loose, perhaps CEN should consider a different material or one with a stronger adhesive.



The electric GX1 has a narrow 190mm width (standard for electric sedans) and a dual-belt 4WD system. The electric car's chassis is machined from FRP fiberglass-reinforced plastic.



Both versions have sealed, three-gear transmissions at both ends. Inside each tranny is a bevel-gear differential.



Both cars come fully assembled and ready-to-run from the factory. CEN includes its Mirage two channel radio, which has such features as servo-reversing, a dual-rate adjustment for the steering channel, and a three-color LED to indicate battery status. We liked everything about the radio except the "notchy" feel of the steering wheel, which took some getting used to.

suspension; all that's needed to convert the cars from wide to narrow are different-length driveshafts (although the ends of the front arms must be cut to provide wheel clearance when the narrow setting is used).

When we first opened the GX1s' box, we were disappointed at the shocks, which at first appeared to be nothing more than friction dampers. But on closer inspection, we realized that the shocks are actually good quality oil dampers, complete with aluminum caps and seal retainers—to prevent the shocks from leaking during transit, CEN provides the shock fluid in a separate container (along with several optional shock pistons).

■ **Powerplants**—The nitro GX1 comes with CEN's NX-12 pull-start engine. We were pleasantly surprised to find that its rotary carb includes both high-speed and low-speed needles. Most sport engines omit the low-speed needle to simplify tuning; however, this prohibits the engine from reaching its fullest potential. The low-speed needle allows you to increase throttle response and tune the engine to a finer degree.

The electric GX1 is powered by a sealed-endbell RS-540 motor—your standard sport-level setup. A three-step forward and reverse mechanical speed control is used to dole out battery power; however, we recommend an upgrade to an ESC (electronic speed control) as soon as your budget allows.

Hits

- Fantastically finished rally car bodies come with such details as wipers and side mirrors.
- Rugged and simple chassis design with durable 4WD drive train.
- Nitro GX1's NX-12 engine has a two-needle carb for greater tuning capability.

Misses

- RC-540 motor underpowers the electric GX1
- Restrictive muffler cuts into the nitro car's performance
- Vinyl-like stock tires provide marginal traction ◆



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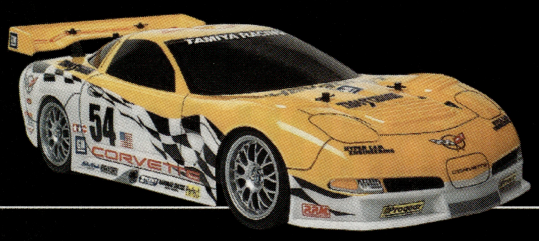

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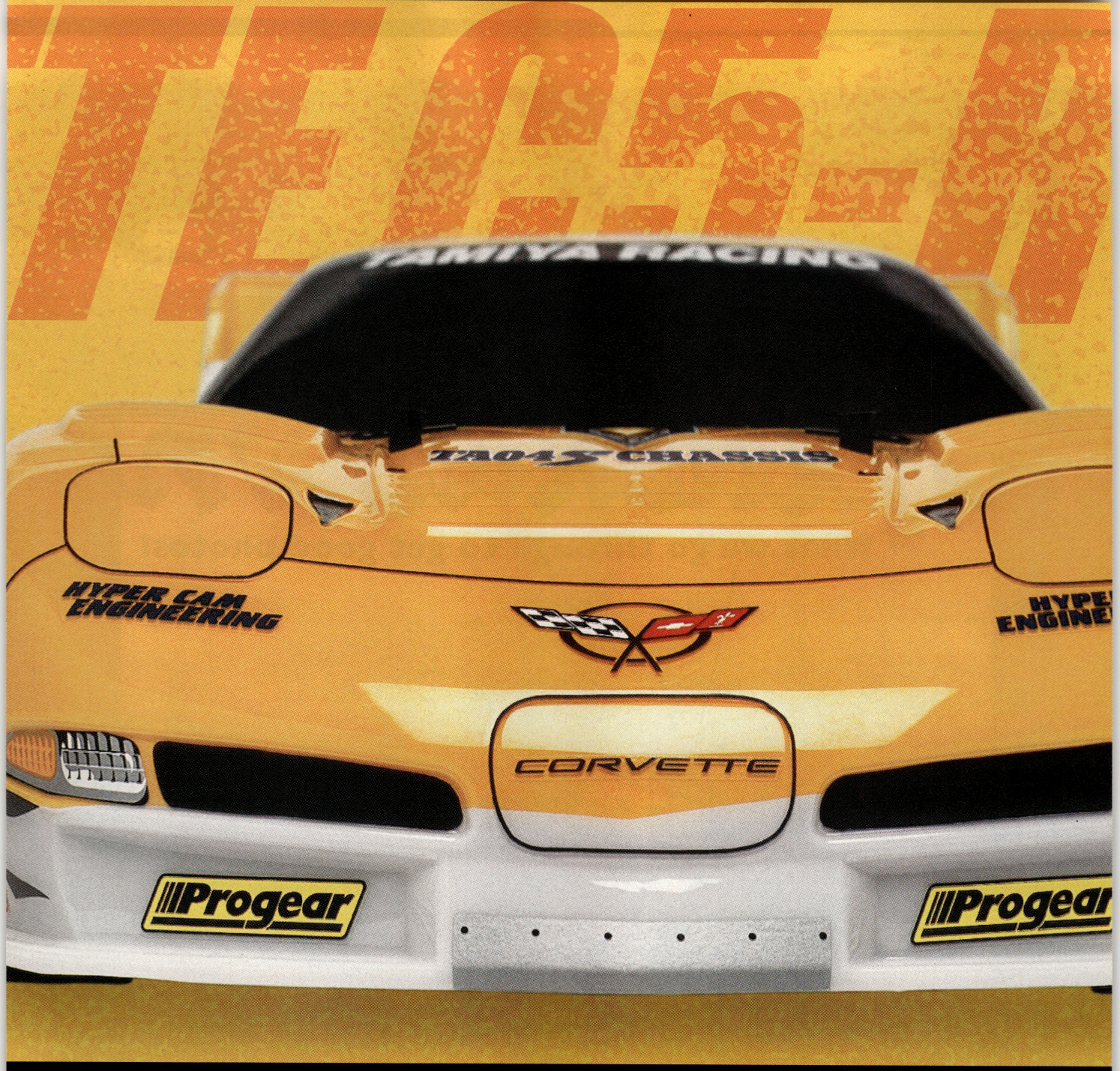

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Splashdown!

What we go through to get good photos!

Hardcore Racing's big-block T-Maxx tries to conquer the elements! We tried two different approaches: the first was to slow down, then pin the throttle just as the truck entered the water. Our idea was to carry the front end high and "skim" the water. It didn't work. Our second theory was to hit the stream at full-speed. As you can see from this sequence, the results were slightly less than successful!



What does it take to get that "killer" action shot? In this case, it takes a 8-inch deep stream of water, an insanely powerful T-Maxx, two editors and one company owner who doesn't yet realize that water and R/C don't mix.

R/C Car's publisher is also the man behind such magazines as *Dirt Bike* and *Motocross Action*. He is used to seeing photos of bikes crossing streams or plowing through deep mud, but he doesn't quite understand that R/C models aren't quite as weatherproof. Last month, our publisher handed us a photo of a motocross bike doing a wheelie through a stream and said "Can't you guys do something like this?"

Never ones to disagree with the person who signs our checks, we enlisted the cooperation of Aaron Harris of Hardcore Racing. Aaron had just completed his company's big-block conversion kit for the Traxxas T-Maxx (featured elsewhere in this issue), and was on hand during our photoshoot. Coincidentally (if you believe us. Aaron did!), the large dirt construction area we had chosen for the day's shoot also happened to incorporate a small stream.

After the traditional dirt shots had been completed, we began to go to work on Aaron.

"I'll bet your truck could cross that stream over there." I said.

"No way," answered Doog, "I say it won't make it past three feet."

Surprisingly, it only took about another minute of taunting to convince Aaron that ruining his $1800 T-Maxx would be a good idea. And how did the truck fare? It never actually made it across the stream, so Doogie was right. During each attempt, water would splash up and saturate the air filter, choking out the engine. Were it not for this (and had we been better prepared), the T-Maxx surely would have triumphed over nature! Thanks Aaron, for being such a good sport.







Aaron from Hardcore Racing retrieves his T-Maxx. To everyone's surprise, the only casualty was the throttle servo; the steering servo and engine still worked!



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R/C Hi-Tech Raceway, 3303 Meridian St., Huntsville, AL 35811 (205) 539-1347

R/C Thunder, 1530 Schillinger Rd., Mobile, AL 36675, (334) 645-2787

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Fairbanks R/C Club, 510 Juneau Ave., Fairbanks, AK 99701 (907) 456-5494

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Hobbytown Mountain Raceway, 1500 E. Cedar Ave., Cedar Hills Shopping Center, Flagstaff, AZ 86004, (520) 214-9887

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Hobbytown Raceway, 1915 East Baseline Rd., Gilbert, AZ 95234, (602) 892-0405

Hobbytown Raceway, 1102 E. 22nd St., Tucson, AZ 85704, (520) 882-8888

Hobbytown USA, 5030 E Ray Rd., Phoenix, AZ 85044, Linda McFarland, (602) 598-5282

Kiwanis Park R/C Track, 855 S. Magnolia Ave., Yuma AZ 85364, (520) 539-7148

Scottsdale R/C Raceway, 3023 N. Scottsdale, Scottsdale, AZ 85251 (602) 945-2186

Speedway Hobbies, 2710 N. Steve's Blvd., Ste. 8 Flagstaff, AZ 86004 (520) 714-1566

ARKANSAS

Alison Offroad RC Raceway, 6320 Thibault Rd., Little Rock AR 72206 (501) 490-1227

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Airport Speedway, 1521 Airport Loop, Rogers, AR 72756, (501) 636-7123

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

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

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

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

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Castle Hobbies, 14918 Camden Ave., San Jose, CA 95124, (408) 377-3771

Hobby Central Raceway, 34255 PCH, Unit #107, Dana Point, CA 92629, (619) 513-0373

Hobby Central II, 13461 Community Rd., Poway, CA 92064 (619) 513-0373

Hobbytown, Parktwon Plaza Shopping Center, 1350 S. Park Victoria Dr. #21, Milpitas, CA 95035 (408) 945-6524

Hot Rod Hobbies, 25845 San Fernando Rd., Saugus, CA 91350, (661) 255-2404

Jake's Performance Hobbies, 6650 Commerce Blvd., #21 Rohnert Park, CA 94928, (707) 586-3375

Lucerme Valley Raceway, 32800 Old Woman Springs Rd., #4, Lucerne Valley, CA 92356 (760) 248-7305

MnM Hobbies, 4225 Prado Rd., Ste. 103 Corona, CA 91720, (909) 272-3545

Nor-Cal Speedway, 519 Bush St., Woodland, CA 95695 (530) 668-5678

ProCar West, Sante Fe Springs, CA m2rcracing

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

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

Racer's Haven, 7401 White Ln. #12 Bakersfield, CA 93309, (805) 835-0441

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

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

Showtime Speedway, 3709 Abbot DR., Bakersfield, CA 93312, (805) 5890493

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

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

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

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

COLORADO

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

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

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

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

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

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

DELAWARE

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

FLORIDA

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

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

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

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

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

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

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

Frontier Race Track, 15260 N.E. 244th Ave., Salt Springs, FL 32134, (352) 685-2881

Hobbyworld Raceway, 7273 103rd St., Jacksonville, FL 32210, (904) 722-9022

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

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NORRA, 3300 Santa Barbara Blvd., Naples, FL 34104, (941) 324-9021

Ocala R/C Car Club, 2610 SE 8th St., Ocala, FL 34470, (800) 324-8882

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

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

Port St. Lucia Racing, 3626 SW Rlvera St., Port St., Lucie, FL 34953 (561) 336-8711

Randy's RC Raceway, 7744 Glenwood St., Clermont, FL 34711, (352) 242-0557

River City R/C Club, 9711 Sharing Cros Dr., Jacksonville, FL 32257, (904) 268-1948

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

Speedworld-RC, 600 S. Yonge St., Ste. 107, Ormond Beach, FL 32174, (904) 271-6240

Tampa Bay RC Club, PO Box 10224, St. Petersburg, FL 33733, (813) 526-0744

Tropical Racers, Tropical Park, Palmeto Expressway & SW 40 St., (Bird Road), Miami, FL

GEORGIA

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

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

Emerald City R/C Speed, Hwy. 80 East, Dublin, GA 31027, (912) 272-3856

Hobbytown Raceway, 2301 Airport Thruway, Columbus, GA 31904, (706) 660-1793

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

Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286

Sandy Cross Speedway, Rt. 1 Box 1071, Hwy. 51, Royston, GA 30662, (706) 245-9573

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

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

HAWAII

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

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

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

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Adams R/C Raceway, 7201 S. Adams, Bartonville, IL 61607, (309) 633-9300

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

CIRCR/Precisoin RC Hobbies, 1917 2nd St. Pekin, IL 61554 1-309-347-0975

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

H&H Raceway, 9346 Virginia Rd., Lake in the Hills, IL 60102, (847) 458-1777

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

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

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

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

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

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

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

Shiloh Eagles Speedway, 308 N. Virginia AVe., Belleville, IL 62220, (618) 277-6030

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

Sport 'N' Hobby, 905 Bibbs, Jacksonville, IL 62650, (217) 254-1375

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

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

INDIANA

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

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

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

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

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

P&T Hobbies & Raceway, RR2 (Hwy. 60), Mitchell, IN 47446, (812) 849 6666

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

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

IOWA

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

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

Manly R/C Club, Box 23, Manly, IA 50456 (515) 454-2025

Outback Speedway, 403 State St., Gutherie Center, IA 50115, (515) 747-3064

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

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

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Hobbytown USA, 2016 W. 23rd, Lawrence, KS 66046; Kevin Decembes, (785) 865-0883

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

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

RCRC Raceway, 507 N. 4th Atwood, KS 67730, (795) 626-3261

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

Indy Speedway & Hobby, 3753 General DeGaulle Dr., New Orleans, LA 70131 (504) 367-1891

Pontchartrain Hobby Shop, 3755 Pontchartrain Dr., Slidell, LA 70458, (504) 649-1199

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

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

MARYLAND

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

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

Hobby Town USA, 8223-11 Elliot Rd., Easton, MD 21601, (410) 820-9308

JR's Race Place, 2935 Crain Hwy., Waldorf, MD 20601, (410) 947-2766

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

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

Hi-Tech Hobbies, 1681 Broadway (Rt. 138) Raynham, MA 02767, (508) 880-5373

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

MICHIGAN

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

House of Hobbies, 2863 West Shore Dr., Holland, MI 49424, (616) 786-3686

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

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

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

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

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

Ovaitt's R/C Speedshop, Cherryland Mall, 1732 S. Garfield Ave., Traverse City, MI 49686, (616) 947-6670

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

Rodgers R/C Raceway, 7463 Ridge Rd., Britton, MI 49223, (517) 451-8301

Village R/C Raceway, Praire Ronde St., Decateur, MI 49045, (616) 423-7878

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

MINNESOTA

Car Town USA, 2822 Peidmont Ave., Duluth, MN 55811, (218) 727-6248

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

Fun City, 9100 Park Ave., Elk River, MN 55330, (612) 441-8365

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

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

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

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

MISSISSIPPI

Joe McFaden Hobbies, 5531 Fox Meadow Dr., Meridian, MS 39307 (601) 483-7000

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

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

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

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

NEBRASKA

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

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

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Charlie's Hobby Shop, 225 E. Idaho, Ste. # 11Las Cruces, NM 88005, (505) 541-1097

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

NEW JERSEY

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

RHODE ISLAND

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

SOUTH CAROLINA

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

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

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

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J&M R/C Hobbies, 5341 Dorchester Rd., Evanston Plaza, N. Charleston, SC 29418; Mike Smith (843) 552-9449

Midway Hobby and Raceway, 707 Sulphur Springs Rd., Greenville, SC 29611; Allen A. Dodson, (864) 246-6335

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

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

SOUTH DAKOTA

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

TENNESSEE

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

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

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

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

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

TEXAS

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

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

Comanche Trail RC Park, City Park, Big Spring, TX 79720; Allen Nichols (915) 263-4241

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

Drycreek Raceway, 5903 Co. Rd. 2297, Quinlan, TX 75474; Micky Alphin (903) 883-4060

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

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

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

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

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VIRGINIA

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

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

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

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

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

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

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

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

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

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

Spokane Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212; Dave Mapston (509) 534-RACE

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

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

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

WEST VIRGINIA

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

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

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

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

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

WISCONSIN

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

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

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

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

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

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

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

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

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

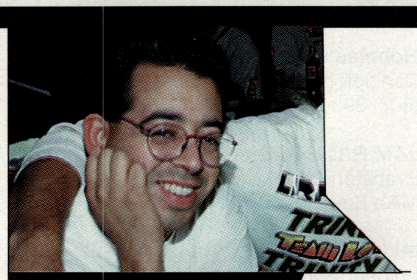
S&N's Trackside Hobbies and Raceway, 6405 N. Green Bay Ave., Milwaukee, WI 53209; Scott Ernst, (414) 351-1910

WYOMING

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

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

Losi's first car



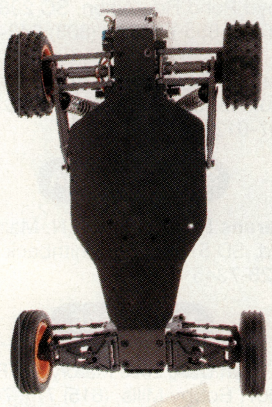
BY RICHARD TRUJILLO

In 1988, R/C car racing was revolutionized with the release of the Team Losi JR-X2. After helping Team Associated race and design the RC10 buggy, Gil Losi Jr decided to design his own buggy. This car was quite a bit different from the RC10, which at the time was really the only "competitive" car on the market.

Here is a list of some features that Gil Jr designed for the JRX2:

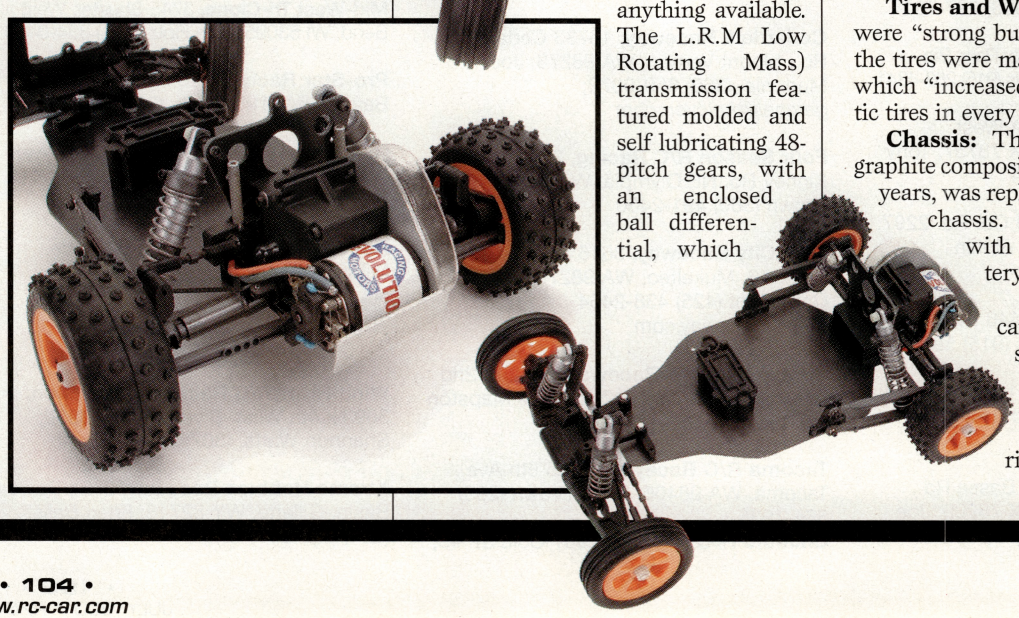


Suspension: The JRX2 came with a five-link rear suspension. Most cars at that time had an A-arm type suspension and some aftermarket companies offered a trailing-arm suspension as a conversion for A-arm type cars. The advantages to the Losi five-link suspension were that when running on a choppy track, the rising arc helped smooth the ruts out like the trailing arm type suspension while still maintaining maximum travel like the A-arm type suspension. Back then most tracks were choppy and rough, unlike the blue groove tracks we have now....ahhhh, the good old days of loose tracks.





Transmission: The JR-X2 transmission was quite a bit different from anything available. The L.R.M Low Rotating Mass) transmission featured molded and self lubricating 48-pitch gears, with an enclosed ball differential, which was adjustable from the outside without having to remove any screws. The JRX-2 also came with sliders instead of the standard dogbone type axles. These sliders were supposed to increase traction and be more efficient than dogbones.



Tires and Wheels: The JRX2 wheels were "strong but extremely light" while the tires were made of "natural" rubber, which "increased performance over plastic tires in every aspect of racing."

Chassis: The JR-X2 came with a graphite composite chassis which, in later years, was replaced with a molded type chassis. The JR-X2 even came with a "hinged, locking battery box."

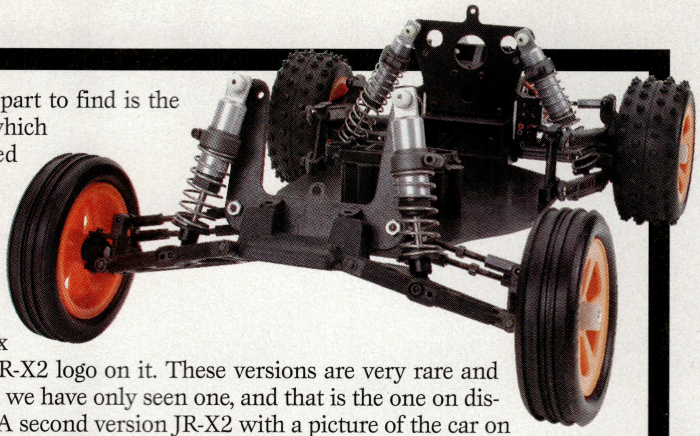
Shocks: The JR-X2 came with sonic welded shock cartridges which had a "pressure chamber" that included an internal spring and O-ring. It also came with

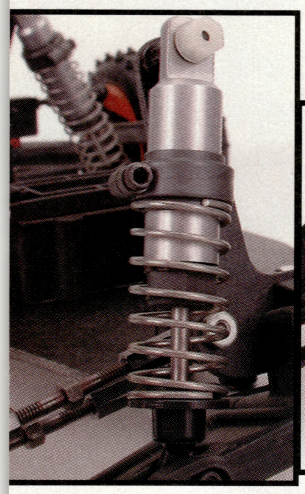
"Stainless steel shock springs" unlike the competitor's music wire springs.

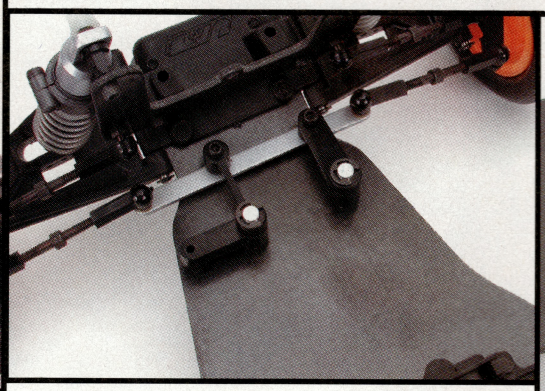
Family Tree

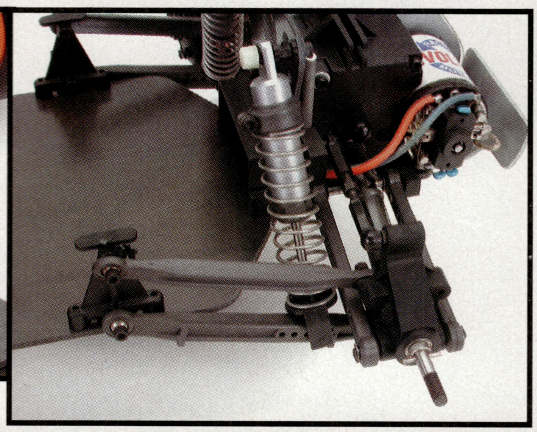
Throughout the years Team Losi released several models of the JR-X2 which included the JR-X2 Pro, Junior 2, and JR-X2 Pro SE (first molded chassis). The JR-X2 was also the platform for the first "Racing Monster Truck" JR-XT.

Most parts are still available for all the models of the JR-X2, with some exceptions. The hardest part to find is the graphite chassis, which was discontinued many years ago. When Team Losi released the JR-X2 for the first time, it came out in a "limited" production run box that only had the JR-X2 logo on it. These versions are very rare and hard to find; in fact we have only seen one, and that is the one on display at Team Losi. A second version JR-X2 with a picture of the car on it, MIB (mint in the box) sold for over $350 dollars on eBay. We have seen used JR-X2's sell on eBay for around $75. With most of the parts still available, and fairly easy to find, this could be a good car to start your vintage collection with. ◆









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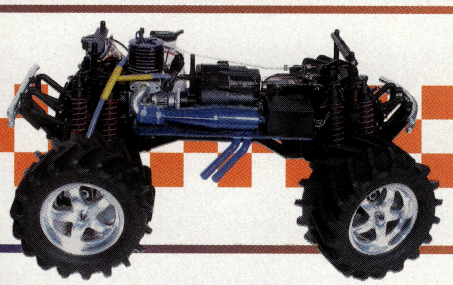



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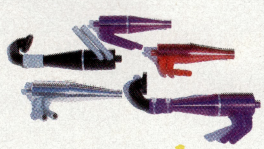

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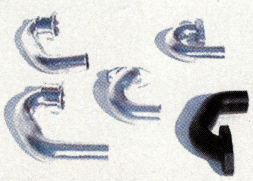

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Superiority complex.



XXX-S Sedan

It's engineered with a sexy single-belt drivetrain, ex-S-ively innovative and efficient, with a custom-designed aramid corded belt for minimum friction, maximum durability. And it's the only completely sealed drivetrain out there, we might add.

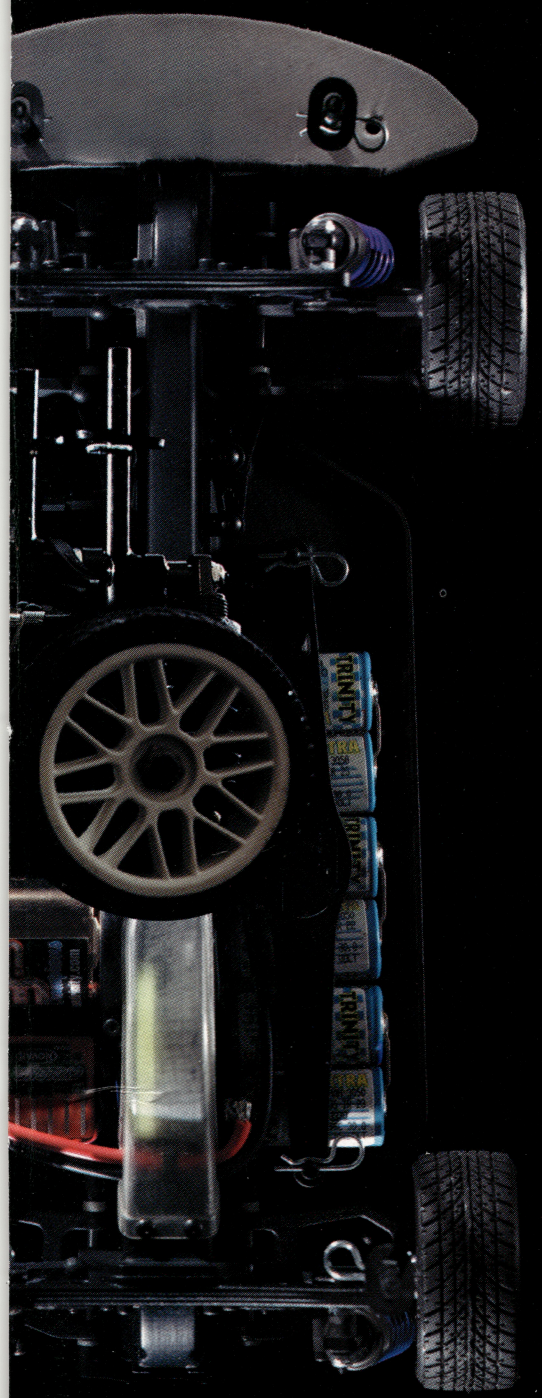
It laughs at danger with its monocoque chassis design– a rigid platform with totally interlocked stressed-members for reliability.

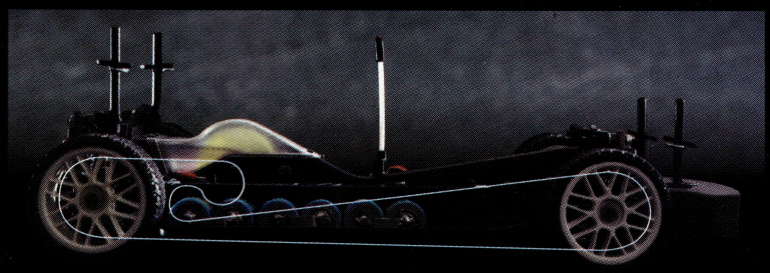
It boasts an easy-access spur gear for convenient gear changes from a wide selection of ratios, gloats over its adjustable and removable belt-tensioner arm for easy diff changes, and flaunts a list of impressive features as long as your arm.

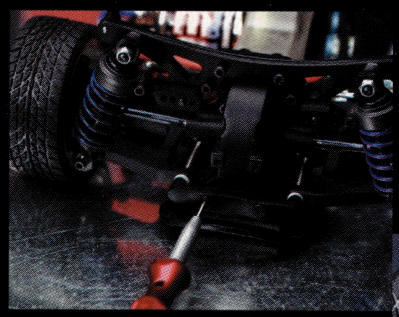
Oh yes, this baby is quite a show off.

Well, why not? It comes from a long line of exceptional racers. The brainchild of a legend, it was born to win.

And winning is good.

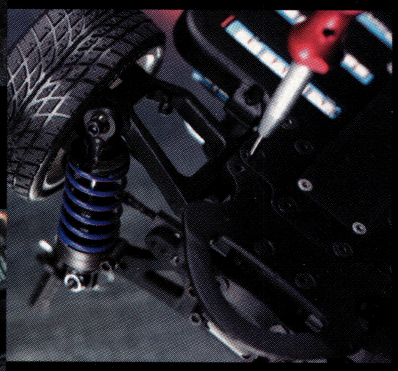




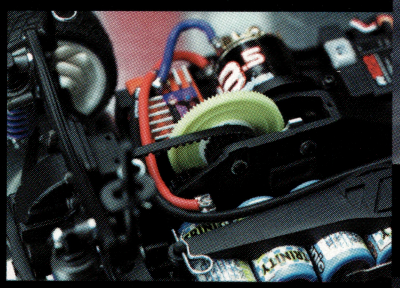


Excusive single-belt drivetrain with large diameter diff pulleys and rugged, custom-designed aramid corded belt.

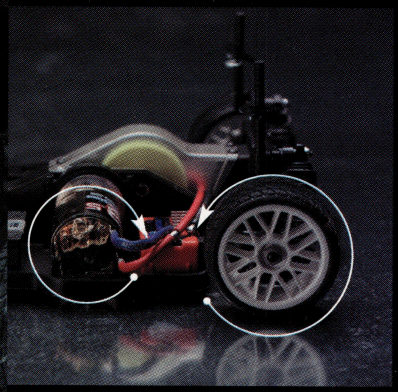
Adjustable front and rear anti-squat/pin angles.



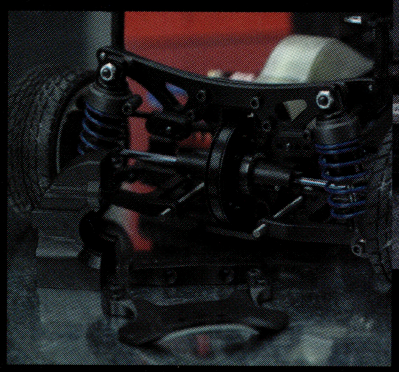
Down stop limiters on all suspension arms for precise ride height and suspension travel.



Easy-access spur gear for convenient gear changes.



Transverse motor position eliminates torque-steer for the most predictable handling & performance.



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Team Losi

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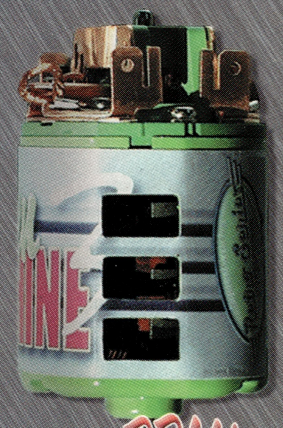

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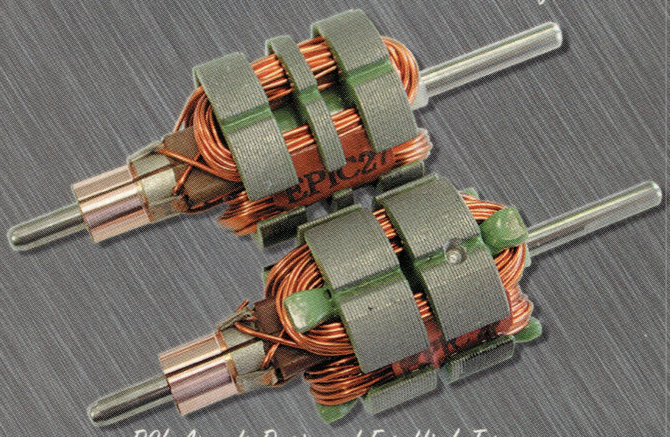

P2k Arm Is Designed For High Torque
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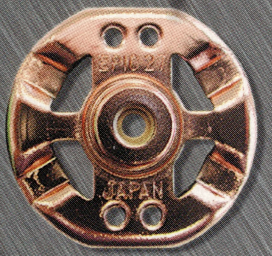
Hi-Torque!





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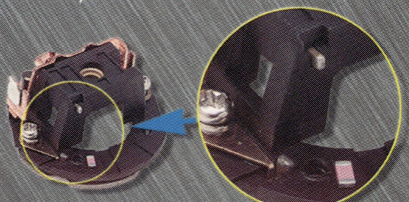



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