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THE RADIO CONTROL CAR MAGAZINE



JUNE 2001

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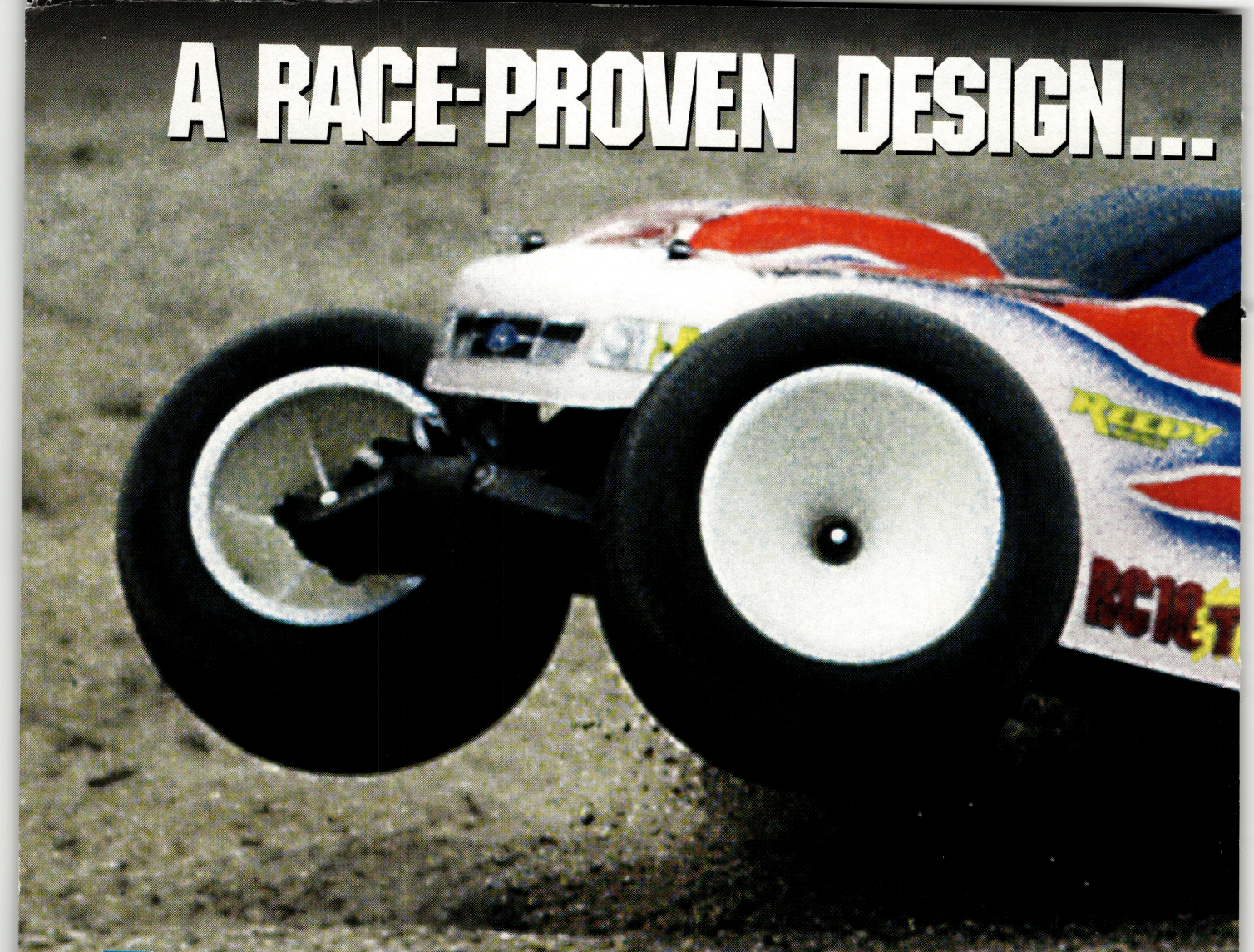
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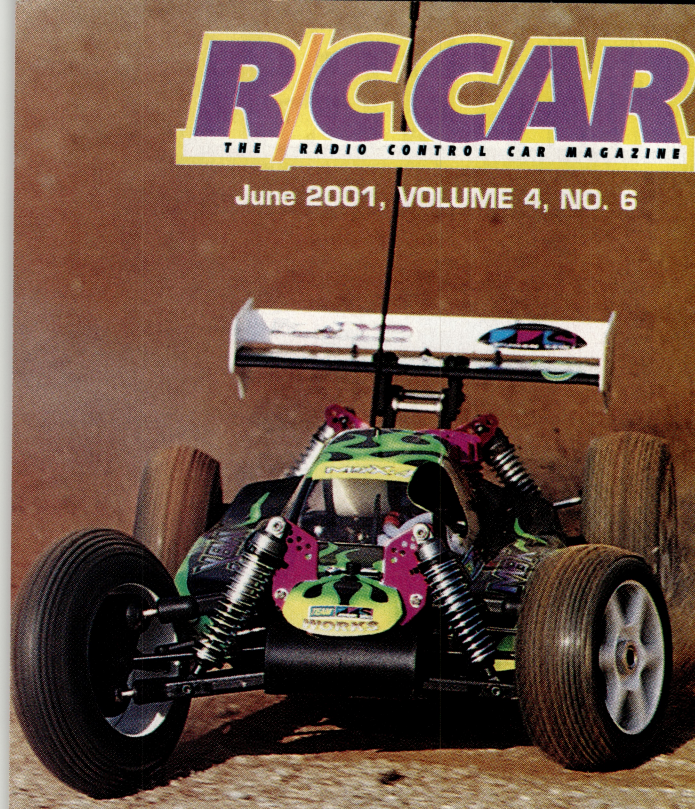


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R/C CAR
THE RADIO CONTROL CAR MAGAZINE
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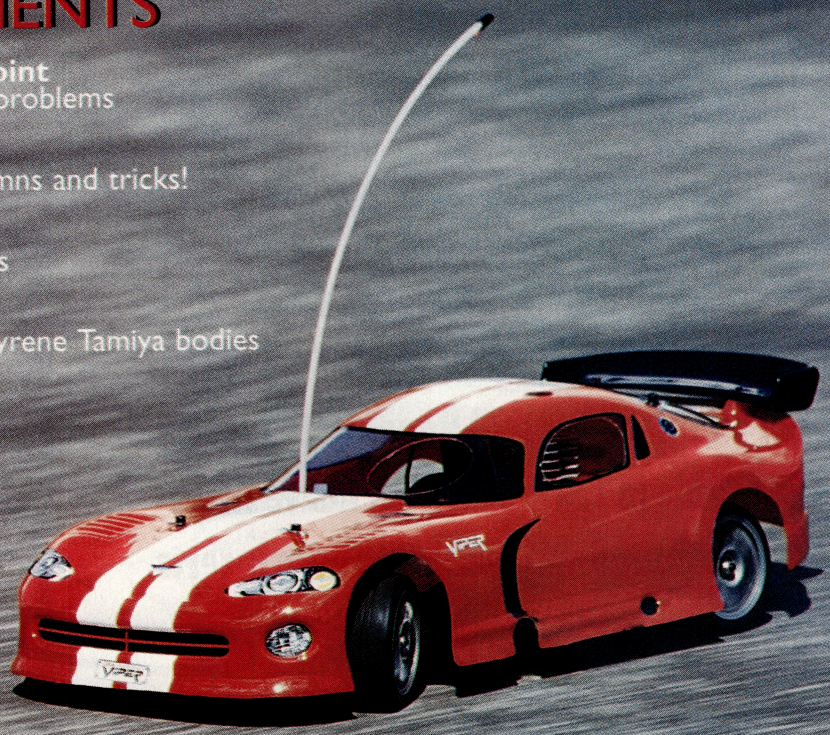
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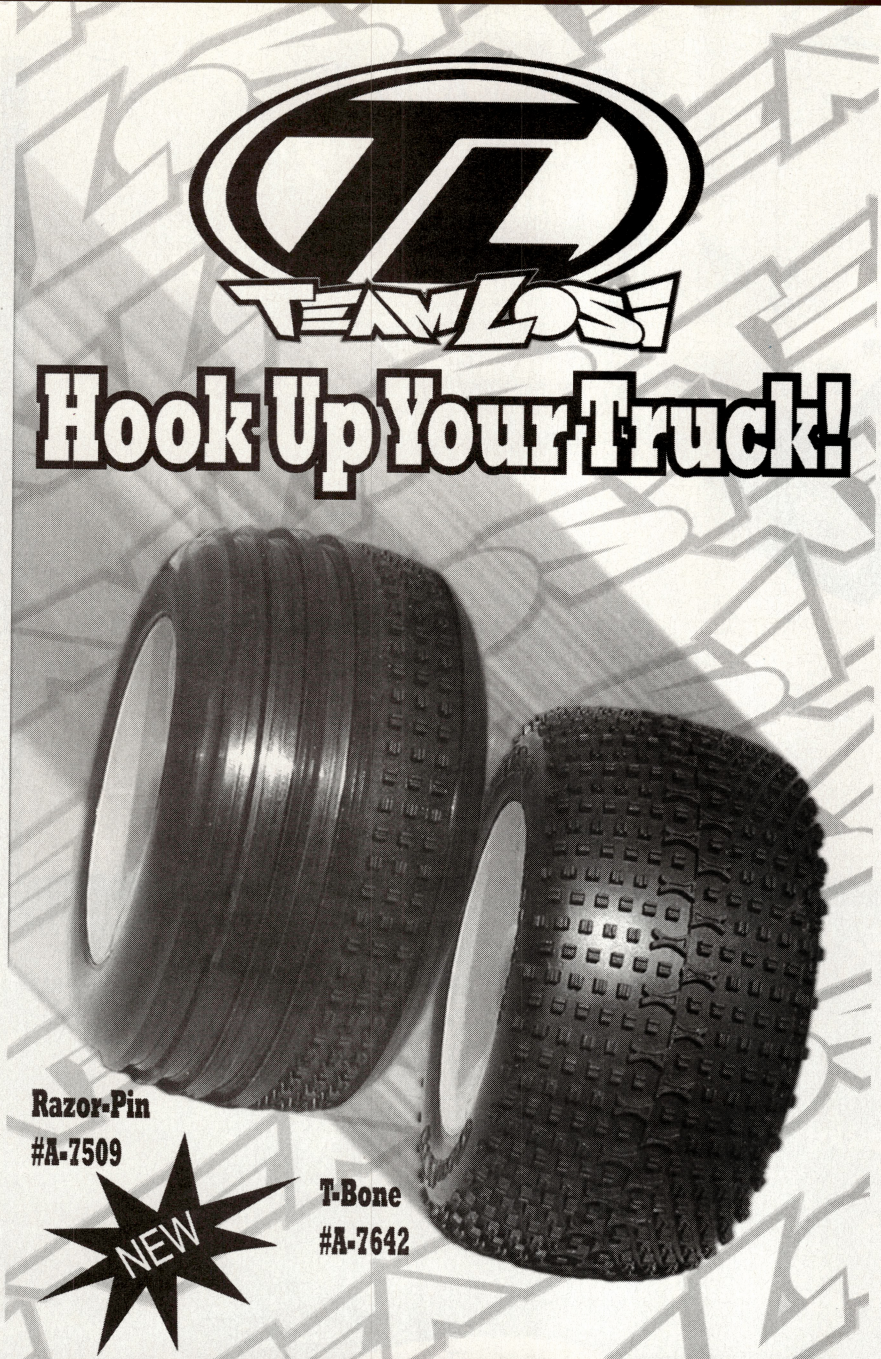
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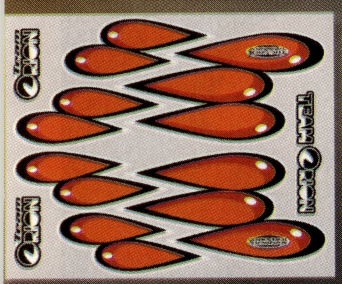
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[Drivers' Stand]

BY FRANK MASI

One night per week, our local off-road track opens for free practice. This is a time when people who don't feel confident enough to participate in an organized race can come out and develop their driving skills. I try to attend as many of these nights as possible, because not only do I get some much-needed practice myself, but by watching these beginning racers, I have more "fuel" for this magazine. In other words, if I can identify potential problems, I can tailor the magazine to address them. I made this list of common beginner problems during the last practice night I attended. Keep in mind, these are mistakes that all of us have made at some time, and you might be surprised to learn that some of us still make them.

Problem 1: Off-center servo

Have you noticed that your car steers better in one direction than the other? Have you tried to adjust this using the radio's dual-rate knob, but nothing happened? It's likely that when you installed the steering servo and attached the linkage, that you failed to have the servo centered in its travel.

The fix—Detach the servo linkage and switch your radio and car to the "on" position. Set the radio's trim knob or dial to the neutral position and re-attach the linkage. Be sure that you turn the car's power off before you tighten the screw that holds the servo horn to the servo.

Problem 2: Bad gear mesh

Is your car or truck really, really loud? Does it strip gears frequently? Does it grind to a halt as soon as you let off the throttle? Chances are that the mesh between the pinion gear and the spur gear is set too tightly or too loosely. If there's too much space between the gears, they might strip under stress. If there's not enough space, there could be too much friction, which slows you down and cuts into your run time.

The fix—Set gear mesh so that there's a slight amount of free-play between them. Place a strip of paper between the gears and tighten the motor screws. Remove the paper and the mesh should be perfect. Check the entire circumference of the gears to ensure that there aren't any tight spots.

Problem 3: Loose slipper clutch or diff

This is very common with racers of all skill levels. Most off-road cars and trucks have adjustable slipper clutches and ball-diffs. In the old days, we didn't have slippers, so the diff had to be set to slip slightly under load to protect the gearbox from damage. The slipper clutch allows you to keep the diff tightened—which prolongs its life—while providing greater traction control. Unfortunately, many people have trouble determining which component is slipping. If the diff is allowed to slip, it will become damaged and handling will suffer.

The fix—Lock down the slipper, hold the spur gear and try to spin the rear tires; it should be nearly impossible. If not, your diff is loose. Tighten the diff until you can barely turn the wheels. Now, begin loosening the slipper clutch in small amounts until it slips with moderate effort (check this the same way you checked the diff). Make your final settings on the track, where the slipper should slip slightly for about two feet.

Problem 4: Worn-out motor

Is your car slow? Does it run sometimes, then cut out seemingly without reason? It's probably not your battery connection, but rather it's caused by motor brushes that have become so worn that they can no longer make adequate contact with the commutator.

The fix—Rebuild your motor by having its commutator "cut" on a lathe and its brushes replaced. While it's apart, check that the bushings or bearings are in good shape. If it's a really old motor, it might need to be replaced. For more on this topic, check out this month's article on basic motor maintenance.

Problem 5: Bad track etiquette.

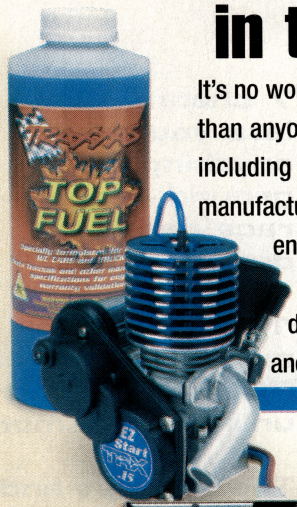
How you handle yourself is as important as how you handle your car when it's on the track. Lots of us develop bad habits, but few are as annoying as when someone decides to place his car on the track by dropping it onto the main straightaway where the rest of us can plow into it. Also, to all of you who insist on standing on the track when you drive, not only will you be able to see the track better from the drivers' stand, but the rest of us will be able to see our cars! Finally, you should always check frequencies before you turn on your radio. Even if you're positive that no one is on your channel, double check with everyone just to be safe.

The fix—Learn to share the world with the rest of us. You're an important person, but you're not the only one on the planet, you know! ◆



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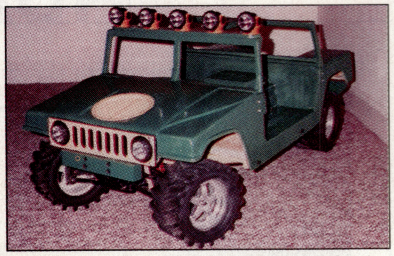
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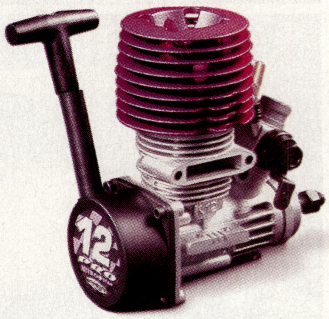


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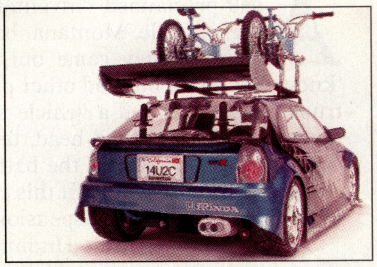
UP FRONT RC06



READERS RIGS [PAGE12]



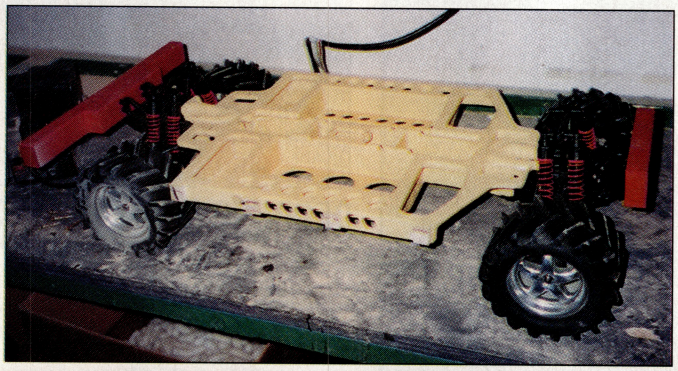
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DETAIL SHOP [PAGE 18]

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. 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!

HUMMVEE in progress!







A self-proclaimed "inventer at birth," Bruce Binkley of Stevensville, Montana, bought his Traxxas E-Maxx as soon as they came out, but never drove it (Bruce 'knows it's good,' but had other plans for the towering Traxxas truck). Bruce wanted a vehicle that had its wheels inside the fenders, and he wanted head, tail and brake lights as well as room enough to conceal the batteries, motors and other electronics. What else would fit this criteria while making the most of the E-Maxx's plush suspension? A Hummer, of course!

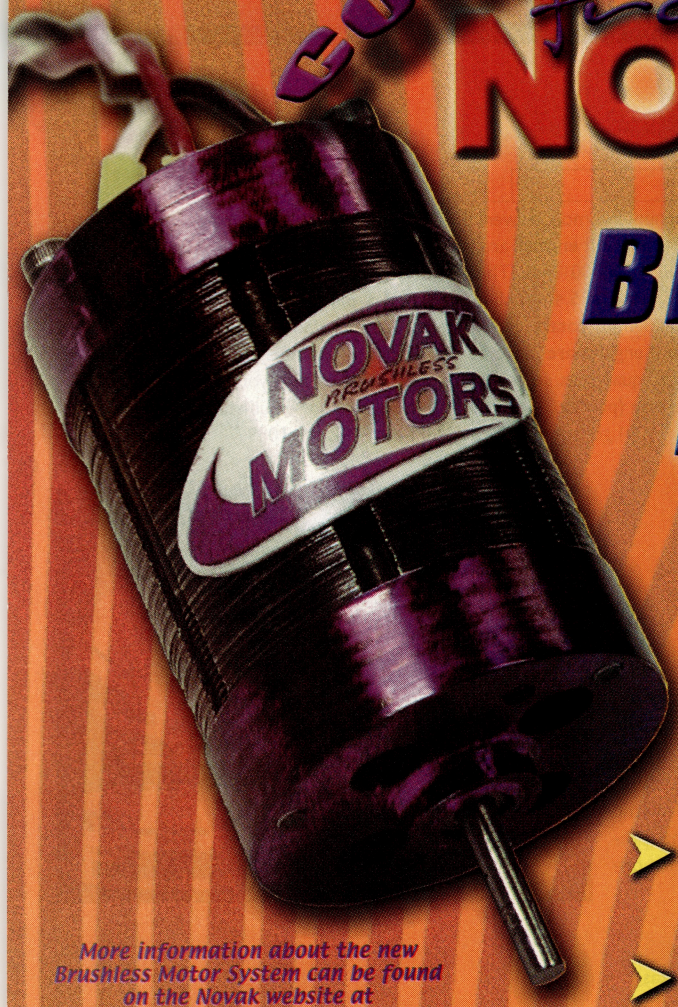
At this stage, Bruce's Hummer is a work-in-progress, but you can already see its potential. The handmade chassis is formed from 1/4-inch plywood and fiberglass (if he were to do it all over again, Bruce would have used 1/8-inch plywood to save weight) and features huge battery compartments and space to accommodate a pair of E-Maxx gearboxes (powered by four 550 motors!). The basic structure of the body is made from 1/8-inch plywood, with the various contours and other shapes formed using fiberglass.

The biggest test, according to Bruce, will be to see how the E-Maxx suspension pieces deal with the 25-plus-pounds weight of the chassis and body. Stiffer springs will be in order, but we bet the rest will hold up just fine. We plan to follow Bruce's project to the end, including a report on his top secret plans for a battery/speed control combo that he claims will provide over an hour's worth of run time. Awesome display of creativity, Bruce; your free subscription is on the way! ◆



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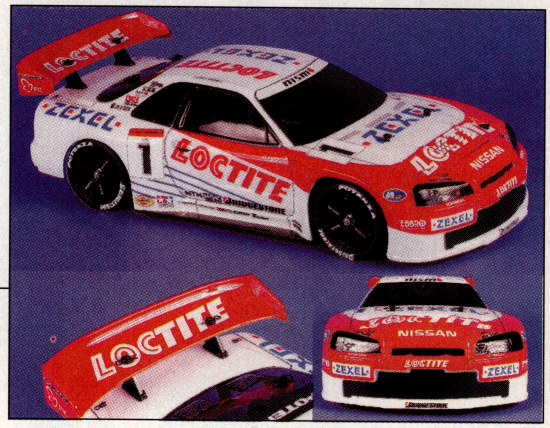
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WILD HORSES

Called "simply the most powerful .12-size nitro engine available" by HPI, the new Nitro Star Pro Evolution II engines are reported to put out 1.25 horsepower at a mind-bending 34,500 rpm! There are two versions of the engine, one with a triple-adjustment 5.4mm slide carb, and a pull-start version that has a dual-adjustment 5.4mm rotary carb. Due to limited production (the Nitro Star Pro Evolution II engines are made by Novarossi in Italy), the engines will be available in limited quantities, so get to your HPI dealer now if you want one. The slide-carb version (part no. 1906) retails for $255, and the pull-start, rotary carb version (no. 1909) goes for $295. Call HPI at (949) 753-1099.

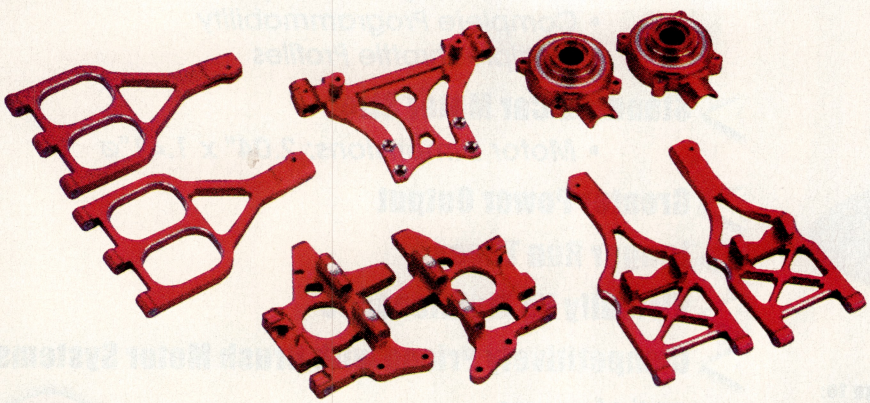


BODY WATCH! TAMIYA'S NEW SKYLINE

Tamiya recently revealed their newest car in the '04 line—the Loctite Zexel Nissan Skyline R34. The new Loctite Zexel (#58269) is based on the TA04 plastic tub chassis, it comes with 26mm Type A tires, and features a new Lexan wing (previously found on the Ferrari Modena). The Loctite Skyline retails for $289. For more information, contact Tamiya at 1-800-TAMIYA-A.

PROJECT RED MAXX

Dynamite now offers these awesome billet aluminum hop-ups for the Traxxas T-Maxx and E-Maxx. These hot-looking, red-anodized parts ("Dynamite red," actually) come with all the hardware needed for a direct bolt-on fit.



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Contact your Dynamite dealer for more information or phone (217) 355-9511.





YOKOHAMA PARTNERS WITH HPI

While we were down shooting photos of the new Pro 3 at HPI's headquarters in Irvine, California, they brought out a set of these new 24mm Advan A038 belted tires. The new tire is an officially licensed replica of the full-size Yokohama version. If you're not familiar with the Advan A038, it was primarily designed with road-racing applications in mind, and can be found as standard equipment on such performance cars as the Lotus Elise and other more race-oriented, performance cars. HPI will release the tire in three different versions—27R (no. 4762) and 33R (4763) compounds, as well as a new special "carpet" (4767) compound. All three versions retail for $15 per pair. For more information, call HPI Racing at (949) 753-1099.

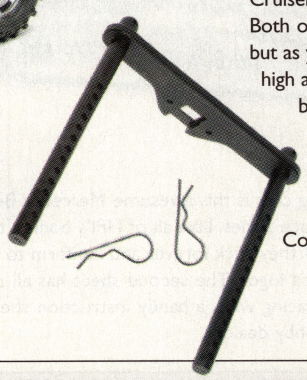
TRINITY'S HOLY TOOL

The latest item in Trinity's new Team Tool line is this precision body reamer that makes perfectly round holes. Use it to make body-mount holes, vent holes or antenna holes—any size hole up to nearly an inch in diameter! The reamer has a sharp steel conical "blade" that quickly removes Lexan with just a few twists. And because its tip is so sharp, you won't need to make a dimple or pilot hole. The main body is made from a pseudo carbon-fiber, while the handle is knurled blue-anodized aluminum. Comes with a metal safety cap. Part no. RC8105, $36.99. Call Trinity at (732) 635-1600.









CRAZY TRENDS

According to Pro-Line's Todd Mattson, the latest craze among owners of Traxxas' popular T-Maxx and E-Maxx trucks is installing Pro-Line's PT Cruiser and Mercedes Benz ML43ß0 bodies on their behemoth trucks. Both of these bodies were designed to fit narrow 1/10-scale touring cars, but as you can see, they take on a distinctly different "flavor" once perched high atop the Traxxas chassis. In addition to the body set (sold separately by Pro-Line), Pro-Line's tall molded rear body-mount is needed to make the installation complete.

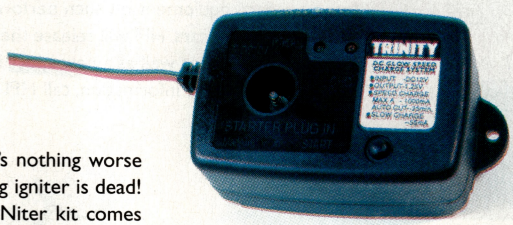
Pro-Line PT Cruiser—part no. 3103; $23
Pro-Line Mercedes Benz ML320—no. 3091; $23
Maxx Posts—no. 6003; $6

Contact your hobby dealer or call Pro-Line at (909) 849-9781.



RELIVE THE NIFTY FIFTIES!

If you're an E-Maxx or T-Maxx owner who's looking for something that will set your truck apart from the crowd, look no further than Pro-Line's new Early 50's Chevy pickup body. Designed as a direct replacement for the stock Traxxas body, the Chevy fits the chassis perfectly and adds dirt protection while providing a classic appearance that will look great with any type of paint job from traditional flames to today's wildest graphics. Comes with pre-cut window mask for easy painting and a set of detail stickers such as windows, lights and logos. Part no. 3106-00, price $26. Contact your dealer or call Pro-Line at (909) 849-9781.



GLOW AND GO

Nitro racers, you know what we mean when we say that there's nothing worse than driving all the way to the track only to learn that your glow-plug igniter is dead! Fortunately, Trinity's Deluxe Glo-Niter kit is the solution. The Glo-Niter kit comes with a blue-anodized aluminum glow igniter that has a built-in meter that reminds you when it's time to charge, and a 12V automatic peak-detection charger that quickly and easily charges the igniter between races. Just connect the charger to any 12V source (power supply or automotive battery), install the igniter and press the start button. It's as easy as that, and you'll never be caught with a dead igniter again! Contact Trinity at (732) 635-1600.





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The latest HPI body to fit all popular 190mm "narrow" touring cars is this awesome Mercedes Benz CLK DTM 2000. This clear-Lexan shell replicates the CLK DTM "Service 24h" from the hot new DTM European race series. Like all of HPI's bodies, the Benz comes with a complete set of easy-to-apply high-quality vinyl decal sheets—these are made from the best vinyl; they stick forever and conform to compound curves without wrinkling! One sheet contains the details such as the car's window lines, lights and assorted logos. The second sheet has all the graphics of the real race car. Of course, HPI also includes pre-cut window masking for easy painting, a large rear racing wing, a handy instruction sheet and body dimples for installing the body. Part no. 7357, retail price $24. Call HPI at (949) 753-1099 or visit your hobby dealer.

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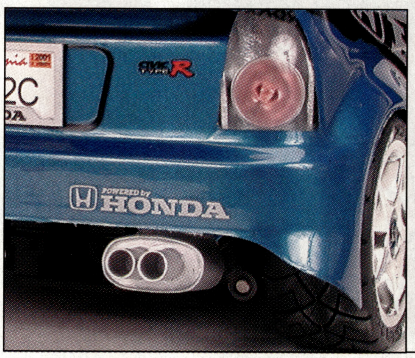
Ad#1079

Highlighting your Sedan...Front and Back!

By Ian Aquino



If you've been in the hobby for some time now, chances are you have a couple of painted R/C bodies made for display purposes only. And for the many novice hobbyists just starting out, a freshly painted, self-made R/C body is certainly the well-deserved end result of a diligent effort. In both cases, there truly is something to be proud of when producing a nicely executed paint job. But then again, should spray cans and decals bring your creativeness to an end? Now that's a question you might want to think about while reading this column.

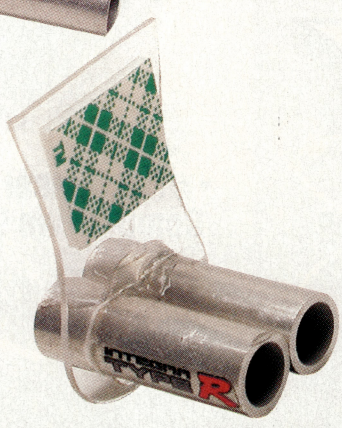


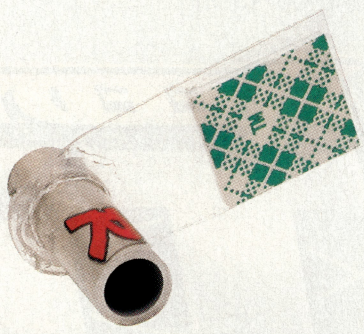
Need some tips on how to spice up your ride? Here are a couple of simple but effective ideas that can instantly add realism to your existing body. There's no doubt that nothing catches attention as much as a nicely painted shell. But by adding to it fine details such as chrome mufflers and aluminum mesh grills, you are most likely to receive complementing "oohs" and "ahhs" from people seeing your one-of-a-kind creation.



Making a scale exhaust

Let's begin with the all-important exhaust or muffler, as this is probably the one detail that most cars have in common. Whether they be twin dual exhausts or a single monstrous tailpipe, these back pressure paraphernalia simply spell speed. There are two ways to add an exhaust to your sedan. The first way is a given; purchase it! RPM currently sells two versions of these plastic model-grade exhausts, the "Slim Twinz" (#81204) and the "Fat Boy" (#81194). But for a couple of dollars to spend on a single piece, this might be an expensive proposition if you are planning on equipping your entire fleet of sedans with this setup. Your next practical option; make them! A piece of aluminum tubing found in most hobby-oriented shops can do detailing wonders, plus more. Not only does aluminum tubing look realistic with its natural texture and color, but also at less than a dollar for a foot-long, 1/2-inch diameter aluminum tube, you can practically equip all your cars with multiple exhausts and make as many as you want! Yet, always bear in mind—realism is the key. A dual exhaust setup or a single one on a sedan will usually do the job. Here's how I go about making mine...





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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Steps to make a Scale Exhaust Muffler

● Materials needed: 1/2-inch diameter aluminum tube, Dremel tool or metal saw, regular grade sandpaper, pieces of Lexan and Shoe-Goo glue to hold the pipe in place, small decals for a custom finish.

• Use a Dremel tool or metal saw to cut the aluminum tube to desired pipe length; one inch to 1-1/2 inches should do the trick.

• Don't forget to sand the outer sides of the pipe to clean any burrs resulting from cutting the tube. Tip: Bevel the edges to make the exhaust tip as natural as possible!

• Use Shoe-Goo glue to attach the pipe to the rear of the R/C body. This can be accomplished by using pieces of Lexan as muffler "holders".

• Finish off your scale exhaust with tiny decals for that added custom touch. ●

Making a mesh grill

Mesh grills are usually trademarks found in race-bred cars, but more and more we see these eye-catching accents in street cruisers. Many R/C body manufacturers nowadays include sets of decals to simulate nose intakes, air dams and mesh grills. No one is saying that these are bad, but if you have extra time to spare, why not push your ideas and create realistic-looking custom grills out of ordinary household materials? So peel those fancy stickers and start making your own scale mesh grills! For starters, you will need to decide on whether the car will be run or merely for display only. If you are to run the car, it is advisable to simply attach the mesh outside of the body and in front of the grill housings using clear double-sided tape or Lexan-safe Shoe-Goo glue. You can get the mesh material in craft stores in plastic variety or real aluminum and the Shoe-Goo glue at your local hardware store. But if you want to go all out for realism at the expense of weakening the body shell, cutting the air intakes is the way to go. Not only will your grills look more three-dimensional, but will also provide a concourse-winning appearance. Good Luck!



Steps in creating Custom Mesh Grills

● Materials needed: aluminum or plastic mesh material, X-Acto knife, Shoe-Goo glue to hold the mesh material in place.

• If you opt to run the car, cut the mesh material according to the shape of the intakes and vents on the nose of the body.

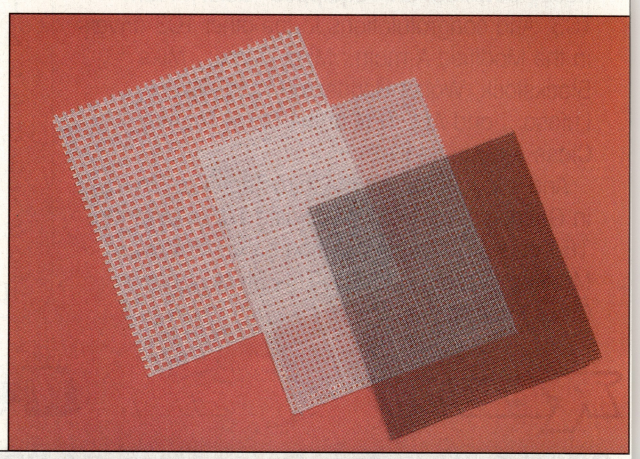
• You can then attach the "grills" in place using Shoe-Goo glue (clear double-sided tape will also work!).

• If you are going for the most realistic look, start off by carefully cutting the front air dams with an X-Acto knife.

• Remember, patience is the key here as it is easy to make a mistake and cut through unwanted areas of the Lexan body.

• For the open-air dam effect, you will need to attach the "grills" from behind the body openings, with about a quarter-inch overlap beyond the opening. Apply Shoe-Goo glue to the perimeter of the mesh material from underneath the body. This will keep any glue from showing when attaching the grills. ●





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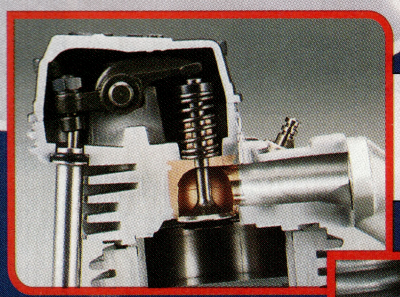
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Weight w/o recoil starter: 8.5 oz (243g)
Weight w/recoil starter: 10.8 oz (308g)
Includes: #F glow plug, air cleaner
Requires: tuned pipe, manifold, coupler, fan unit

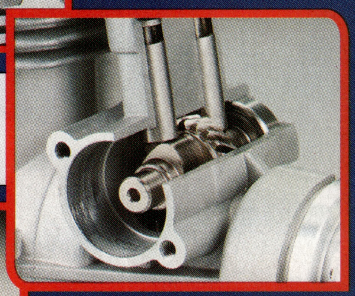


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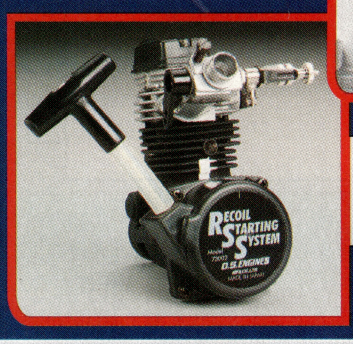
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GOT SPEED?

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

Try to Focus

Hi, I just bought an electric Kyosho Rally Focus WRC and installed my "old" (4-5 years old) Trinity motor Futaba servo, Novak speed control and receiver, and six-cell custom battery pack. It's been a while since I used all that stuff, I was really excited to get back into R/C cars but my fun lasted only four minutes! Is it possible that my batteries, because being old, lasted shorter than they used to? And what battery pack would be the best for my 4WD rally car to enjoy it a little longer (around 10 minutes at least but still with good power)? Thanks.

Bruno St. Jacques
via rc-car.com

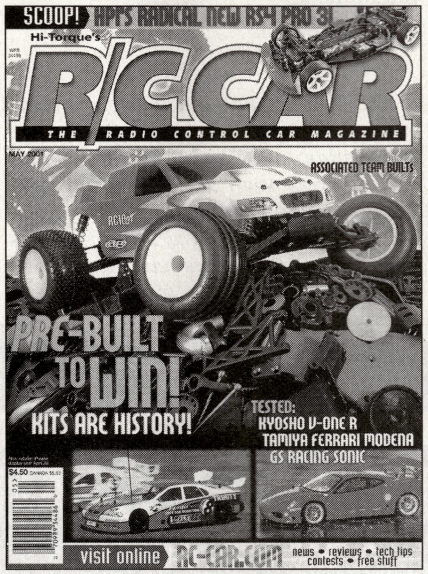
There are two things to do: first, if your battery hasn't been run in a long time, it will take several cycles (i.e., fully charging then discharging the pack) for it to regain its best performance. It may also be that the pack is simply too old and is worn out (this does happen). Also, older and worn-out motors draw more current and are less powerful because they operate less efficiently. Try rebuilding your motor by having its commutator trued on a comm lathe (most hobby shops offer this service for a nominal fee) and by installing new brushes and springs. This should provide an increase in both performance and run time. If, after doing this, your car still doesn't run longer, then you might have to invest in new batteries. Also, switching to a less powerful motor or using a smaller pinion gear on the one you have will extend run time (but reduce speed). Good luck.

Who's the MVP?

Hello. I was reading the Reedy MVP article in the April 2001 issue and I was wondering how I can compare these numbers to the Green Machine and P2K numbers in the February issue. (Is that a long sentence or what?) For example, the max torque for the MVP is 0.886—0.886 what? lb/ft? Nm? Your assistance is greatly appreciated.

Rich Rodriguez
via rc-car.com

You can compare the numbers from the Reedy MVP to those in our Stock Motor Shootout in the September 2000 issue. The GM 3 and P2K Pro numbers in the February issue were generated using a Robitronics dyno, while the MVP and 'Shootout' numbers came from a Fantom Facts Machine. Hope this helps!



Crystal Mess

Several years ago I purchased a Trinity Midnight motor with intentions of putting it into a used car I was going to buy from a friend. But that car got smashed before I could get ahold of it. So to save the money I had put into the motor, I tried to put it into my Radio Shack Turbo Thruster. I had lost the remote to this car but still had a remote from a Nikko buggy. I tried to use the remote from the Nikko car and replacing the crystal in the Radio Shack car with the crystal from the Nikko buggy. But the remote still doesn't work. The crystal from the Nikko buggy reads R 26.740 KDSI 5H. And the crystal from the Nikko remote reads T 27.195 KDSI 5C. And the crystal that was in the Radio Shack car reads R26.640 KDS 0C. Any ideas on why it doesn't work. I feel that the circuitry still works because the motor and servo jump a little with you first turn it on.

Jared Stutseman
via rc-car.com

Based on the good information you've provided, the answer to your problem is that your crystals don't match. In order for the radio to "talk" to the receiver in the car, both crystals must be on the exact same frequency. Also, the crystal for the transmitter is usually marked "Tx" and the one for the receiver is "Rx." Receiver crystals won't work in the transmitter and vice versa.

Uhh...Yeah...

Hi! Sir, I'll buy a R/C car. But I'm beginner. My question is, electric car is better than Nitro car? Or Nitro car is better than Electric? Which one is better. how do you think about my question. I want join R/C Race. Thank you, sir.

Brian Kim
via rc-car.com

Brian, we almost always recommend an electric vehicle to first-timers. Unless you have prior experience with engines (for example, if you have flown R/C aircraft in the past, you'll have no problem tuning an engine), you'll find that electric is much easier (and cleaner!). Some people have their hearts set on nitro, and are willing to go through the steep learning curve. Good luck with whichever you choose!

Which 4WD Truck?

I am planning to buy my first hobby-grade R/C truck and am unsure which type would be best. I have done some looking around and spoken to a couple of hobby shops and now I need an unbiased opinion. For the area I'd be using the truck in, 4WD will be best, and I'd like to go with a nitro. The shops suggested the Duratrax Maximum MT, HPI Nitro MT, and The Traxxas T-Maxx. Which truck would you recommend?

John Bradford
via rc-car.com

The DuraTrax Maximum MT is 2WD only. The HPI Nitro MT and Traxxas T-Maxx are 4WD. Both are good. The HPI is smaller and is therefore more nimble. The T-Maxx is larger and more capable of climbing over very, very rough terrain. Both trucks are available as RTRs (ready-to-run) with radios already installed.

Stripped Servo

Hi, I got a Nitro Rustler, and I was running it one day and the steering servo

stopped working. I could put my finger on the servo and I could feel the servo vibrate when I used the steering wheel. I checked all of the gears inside the servo and none of them were stripped and the batteries were fully charged. Is there any way to fix that or do I have to get another servo?

Matthew Bogner
via rc-car.com

Double-check the entire gear train. If you can feel the servo vibrate from the internal motor, then there could be a tooth or two missing from one of the gears. If there aren't any broken gears, it's probably best to install a new servo.

Power Search

I'm just getting into RC cars and I'm going to get a Team Losi TripleX-NT, and I was wondering who makes the best off-road engine? OS Engines look like a good engine, but I would like to known what you think.

Jeff Strange
via rc-car.com

O.S. Engines have a well-deserved reputation for being reliable and easy to tune. The Italian engines, i.e., Novarossi and Picco, are very powerful. The current "rage" is rear-port exhaust, which the Novarossi has (and a rear-port Picco/Trinity is on its way). Many off-roaders have found these engines to work well in trucks. Although there's no official information regarding a rear-port O.S. .12, we'll bet our starter boxes that there soon will be one.

Charging NiMH Cells

I just bought an E-maxx that came with two Trinity Matched six-cell NiMh stick packs at 3000mah as well as an Integy 16x2V2.5 charger. I've read about the complexity of charging the NiMh packs and wondered if you could give me advice regarding my charger. Which cycle should I use and at which voltage and for how long? Any advice would be greatly appreciated...I don't want to damage these great packs.

Kris Kees
via rc-car.com

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Charge your NiMhs at between 3-1/2 to 4 amps in the linear setting. NiMhs are exceptionally sensitive to heat, so you must be extra careful not to overcharge them. As soon as they become just slightly warmer than ambient temperature, take them off the charger. The good news is that these types of cell don't have any memory, which means that even if they aren't quite fully charged, there won't be any lack of performance. And, you can charge NiMhs that have only been partially discharged; NiCads must be brought down before recharge or they'll develop a memory and lose their performance.

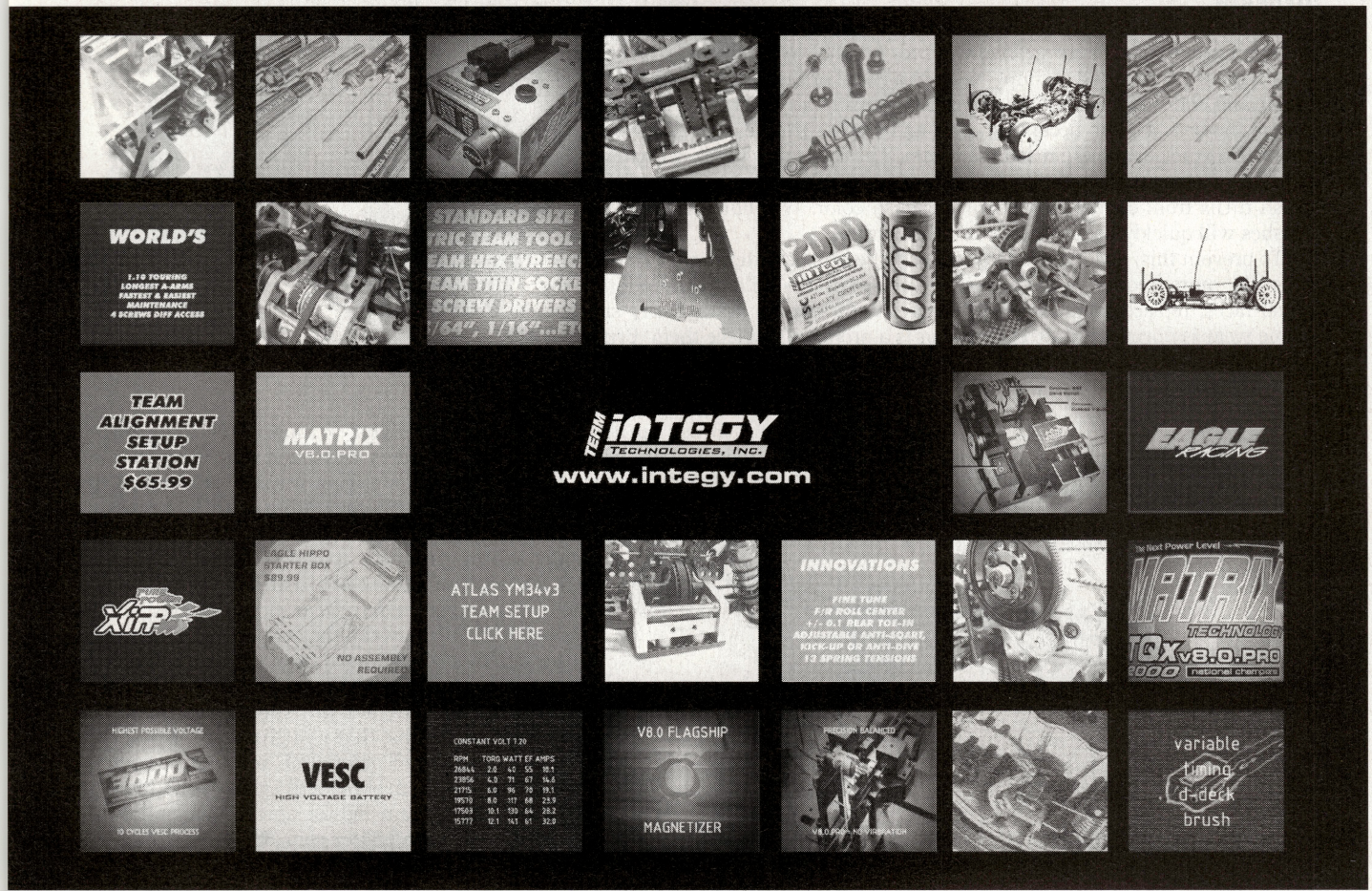
Down the Drain

Hi, I bought a Stampede this winter that needed to be built and have a radio system installed. I had no trouble building it but I had to use the radio system out of my Traxxas nitro sport, but it doesn't work with my 7.2v. I had to use the four AA battery setup. It worked fine for the first three days then the batteries were dead. Is it the bigger tires? If so, would a stronger servo help without changing my four AA battery setup or would getting an ESC help? Thanks for a great mag.

Derek Stewart
via rc-car.com

The mechanical speed control in your Stampede should have a BEC (battery eliminator circuit) lead that plugs into the receiver. This takes a portion of the main battery's power and uses it for the servos. If yours doesn't work, there could be a problem with your receiver. And the truth is that a stronger servo will drain your batteries even faster. The best recommendation we can give is to invest in an ESC; you'll get better performance and longer run times. ◆

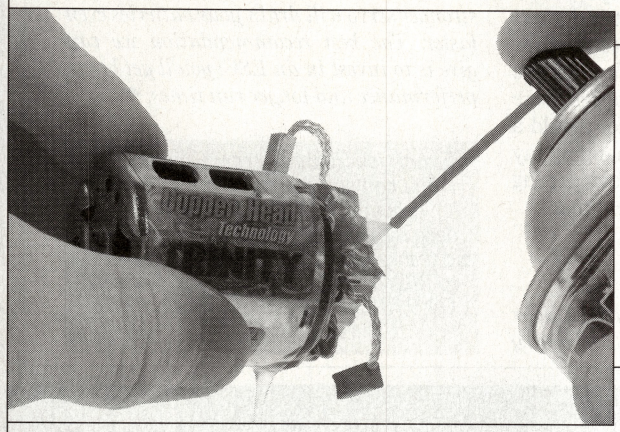
E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@pacbell.net or Doogie at doog2@earthlink.net. If you're going the old fashioned route, send along your letters to R/C Car at 25233 Anza Dr., Valencia, CA 91355. Check us out on the web at www.rc-car.com.



BASIC MOTOR MAINTENANCE

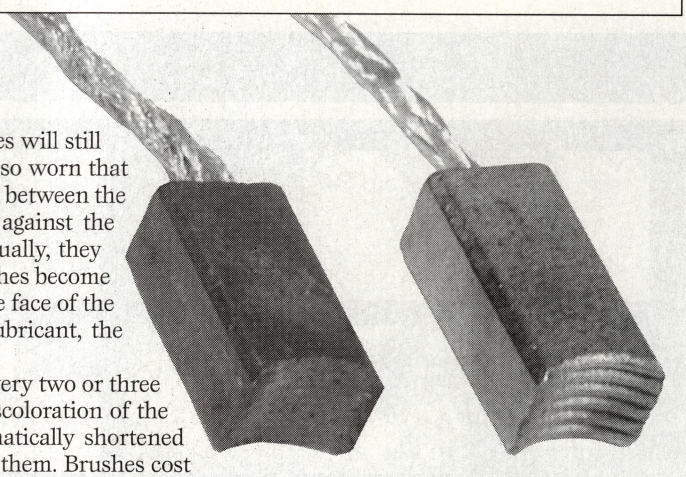
Keep the power you paid for!

If you read some magazines, you would think that nitro is taking over the world. Truth is, nitro-powered R/C is still a small percentage of the total hobby compared with electric. But why the nitro fervor? We think it's because electric motors have developed an undeserved reputation for premature wear and a higher cost-to-run-time ratio. If you stick your motor in your car and expect it to last the season without maintenance, of course it's going to wear out quickly. But if you take a few extra minutes to perform some basic maintenance, your motor will easily outlast the piston and sleeve of a nitro engine. Here are some basic maintenance tips for electric motors.



Motor spray

The best thing you can do for your motor is to flush away the dirt and brush dust that collects on the commutator and brushes. A quick blast of motor spray in this area does the trick nicely. For more effective cleaning, run the motor at a very low rpm while spraying. This will ensure that the entire surface of the comm and the brush faces will be cleaned. Things to avoid: Try not to get motor spray on ball bearings unless you plan to completely clean and re-lube them. Otherwise, you'll just be flushing tiny particles into the bearings, which will accelerate wear. If your motor has bushings, remember to re-lube them with a drop or two of oil after each cleaning.



Brushes

No matter how many times you clean your motor, the brushes will still wear out eventually. There are two ways for brushes to become so worn that they need replacing. First is simply wear as a result of the friction between the brush and the commutator. As the springs push the brushes against the comm, the brushes will become shorter and shorter until eventually, they are too short to adequately reach the comm. The other way brushes become worn is by losing their natural lubricant. When this happens, the face of the brush turns from copper to a burnt, purplish color. Without lubricant, the brushes will quickly begin to wear out the comm.

To prevent this, make it a habit to inspect the brushes after every two or three runs (the more frequently the better). If you see even a mild discoloration of the brush faces, replace them. If the brushes' length appears dramatically shortened (some wear is normal, but excessive wear is a problem), replace them. Brushes cost about $3 per pair, new commutators cost about $20-40. You do the math!



Springs

Brush springs never wear out, right? Wrong. Over time, springs lose their tension, a condition that's worsened with heat (we told you that heat was bad!). When spring tension is reduced, the brushes are pressed against the comm with less pressure. Not only does this generally reduce the amount of power that the motor produces, but in certain conditions, weak springs can allow the brushes to bounce against the comm and accelerate wear. If you've ever noticed severe burning between the copper comm segments, this could very well have been the cause. Tuning a motor with brush springs is an art, and we won't get into it here, but you should use the stiffest spring possible that will give you the best combination of rpm and torque. In general, stiffer springs will give you low-rpm torque, and lighter springs will allow the motor to spin higher rpm. ◆

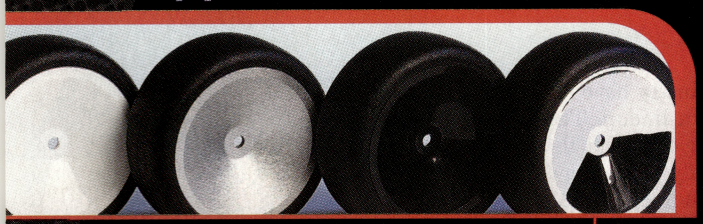
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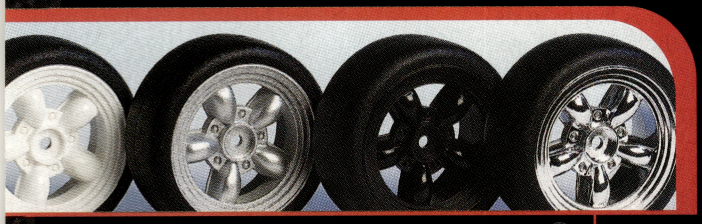
C&S:US $3.50 B&W:US $1.50 PAIR | B010

GOODYEAR EAGLE



A0201 | SLICKS US $9.00 PAIR

200S



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PYTHON



B060 | C&S:US $7.00 B&W:US $5.00 PAIR

NITROUS



C&S:US $7.00 B&W:US $5.00 PAIR | B030

SPEEDSTER



B070 | C&S:US $7.00 B&W:US $5.00 PAIR

NITRO



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B080 | C&S:US $7.00 B&W:US $5.00 PAIR

PINZETTI



C&S:US $7.00 B&W:US $5.00 PAIR | B050

ZURG



B090 | C&S:US $7.00 B&W:US $5.00 PAIR

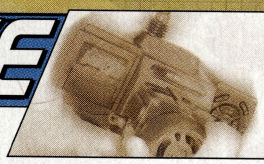
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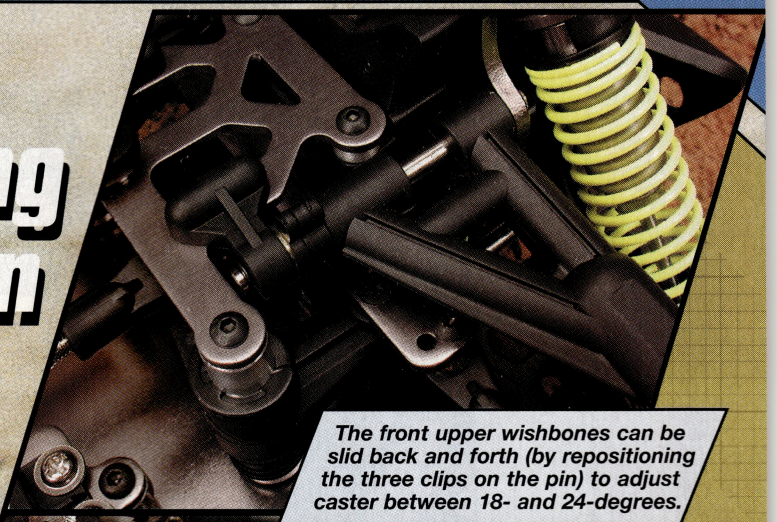
Thunder Tiger EB-4 "RTR"

It seems as if all the major kit manufacturers in the industry have realized just how important it is to have a strong ready-to-run lineup. Thunder Tiger Racing have been building up their line of racing cars over the past few years into a very respectable ensemble. Most recently, Thunder Tiger released a complete ready-to-run package of their top-of-the-line 1/8-scale racing buggy, the EB-4. We were blown away once we opened the box—not only does the car come completely assembled, we were greeted with a trick-looking pre-painted, pre-cut, pre-decaled body! In addition, a NiCd glo-igniter, five-way wrench, and fuel bottle were also included along with some nice quality Hitec radio gear. For those of you that missed our initial review of this buggy in its kit form (R/C Car Feb. 2000) we'll recap what you get with the EB-4 package.

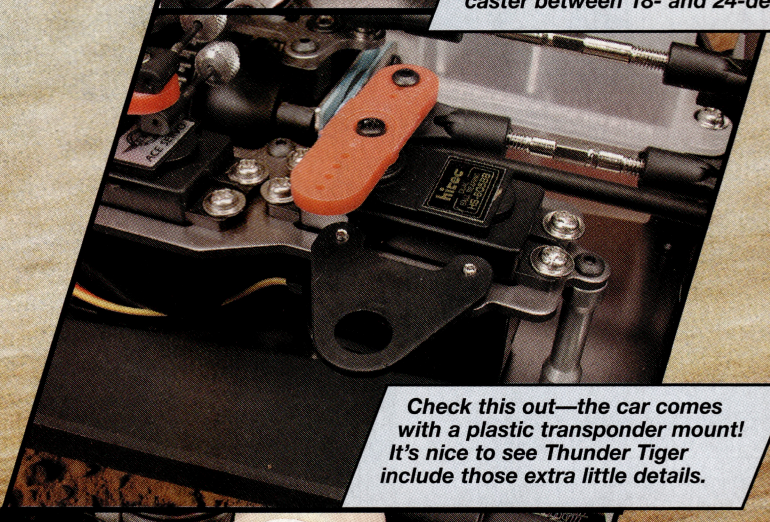
Things you'll need

- Glow fuel
- 12 AA batteries (four for receiver pack, eight for radio)

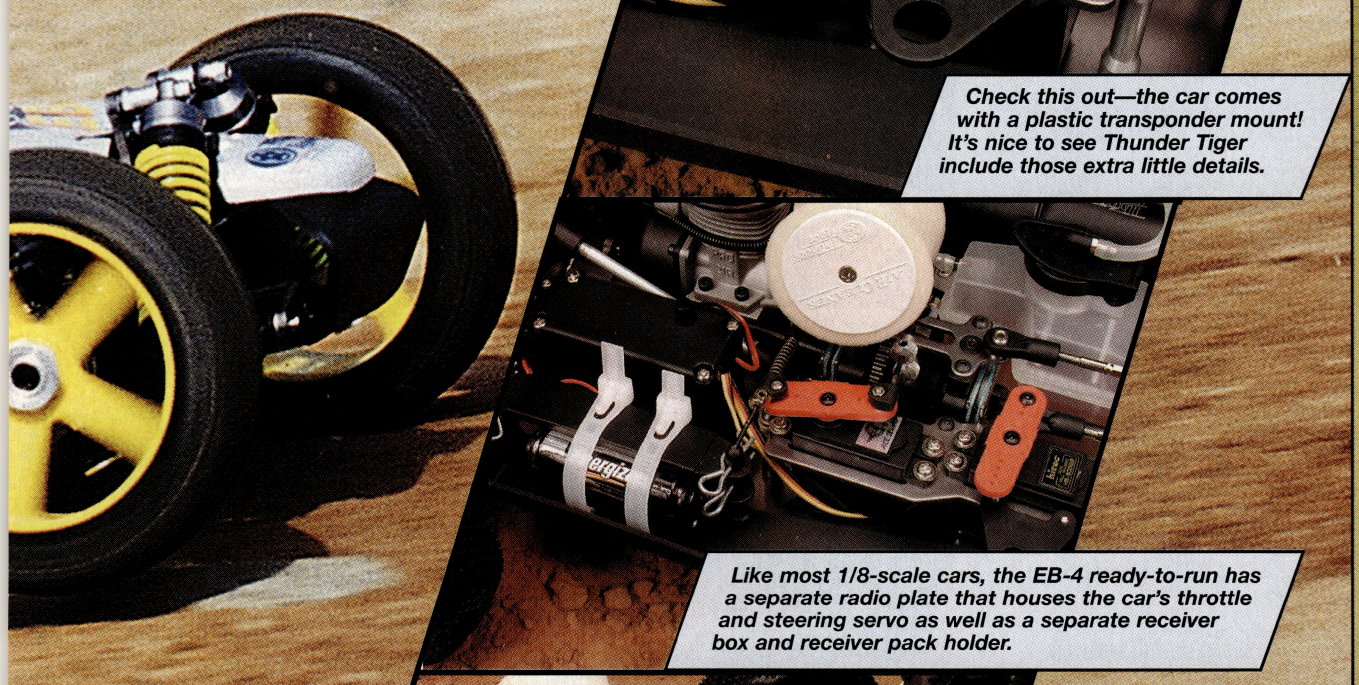
Getting into 1/8-scale racing has never been easier!



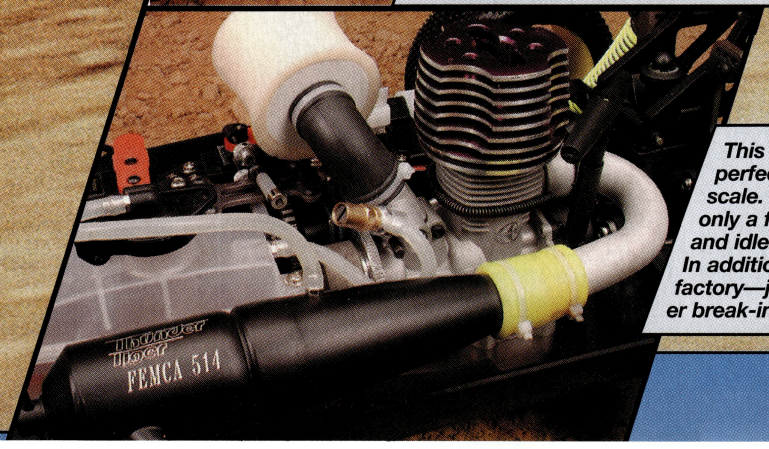
The front upper wishbones can be slid back and forth (by repositioning the three clips on the pin) to adjust caster between 18- and 24-degrees.



Check this out—the car comes with a plastic transponder mount! It's nice to see Thunder Tiger include those extra little details.

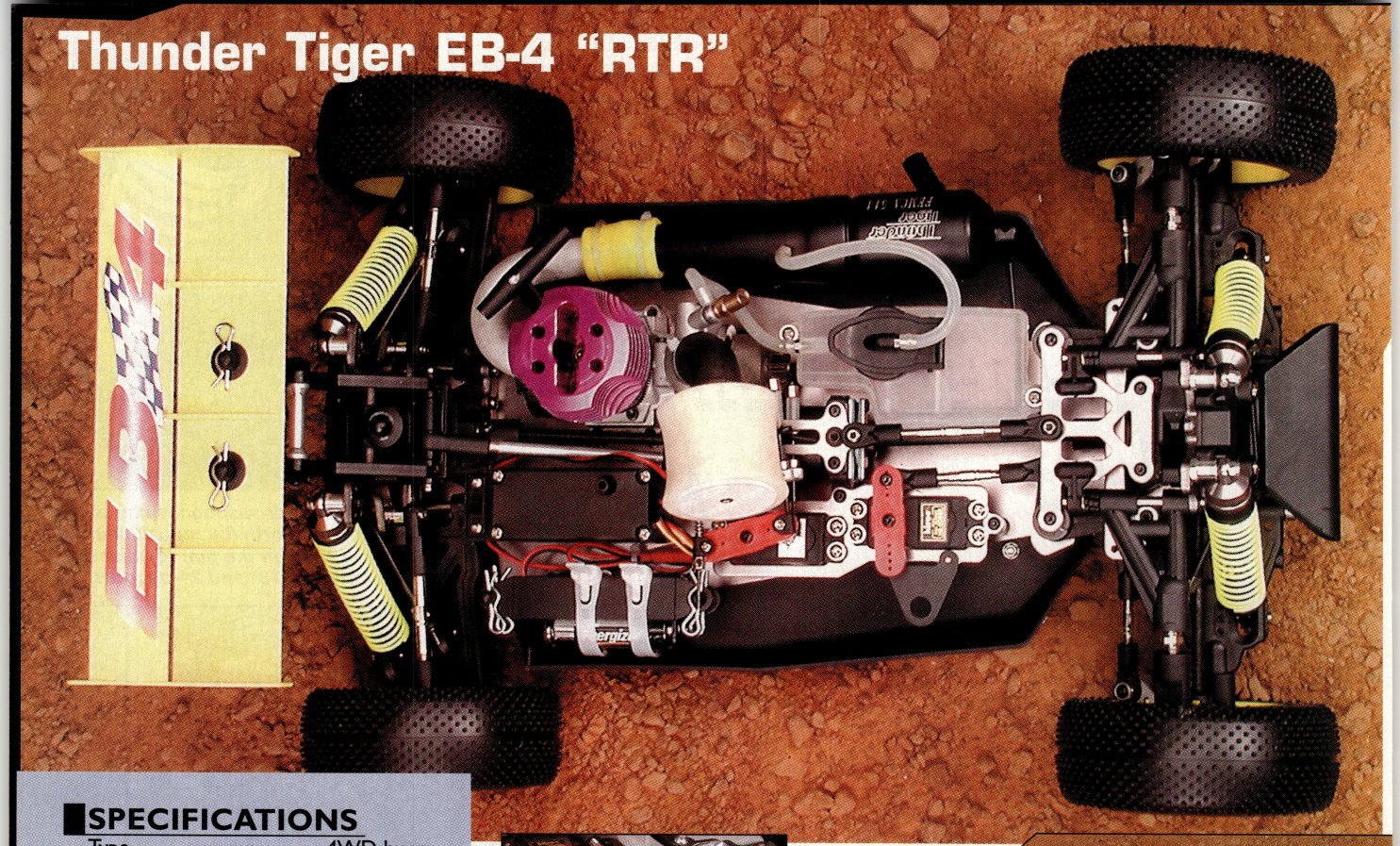


Like most 1/8-scale cars, the EB-4 ready-to-run has a separate radio plate that houses the car's throttle and steering servo as well as a separate receiver box and receiver pack holder.



This Thunder Tiger pull-start .21 is a perfect engine for those new to 1/8-scale. Our sample fired right up with only a few tugs on the pull-starter and idled clean right from the get-go. In addition, it was set properly at the factory—just rich enough for a proper break-in session.

Thunder Tiger EB-4 "RTR"



SPECIFICATIONS

Type	4WD buggy
Scale	1/8
Retail price:	$649.99
Average street price:	$499.99
Length	19.5"/496mm
Width	12"/307mm
Wheelbase	12.7"/324mm
Track	10.2"/260mm (front) 10.5"/268mm (rear)
Weight (RTR)	7.5lbs.

Transmission:

Type	Shaft Drive 4WD
Differentials	Front, rear, & center
Driveshafts	Steel universal joint/ shafts at front, dogbones in rear and center
Bearings	Full ball bearings

Suspension:

Type	Oil-filled coil over
Material	Plastic/Steel

Front end

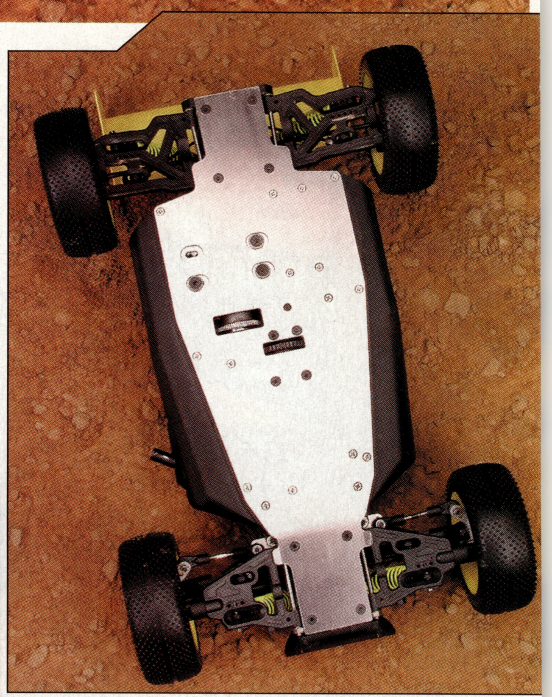
Caster	Adjustable
Camber	Adjustable
Toe	Adjustable
Down-travel	Adjustable

Rear end

Anti-squat	Non-adjustable
Camber	Adjustable
Toe	Adjustable
Down-travel	Adjustable
Shocks	Oil-filled coil over
Springs	Kit Yellow
Wheels	5-spoke
Tires	Pin-type
Insert	Standard foam
Body	Stock TTR

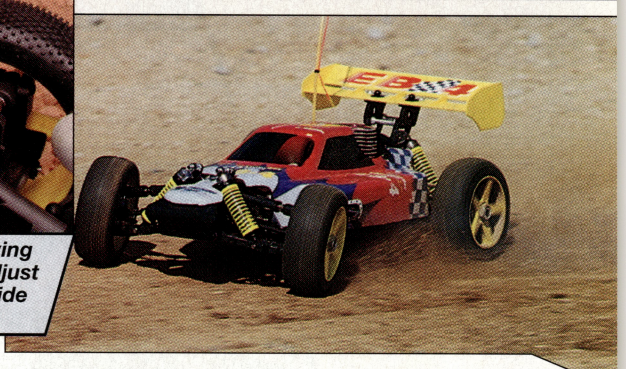


The stock kit shocks work exceptionally well, but we'd like to see slightly stiffer springs come with the kit.





Note the holes in the rear wing mount—they allow you to adjust the angle of the wing to provide more or less rear down force.



CHASSIS

The EB-4 RTR features a solid 3mm thick aluminum main chassis plate with an upper aluminum radio tray (complete with plastic AMB transponder mount attached) that holds the steering and throttle servo. Directly behind the radio tray is a sealed receiver box. The lower wishbones of the EB-4's fully independent suspension attach to each gearbox by a thick aluminum plate that holds the leading edge of the arms' steel hingepins and by a molded brace at the rear of the pins.

DRIVETRAIN

There are differentials for the front and rear ends of the chassis as well as a center diff that is used to bias power between the front and rear wheels. Each diff uses metal bevel gears inside beefy nylon cases.

Like other cars in its class, the EB-4's diffs are O-ring sealed so that they can be filled with thick silicone fluid (not included) to tune their performance. The center diff is held to the EB-4's chassis by a pair of molded nylon standoffs, and topped off by an aluminum top plate that serves to reinforce the diff against the forces of acceleration and braking. Each end of the center diff keys to a thick, steel disc-brake assembly that gets clamped by a pair of steel calipers with fiber pads.

Up front, the EB-4 has universal-joint driveshafts that pass through cast-metal steering knuckles (dogbones get the power to the rear wheels).

SUSPENSION

The tie-rod ends and upper wishbones are joined by steel turnbuckles, which allow easy adjustment of each wheel's camber. Furthermore, the front upper wishbones can be slid back and forth on their inner hingepins to adjust caster angle between 18- and 24-degrees

Each corner of the EB-4 is damped by a large-volume oil-filled shock absorber featuring an aluminum body and polished steel shafts. Inside the shocks are Teflon pistons that control the rate and resistance of the shock's action.

Thunder Tiger's yellow springs, although a bit on the soft side, are perfectly adequate for most track conditions, so an upgrade isn't necessary unless your track has really big jumps.

MISCELLANEOUS

There are other items that grace this car as stock features that we felt give it that little extra "real race car touch."

- A steel spur gear is far more resistant to wear and tear.
- Quick change battery plate allows for easy access to your receiver pack.
- A heavy-duty yellow molded nylon rear wing can take quite a bit of abuse—it also is attached to an adjustable wing mount which allows you to alter rear downforce.
- Front and rear sway bars help the car corner better.
- Molded plastic chassis side guards help prevent excessive dirt and mud from splashing into the chassis while racing.
- Front universals help the car steer better and get more forward bite through rough sections.
- Tie-rod chassis braces help keep the car relatively flex-free.

RTR FEATURES

What is new with this version is the fact that it comes completely ready-to-run with a whole bunch of extra goodies.

- Thunder Tiger's pull-start Pro-21 engine provides decent power when combined with Thunder Tiger's FEMCA 514 tuned pipe.
- A Hitec Lynx Sport AM radio is installed along with a Hitec HS-605 high-torque, dual ball-bearing steering servo (nice touch).
- A good quality fuel bottle make for quick and easy fill-ups ($10-20 value).
- A large "D" size NiCd glo-igniter comes with the kit ($30-40 value).
- A five way spinner-style wrench also comes included ($5-10 value).

THE GOOD

- How complete do you want your R/C car kit to be? Well, the TTR EB-4 ready-to-run is as complete as they come. All you need is fuel and batteries for your radio and receiver!
- Assembly quality is top-notch.
- We were pleasantly surprised with how well the pre-painted body looks. The decal job was pretty darn good too!
- As Bob Barker says, the price is right!

THE BAD

- The included AM radio works o.k., but lacks the necessary features found on other radios that you need for adjusting a true race vehicle like the EB-4. The Lynx Sport doesn't even have dual-rate adjustment—a "must have" feature on a radio!

THE VERDICT

We're highly impressed with the Thunder Tiger EB-4 RTR. In particular, we were impressed with the overall quality of the car and the fact that Thunder Tiger didn't cut any corners on material in an effort to get the car out more cheaply to consumers. What you got with the full race kit, you get with the ready-to-run kit, and even more. The included pull-start Thunder Tiger .21 with the tuned pipe puts out good power—not as much as a full-blown race engine, but it makes more than enough to get you around the track fast. It was also a nice touch to include a high-quality glow-igniter and a fuel bottle to make getting up and running an easier task. And as we mentioned before, the price for this package is a phenomenal value—for $499 you get a competitive 1/8-scale buggy ready-to-run right out of the box! That's a hard package to beat for people looking to get into 1/8-scale racing the quick and easy way.

PERFORMANCE

Location: Hot Rod's, Saugus, CA
Weather: Cool and overcast
Conditions: Hard-pack dirt

Engine—The included .21 pull-start Thunder Tiger engine fired-up with only a few pulls on the starter cord. Factory settings were spot-on—just rich enough for a proper break-in. After we idled through two tanks of Blue Thunder 20% we started gradually leaning in the settings, and started our first run. Throughout our testing, the engine never gave us a problem.

Acceleration and speed—Acceleration was quite respectable, with decent top speed as well. While it's not as powerful as most race-oriented .21s, it still puts out tractable power.

Steering and handling—Here is where you start to run into some limitations with the included radio. For some unknown reason, we couldn't get the car to track straight all the time—occasionally, the car would tend to wander from side to side and we'd have to counter-correct it with the radio trim. The lack of a dual-rate feature on the radio really hurts when you need to dial-in or dial-out steering.

Over jumps and bumps, the car handles admirably. Doubles and triples are generally no problem for 1/8-scale buggies, and the EB-4 is no exception.

Durability—The EB-4 is one tough car. One word of caution though—use Loctite on all metal to metal connections. We lost a setscrew on the car's drivetrain almost immediately and had to search for a replacement. Throughout the test, nothing broke on the car—it came through without a scratch!

SOURCES

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

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



ESP Juggular Chassis Upgrade Kit

Best known for their work with modifying Tamiya Clod Busters, ESP Hobby Mfg. recently released a few new items for another monster that may interest some—the Tamiya Juggernaut 2.

The ESP Team Juggular Chassis upgrade kit for the Juggernaut does away with the stock upper plastic chassis along with the stock Styrene plastic body set (which, by the way, is very heavy). By removing only the upper plastic chassis piece and stock body, ESP was able to reduce the overall weight of the monster truck by an incredible two and a half pounds!

We received a sample Juggular kit for our own testing purposes—the complete version #ESP065—yet each item in the kit is also available separately. The chassis upgrade kit consists of aluminum crossmembers, shock mount towers, a battery mount, a radio tray, body mounts, and all the necessary hardware.

Complementing the chassis kit is a complete long-wheelbase four-link suspension system. The four-link comes with eight aluminum suspension links, nylon rod ends, servo rods, and stainless steel driveshaft extensions.

Finally, rounding out the kit is a complete heavy-duty tie-rod kit for the steering system. It comes with all the necessary tie rods, nylon rod ends, and hardware to complete the four-wheel steering system that comes stock on the Juggernaut. The only thing that you need to complete the conversion is a set of four oil-filled shocks (four inches or longer).

We began the conversion by disassembling the stock truck—removing all the unnecessary items such as the stock plastic upper chassis, the stock suspension (leaf springs, spring mounts, and ball connectors), the plastic swing arms, etc. Once the truck was stripped down to bare bones, it was time to begin. We started out with the chassis kit—with the stock upper deck removed and with the four stock side chassis plates remaining in place, it was easy to install ESP's radio tray, battery mount, shock towers and all the cross members. The cross members really help stiffen the chassis, which is ultra important, especially with a monster truck.

After the chassis conversion parts were in place, we turned our attention toward assembling the four-link suspension system. Assembling each link is a total snap. We had our complete set of eight done in a matter of minutes and had it attached to the truck in no time.

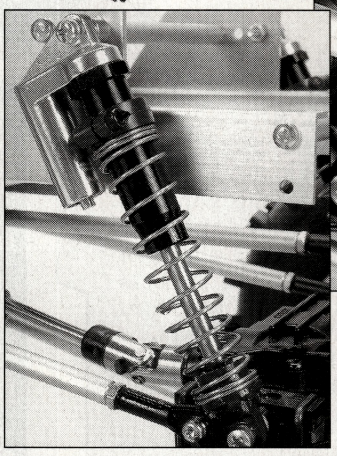
For our electronics choice we went with an LRP Truck ESC, a JR Racing XR3 FM radio, and a Hitec 945MG steering servo.



To help power our vehicle, we used a sport-pack style seven-cell 3000 NiMh battery pack



Lighten up that monster and gain more travel!



Progressive Suspension provided us with a set of their EDC-2 shocks for our test vehicle. The EDC-2 shocks feature a remote reservoir, and the ability to adjust damping internally without disassembly. We've used them before on other vehicles with much success, and they worked fine in this situation as well.

Juggular Conversion Kit Parts List

If you want to purchase any of the items separately, here are the part descriptions, parts numbers, and retail price.

- 4-link suspension kit (part #ESP060) $59.95
- Heavy-duty. tie-rod set w / ball links (part #ESP061) $49.95
- Long wheelbase 4-link suspension kit (part #ESP062) $99.95
- Stainless Steel driveshaft extensions (part #ESP063) $29.95
- Aluminum chassis upgrade kit (part #ESP064) $59.95
- Aluminum Steering Link w/bearings (part #ESP038) $49.95

Parts List

- ESP Team Juggular Full Conversion Kit (Part #ESP065) $169.95
- Pro-Line Giant Trac tires for Clod Buster wheels (Part #1056-00) $29.00
- Pro-Line 2001 Chevy Silverado CrewCab (Part #3100-00) $26.00
- Pro-Line 2001 Chevy Silverado CrewCab (Part #3100-00) $26.00
- Two pairs—Progressive Suspension EDC-2 shocks (Part #PBR-1001) $32.50
- Two pairs—Tamiya Bullhead wheels (Part #9335085) $15.00
- LRP Truck Digital ESC
- 2 Reedy Rage stock motors (Part #304) $36.00
- Hitec 945MG servo (Part #HS-945MG) $89.99

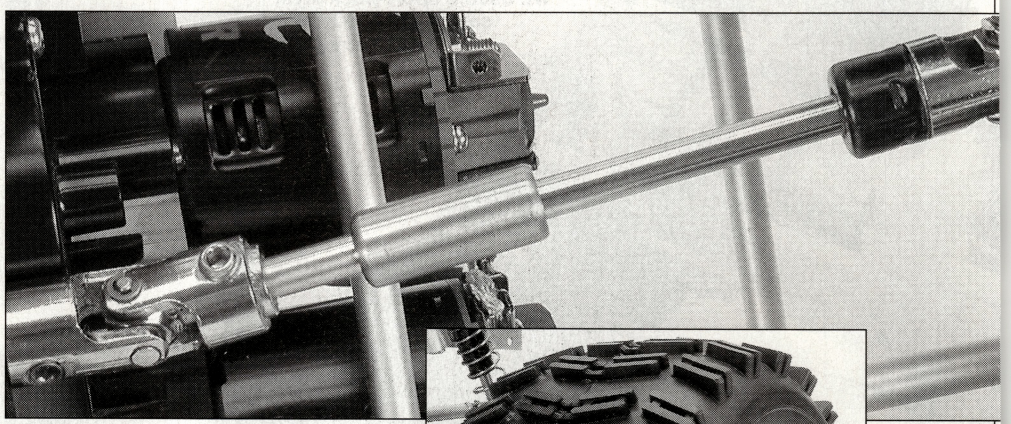
ESP Juggular Chassis Upgrade Kit

For our truck's shock set, we turned to Progressive Suspension. For our project truck we chose a set of their EDC-2 PiggyBack reservoir shocks. The EDC-2s are hard-anodized, use Teflon pistons, and Silicone O-rings, and feature Progressive's Click-it-4-way damping adjustment (a system that allows you to alter damping without needing to change pistons or shock oil). We've used these shocks before on other vehicles and have always been pleased with their performance.

Finally we finished up the truck by assembling the steering linkage, and we were almost ready to go. The only thing we needed to do after that was add our running gear. For this test we chose to run two 24-degree Reedy Rage rebuildable stock motors, LRP's Truck digital ESC, a Hitec 945MG to handle the steering duties, a seven-cell pre-assembled NiMh battery pack, and the machine was to be controlled by our JR XR3 FM radio system.

Before we forget, we added two extra items to the truck—a set of Pro-Line Giant Trac tires and a set of Tamiya Bullhead wheels. The Bullhead wheels are slightly wider than the stock Clod wheels, so it lowers the profile of the tire carcass ever so slightly.

Topping off our project vehicle was a Pro-Line 2001 Chevy Silverado CrewCab body, custom-painted by our good buddy Dennis Rotim. ◆



ESP includes a set of stainless steel driveshaft extensions. The extensions bolt right onto the existing shafts and add one and a half inches to the overall length.



We used Pro-Line's tried-and-true Giant Trac tires mated to a set of Tamiya Bull Head wheels. The Bull Head wheels are slightly wider than Clod Buster wheels, which helps lower the tire's profile slightly.

DRIVING IMPRESSIONS

So what's it like driving a lighter, faster, stronger Juggernaut 2. Well, thanks to ESP and our other mods, it drives like a dream!

The additional travel provided by the chassis kit, coupled with the plushness of the Progressive Suspension EDC-2 shocks helped the truck crawl up and over tight technical terrain with ease. The Pro-Line tires also help the truck make it over rough terrain a little easier than the stock Juggernaut tires would.

Additionally, since we were running stock motors instead of wild mod motors the truck had significantly more runtime (it also helps we were running seven NiMh cells).

Overall, we were impressed with the ESP Team Juggular kit and how it transforms the stock truck into a true monster!

SOURCES

ESP Hobby Mfg. Inc., 129 Elizabeth Lane, #4, Genoa City, WI 53128 • (262) 279-0900; (262) 279-0972 (fax)

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

LRP, distributed by Team Associated, 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 (fax)

Progressive Suspension USA, Inc., 11129 Ave. G, Hesperia, CA 92345 • (760) 948-4012; (760) 948-4307 (fax)

Reedy Modifieds, distributed by Team Associated, 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 (fax)

Tamiya, distributed by Tamiya America, 2 Orion, Aliso Viejo, CA 92656 • 1-800-TAMIYA-A; (949) 362-2250 (fax)

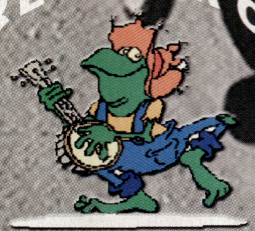
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1. June 9, 2001 Action RC / OK

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Send entries to: Real RC
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Kansas City, MO 64133
Steve Hale
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e-mail hrealrc@aol.com

2. June 23, 2001 Real RC / MO

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Mike Battaile
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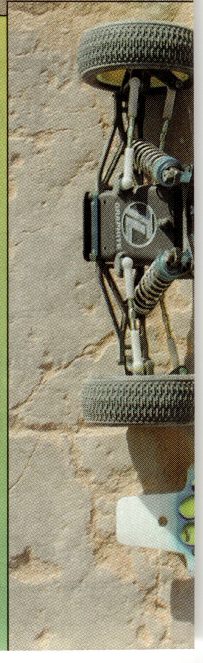
By Jimmy Babcock

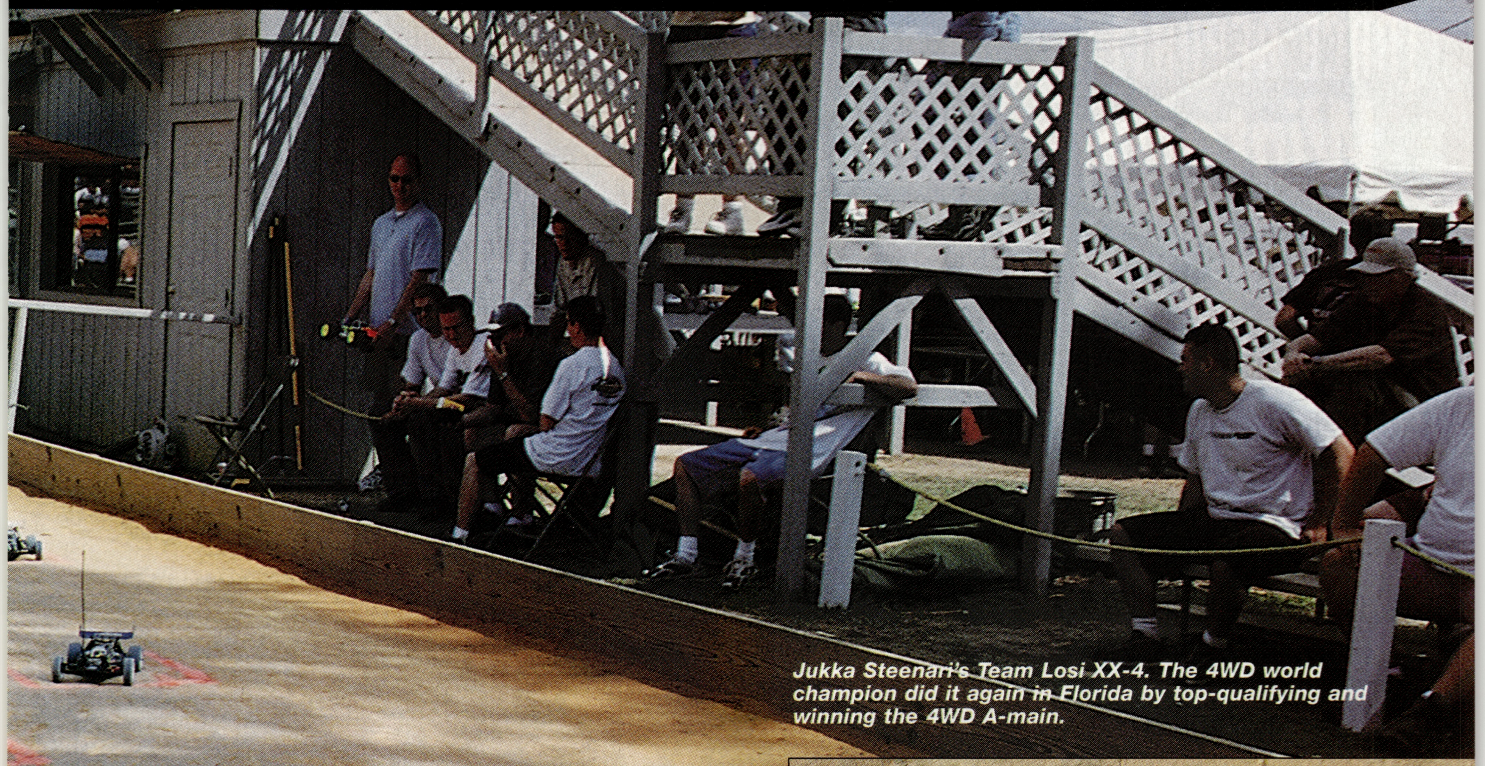
This year's Florida Winterchamps were once again held just outside of Tampa at Lake Park in Lutz, Florida. As in years past, the Winterchamps took place toward the end of February. The West Coast R/C Club hosted the event over the weekend of February 22-25, 2001. Team Losi was the major sponsor for this year's event and once again brought out the Blue spec tires for the stock classes.

There were definitely a lot of firsts at this year's Winterchamps. It was the first year that the Team Losi Dirt Spec tires were used at this event to keep the playing field even. All stock participants were required to use the spec tires front and rear on their vehicles. These tires, as some of you may or may not know, were debuted at last year's Hot Rod Hobbies/*RC Car* magazine Off Road Shoot Out and were accepted with open arms by all the racers. The main purpose of the tires is to keep costs down for the privateer racers and that's exactly what it did. All the stock drivers were only allowed two sets apiece for the entire weekend. A-main drivers were then allowed one additional set if they wanted.

Another first at this event was triple A-mains for the stock classes. In previous years, the West Coast R/C Club opted for the traditional single A-main for the stock classes. In an attempt to make the stock classes more exciting, the triple main format was used.

The Florida Winterchamps is always one of the favorite races to attend among R/C racers. This year was no exception and the turnout was excellent. In years past the weather has not always cooperated since, after all, it is February in Florida! Fortunately for all the racers, Florida was in a drought and there was no rain in sight. Temperatures topped the 80-degree mark for most of the week and a lot of racers went home with a little color! With all that said, let's move into some exciting race action!



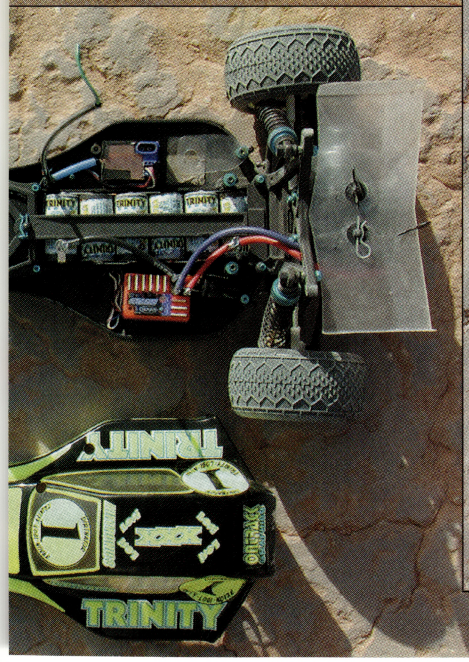


Jukka Steenari's Team Losi XX-4. The 4WD world champion did it again in Florida by top-qualifying and winning the 4WD A-main.

Winterchamps



Brian Kinwald's race-winning Team Losi Triple-X. Notice how Brian used 4WD front taper pins on the front of his A-main winning 2WD.





Jukka Steenari's Team Orion-powered Losi Triple-XT. Not only did Jukka win the A-main, he also top-qualified the Truck Modified class.

[RACE REPORT] Winterchamps

2WD Stock A1

On his comeback tour and with new sponsor Kyosho, Jeremy Kortz was on a mission. He dominated qualifying in the 2WD Stock class taking top qualifying honors. At the start of the first main, Kortz took the early lead but quickly started to fade away in the field. Privateer driver John Walters, driving his Losi Triple-X, took over the point and never looked back. Kyosho's Greg Degani made a late charge on the leader but came up short, settling for second while Kortz claimed the third spot.

2WD Stock A2

On the tone it was once again Jeremy Kortz who shot out front with Walters and Degani in tow. After an eighth-place finish in A1, third Qualifier Dan Rodriquez made his way to the front. Rodriquez, Kortz and Degani all battled it out for the top spot but the Team Associated B3 of Rodriquez seemed to have a slight advantage and went on to win A2 by a small margin. Degani once again had to settle for second while Kortz once again settled for third.

2WD Stock A3

Coming into the last main it was truly anyone's race. Rodriquez had one win, Walters had one win and Degani and Kortz had second and third place finishes respectively. As you could imagine, top qualifying this class and finishing third in the previous two mains, Kortz was determined to win the third and final main. At the start, It was indeed Kortz who took the early lead. No one challenged him the entire race and he easily went on to take the A3 win by a commanding margin. The battle in this race was for second. Rodriquez and Walters both had a shot at the title and it came down to who finished second in the final main to determine the champ. Even with the win, Kortz had no shot at winning overall so all eyes focused on the battle for second which would determine the winner overall. The two battled back and forth but Rodriquez was just too strong and finished second in A3 taking the overall victory. Walter's finished third in A3. Dan Rodriquez, with his Team Associated B3/buggy, was the overall champ with a first and second place finish. Jeremy Kortz settled for second overall with a first and a third place finish. John Walters finished up in third overall with a first and a third place finish as well.

Truck Stock A1

Privateer John Walters was the fastest man all throughout qualifying and took TQ honors in the Stock Truck class with his Team Losi Triple-XT. At the horn it was Walters who shot out to a commanding lead leaving the rest of the field to battle for second. Jim Myers, driving his Losi truck, battled it out with Kyle Skidmore for the second spot. These two exchanged positions several times but when they crossed the line it was Myers who finished second with Skidmore taking the third spot.

Truck Stock A2

After a horrible finish in ninth spot in the first A-main, second-qualifier Jared Scott was ready to take names. There was one man, however, who wanted to end things a little early with two straight wins! At the tone it was once again Mr. John Walters who took the holeshot, but this time he had company. Shadowing him around the track early on was none other than Jared Scott. The two fought it out the entire race until the last lap when Walters took over the lead for good and went on to win A2 and wrap up the Truck Stock title. Jared Scott did fin-



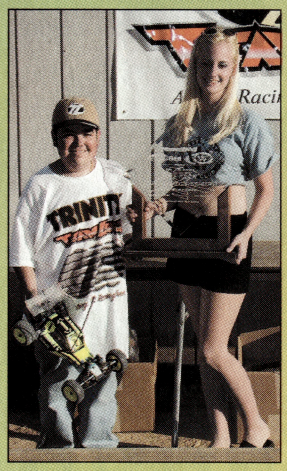


All the A-main finalists in the popular stock truck class. These guys put on one heck of a show in all three main events.

Above left: The top ten finishers in the 2WD stock class. This was the first year that Team Losi Blue Dirt Spec tires were used in all stock classes.

The Truck Modified A-main roster sits proudly on display for the cameras.

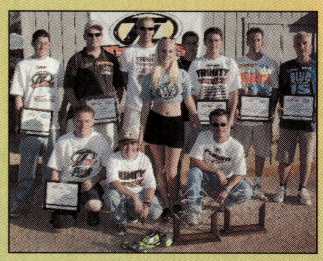




2WD Modified A-main winner Brian Kinwald.



The 4WD A-main participants were a diverse group this year, with four of the ten drivers coming from Europe.



2WD A-main drivers.



Finland's very own Jukka Steenari made his country proud by picking up the win in the 4WD modified class.

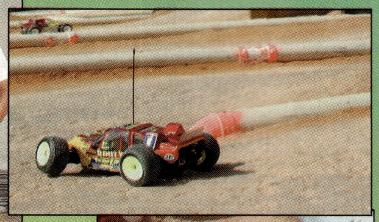
Bottom left: Team Losi almost had a clean sweep of every single class. These three drivers won every single class except one!

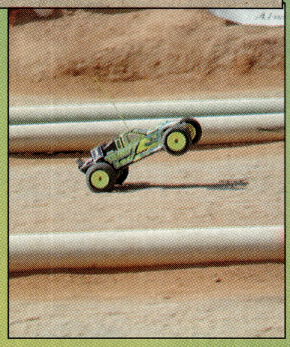
John Walter's TQ'ed and won the first two mains in route to his commanding victory in the truck stock class.







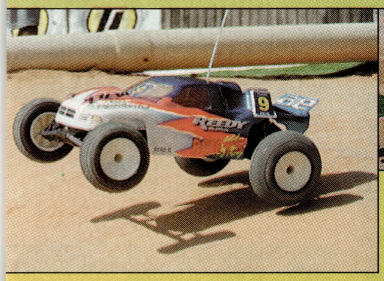




Dan Rodriquez, winner of the Stock 2WD class.

Top right: Matt Francis showing us the fast way around the corner. Matt had a great weekend by making two of the three main events.

As the traction came up, a lot of this started happening. Brian Kinwald lifts the front of his Trinity powered Losi Triple-XT under acceleration.

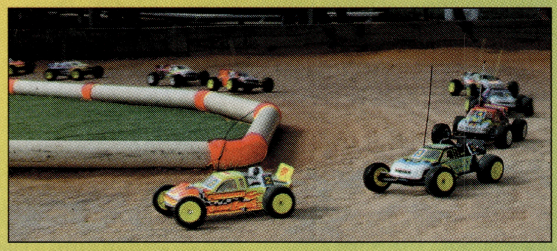




Teammates Brian Kinwald and Brian Dunbar battle for the lead during one of the A-mains.

Team Associated's Mark Pavidis was flying all weekend with his T3 but fell a little short of making the A-main.

The modified truck A-main thunders around the first corner at the tone!







Oscar Jansen was on hand to build motors for all the Team Orion/Peak drivers. He obviously did something right, since Jukka Steenari won two of the three modified classes.

◄The 4WD grid seconds before the start of the first A-main.



A fully stocked on-site hobby shop was provided courtesy of Grand Slam Hobbies.

ish second in A2 with Andy Smolnik finishing third in his Kyosho.

Truck Stock A3

With the winner already established, A3 was simply a race to determine who would finish 2-10 overall. At the tone it was fifth qualifier Jim Myers who managed to work his way to the lead early on. He did have a host of company breathing down his neck. Jared Scott made his way back to second after a first-lap incident. Myers went on to take A3 with Jared Scott and James Ingram finishing second and third respectively. After all the points were calculated, John Walters was declared the winner with Jim Myers finishing second overall and Jared Scott claiming third.

Truck Modified A1

For someone who very rarely runs truck anywhere, Jukka Steenari was certainly on it this weekend! Finland's Steenari made the trip from overseas to compete at the fifth Annual Winterchamps and arrived with a look of determination on his face. Put it this way; the last time Jukka raced a truck in competition was last year's Winterchamps. He still had the car numbers from last year's race on his truck. With all that said, Steenari went out and simply dominated truck qualifying and ensured his truck a spot on the pole position. At the tone in A1 it was Steenari who built a sizable lead while Brian Dunbar and Billy Easton slowed each other down in their battle for second. By the halfway point it was Steenari with a huge four-turn lead on Dunbar and Easton. With only a minute to go, Steenari's Team Losi truck started to lose traction and became very lose. At this time, Dunbar's truck was just getting good. Steenari made a few small bobbles which allowed Dunbar to reel him in a bit and coming down to the last lap, Dunbar was right there! On the last lap, the two touched a few times while Steenari was trying to fend off Dunbar but with only a few corners to go, Dunbar made the pass and went on to win A1 by only a few feet. Steenari settled for second while Easton claimed the third spot for Team Associated.

Truck Modified A2

After correcting some of the tire and handling problems that plagued him in A1, Steenari was back and ready for action. At the beep Steenari took off and basically never looked back. A few guys caught up and then fell off but Jukka pretty much dominated A2. Recent fast guy Dave Montgomery, who runs for Team Losi and Team Orion, finished A2 in second while Losi/Peak driver Greg Hodapp settled for third.

Truck Modified A3

This was the moment everyone was waiting for. Two mains with two different winners thus far. Who was going to be the champ? At the start it was once again Mr. Steenari who took the early lead followed this time by third qualifier Brian Kinwald and eighth qualifier J.R. Mitch from Team Associated. These three swapped positions several times before Steenari made a few bobbles and fell back in the pack. Kinwald and Mitch resumed the battle out from and swapped positions three or four times until Kinwald finally moved out front for good. Brian Kinwald won A3 followed by J.R. Mitch in second and Billy Easton in third. Even with a bad final main, Jukka Steenari still held everyone off to claim the 2001 Florida Winter Championships for Truck Modified. Team Losi/Trinity driver Brian Kinwald Finished second overall with Team Losi/Orion driver Dave Montgomery taking home third spot.

2WD Modified A1

After an already impressive second qualifying spot in Truck Modified, Brian Dunbar was back with his bright orange and yellow Team Losi Triple-X. Dunbar was considered to be the

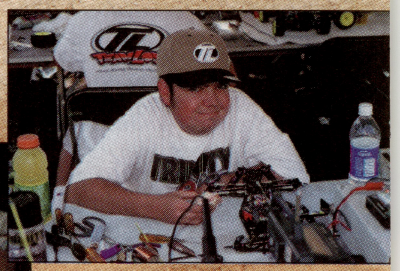
[RACE REPORT]

Winterchamps





Team A-Train in the house. WOOOOO WOOOOO. Lucky Battle and Willie Scott made the journey all the way from Alabama to race at this year's Florida Winterchamps.

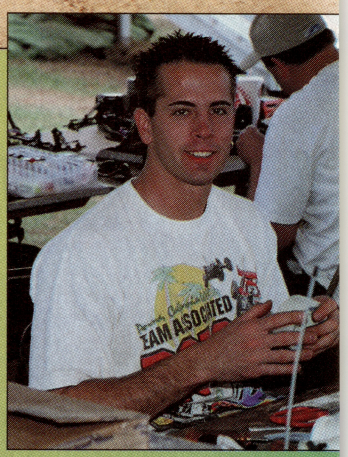


Brian Kinwald takes a break between heats. Running three classes makes it difficult to find time to eat!



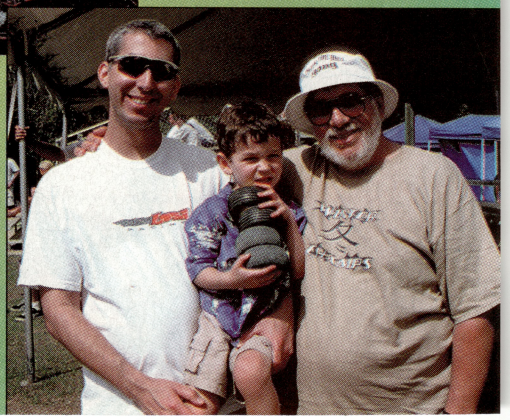
A crowd favorite, Mark Pavidis glues up some Pro-Line tires before one of his heat races.

Veteran motor builder Mike Reedy was on hand to take care of his guys. Mike, are you having fun yet?



Team Associated's Billy Easton has been on a tear as of late. Billy has been winning everything in sight, including touring car races and off road races. Billy put his cars in both the Truck and 2WD modified A-mains.





Three generations of Losi boys were all on hand and not one of them was racing. Michael, the newest Losi boy, was spotted working on several cars throughout the weekend.

fastest guy all throughout qualifying in all classes and he proved it by putting his Losi buggy on the pole for the 2WD modified class. At the start it was Dunbar and second qualifier Brian Kinwald who shot out in front early. Those two pretty much checked out from the rest of the field letting every one else battle for third. At one point there were about six cars battling for third, including Montgomery, Hodapp and Pavidis. Crossing the line it was former world champ Brian Kinwald taking the win with world champs runner up Brian Dunbar finishing in the second spot. After all the dust settled, third place went to Dave Montgomery.

2WD Modified A2

Former world champion Matt Francis finished fourth in A1 but wasn't about to end A2 in the same position! At the tone, Kinwald, Francis and Pavidis were the three out front. Dunbar had a horrible start and dropped to the tail of the field. Francis and Kinwald were feet apart for the entire race with Kinwald leading at the white flag. On that last lap, Kinwald made a mistake which allowed Francis to move by for the lead. With only two turns to go, Kinwald made a last ditch attempt but came up short allowing Matt Francis to claim A2. Kinwald finished second with Mark Pavidis finishing up in third spot.

2WD Modified A3

After taking some time off and getting a new job at Team Losi, Greg Hodapp seems to be a changed man. He was at one time considered to be the best off-road R/C racer around with a Reedy Race Invitational win to his credit. Hodapp seemed to come out of his shell in A3 and not a minute too late! At the start it was once again Dunbar, Kinwald and Hodapp out front. Hodapp qualified fifth but quickly made his way up to the front like the Greg of old. Dunbar made a few mistakes which allowed Kinwald to move out front but from a few corners back, Hodapp was on

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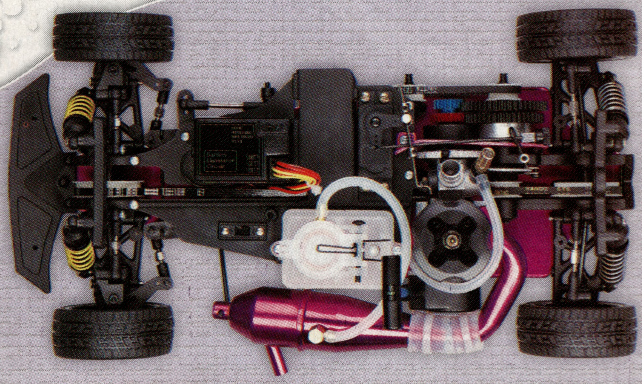
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Winterchamps

a mission with the fastest car on the track. With around a minute to go, Greg Hodapp finally caught Kinwald and made a spectacular pass in mid air over the huge table top. The crowd went wild but Kinwald was smart and knew that he only had to finish second to wrap up the title. Once in the lead, Hodapp pulled away from the world champ and ended up winning by a full straightaway. Hodapp is back, boys and girls! After the points were tallied it was Brian Kinwald who was crowned Champion of the 2WD Modified class. With two fourth place finishes and the first in the final main, Greg Hodapp took home the second spot overall with TQ Brian Dunbar finishing up third overall.

4WD Modified A1

When the phrase 4WD comes up, it is most commonly associated with Jukka Steenari. I mean, after all, he is the 4WD Modified World Champion and it can't get much bigger than that. Also he did win this very same class at last year's event. In a single word you can sum up Jukka Steenari and his 4WD Team Losi XX4—"dominating." At the tone it was none other than Steenari with his Team Orion-powered XX4 who grabbed the lead. Steenari simply checked out in this race leaving the race for second between Brian Dunbar and Finland's Teemu Leino. These two battled lap after lap and the race for second came down to the last ten feet when they got together coming onto the straightaway. They both flipped but it was Dunbar who regained control first crossing the line in second followed by Leino.

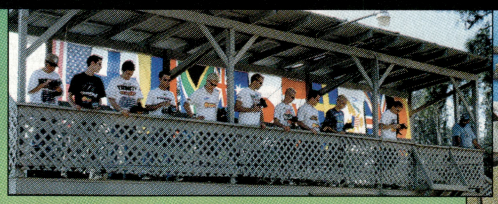
4WD Modified A2

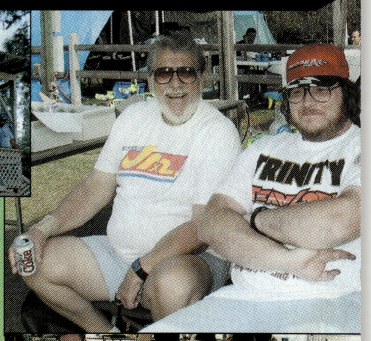
Once again Mr. Matt Francis had a pretty bad A1 in 4WD, finishing fifth from the third qualifying spot. He had his sights set on a better finish in A2. At the start Steenari once again checked out but not by the same distance as A1. Francis and Brown kept him in sight as they swapped positions for the second and third spots. Matt finally established himself securely in the second spot but stayed the same distance behind Jukka until the end. Jukka Steenari won A2 and took the overall title in the process. Matt Francis finished second in A2 followed by Scott Brown.

4WD Modified A3

With the title already wrapped up, all that was left was the A3 race to determine second spot. At the tone it was second qualifier Teemu Leino who got the early lead followed by Francis and Kinwald from his ninth qualifying position. Kinwald tapered a little allowing Francis and Leino to stretch out a bit. Crossing the line in this rather uneventful main event was Teemu Leino in first followed a few seconds back by Matt Francis and Brian Kinwald. The overall win went to Team Orion's Jukka Steenari. The runner up spot was awarded to Matt Francis with Teemu Leino finishing up third overall.

Well, another Team Losi Florida Winterchamps is in the books. All the qualifying and main events turned out to be much more exciting than in years past. The track layout was one of the best ever for the Lake Park facility. Congratulations to all the A-main winners and special thanks to Team Losi for supplying all those trick Blue Dirt Spec tires for the stock classes! Once again the West Coast R/C Club outdid themselves by putting together one of the best -run race programs around. There were very few if any problems throughout the entire weekend and everyone I'm sure had a great time in Florida. See ya next year! ◆





The 4WD modified drivers prepare themselves on the drivers stand. You can only imagine what goes through their minds just seconds from the start of a very important race.

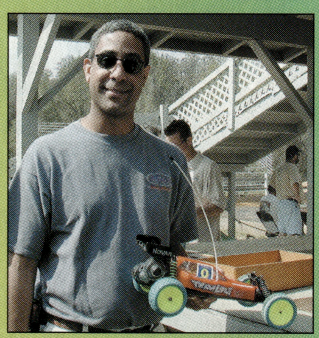
Top Right: Gil Losi Sr. and Team Trinity's Jim Dieter talk race strategy while relaxing in the shade. Hey, Pops, nice shirt!



Teemu Leino traveled all the way from Finland to partake in this year's festivities. The Team Schumacher driver did quite well, as a matter of fact, putting his 4WD car second on the grid for the main events.



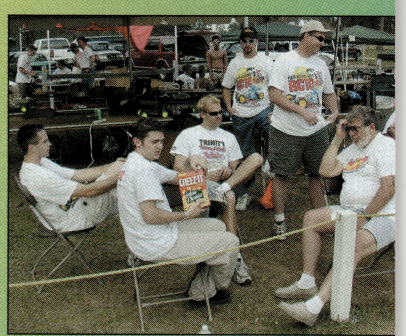
What can you say about these two guys? Pro-Line's Scott Hughes and Team Associated's Richard Saxton clown around for the camera during a race break.





Novak Electronics' own Tyree Phillips was on hand pulling double duties. Not only was Tyree sent to Florida to take care of all Team Novak customers, he was also allowed to compete as well with his Team Losi Triple-X.

◄ Former World Champion Matt Francis was fast all weekend, as usual. During this break all Matt can think about is what flavor Smoothie to get on the way back to the hotel.



A world of talent all in one photo! The fast guys gathered together at the end of qualifying for a tech session with some of the racers. It was kind of a question/answer session where drivers could ask about anything from setups to driving.

Team Losi's very own Scott Brown was on hand from Tacoma, Washington. Scott was excellent as always, making all three A-main events.



The Montgomery boys! Dave Montgomery has been on a mission lately, finishing real well at the last several competitions.



R/C CAR BACK ISSUES



❑ **FEB. '99**
FSR V12 Nitro Bullet; MRC SP3; Kyosho [illegible] Team Losi NXT; Tamiya [illegible] Lightning; R/C and Safety; Chicago Hobby Show; Dead Short Your Batteries?; Tamiya TS [illegible] Trinity's Paradox; Inside the TCS winning cars; Tamiya CVA Transparent Shocks; Hitec CG-335 Charger; Integy discharge tray; Roland Sticka STX-7; Team Losi Street Weapon; MRC nitro Thunder King.

❑ **MAR. '99**
MRC Q-Tee Coupe; Schumacher Nitro [illegible] RS4; Tamiya [illegible] Mercedes CLK-GTR; Savage Motorsports Headhunter HS-350; Team Associated [illegible] How to break in your engine; [illegible] Modified motor; pro building tips; new Era models Clod Buster Kit; How to set screw your suspension; Trinity foam touring car stand; Team Kinwald blue drivers; GM Racing Commander Charger; Integy Indi Reactor 20 discharger; MPH Products Packrack; OFNA Racing Nitro Z-10.

❑ **APR. '99**
Duratrax maximum ST RTR; Team Losi I.W. [illegible] Kyosho Inferno [illegible] HPI Nitro RS4 RTR; Schumacher S.S.T. '99 Pro; Team Losi Double-X Tuning Guide; Super Sport Nitro Sedan Shootout; Beans Speed Rig; Dirt Bags Cargo Hauler; Multiplex programmable servos; HG Inc. Transparent Shocks; HPI RS4 Rally.

❑ **MAY '99**
Tamiya Toyota GT-One; Kyosho Landr[illegible]; Associated [illegible]; Tamiya Baja Champ; Golden Horizon Colt 10-Formula 1; Integy parts cleaner; Team Losi NXT '99; International Reedy Race of Champions; Team Associated Dual Sport Conversion; Motor Saver Filters; Inside the Reedy Race Winning Cars; Jamara 1/2-scale Go-Kart; RC10-GT Tuning Guide; Novak's new Millennium Charger.

❑ **JUNE '99**
Yokomo MR-4 Rally; Kyosho GP Spider Mk. II [illegible] Tamiya M4 Sherman [illegible]; Tamiya Tao3R TRF; SVM Columbia Mk5 1/5th Scale; Novak Fusion; Robinson Racing RC10GT Spur Gear; Integy [illegible]2 Chargers; JR Racing XR3 FM [illegible]; HPI Nitro Bullet; '99 Team Losi Florida Winter Champs; Tamiya Juggernaut; Inside Winter Champs winning Cars.

❑ **JULY '99**
Hobby Tech HT1; BoLink/Racetech G-Force; [illegible] MB-4; Yokomo YR4-M[illegible]; [illegible] Dagger; Traxxas Nitro Wash; Pro-Line/Jaco pre-mounted sedan tires; FMA Direct Typhoon [illegible] Golden Horizon Turbo Head; FM [illegible] FM Receiver; Hi-Tec Lynx FM 3D; Silver State Nitro Challenge; How to update your HPI Nitro RS4; '99 Florida Gas Winternats; Tamiya TG-10.

❑ **AUG. '99**
Tamiya Juggernaut; Kyosho Ford F-150 Deser[illegible] Kyosho Spoke Super[illegible] F1; PC Controller Shootout; '99 Reedy truck Race of Champions; 12 Engine Guide; Inside the Trinity Team Losi Merger; HPI Super Nitro RS4; Tamiya Porsche GT-One; Duratrax maximum ST; Take-Off Setup Board.

❑ **SEPT. '99**
CEN SP1; Kyosho QRC Ford Escort Rally; [illegible] TC; Kyosho TF-3 Type R; [illegible] Car Shootout; Inside Team Associated's TC3 touring car; FM racing receiver guide; How to make a pseudo [illegible]; International Reedy Race Tour[illegible] Championship; FSR Bullet; Duratrax Piranha; Progressive Suspension piggy back reservoirs.

❑ **NOV. '99**
Tamiya 1/8 Mini Cooper; Neo Max[illegible]; [illegible] Losi Triple[illegible] tranny works; '99 IFMAR Off-Road World Championships; Hitec HS-925MG & HS-94[illegible] Servos; Inside the IFMAR Winning Cars; Tamiya Monster Truck Alloy Shock Set; TamiyaMo3 Mini Cooper; Hobby Tech HT1.

❑ **DEC. '99**
HPI Nitro RS4 2; Kyosho Snake Bite; Serpe[illegible] Thomas Stree[illegible]; Tamiya M-04 [illegible] Bug; Golden Horizon Neo Type-M; Kawada SV-10 GT; '99 ROAR On-Road Na[illegible] Racer of the Century; HPI Nitro RS4 Buyers Guide; ROAR On-Road National Winning Cars; CEN Two-Speed; MIP tweak Station; Team Losi NXT; Academy SP3,

❑ **JAN. '00**
Schumacher Fireblade EVO; Tamiya Wild Willy 2; Academy STR-4; Kyosho MP-6 DX; Thunder Tiger Real Ten RTR; Horizon Pro-Trax Stampede; Picco/Omega .21 Engine; Team Orion Chrome Modified motor; Traxxas T-Maxx; NORRCA Off-Road nats; How to clean bearings; Tamiya nationals; Pro-line Endless Summer; Budget battery discharger guide; Penguin Yokomo MR4-TC Chassis Set.

❑ **FEB. '00**
Schumacher SST AXIS Pro; Tamiya Tao3R-S TRF; Team Associated TC3; Thunder Tiger EB-4; New for 2000; *R/C CAR* interviews Mike Reedy; Volvo Challenge II; Trinity Real Time 2 battery discharger tray; Sierra Radio Control Racers PC Game.

❑ **MAR. '00**
Kyosho TF-4 type R; Tamiya Toyota Celica; Team Losi XX-4 Worlds Edition; Duratrax Axis; HPI World Challenge; How to make a pass; Hot Rod hobbies & *R/C CAR* Shootout; What's the deal with 4WD?; Inside foam inserts; Team Losi Triple-XT; Hitec Spectra Module.

❑ **APR. '00**
Yokomo MR-4TC Pro; Team Associated RC10GT RTR; DuraTrax Nitro Quake; Tamiya Mad Bison; Getting Started in R/C from A-Z; Inside Ian Aquino's Concours Winning NSX; We race Matt Francis' Cars; Competition Radio Guide; ROAR 1/5-scale Nationals; DuraTrax Universal Starter Box; Serpent Impulse Streetspec.

❑ **MAY '00**
Tamiya F103LM TRF; Corally C4 Limited Edition; Kyosho F-Ten Toyota TS020; Tamiya TB-01 Mitsubishi Lancer Evo VI WRC; Yokomo MR-4MT; 2000 Reedy Race of Champions; Getting Started in R/C Part II; New Era Nitro Dragster; How to get sponsored; MRC Super Brain 819 AC/DC Charger; Kyosho TF-4 Type-R.

❑ **JUNE '00**
Yokomo MR-4BC; Kyosho SuperTen FWO4; Team Losi Triple-XT; Kyosho Ultima ST Type R EP & GP; SEI 1/6-Scale Buggy; HPI Nitro MT; Team Losi 2000 Florida Winter Champs; Ten Common Mistakes Made at the Track; How To: Cut Your Crank; Corner the Experts; How to: Get a Job in the R/C Industry; Hudy Pro Wrenches; FMA Versapulse AC/DC Charger; DuraTrax RealRace Simulator; HG yank Eliminator.

❑ **JULY '00**
Tamiya Juggernaut 2; FG Modelsports 1/5 McLaren F1; Schumacher Cat 3000; Kyosho 2001 Fantom; Kawada Pit Gear; Guide to RPM Tools; T-Maxx Olympics; Corner the Experts; How to: Glue Tires; Silver State Nitro Challenge; Modified Motor Buyer's Guide; Nitro Truck Buyer's Guide; Hardcore Racing Nitro RS4 Titanium Chassis Set.

❑ **AUG. '00**
HPI Nitro RS4 Racer 2; Team Associated Factory Team RC10B3; Kyosho Mini-Z Racer; Kyosho Ultima ST EP & GP Racing Sports; Quick Look; Improve your Nitro Know-How; Team Associated TC3 Accessory Guide; Team Kinwaldi Losi Off-Road Accessory Guide; First Look: Picco G1 Engines; Tamiya Juggernaut 2 Mods; Ten Questions about NiMh Batteries; Corner
The Experts; Inside Saxton's Thunder Tiger EB4; Rally Racing at SoCal Raceway; Hudy Set-up Tool.

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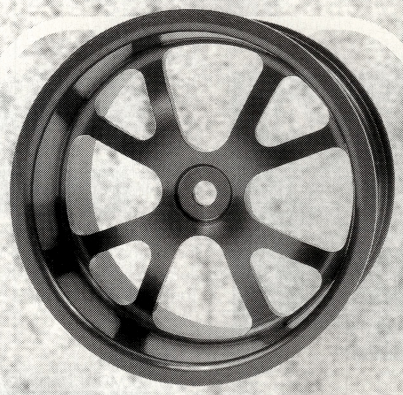
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T-Maxx E-Maxx Wheel & Tire Buyer's Guide

Big wheels keep on turnin'!

We've been going on and on for months now about how cool the Traxxas T-Maxx and E-Maxx are.

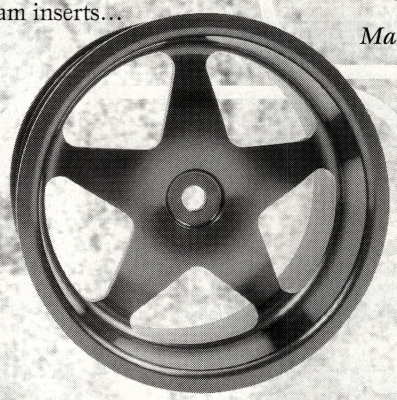
Everywhere we go, we see people showing up at the track with their new trucks, and it seems that more and more of them are being completely tricked-out with the latest alloy mods. One of the coolest mods we've seen for the T/E-Maxx are custom wheels. Since there are so many starting to pop up here and there, we decided it was time to do a little buyer's guide to show you what's currently available as of this writing. But if you're going to add a new set of wheels to your truck, we better show you what treads are available too! And foam inserts...gotta have foam inserts...



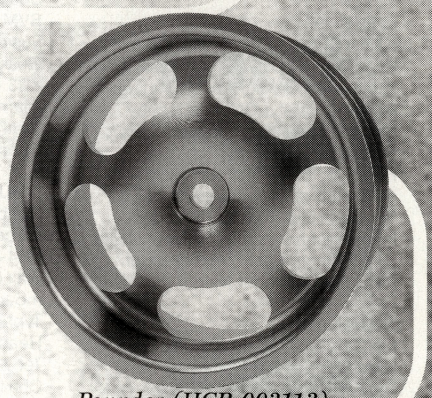
Matrix (HCR-003111)

HARDCORE RACING

Hardcore Racing has three different T-Maxx wheels available—the Matrix, the Stomper, and the Pounder. These new lightweight aluminum wheels are super strong, have perfect rotational balance, and are machined out of 6061 T6 solid billet aluminum. According to Hardcore, these new wheels will not crack, bend, break or tweak! They come in sets of four and are available in blue, green, purple, and silver finish. The wheels retail for $210.00 for a set of four:



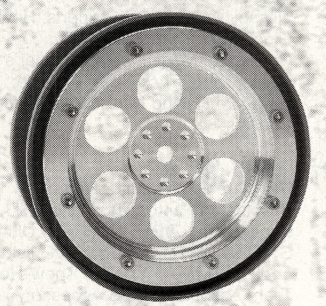
Stomper (HCR-003112)



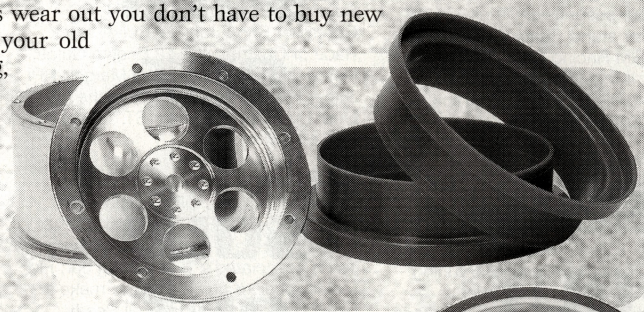
Pounder (HCR-003113)

STORMER RACING

With these new five-spoke slotted Maximizer bead lock wheels from Stormer Racing, you'll never have to glue your T-Maxx tires again! The machined aluminum Stormer Racing bead lock wheels secure your tire so tightly that the sidewall will rip out before the bead comes loose from the rim! Now when your tires wear out you don't have to buy new wheels or clean the glue off your old wheels; just unbolt the ring, slide out the rim, and bolt 'em in to your new tires. These wheels are very trick, and they retail for $189.95.

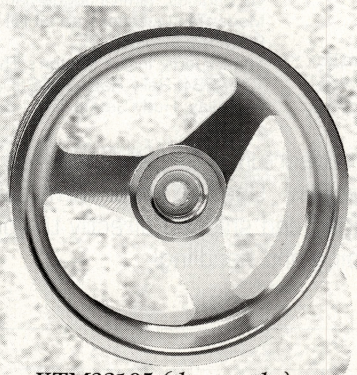


Maximizer STO4905

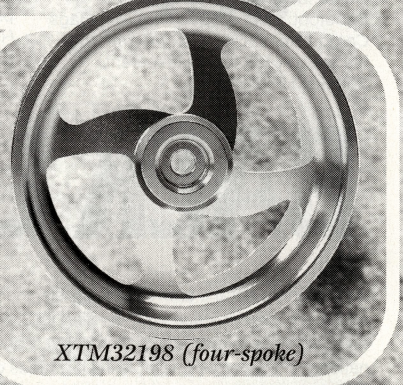


XTM RACING

These new aluminum alloy rims from XTM Racing (Hobby People's proprietary line) have an interesting feature—they do away with the stock hex adapter and slide right over the axle pin. The wheels, both the three-spoke and the four-spoke, are machined from solid aluminum bar stock for strength, are then highly polished, and finally are chrome plated for added looks plus an extra tough finish. The wheels come packaged in pairs and they retail for a low price of only $49.99. Do the math—a full set of alloy wheels for your 'Maxx for $100...not bad!



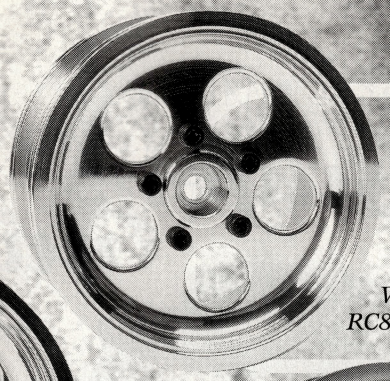
XTM32195 (three-spoke)



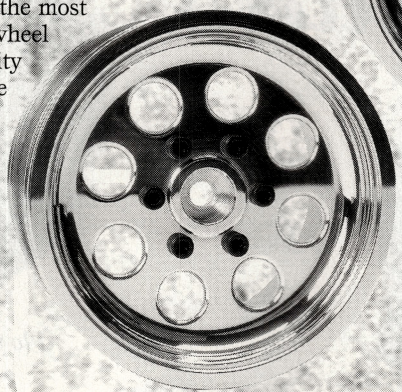
XTM32198 (four-spoke)

RC ALLOYS

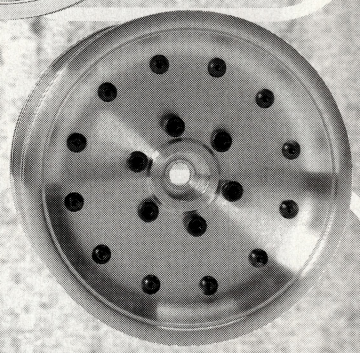
RC Alloys is a relatively new company, and from what we've seen, they are producing some really sharp-looking wheels sets for the T-Maxx. All of their wheels are CNC turned from 6061 T-6 aluminum for light weight and maximum strength. While the names of the wheels aren't exactly the most creative things we've ever heard, (i.e., wheel design 1, wheel design 2, etc.), the quality of the wheel more than makes up for the lackluster name. Plus, the best part is that each set of four carries a retail price of only $149.99!



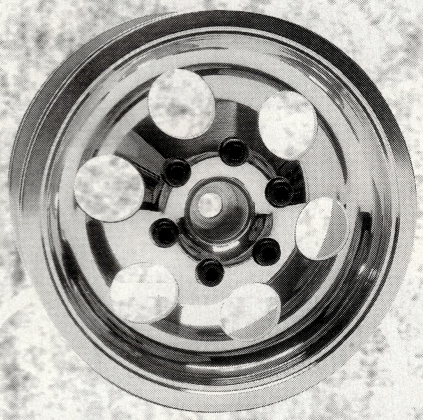
Wheel Design 2 RC850-02



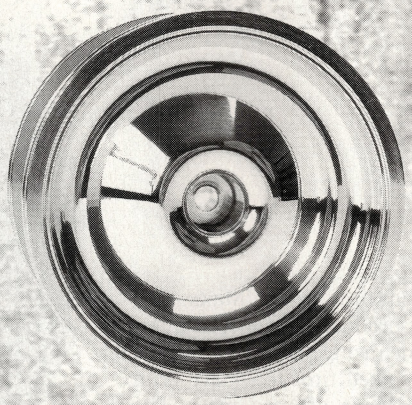
Wheel Design 1 RC850-01



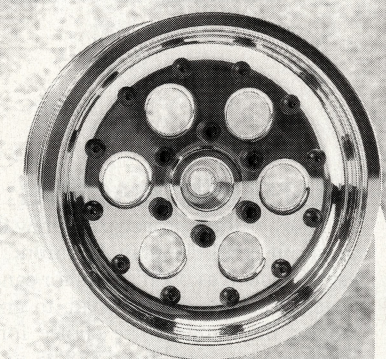
Wheel Design 3 RC850-03



Wheel Design 4 RC850-04



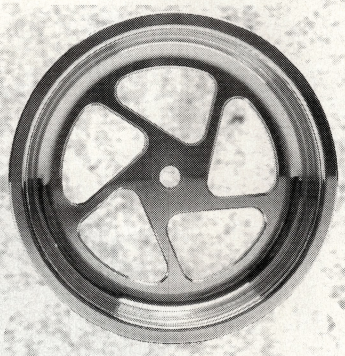
Wheel Design 5 RC850-05



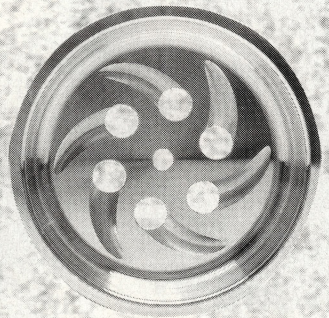
Wheel Design 6 RC850-06

PANTHER RACING

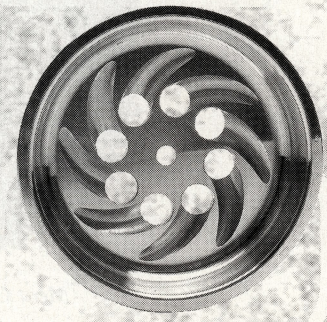
Thought Panther Racing only made tires? Wrong! Check out these new aluminum alloy wheels—the Nitro Summit, the Comet, and the Comet 2. Each wheel is made from an aircraft grade aluminum alloy and each comes with a?" offset to help improve the truck's handling. In addition, each wheel is available in either a blue, red, green, purple, or black anodized finish. Retail price for a set of four is $200.00 plus shipping and handling. More designs are on the way as we speak.



PT901 Nitro Summit



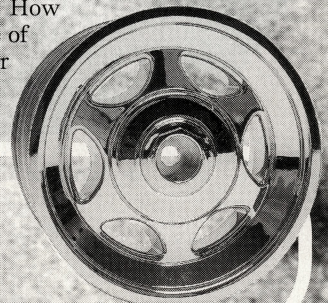
PT902 Comet



PT903 Comet 2

PRO-LINE RACING

Aside from the stock Traxxas wheel, this is the only plastic wheel we've come across that's currently on the market. The new Pro-Line Outback Weld Wheel features a realistic design, a shiny chrome finish, and the wheels are extremely durable. In addition, Pro-Line's Outback truck wheels are officially licensed through the world famous wheel manufacturer, Weld Wheel. So what's the advantage to having plastic wheels, besides the obvious savings in overall weight? How about a retail price of only $18.00 per pair! Thought that would get your attention...



Outback Weld Wheel 2656-01

T-Maxx E-Maxx Wheel & Tire Buyer's Guide



Super Paddle tire PAN0850



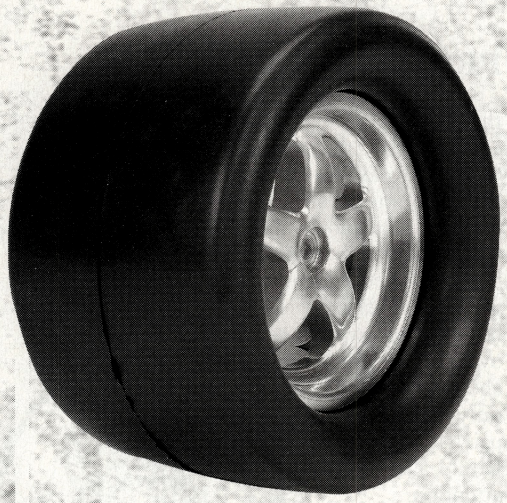
Plow Boy PT957

PANTHER RACING

Panther Racing has quite a few different tires for the 'Maxx—the most out of all tire manufacturers. They produce very special interest tires, such as paddle tires for sand dune racing and driving on the beach, to slicks for the road, to gnarly spiked tires that have been labeled by many as the choice for the 'Maxx off-road racer. The Panther Tires retail from $28.95 to $29 per pair.



Plow Boy 2 PT959



Mega Maxx Slick PT952



Meat Grinder PT950



Maxx Masher 1075



Maxx Bow-Tie 1079-00

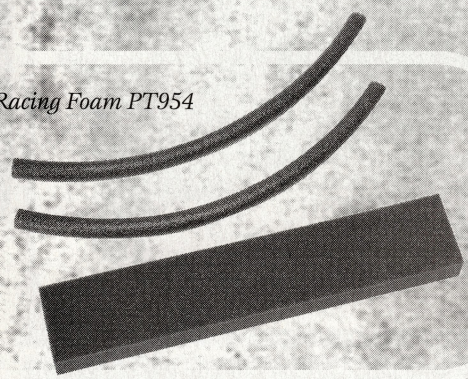
PRO-LINE RACING

The Maxx Masher from Pro-Line have proven to be very popular among 'Maxx enthusiasts. They are molded out of Pro-Line's soft M2 compound, and provide good traction on most every surface—the dirt, street, grass, and even soft sand. The tires retail for $29.00 a pair.

Also new from Pro-Line Racing is this Maxx Bow-Tie. The Bow-Tie is one of Pro-Line's most proven racing tires, so we already know it's going to be quite the performer on the track! In addition, we havc no doubt it will find its way into the backyard with ease as well! As with the Maxx Masher, the new Bow-Ties retail for $29.99 a pair.

PANTHER RACING

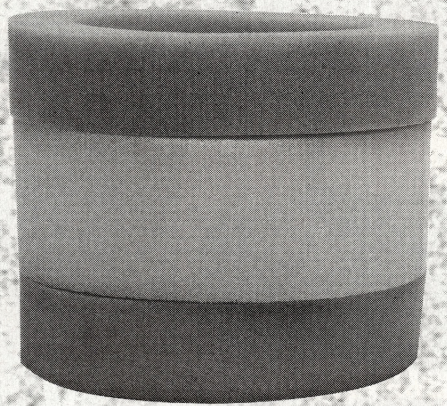
These unconventional-looking three-piece foam inserts from Panther Racing are designed to help provide maximum control by keeping the tire's sidewall stiff. The dense tube-like foam is inserted in the wheel/tire and is placed closest to the tire sidewall for added support. The foams retail for $17 a pair.



Racing Foam PT954

TRINITY PRODUCTS INC.

Using the same technology developed for off-road racing, this more conventional-looking three-piece dual compound foam tire insert from Trinity also helps to keep your tire sidewall from distorting while the truck encounters high-speed cornering situations. The inserts even come with a container of rubber cement that holds the pieces together in an effort to keep the separate pieces from shifting around inside the tire. The inserts retail for $18.99 for a complete set of four inserts.

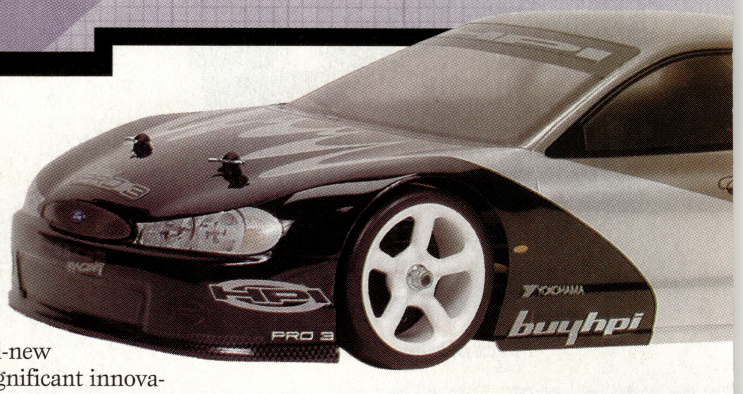


3 Piece Foam TK5113

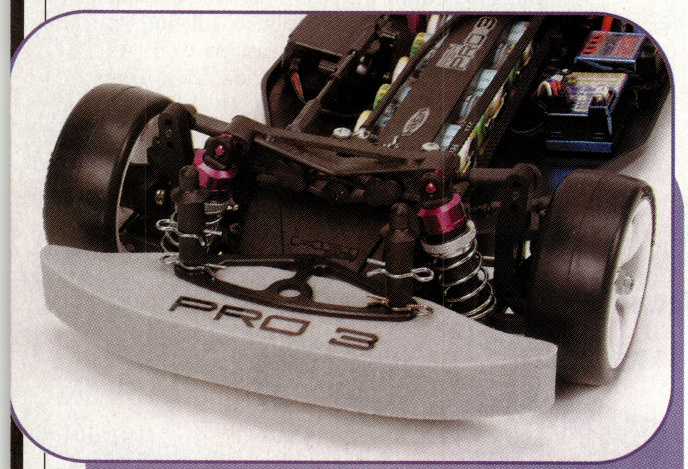
SOURCES

Hardcore Racing Components, 25435 Rye Canyon Road, Valencia , CA 91355 • (661) 294-5032; (661) 294-0770 (fax).
Panther Products Inc., 4323 East Michigan St., Indianapolis, IN 46201 • (866) 700-TIRE (8473; (317) 375-9117 (fax)
Panther Products Wheels, distributed by Neumark Design & Mfg. Inc., 13562 NW Industrial Dr., Bridgeton, MO 63044 • (314)-298-3999; (314) 298-3939 (fax)
Pro-Line Racing, P.O. Box 456, Beaumont, CA 92223 • (909) 849-9781; (909) 849-2968 (fax)
RC Alloys, P.O. Box 29507, St. Louis, MO 63126 • www.rcalloys.com
Stormer Racing, PO Box 126, Glasgow, Montana 59230-0126 • (800) 255-7223 (406) 228-8152 (fax)
Trinity Products Inc., 36 Meridian Rd., Edison, NJ 08820 • (732) 635-1600; (732) 635-1640 (fax)
XTM Racing, distributed by Hobby People, 18480 Bandilier Cir., Fountain Valley, CA 92728-8610 • (714) 963-9881; (714) 962-6452 (fax)

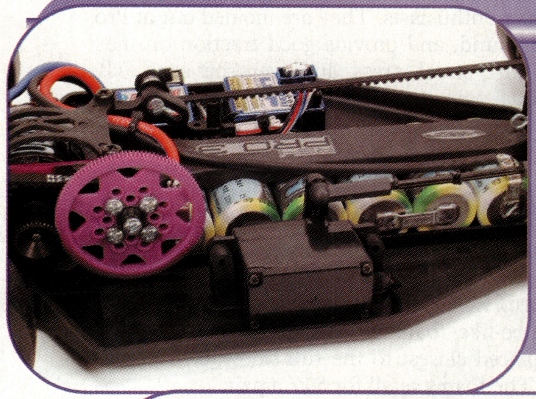
HPI RS4 PRO 3



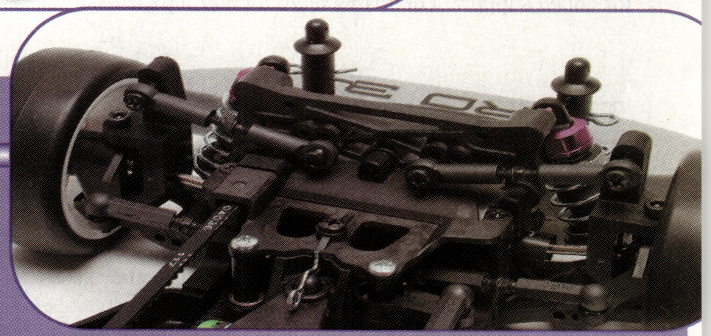
Did you know that HPI sells more touring cars than any other manufacturer? Did you know that the company's RS4 Pro 2 is one of the most popular racing sedans? Then why on Earth would HPI mess with such a good thing? It's because HPI is a company that never sits still. In the world of R/C, HPI is the stereotypical type A personality. Nothing exemplifies HPI's "forward momentum" better than the all-new RS4 Pro 3—a radical departure from the norm, with many significant innovations. We visited HPI's U.S. headquarters in Irvine, California to check out the first production Pro 3.



The Pro 3's front bumper brace features a molded-in transponder mount. The bumper itself is now stronger, and can be removed by taking out just four screws. A pre-cut foam bumper comes with the kit, and will fit within most popular sedan bodies without trimming.

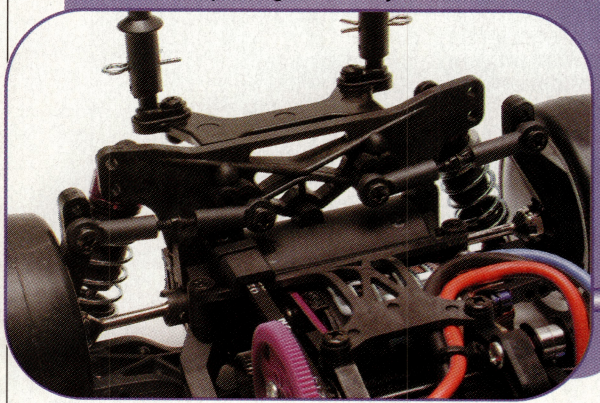


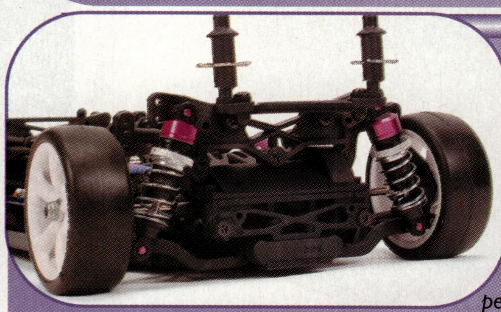
HPI centers the mass of the Pro 3 so that softer springs could be used both front and rear to provide more mechanical grip in the turns. Note the placement of the steering servo.



As with the rear end, the front suspension offers four camber-link holes on the tower and three on the uprights. New molded ball-cups are much stronger than those on previous HPI sedans. In addition to the tuning options typical of an electric sedan, the Pro 3 offers easy adjustment of the front kick-up angle.

HPI responded to feedback from racers and has included more positions for the upper camber links—four on the shock tower and three on the hub. Additionally, the hub can be mounted to the arm in one of two holes to allow further adjustment of the car's roll-center. The rake of the rear arms, i.e., the anti-squat angle, is also adjustable.

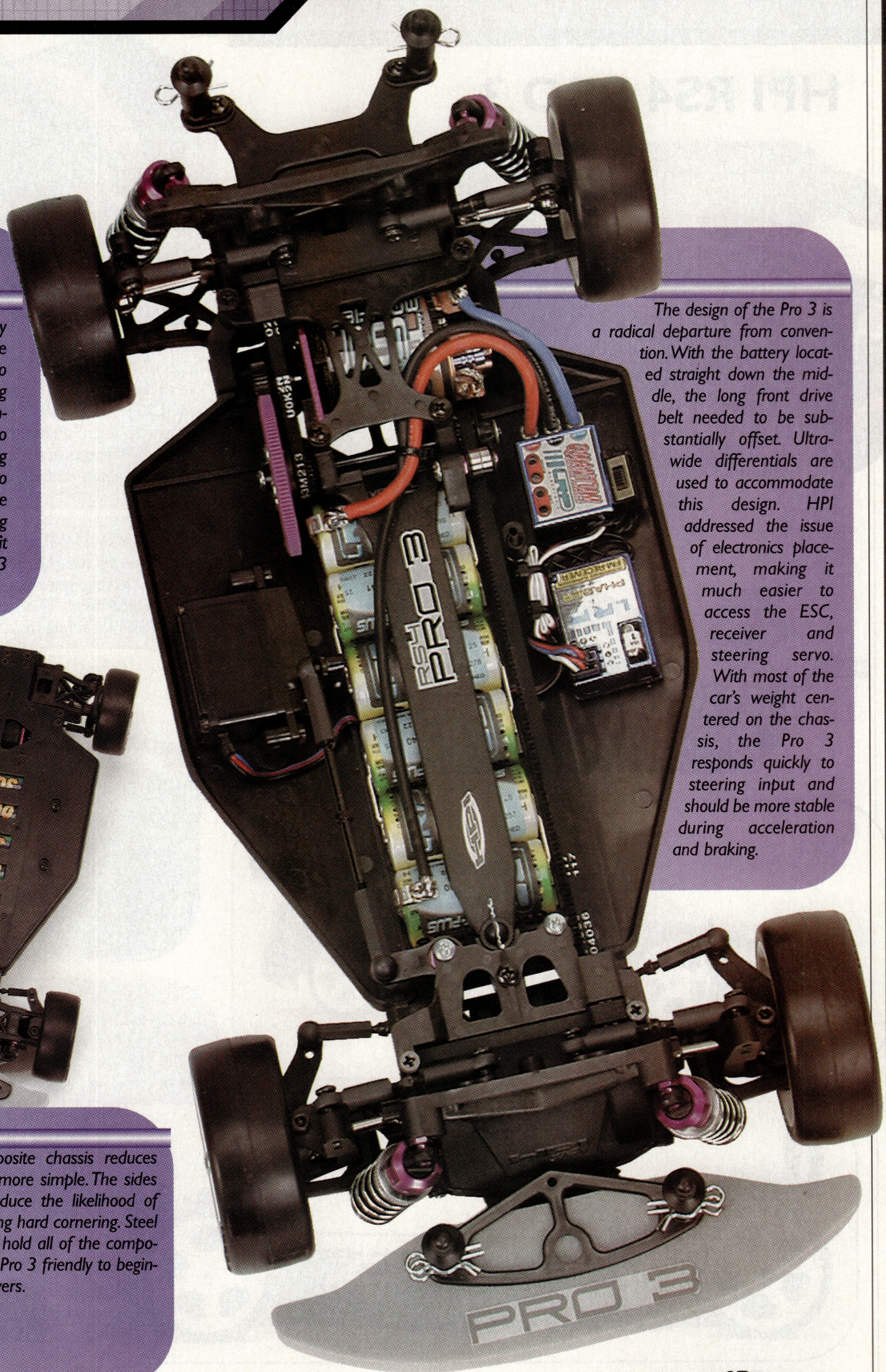




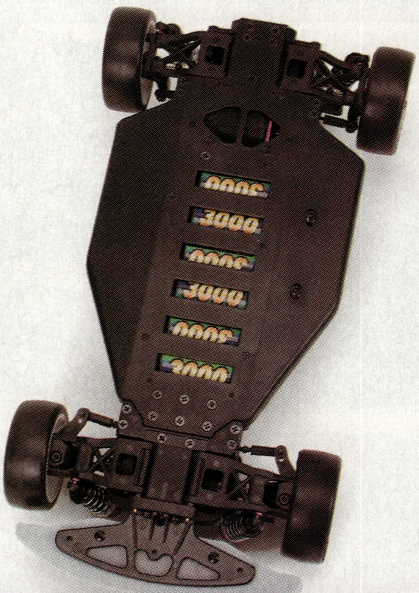
The Pro 3 is the first car to use HPI's new lightweight composite shocks. These new dampers have threaded cylinders with knurled-aluminum pre-load adjusters for easy ride-height setting. Inside, there are Teflon pistons, stainless-steel shock shafts and HPI's VVS (Variable Volume Insert) that compensates for displaced oil as the shock compresses. The seal retainers are also new; they twist in place instead of snap into place as with the old shocks. Tuning versatility is increased by the addition of six shock-mounting positions both front and rear.



The Pro 3 uses the same body mount system developed for the Pro 2. Sliding "caps" are secured to the body posts using clips. Raising and lowering the posts to accommodate various body styles no longer means cutting or replacing posts. The rear mounts on the Pro 3 can be widened to provide more stability to the rear-deck/wing area. Note also that bodies that fit other HPI sedans can fit the Pro 3 without modification.



The design of the Pro 3 is a radical departure from convention. With the battery located straight down the middle, the long front drive belt needed to be substantially offset. Ultra-wide differentials are used to accommodate this design. HPI addressed the issue of electronics placement, making it much easier to access the ESC, receiver and steering servo. With most of the car's weight centered on the chassis, the Pro 3 responds quickly to steering input and should be more stable during acceleration and braking.

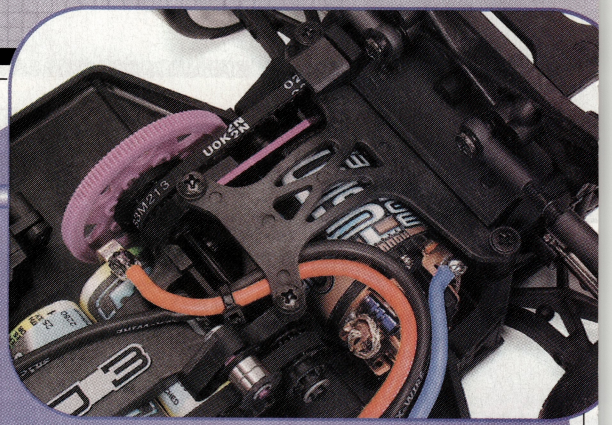


The Pro 3's new molded-composite chassis reduces weight and makes construction more simple. The sides of the chassis are raised to reduce the likelihood of scraping against the ground during hard cornering. Steel Phillips head screws are used to hold all of the components to the chassis, making the Pro 3 friendly to beginners who may not own Allen drivers.

HPI RS4 PRO 3



Forget strapping tape or Velcro strips; on the Pro 3, the battery pack is held in place by a molded strap. Also say goodbye to cumbersome saddle-packs, as the Pro 3 accepts both stick and side-by-side packs for added versatility.

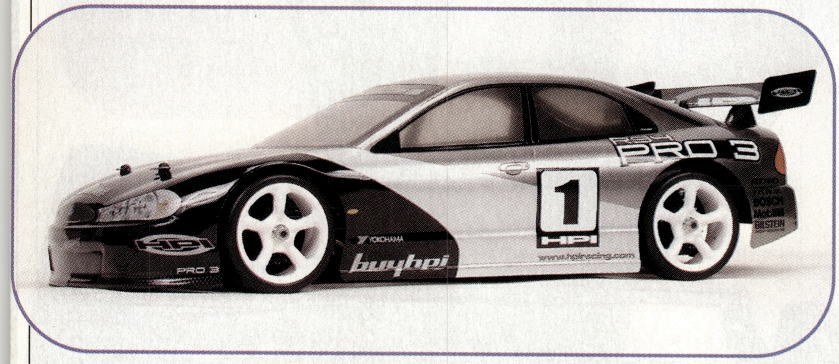


The finned, purple-anodized aluminum motor mount allows the motor to slide horizontally back and forth when you set the gear mesh. This keeps the motor as low as possible in the chassis to maintain an even roll-center. The design of the chassis also places the ESC in close proximity to both the battery and motor, which allows the use of shorter, more efficient wiring. Additionally, access to the differentials has been simplified, making it much easier to remove the diffs for maintenance.

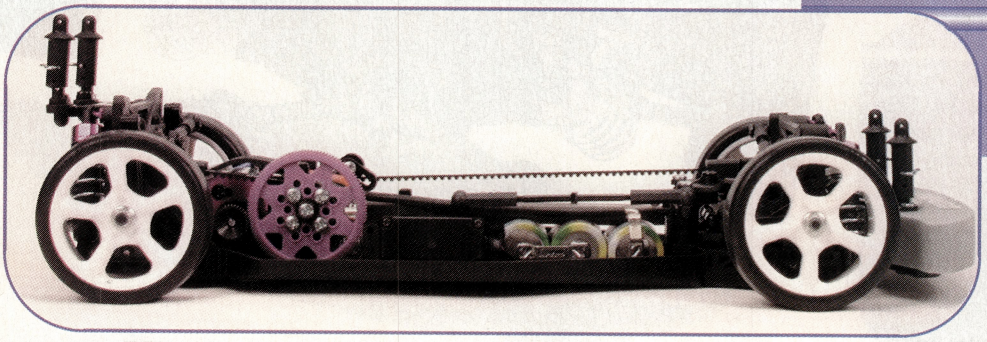


The servo's mid-ship placement requires the aid of an extra-long steering rod. The Pro 3 has a newly designed twin-bell-crank steering system with a built-in, spring-loaded servo saver mechanism. There's also plenty of room for electronics—even the largest receiver and ESC should fit the Pro 3.





From this view, you can see that HPI took great pains to lower the height of the drivetrain for less "lurch" during acceleration. This also lowers the entire CG (center of gravity) of the car so that cornering traction is improved.



SOURCES

HPI Racing, 15321 Barranca Pkwy., Irvine, CA 92618 • phone (949) 753-1099; fax (949) 753-1098

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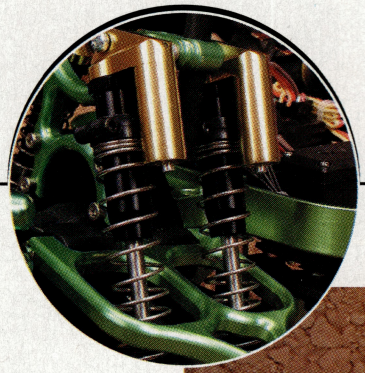
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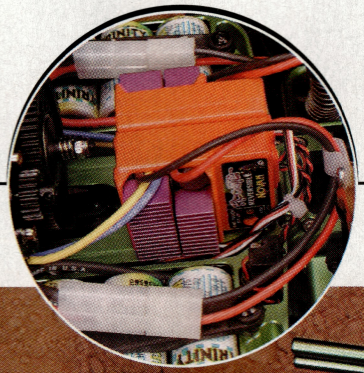
PROJECT FULL METAL MAXX

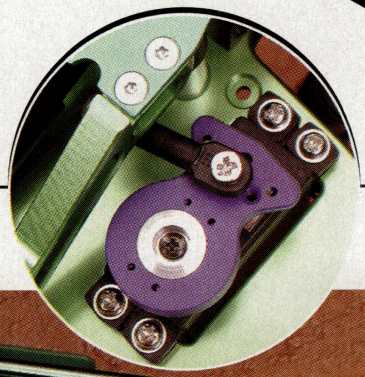
The search for the baddest Traxxas begins and ends with Hardcore Racing!





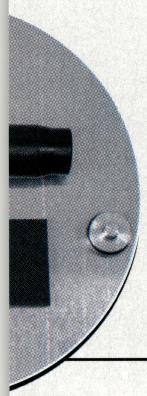


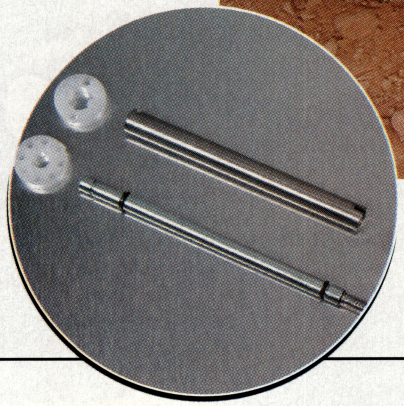




The popularity of Traxxas' monster duo, the nitro-powered T-Maxx and electric E-Maxx, has had a huge impact on the hobby industry, specifically the aftermarket accessory business. Not since the Tamiya Blackfoot have we seen such a flood of hop-ups, conversion kits and trick replacement parts. One company's products in particular have made a splash with Maxx owners; Hardcore Racing's line of titanium and billet aluminum suspension and chassis hop-ups are as beautiful as they are rugged. Commemorating the release of its billet E-Maxx chassis, we decided to construct an E-Maxx using the entire Hardcore catalogue—all in luminous green anodizing—to showcase not only the enormous hop-up potential of the Maxx trucks, but to celebrate the R/C hobby's booming aftermarket!







Decked out: Hardcore Racing's line of aluminum and titanium accessories transform the E-Maxx into a rolling piece of art.



HPI RACING

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----------> RS4 ----------> RS4 Pro ----------

RS4 PRO

THIRD GENERATIO

1/10TH SCALE RADIO CONTROLLED 4WD ELECTRIC F

STANDARD TURNBUCKLES FOR EASY RACE TUNING

CENTERED BATTERY POSITION ACCEPTS STICK OR SADDLE PACKS

NEW WIDE-TRACK FRONT SUSPENSION

ADJUSTABLE BODY POSTS

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FRONT BELT TENSIONER

BALL BEARING STEERING

FOUR WHEEL DRIVE

4WD

MAXIMUM TRACTION ON ANY SURFACE



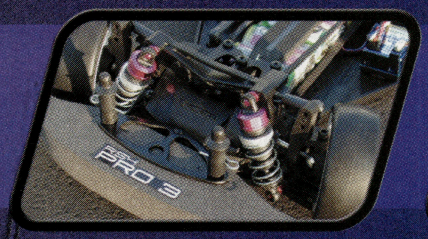
OPTION PART

190mm

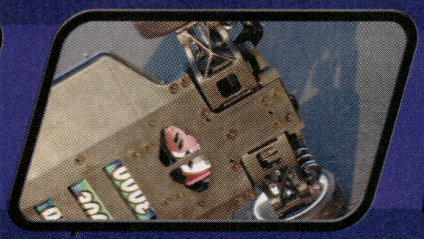
New! #7356 Ford Mondeo BTCC

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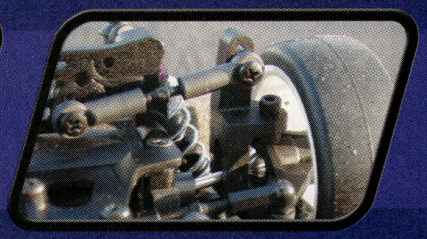
THREADED COMPOSITE SHOCKS



LONG SUSPENSION ARMS



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RS4 Pro 2 ----------> RS4 Pro 3

DRIVE THE NEXT LEVEL



New!

#178 RS4 Pro 3

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

3

n PRO

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How do you improve on one of the fastest touring cars in the world? You take world-class race experience and combine it with the latest in CAD design. The all-new RS4 Pro 3 has extremely long suspension arms to deliver improved handling and a wide variety of simple set-up options. The new composite chassis delivers improved dampening, reduced radio interference, and reduced parts count to help keep the Pro 3 price low. The Pro 3 features a central battery mounting position with near-perfect weight distribution for higher corner speeds & fast changes of direction.

Graphite composite diffs and new short CVD's are standard, providing a significant reduction in rotating mass over the Pro 2. Lightweight composite, true bore, low friction threaded shocks maximize wheel control under all conditions and lower overall car weight & center of gravity significantly. Faster throttle response and improved efficiency are the welcome benefits. Everywhere you look on the car there have been technological advances to bring you the best performance and value in the electric competition touring car class. Give the new RS4 Pro 3 a try.

Included!



COMPLETE SET OF BALL BEARINGS

COMPOSITE DIFFERENTIALS

The RS4 Pro 3 comes with no body so racers can choose a 190mm body to suit their driving style and track conditions.



OPTION PART 190mm

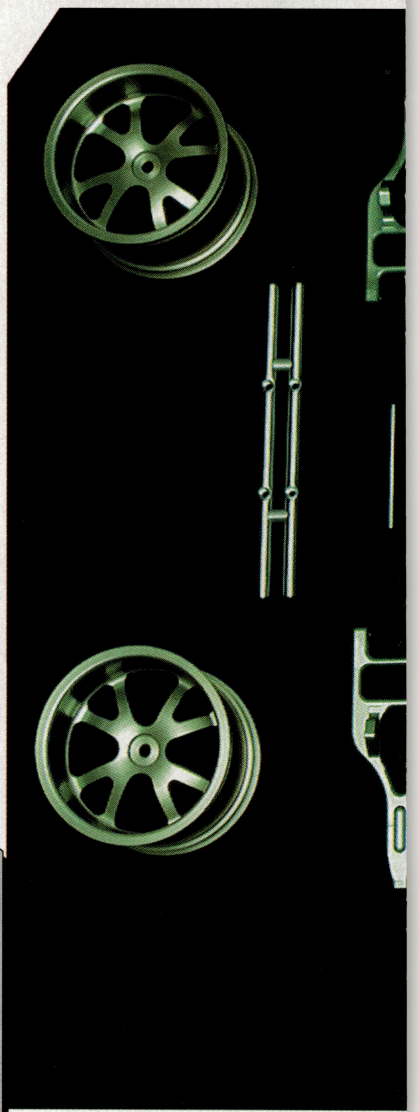
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HARDCORE PARTS FOR THE HARDCORE ENTHUSIAST

Few would disagree that Hardcore Racing makes the most beautiful aluminum and titanium R/C accessories in the world. In fact, we could also say that Hardcore originated the whole "billet" thing for T-Maxxes and E-Maxxes (and we'd be right). When we heard that Hardcore was developing a billet chassis for the E-Maxx, we envisioned a project truck that had not only this chassis, but every single aluminum and titanium part that would fit from Hardcore's catalogue. The result is what you see here—in stunning green anodizing.

The chassis itself is a direct bolt-on, and comes with aluminum standoffs for the battery straps. Hardcore even provides threaded holes in which to mount the E-Maxx's receiver and ESC. Although heavier than the stock plastic chassis, the Hardcore piece is more rigid and it lowers the batteries slightly for an improved CG. As our chassis was literally the first one off the assembly line, the issue of battery shorts against the aluminum had yet to be addressed. We simply lined the insides of the battery compartments with tape. Production chassis, which will already be available by the time you read this, will have a molded insert.

The suspension arms are, simply put, works of art in billet aluminum. The arms bolted right to our E-Maxx without fuss, and are designed to fit the stock Traxxas pillow balls (we used Hardcore's lightweight titanium pillow balls). Tiny setscrews recessed in each arm lock the pillow balls in place to prevent their settings from changing. On the topside of the chassis, Hardcore's new billet aluminum shock towers replace the stock molded pieces.

The underside of the Full Metal Maxx is protected by a set of Hardcore's titanium skid plates and billet chassis braces.

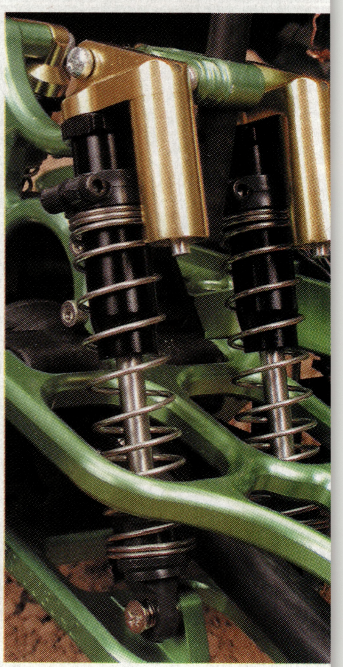
Hardcore Racing parts

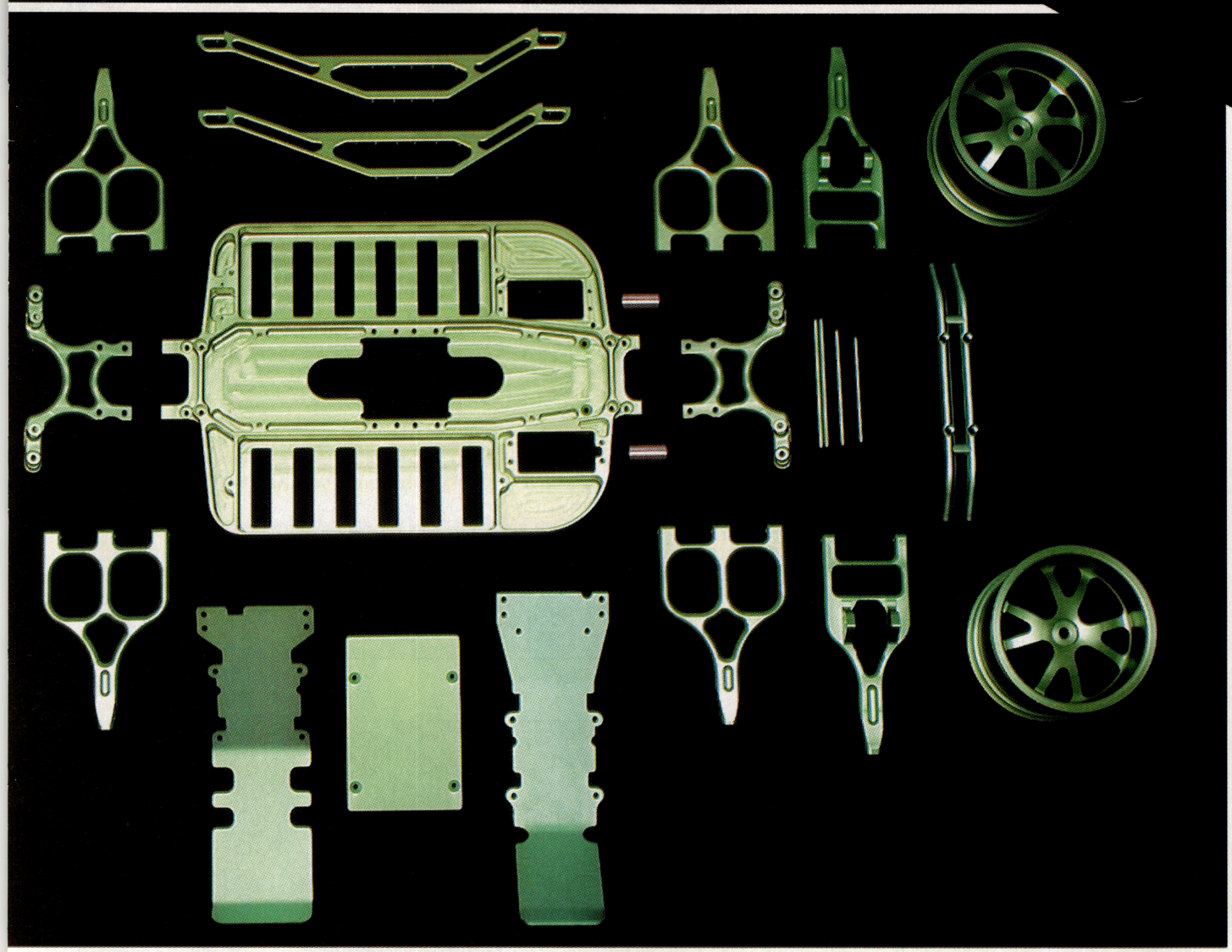
- Billet aluminum chassis— HCR-00330; $199
- Billet aluminum suspension arms—HCR-00304; $235
- Titanium front skid plate—HCR-00308; $42
- Titanium rear skid plate—HCR-00309; $42
- Titanium center skid plate—HCR-00307; $32
- Billet aluminum chassis braces—HCR-00303; $65
- Billet titanium front bumper—HCR-00306; $68
- Billet titanium rear bumper—HCR-00305; $65
- Billet aluminum shock tower—HCR-00312; $49 ea.
- Billet aluminum Matrix wheels—HCR-003111; $210/four
- Titanium pillow balls—HCR-01504; $35 for four (two sets needed)
- Hardcore Pro-Line Ford Excursion "team" body (Ford F-350 also available)—HCR-001513; $75

**All of the above listed parts (with the exception of the E-Maxx chassis) fit both the T-Maxx and E-Maxx, and are available in silver, blue, green, purple or natural finishes.*

The braces secure the gearbox with long, machine-threaded studs that are capped with aluminum nuts. It's a bit difficult to install the nuts, but once in place, the gearbox, chassis and braces are supremely rugged.

Once completed, the Full Metal Maxx is one of the most impressive R/C vehicles we've ever seen. The fit and finish of the Hardcore pieces merge with the sophisticated design of the E-Maxx to form a truck like no other. Sure, our truck is heavier than stock, but the Maxx trucks have never been about racing; they're the ultimate enthusiast machines, and enthusiasts like to hop up!





Progressive Suspension

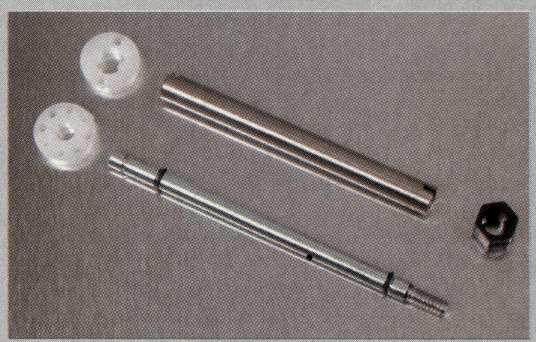
EDC SHOCK KIT

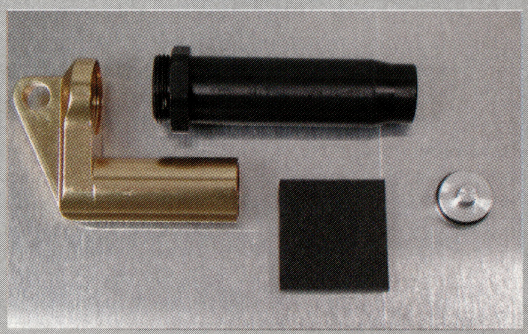
These are without a doubt the trickest shocks ever made for R/C vehicles. They are also the most complicated and heavy, not to mention expensive. However, if you want your Maxx to be the ultimate piece of rolling stock, then consider these a must.

Before you consider buying the EDC kit, know this: they are more difficult to build than standard shocks and they add weight to your truck. The shocks utilize a two-piece piston design that allows you to choose between four damper settings without having to disassemble the shock or change oil. To use this feature, it's essential that the two pistons and the adjustment mechanism are in perfect alignment. If they're even slightly off, the damping of the shock can be severely affected.

By themselves, the EDC shocks have one problem; the large diameter of the two-piece shafts displaces a huge amount of oil. Fortunately, Progressive's innovative Piggy Back reservoirs provide enough space for all the displaced oil, and because they're equipped with volume-compensating closed-cell foam, there's no air inside the shock to become mixed with the oil. The instructions for the shocks are quite thorough, however no mention is made of travel-limiting spacers (which are included). We added one thick spacer to each front shock to limit down-travel. Without the spacer, the front arms had too much droop and caused the steering to bind.

With the EDC kit, we found that the initial difficulty of assembling the shocks was more than offset by the fact that once they're built, you'll rarely need to open them up again. Why? Because there's more oil, the shock won't heat up as much, and with four damping choices, you won't be constantly switching oil to find the right setup. In addition, the EDC kit comes with new springs that are well-matched to the size and weight of the T-Maxx and E-Maxx—even our Full Metal Maxx. They're definitely better than stock, and this kind of cool is priceless.





Novak Electronics
ROOSTER ESC COMBO

Looking for a replacement ESC for your E-Maxx? Novak's new Double Rooster Combo is a logical choice, but you'll be trading in your truck's 14V power system (in which the two battery packs join forces to produce twice as much voltage). With the Rooster Combo, your E-Maxx reverts to standard R/C voltage, i.e., 7.2V, but in the process, you'll get Novak's legendary quality (all Novak products are designed and manufactured in-house), ultra-smooth throttle response, and if this weren't enough, brakes! That's right, the Roosters overcome the stock Traxxas ESC's only shortcoming, a lack of brakes.



In switching back to standard voltage, the gearing requirements for the stock 550 motors are different. Since the Roosters are designed to power standard 540 or 05 motors, the high-wind 550s will need taller gearing (for example: use two 20-tooth pinons rather than the stock 18-tooth pinions). During our testing, we ran a pair of Trinity Monster Maxx 19-turn modified motors with the stock gearing, and neither the Roosters or the motors overheated. In fact, we would actually gear-up to 19-tooth pinions if we were running this setup on a larger, flatter area where top speed was most important.

Part of the reason Traxxas designed the E-Maxx to have a 14V system was its belief that higher voltage needs less amperage and is therefore more efficient. Our initial test of the E-Maxx revealed this to be true (March '01), as run times surpassed six minutes with the cheapest batteries, and all of the electronic components remained surprisingly cool. Obviously, we had reservations about going "back" to 7.2V, however they proved mostly unfounded as the Roosters never became too hot, nor did the motors. The JST/Tamiya-style battery connectors did get pretty hot (as compared to when we used the stock 14V system), but not hot enough to cause a problem.

Overall, the Rooster Combo is a reliable replacement for the stock Traxxas ESC, and we recommend it for those who wish to run lower-turn modified motors. The brake feature is icing on the cake, and makes us wish that Traxxas had included this feature with its ESC.

Hitec
HS-5945 DIGITAL SERVO

It takes a lot of power to change the course of a nine-pound truck traveling at 35 mph. Traxxas endowed the E-Maxx with a steering servo that is more powerful than the standard type used to shift the tranny, but if you want the most responsive handling, a better servo is a must. Hitec has a new line of digital servos, so for the Full Metal Maxx, we decided to try Hitec's newest HS-5925 digital servo.

With a transit speed of 0.08 seconds to 60 degrees, the 5925 is plenty fast, but speed is nothing without power, and the 5925 has a lot—103 oz./in. of torque to be exact! And because the 5925 is digital, it's holding power, i.e., it's ability to maintain its position, is far greater than that of a analog servo—an unbelievable 384 oz/in. of holding power! This is owed to the 5925's coreless motor and digital operation, which "refreshes" the motor (sends it control information) 300 times per second. By comparison, a standard analog servo refreshes 30 times per second.

As if all this weren't enough, all of Hitec's metal-gear servos now come with an "unbreakable" gear train. The weak link in most servos' gear train is the first gear (the gear that is attached to the servo motor). This gear is traditionally made from plastic (even in servos which boast "metal gears") to reduce Rf noise from the motor. Hitec solved this problem with its MP gear (metal-plastic), which is essentially a metal inner portion for strength with a plastic outer section to reduce noise. Hitec warranties its metal gear servos for two years, which shows their confidence in this design.

For E-Maxx owners, the 5925 is a dream come true; its tremendous torque has little trouble steering those big tires, and its massive holding power ensures that they stay where you point them. The best part is the price; with an average street price below $100 (we've seen them sold for as low as $89), the 5925 represents both the state-of-the-art in servo technology and a cutting-edge bargain! ◆



SOURCES

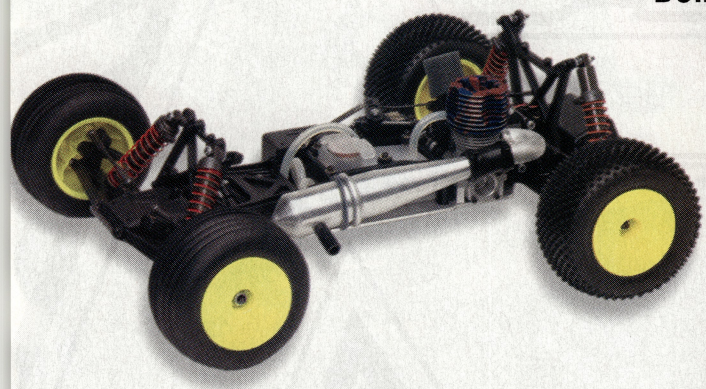
Hitec, 12115 Paine St., Poway, CA92064 • phone (858) 748-6948; fax (858) 748-1767
Novak Electronics, Inc., 18910 Teller Ave., Irvine, CA 92612 • (949) 833-8873; fax (949) 833-1631
Progressive Suspension USA, Inc., 11129 Ave. G, Hesperia, CA 92345 • phone (760) 948-4012; fax (760) 948-4307
Traxxas, 12150 Shiloh Rd., Dallas, TX 75228 • phone (972) 613-3300; fax (972) 613-3599
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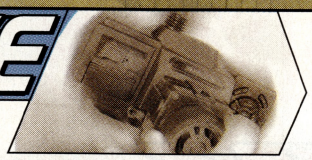


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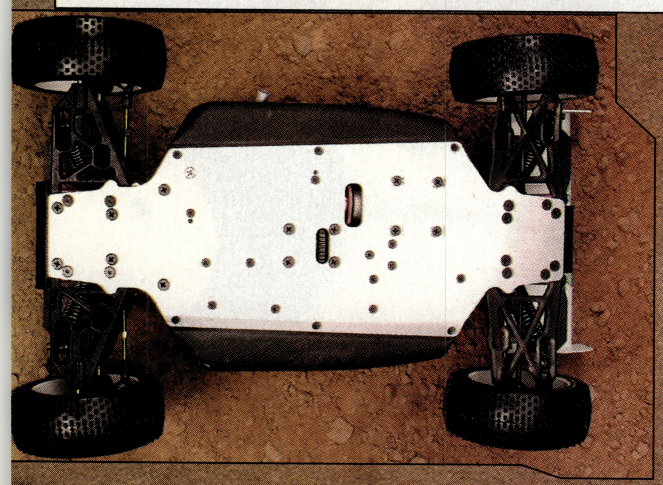
by Jack Johnson

With 1/8-scale off-road racing being one of, if not the, most popular forms of R/C nitro racing worldwide, there are quite a few manufacturers to choose from. Out of these manufacturers, Mugen has long been considered one of the premier car makers. In fact, back in 1990 Koji Sanada captured the IFMAR 1/8-Scale Off-Road World Championships driving a Mugen car.

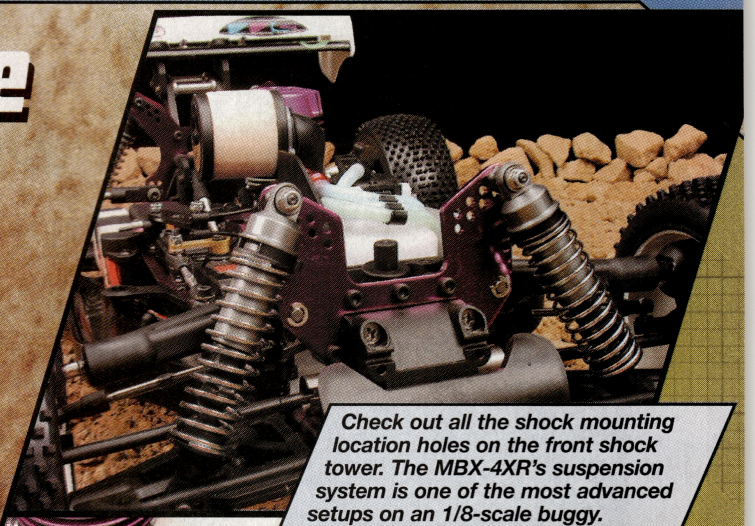
While some other companies are offering RTR cars, Mugen is sticking to what they know best—designing and manufacturing top-of-the-line nitro-powered race cars. Every kit offered by Mugen is nitro-powered. Not an electric-powered model in the entire line. The fact that Mugen is current World Champion in the 1/8-Scale On-Road category reinforces the fact that Mugen truly are experts in their field.

Things you'll need

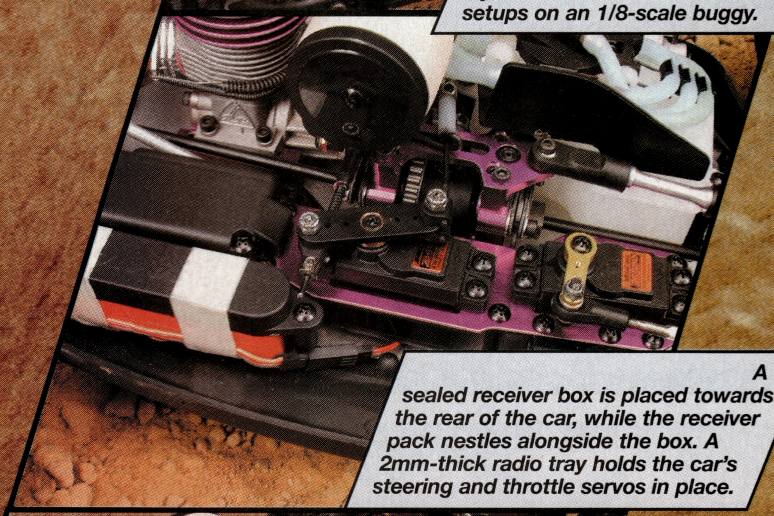
- .21 engine, manifold, and tuned pipe
- Radio (including steering and throttle servos—preferably a high-torque servo for steering)
- Five-cell receiver battery pack
- Nitro fuel
- Glow plug igniter
- Receiver pack
- Tire glue
- Polycarbonate Paint



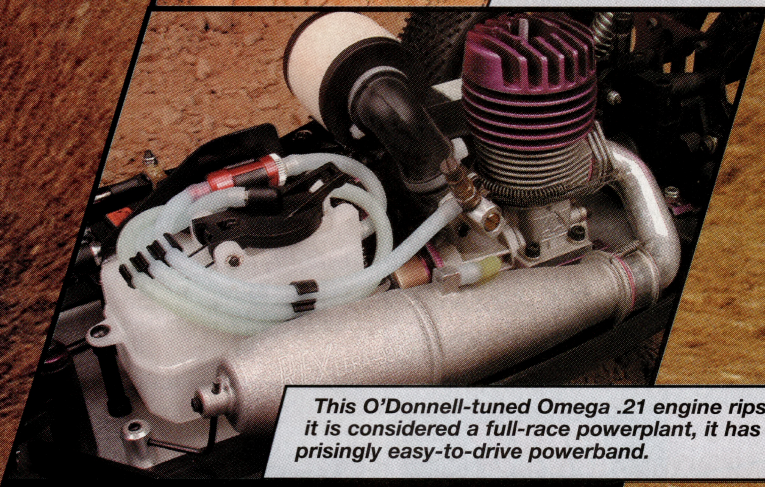
Top-of-the-line 1/8-scale off-road car with the "Works"



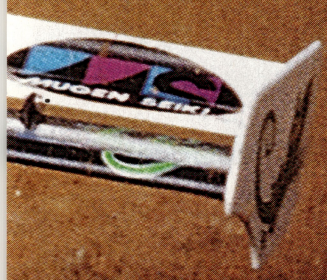
Check out all the shock mounting location holes on the front shock tower. The MBX-4XR's suspension system is one of the most advanced setups on an 1/8-scale buggy.



A sealed receiver box is placed towards the rear of the car, while the receiver pack nestles alongside the box. A 2mm-thick radio tray holds the car's steering and throttle servos in place.



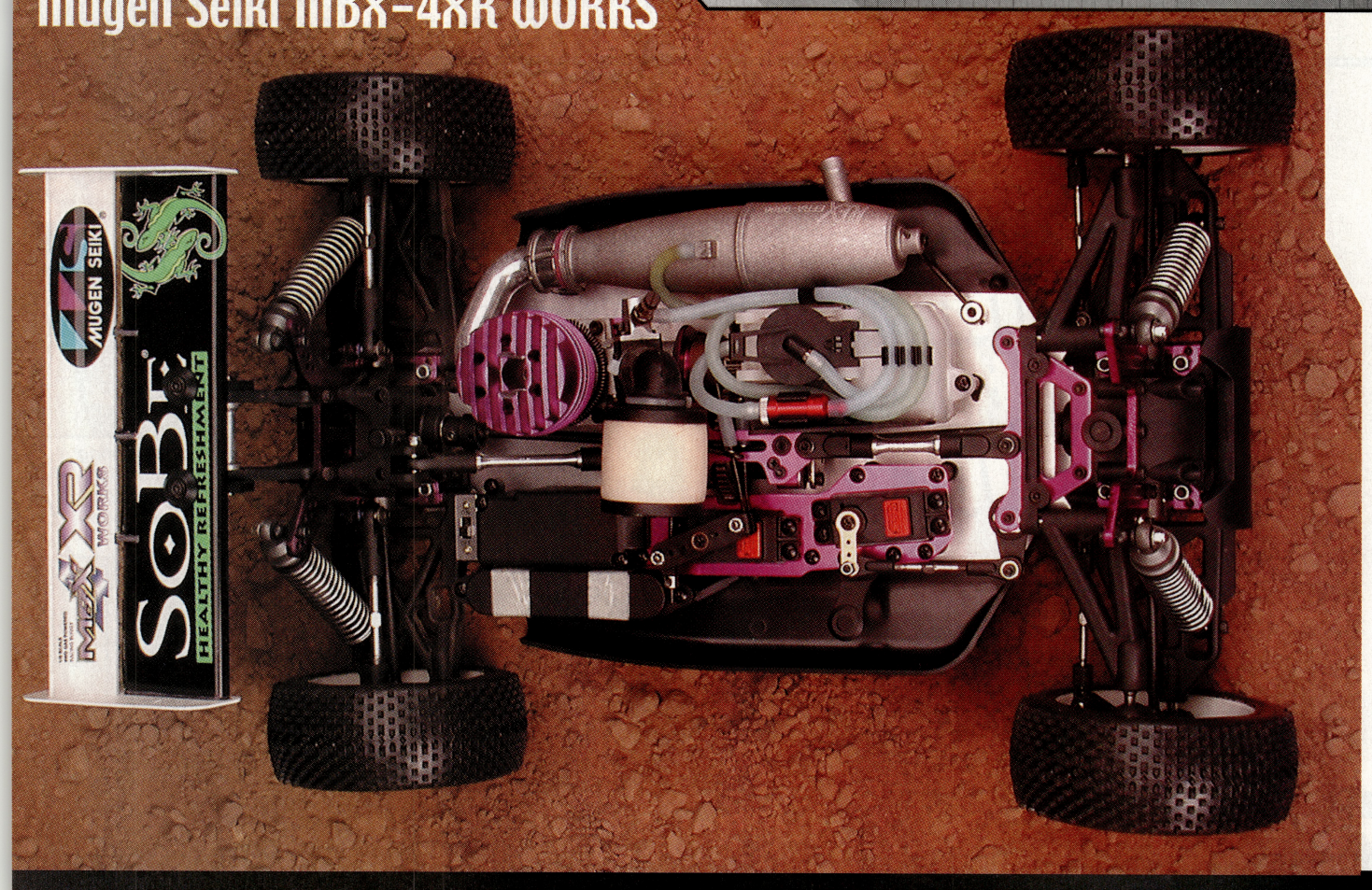
This O'Donnell-tuned Omega .21 engine rips! While it is considered a full-race powerplant, it has a surprisingly easy-to-drive powerband.





Andy Jacobson of Andy's Bodies sprayed this "Sobe" inspired body for our Mugen's photo shoot.

Mugen Seiki MBX-4XR WORKS



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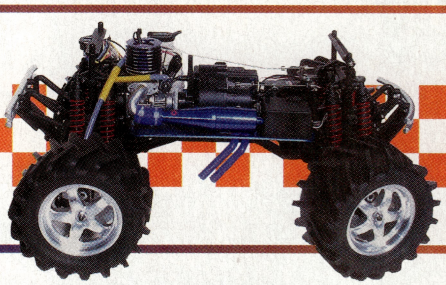
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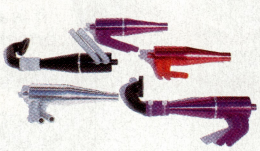
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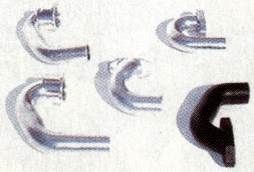


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As with other categories, the latest products in the marketplace for 1/8-scale off-road are released in an effort to leapfrog other companies' offerings. The Mugen MBX-4XR Works car has definitely set a new benchmark for other companies to measure up to. This kit has it all, absolutely living up to the "works" portion of the product name. Heck, even the packaging is unique. The kit comes packed in a zippered carrying bag. And just wait 'til you see the Allen wrenches that come in the kit!

Chassis

The chassis of the MBX-4XR Works car is of the traditional aluminum plate design found on all 1/8-scale off-road buggies, but measures a whopping 1/8-inch thick. The sides are bent up at an angle to add rigidity as well as increase ground clearance in bumps and when landing from jumps. All of the screw holes in the bottom of the chassis are precisely countersunk. The engine mount screws fit into beveled washers which in turn are placed in recessed areas of the bottom of the chassis. This results in a very smooth surface on the bottom of the chassis.

The radio installation on the MBX-4XR Works car is one of the cleanest we have seen—period! A sealed receiver box is attached to the chassis at the rear, on the right side. The receiver box includes strategically placed openings to allow for the servos and switch wires to enter the box out of plain sight. At the rear of the receiver box is a switch mounting area. To the inside of the box is an antenna mount.

The 2mm-thick, aluminum radio tray attaches to the front of the radio box. The tray is also attached to four plastic posts which are then secured to the chassis. The servos are mounted in tandem with the throttle servo to the rear. One of the many "nice touches" included in the kit is the molded transponder mount. The transponder mount attaches to the right side of the radio tray and will hold the transponder to the right of the steering servo.

A molded cap is included to mount the receiver battery. The battery is secured to this cap with strapping tape. The cap is then secured to the right side of the receiver box. The beauty of the cap is that it makes changing receiver packs a breeze. Simply remove two screws and the receiver battery can be changed.

Two stiffener rods are included for the chassis: One for the front and one for the back. The front rod attaches to the top of the steering bellcrank brace and the top of the center diff mount. The rear rod runs from the chassis to the rear bulkhead. In its final assembly state, the MBX-4XR Works is one of the stiffest 1/8-scale off-road cars we have felt—both laterally and torsionally.

Completing the chassis are two molded side shields. These pieces attach to either side of the chassis and help to seal the car from the elements once the body is installed. The shape of the shields matches the shape of the body. These shields are invaluable when running in rocky conditions or in the rain. Remember, in Europe races don't stop when it starts raining.

Adding to the aesthetics of the car are the various purple anodized aluminum parts. These parts can be found in the front and rear suspension mounts, engine mounts, center diff mounts, front and rear shock towers, and flywheel. As luck would have it, these parts were a perfect match for the head of the O'Donnel-tuned Omega engine we installed.

Suspension

The front suspension is a pivot ball design. This means that the front spindle carrier is attached to two ball studs; rather large ball studs at that. These ball studs are in turn threaded into the upper and lower front suspension arms. This allows for two adjustments. In addition to adjusting the top ball for camber angle, both the top and bottom balls can be adjusted to alter overall front suspension width.

The front shock tower includes eight locations in which to mount each front shock. There are four on the top row and four on the bottom row of the tower. There are also three holes to choose from to mount the bottom of the shock in the suspension arm. The lower suspension arm also includes adjustments for up and down travel. The only adjustment missing from the front suspension is alternate front upper arm mounting locations. This should not prove problematic as the fixed location appears to be optimal.

The rear suspension looks like that of most off-road cars; a lower A-arm and upper camber link. Again there are eight holes to choose from for upper shock location and three in the arm. There are four holes in which the inside of the camber link may be mounted. Depending on which rear hub you install—yes, the kit comes complete with two different rear hub designs—there are either three holes or six holes for the outside of the camber link. Okay, you're probably wondering what the differences in the two rear hubs are. One positions the rear axle about 1/8-inch lower than the other. The other is the original rear hub found in the non-"works" version of the MBX-4R. We opted for the hub with the lower axle position.

Like the front suspension, the rear suspension includes adjustments for both up

Performance

Test Location—Hemet, California
Temperature—75 degrees
Track Surface—Moist, loose dirt. High traction and a bit rough.The track consists of many large, Supercross-style jumps and nearly every turn includes a berm. High speeds and lots of havoc.

Maiden voyage—Once the trims were set and the engine was tuned, it was off to attack the challenging track. The kit setup seemed to handle pretty well. The overall handling was very stable and easy to drive. Steering was good in both the high-speed and low-speed corners. The O'Donnell engine produced some eye-popping speeds down the long straight. The car seemed to jump very nicely and responded well to throttle input in the air to adjust the attitude. The brakes responded very consistently and smoothly. When heavy brakes were applied, the car stopped immediately. About the only area that wasn't near perfect was the handling in the bumps, although it has to be said the track was really rough. A 1/10-scale car would have had great difficulty even completing a lap.

A minor adjustment—In an effort to address the rough-track handling, we decided to move the top of the shock outward a bit. This stood the shocks up straighter. We moved the rear shocks out one hole and the fronts out two holes, and also reduced the rear shock fluid to 25wt from the standard 30wt included with the kit.

These changes helped in a few areas. First of all, the rough areas of the track suddenly seemed smoother. The car also landed better off of the monster jumps scattered around the track. Steering response also seemed to quicken. We were suddenly reminded why we love 1/8-scale off-road cars so much. The MBX-4XR Works car was now performing as good as any car we have driven and this was only the second tank of fuel. We continued to run out the remainder of the tank of fuel while grinning ear to ear.

More testing—After a few more tanks of fuel we formed an even higher opinion of Mugen's new release. The car is very consistent and therefore it is easy to put it in the same place lap after lap. Be that as it may, there's always the occasional mishap. You know, the one where you hit a bump that was added while you were completing the last lap. The bump that suddenly sends your car on a tumble run that rivals a floor exercise in an Olympics event. Well, it happened. Cartwheel after cartwheel. End over end. Once the car came to a stop (right side up, we might add) we were sure the day was over. We slowly pulled back the throttle trigger. What do you know? Not a scratch. Okay, well, maybe a scratch or two, but for the most part, the car survived unscathed. Very impressive, considering the beating it just took. The durability that we had just witnessed coupled with the exceptional handling makes the Mugen MBX-4XR Works car a winner in our book.

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SPECIFICATIONS

Type	4WD off-road nitro car
Scale	1/8
Retail price:	$899.99
Average street price:	$550.00
Length	480mm/18.8in.
Width	307mm/12in.
Wheelbase	326mm/12.8in.
Track	266mm/10.5in.
Weight	7.5 lb.
Transmission	
Type	Shaft Drive 4WD
Differentials	Front, Rear, and Center
Driveshafts	Steel universal joint/shafts at front, rear, and center
Bearings	Full ball bearings
Suspension:	
Type	Oil-filled coil over
Material	Plastic/Steel
Front end:	
Caster	non-adjustable
Camber	adjustable
Toe	adjustable
Down-travel	adjustable
Up-travel	adjustable
Sway bar	Yes, adjustable
Rear end:	
Anti-squat	non-adjustable
Camber	adjustable
Toe	adjustable
Down-travel	adjustable
Up-travel	adjustable
Sway bar	Yes, adjustable
Shocks	Oil-filled coil over
Springs	Kit Silver
Wheels	Mugen
Tires	Pro-Line Crime Fighter (included in kit)
Insert	Pro-Line (included in kit)
Body	Mugen MBX

and down travel. The adjustment we found to be unique was the toe-in adjustment. While this isn't a new area of adjustment, the execution was somewhat original. Rather than changing mounting blocks or pivot supports, each rear suspension arm includes a short turnbuckle which can be adjusted once the car is fully assembled. This allows for very simple toe-in adjustments.

All four corners of the car include universal joint driveshafts. You will find that these look very familiar as they closely resemble MIP CVDs. We have to say, we were blown away by the tolerance that Mugen was able to hold on the axles in manufacturing. All four of the axles were a tight press fit in the bearings. There was no room for error here. If these axles were made even the slightest fraction of an inch larger, they would not have fit in the bearings. The wheels are attached to the axles with large hex nuts which are attached to aluminum hubs. These hubs are secured to the axles with setscrews.

Drivetrain

The drivetrain is comprised primarily of three gear differentials. The center diff connects to the front and rear diffs via two universal joints and bevel gears. Each of the differentials contains fluid. By varying the viscosity of the fluid, each diff's resistance can be adjusted. Another of those nice touches with the Mugen Works kit is the fact that three different viscosities of fluid are included. The manual calls for 7000 in the center, 3000 in the front, and 1000 in the rear.

One other feature which we believe to be unique to the MBX-4XR Works car in the off-road category is the fact that the front end is overdriven. This means that the front final drive ration is closer to 1:1 than the rear. The result is more stability at high speeds and quicker, more nimble handling in the tight turns. The different drive ratios are accomplished by using different gears on the front and rear diffs in combination with different matching bevel gears being driven by the center diff.

The center diff is mounted between a two-piece aluminum diff mount which also houses the front and rear disk brakes. The steel center gear meshes with the clutch bell, which is driven by a three-shoe, sprung clutch assembly. The clutch assembly is attached to a lightweight aluminum flywheel.

Tires, Wheels and Body

Race-proven Pro-Line Crime Fighter tires are included with the Works kit. These tires have been used by many racers around the world on various track conditions. These kit tires are definitely keepers! Pro-Line foam inserts are used and the tires attach to white six-spoke wheels included with the kit. Noticeably absent from the wheels are the outer ribs found on older wheels. The new, more traditional wheels yield far better rough track handling.

Building Tips

- Remove the foam inserts from the tires as soon as you open the box. This will allow the inserts to re-settle and reduce the crease.
- Carefully compare the addendum "Works" manual to the primary manual. Note the steps in the primary manual which require referencing the Works manual. This can be a bit annoying, but noting the crossover steps in the primary manual before beginning assembly can really ease the pain.
- Thin sheets of foam can be added to the inside of the receiver box to keep the receiver from bouncing around inside.
- Ensure that the left and right side front suspension components are assembled evenly so that the two sides are the same length.
- Threadlock, threadlock, threadlock. Did we mention using threadlock? Use threadlock compound on all metal-to-metal screws. The vibrations in a nitro powered off-road car are intense.
- Use a high-quality tire glue. We recommend Team Losi Tread Lock. These big tires can really stress glue joints. Lesser quality glues just won't do the job.
- If you wish to turn the angle of the exhaust pipe slightly downward, you will need to adjust the clearance on the left side shield on the chassis.

Test Equipment

- JR, R-1 radio—10 model memory, digital trims and a large LCD screen
- JR digital servos—Z8450, high-speed for throttle and Z8850, high-torque for steering.



The MBX-4XR kit comes in this neat "suitcase-style" carrying package.

Precision metal gears, digital technology, and FAST! These servos are unbelievable.

- JR R200 2-channel FM micro receiver—3/8 x 7/8 x 1 inch and only .6 oz.
- O'Donnell-tuned Omega .21 engine—blazingly fast and very controllable. Who could ask for more?

The Good

- Includes three high-quality drill-blank Allen wrenches
- All necessary fluid is included: 1000wt., 3000wt., and 7000wt. for diffs; 350wt. for shocks.
- Pro-Line tires included
- Precision fits throughout the kit.
- Kit comes packed in a carrying case bag.

The Bad

- Rear diff gear had a slight high spot, but freed up after two tanks of fuel
- The addendum manual coupled with the direct Japanese translations can cause a little confusion if you don't pay close attention.

The Verdict

Anyone thinking about getting into a competition-level 1/8-scale off-road buggy can't go wrong with this car. You'll even stock your toolbox with some quality tools in the process, as the Works kit comes complete with three drill-blank Allen wrenches (1.5mm, 2mm, and 2.5mm). A four-way wrench is also included. This wrench will handle the wheel nuts, glow plug and other nuts on the car. Quality, performance, durability, and added values; you just can't go wrong with this kit. ◆

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.

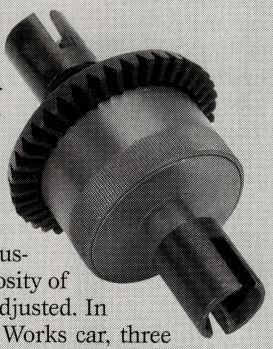
The dual disk type slipper, used on Team Losi vehicles, offers a great deal of adjustment. Don't be afraid to use this feature as you fine tune. Electric vehicles are considerably different from the nitro-powered trucks. The slipper is connected directly to the motor through the pinion and spur gear. 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.

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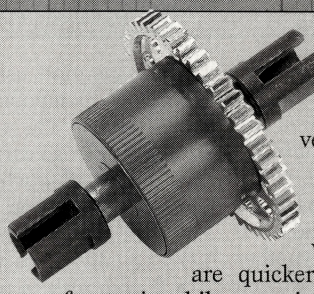
What's the DIFF-erence?



As you probably know, the standard differentials in most 1/8-Scale Off-Road cars are of the miter gear type. Miter gear diffs are very free and offer no resistance by nature. In an effort to control the amount in which the diffs (particularly the front diffs) unload, manufacturers began to fill the diff housings with fluid. By altering the viscosity of the fluid, the resistance could be adjusted. In the case of the Mugen MBX-4XR Works car, three different viscosities of fluid are used. While these fluids certainly reduce the amount of diff unloading (the wheel with the least grip receives more torque from the drivetrain), the unloading is still very much present.

Enter the Torsen Differential. Torsen Diffs are aftermarket products offered by various manufacturers. One of the most popular Torsen Diff manufacturers is an Italian Company called Nuova Faor. Don't worry! These differentials are easier to come by than you may think. National R/C [(425) 265-1199], here in the US imports the Nuova Faor line of products. So, what are these Torsen Diffs you ask? Let's explain.

Torsen stands for TORque SENsing. The Torsen Diff is a fully mechanical device of worm gears and a worm wheel. No electronic sensors involved. The Torsen Differential will split torque 50:50 in a no-slip condition when grip is equal at both sides. However, when one axle slips, or traction is lost at one side, the Torsen Diff will send more torque to the axle with more grip. In other words, it works in an exactly opposite manner to that of a conventional miter gear diff.



Torsen Diffs are typically installed in the front and center of 1/8-Scale Off-Road cars when used. The advantages are quicker acceleration and increased front grip while cornering. A Torsen Diff in the center of the car will maintain torque to the rear wheels when weight transfers to the rear and the front end becomes light. A miter gear diff will send more torque to the front wheels, which at this point are not producing much drive. A Torsen Diff in the front will maintain torque to the outside tire when the weight of the car transfers to the outside rear of the car. A miter gear diff will send more torque to the inside tire–causing the tire to grow in size, but not yield much drive to the car.

If you have never heard of a Torsen Diff, or have just yet to try one, you owe it to yourself to check them out. They are a bit more expensive than standard miter gear diffs. One look at the intricate construction of these diffs and you will understand why. The performance gain is definitely worth a slightly higher price of admission, too.

SOURCES

Mugen-Seiki, 17971 Sky Park Circle, Suite G, Irvine, CA 92614 • (949) 475-9505, (949) 475-9511 (fax)
JR Radios (Horizon Hobby Distributors), 4105 Fieldstone Road, Champaign, IL 61822 • (217) 352-1913, (217) 355-1552 (fax)
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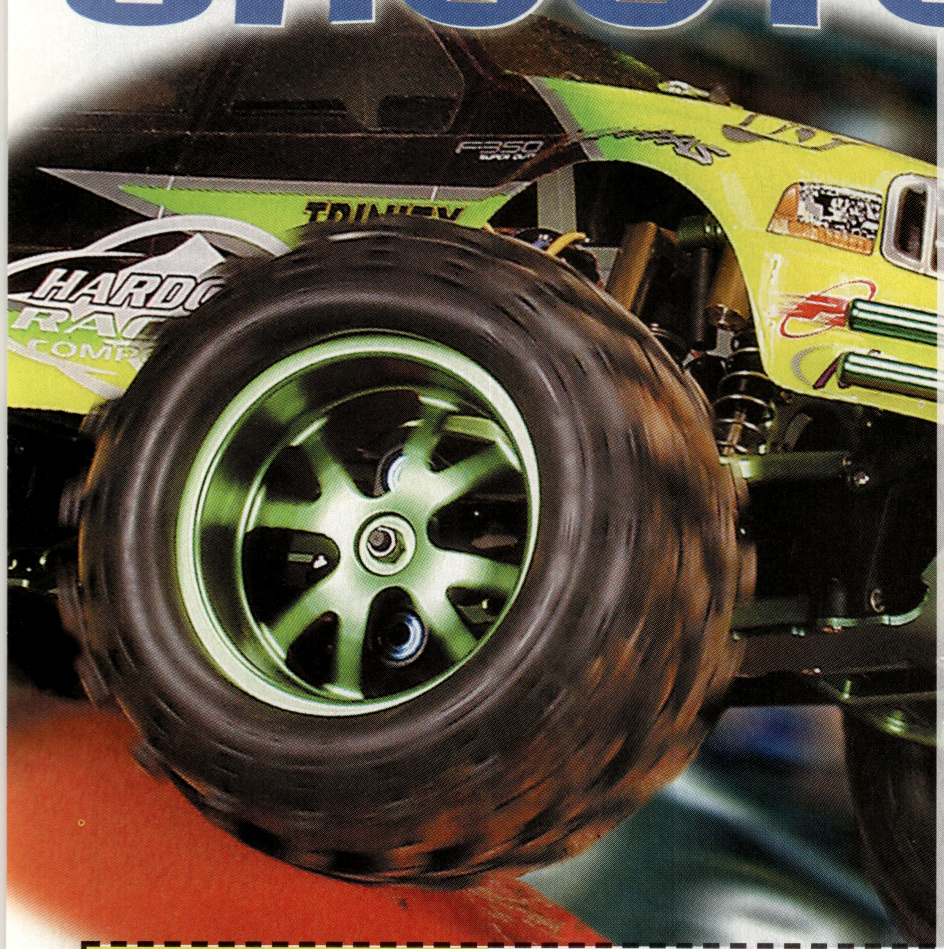
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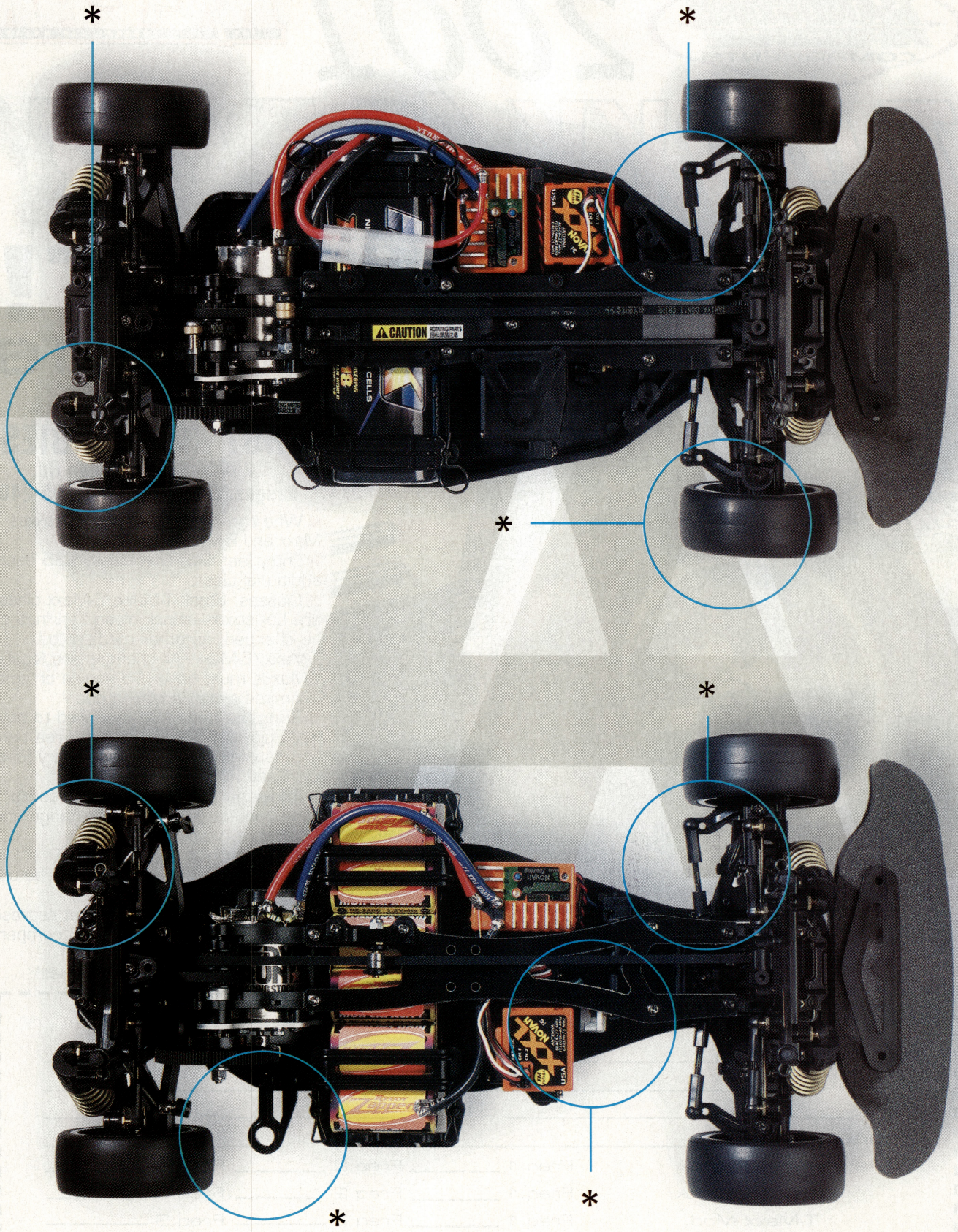
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Class:				
T-Maxx Stock	Freq.1 _____	Freq.2 _____	Freq.3 _____
E-Maxx Stock	Freq.1 _____	Freq.2 _____	Freq.3 _____
T-Maxx Mod.	Freq.1 _____	Freq.2 _____	Freq.3 _____
E-Maxx Mod.	Freq.1 _____	Freq.2 _____	Freq.3 _____
T-Maxx Unlimited	Freq.1 _____	Freq.2 _____	Freq.3 _____

T-Shirt Size (circle one) L XL XXL **Mail with check to: Hot Rod Hobbies, 25845 San Fernando Rd., Saugus, CA 91350**

Entries are non-refundable and non-transferable 2 weeks prior to the event.



TA04 BELT DRIVEN 4WD RC RACING SYSTEM

Check WWW.TAMIYA.COM for hop-ups highlighted in this ad.

TA04 shown with items not included in kit: 1. NOVAK CYCLONE™ 2. NOVAK RECEIVER™ 3. REEDY™ MOTORS 4. REEDY™ BATTERIES 5. SERVOS

TAMIYA

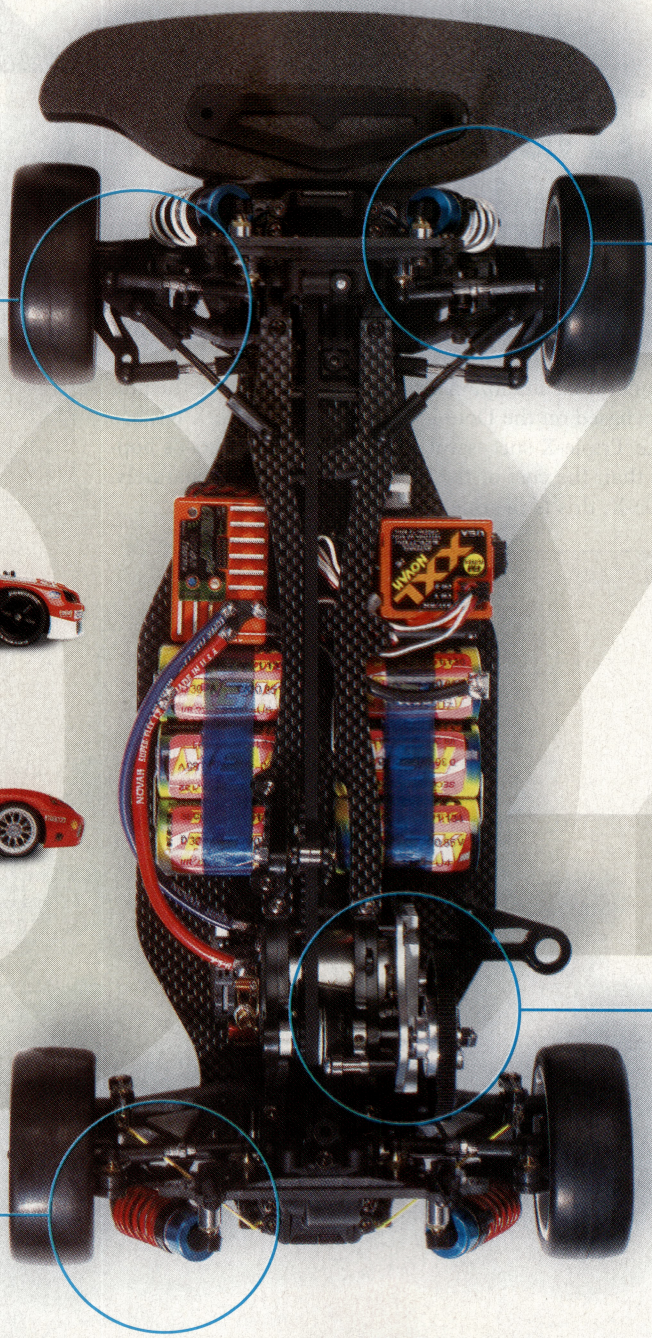
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Kit 58269



Kit 58266



* VICTORY SOLD SEPARATELY. FUN GUARANTEED.

In competition, one part means the difference between going big and going home. So build your beast on the the most supported RC base in the industry — the TA04. This line is a belt-drive system upgradable from the entry tub chassis to the competition TA04•PRO. Go even faster with custom hop-ups — super low friction damper set, Type-A reinforced slick tires, adjustable upper link suspension, carbon fiber shock towers, carbon fiber chassis, and more. Your car is as specialized as your imagination. Grab a complete kit from your hobby source and start tricking it out. Own a TA04 and own the track.

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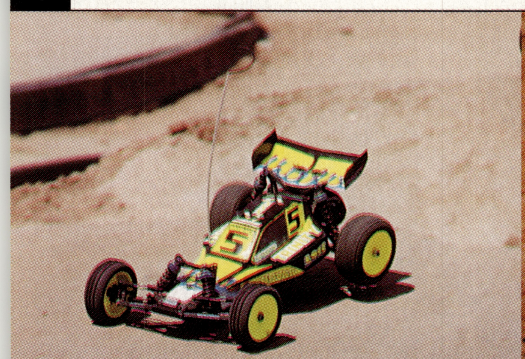


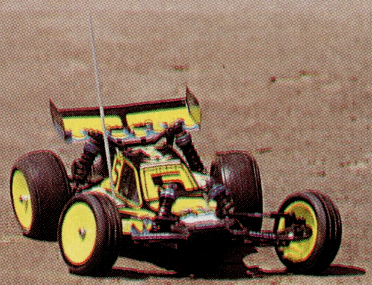
Team Losi Triple-X Kinwald Edition

Things you'll need

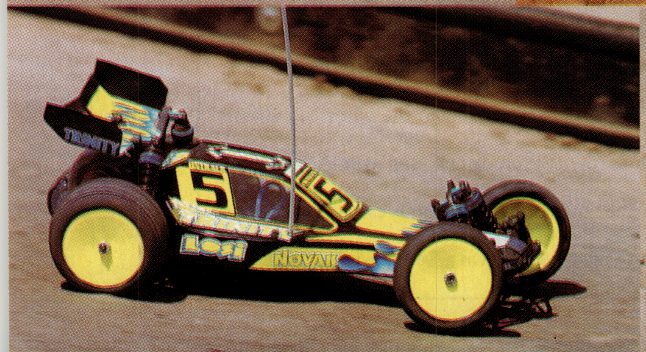
- Two-channel surface radio
- Electronic speed control (ESC)
- Steering servo
- Six-cell battery pack (either stick or side-by-side style)
- Battery charger (preferably peak-detecting type)
- Polycarbonate paint for body
- CA glue for tires

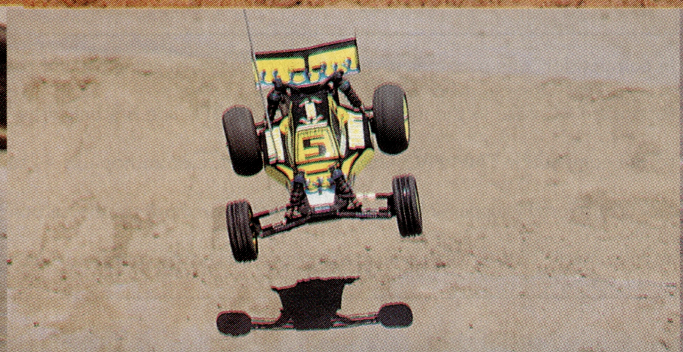
How do you improve a car that's won pretty much every race it's ever entered? You don't change it, that's for sure; you make it a little lighter, a little stiffer and a little stronger. This was Team Losi's formula when it decided to release a Kinwald Edition of its two-time national champion Triple-X buggy. As with the previous Kinwald Edition, which was based on the Double-X buggy, the Triple-X KE has all the features that have made the Triple-X successful, but adds a host of Losi's hop-up accessories—all for much less than the cost of the kit and parts if sold separately. If you're in the market for a Triple-X, this is the one to get.

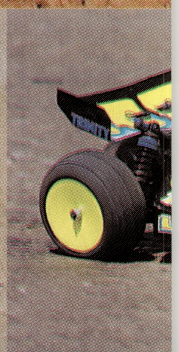






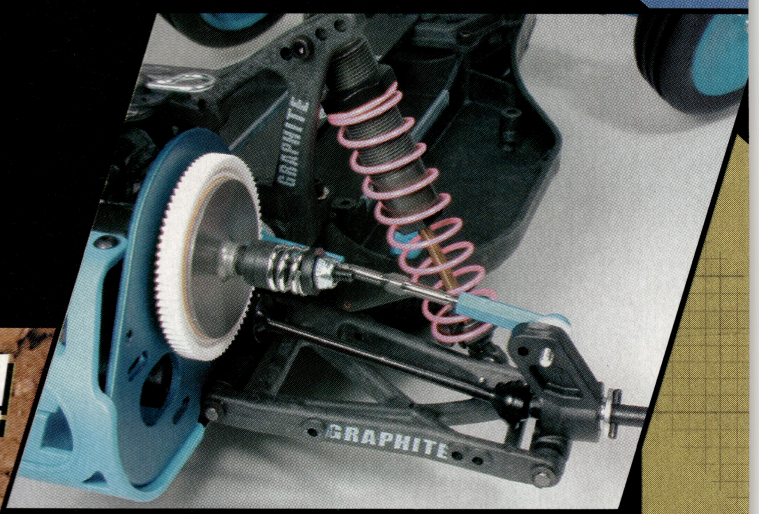


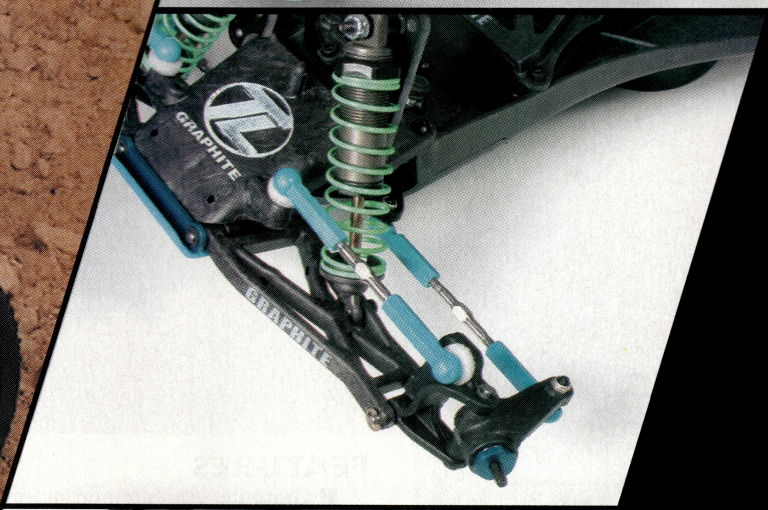


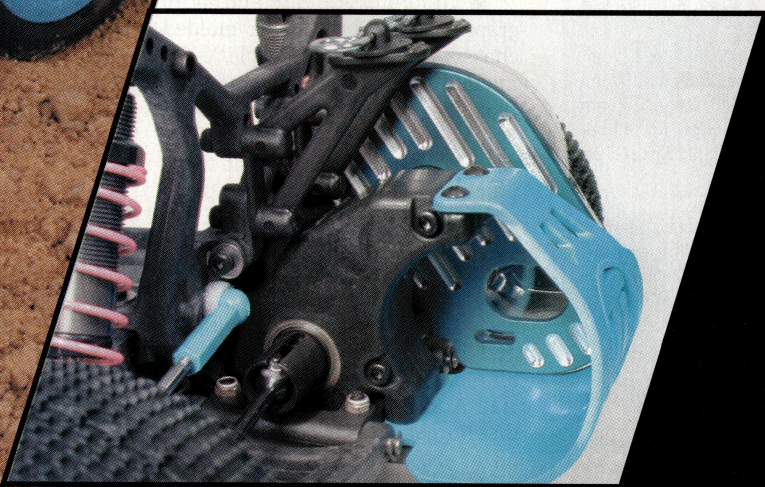


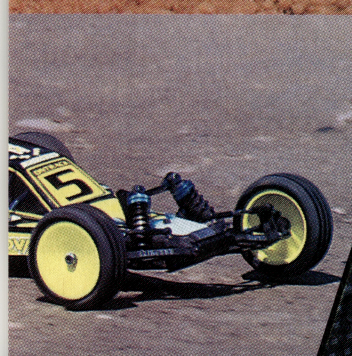
You might not drive like Brian, but at least you can own his car!





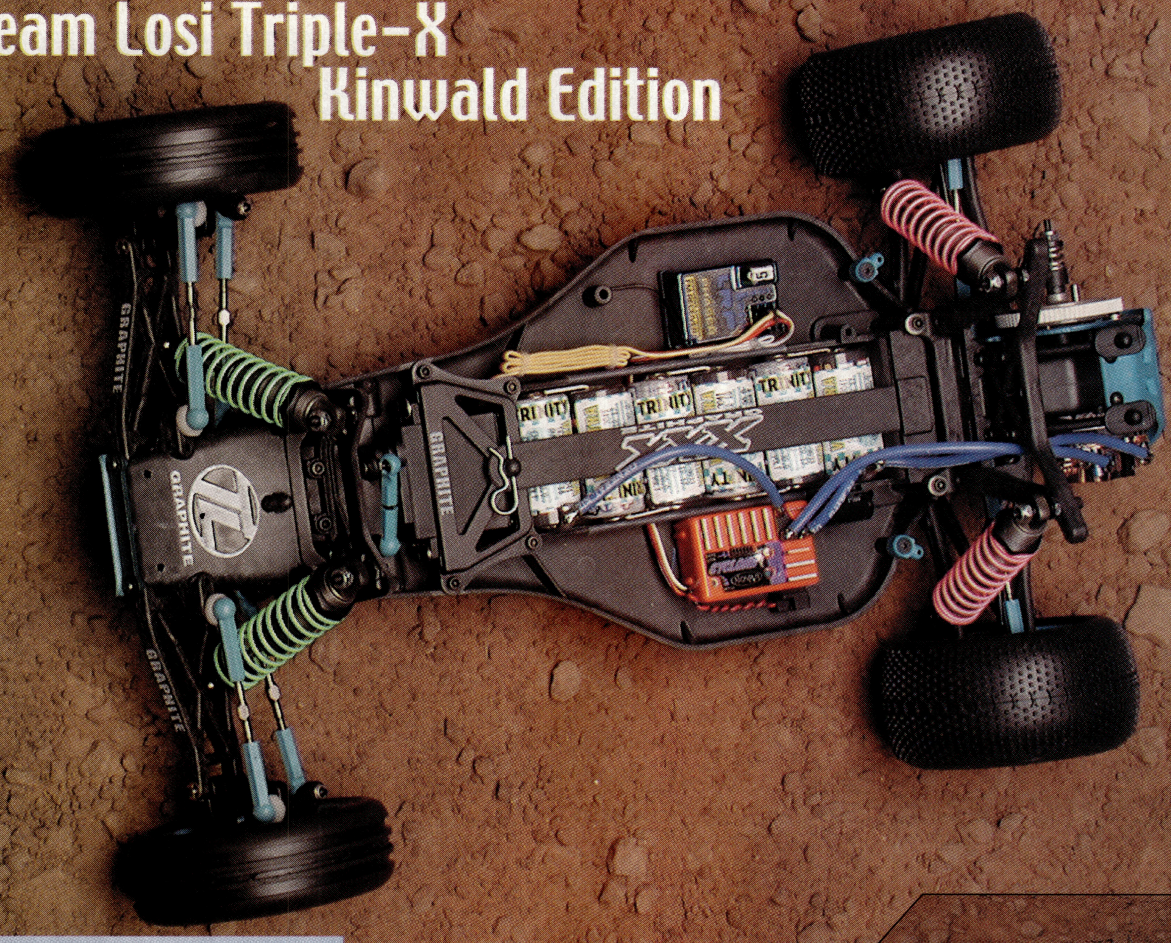








Team Losi Triple-X Kinwald Edition



Specifications

Type	2WD electric off-road buggy
Scale	1/10
Price	$239.99(est. street)
Length	14.9 in./379mm
Width	9.84 in./250mm
Wheelbase	10.6 in./270mm
Track (F/R)	6.3 in./160mm
Weight (RTR)	3lbs., 6.1oz.

Transmission

Type	three-gear sealed gearbox
Differentials	ball diff (rear only)
Driveshafts	MIP steel CVD driveshafts
Bearings	Teflon-sealed ball bearings

Suspension

Type	independent lower A-arm, adjustable upper link
Material	molded graphite-composite

Front end

Caster	adjustable
Camber	adjustable
Toe	adjustable
Down-travel	non-adjustable

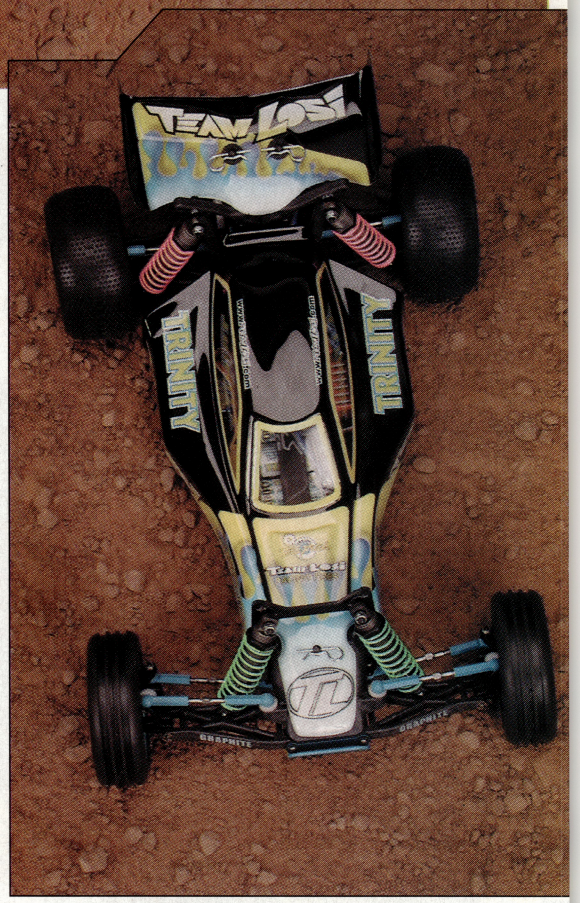
Rear end

Anti-squat	non-adjustable
Camber	adjustable
Toe	3 degrees per wheel (fixed)
Down-travel	non-adjustable
Shocks	Aluminum dampers w/threaded bodies.
Springs	Losi green fronts, pink rears
Wheels	solid-dish style, blue nylon
Tires	Losi silver four-row ribbed fronts, red X-2000 rears
Inserts	medium foam
Body	Team Losi Phobia

FEATURES

■ Graphite, graphite and more graphite. All of the black molded chassis pieces of the Triple-X are molded from a composite material that Losi calls "Stiffezell." But if you want the lightest and stiffest car possible, then you want these pieces molded from a graphite composite. With the KE, you get all of Losi's graphite composite parts; the chassis, front bulkhead, front and rear suspension arms, rear shock tower, chassis brace and battery hold-down strap are all molded in this wondrous material. And in case your racing buddies forget how trick your car is, all of these parts are emblazoned with the word "graphite" in silver logos.

■ Blue aluminum goodies. In keeping with the theme of the KE (which is to replicate national champion Brian Kinwald's car), there's a lot of blue to greet the eyes. Up front, the stock kit's composite hinge-pin brace is replaced by a blue-anodized aluminum piece that's even stronger—you



won't be breaking any bulkheads on this car. At the ends of the front arms, you'll find a pair of blue-anodized aluminum axles. Like all Triple-X kits, you can space the axles to accommodate both types of front wheel offsets—wide or narrow—while still remaining within legal width. Finally, Losi has included a machined rear motor plate, also anodized in blue, that is both lighter than the stock plate as well as more efficient at keeping the motor cooler, thanks to its milled-in slots (aluminum cools best at its edges; more edges mean better cooling).

■ Hidden advantage. The Triple-X transmission remains unchanged but for one exception: the heavier steel top shaft has been replaced with a lightweight, one-piece hard-anodized aluminum shaft. What's the benefit? How about less rotating mass, which equals quicker acceleration and more punch, especially noticeable with stock motors. In addition, the hard-coated aluminum top gear will last longer.

■ Blue is cool. A year ago, Losi began offering several of the Triple-X's molded parts in colors. This trend has really caught on with racers, so Losi has included a bevy of its "cool blue" plastic in the KE kit. Included are blue ball cups for the suspension tie-rods, blue rear body mounts, a blue front bumper, rear motor guard, even blue wheels!

■ Better shocks. Threaded shock cylinders are currently all the rage with sedan racers. When they want to change spring pre-load, they don't have to fuss with clamping collars (which can move on you at the most inopportune moments) or try to locate spacers of the right thicknesses (we always lose our spacers anyway); they simply turn the threaded pre-load nut. Team Losi is the only company to offer threaded cylinders for 1/10-scale off-road racers, and these are included in the KE kit. Like the standard Triple-X cylinders, the threaded cylinders are hard-coated aluminum for long life and reduced friction.

And the improvements don't stop with the cylinders; Losi also includes a full set of its titanium-nitride finished shock shafts. These gold-colored shafts are treated with a longer-lasting finish that also reduces the friction and stiction (stiction is the amount of force needed to set an object in motion) of the shocks' operation.

■ Aftermarket parts. Two of the most popular aftermarket accessories for the Triple-X are titanium turnbuckles and MIP CVD driveshafts. Although Losi doesn't manufacture these parts, they have graciously included them in the KE kit because, well, Brian uses them. There are lighter and stronger Lunsford titanium turnbuckles for both the front and rear camber links and the front steering tie-rods. In back, MIP's rebuildable CVD shafts replace the Losi universals.

■ They're in there: The Kinwald Edition includes one hop up that you can feel but rarely see—ball-bearings for the steering bellcranks. In stock form, the Triple-X's bellcranks pivot on molded bushings. With these, the steering feels nice and free, but what happens under load? The bushings cause friction. Losi includes four of the tiniest ball bearings we've ever seen to replace these plastic bushings. With these installed, the car's steering is slop- and friction-free even under hard cornering.

PERFORMANCE

Location: Hot Rod Hobbies, Saugus, CA.
Weather: 60 degrees and overcast
Conditions: Damp hard-packed dirt with a layer of "marbles." Choppy bumps and two large triple-jumps

Good things:

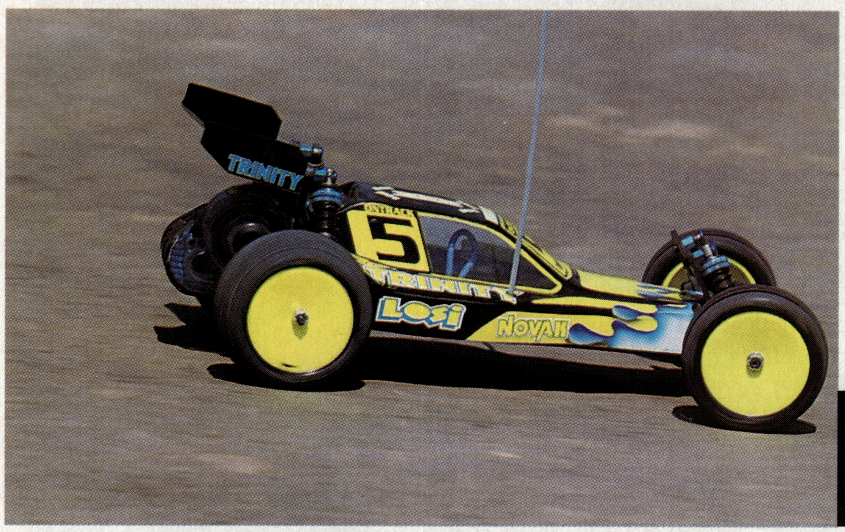
■ Jumping—Of all the 2WD buggies we've tested, we can honestly state that the Triple-X, as it comes from the box, is the best jumper. It doesn't matter if the car is out of shape or squirrely, the Triple-X will land safely. Our test track has a small hill that you must roll, followed by a tight right-hander and a long triple. The Losi could make this jump without needing to be straightened out first. You could actually pitch the car in the air to set up for the next turn.

■ Steering—Gil Losi Jr. once told us that his goal in designing a car or truck is to make it easy to drive out of the box. He has succeeded; the Triple-X KE is a novice-to-intermediate driver's dream come true. Not that it's slow by any means, but there's just enough understeer so that you don't have to be Brian Kinwald to get around the track. Our test car was equipped with a hot 13-turn Trinity D4 mod motor, and our lasting impression was that the KE was a breeze to drive even with all that power. The worst trait any car can have is excessive oversteer, especially when the majority of the people who will own it aren't expert or pro drivers. When you're ready, the KE can easily be tuned to have more aggressive steering, thanks to its highly adjustable chassis and Losi's extensive line of springs, oils, pistons and suspension pieces.

■ Suspension—Plush, plush, plush! Our test track was loaded with choppy holes, courtesy of weeks and weeks of gas truck and 1/8-scale buggies running on it. We have driven trucks on this track that seemed to feel the bumps worse than the KE! The Losi car soaks up the bumps so well, you don't realize that they're even there. When exiting turns on power, this car stays its course!

Bad things:

■ Nothing, nada, zip. This is an elite racer that's user friendly. How they'd do that?



■ Not a neurosis. Topping of the KE is Losi's new Phobia body and wing kit. Designed by team driver Jason Ruona, the Phobia features a slightly lower roof line than the stock body, and it has more of a "cab forward" design. Also, the overall shape of the Phobia is more curvaceous than the rather stolid stock Triple-X shell. The included Phobia wing carries the same theme to the downforce duties. Expect to see the Phobia as the new "cool" body for the Triple-X.

Hits

• The KE needs nothing to compete at any level, and what's even better is that you get all the trick parts at a significant savings versus purchasing them separately.

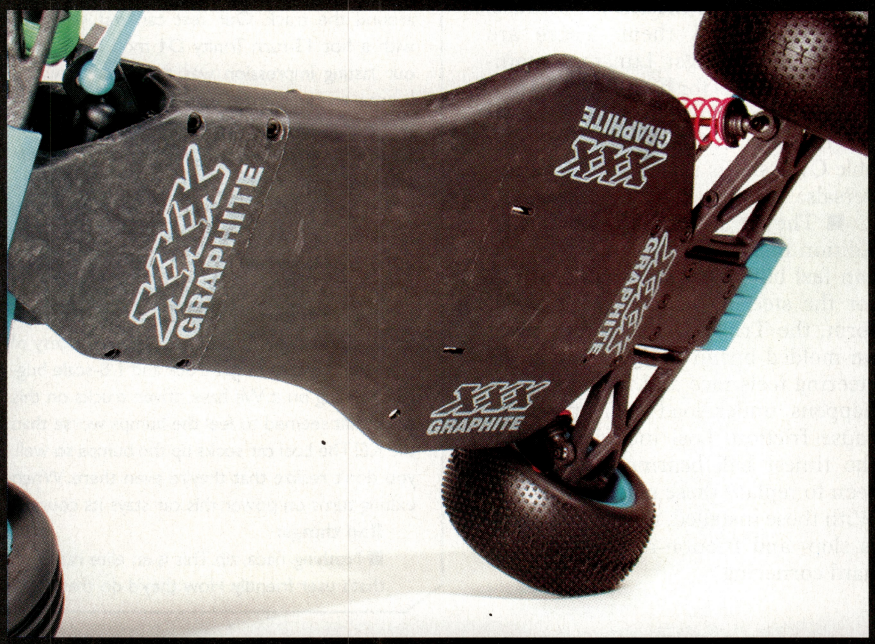
• Like all Losi kits, the KE goes together flawlessly, and its instructions are as clear as they come. A substantial tuning section helps get you dialed-in faster.

• All Triple-X buggies are easy to drive using the stock setup, which adds just enough understeer to keep beginners from becoming frustrated, but the chassis can be easily tuned for the aggressive steering craved by experts.

Misses

• The blue wheels were a hit and miss with our staff. The guys who liked them felt that they set the car apart from the white/yellow wheel cars. The guys who frowned on the blue wheels cited that they clash with most paint schemes except yellow, white and blue.







BUILDING HINTS

• Losi provides a gold 4-40 cap-screw in the bag that has the Allen wrenches. Use this screw to tap the holes in the graphite pieces. This makes it much easier to install the steel screws later on.

• When assembling the servo saver, apply a thin coating of diff lube on the mating halves. This will allow the servo-saver to "break free" sooner and will reduce the chance of servo damage.

• When installing the front axles, use a front wheel to hold the axle as you tighten the axle screw. This is preferable to holding the axle with pliers, which might cause damage.

• There are actually two types of shock bushings provided. Be sure to install the thicker of the two types to the front shocks. The thinner ones are for the rear shocks.

SOURCES

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

Hitec, 12115 Paine St., Poway, CA92064 • phone (858) 748-6948; fax (858) 748-1767

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

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

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

ROAR Stock Nationals

Hosted by

CRCRC

Columbus RC Racing Club

Club 1607

&

TEAM LOSI

June 11th - 17th 2001
At CRCRC Franklin County Fairgrounds - Hilliard Ohio

Schedule
Mon - Wed - Open practice noon- 8pm
Thursday - Controlled practice with transponders 10:00am - 8:00pm
Friday - Two Qualifiers all classes starts 10:00 am
Saturday - Two Qualifiers all classes starts 10:00 am
Sunday - All Classes mains - Racing starts 10:00am

Entry Fee: $70 Each class (includes handout motor, handout tires and T-Shirt)

ROAR membership required

Event t-shirt prepaid entry received before May 20th only
Size Medium ☐ Large ☐ X-Large ☐ XX-Large ☐

T-Shirt

T-shirts are available with prepaid entry only. Any entry received after May 20th deadline will not get a t-shirt

Deadline for all entries May 20th, 2001 $20 Late fee for entries received after deadline

$70.00 each class

Classes

2WD	
Truck	
4WD	
2WD Junior	
Masters Truck	

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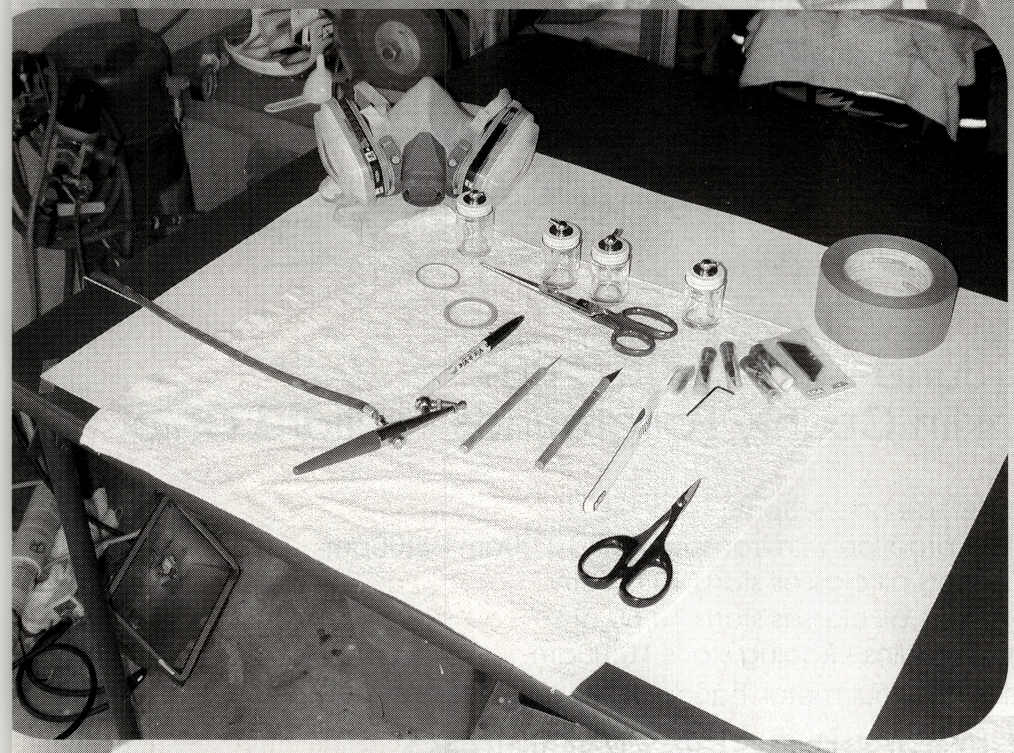
Include your E-mail or self addressed and stamped envelope for a confirmation and hotel list.

For more information Call Steve Hartung at 614-470-3034.

Body Painting Basics

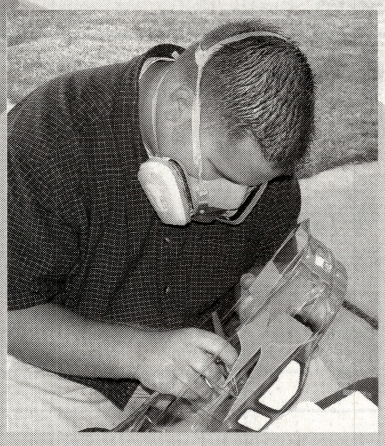
Create that perfect body with an airbrush!

By Dennis Rotim

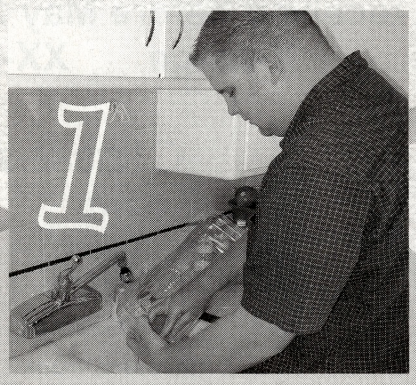


Having a custom painted body is a must if you want to grab the most attention at the track.

However, it is not always the case where you get a body painted that exactly fits what you had in mind. To make it worse, you would spend fifteen to twenty dollars on a body and thirty or more to get it painted. Now you're stuck with a body that cost you fifty dollars and doesn't look quite right. For myself, I ended this problem by picking up an airbrush and teaching myself how to paint. Now I am able to paint my own bodies and have complete satisfaction. And to pass on the satisfaction to you, I will provide a step-by-step guide on how to paint a body.



• A word of advice; when airbrushing, make sure that you are in a well-ventilated area. The fumes produced by the paint may overwhelm some people and will certainly cause severe health problems. And to further extend your safety, use a mask with appropriate filters.



10 steps toward a better body

Step 1: Take the body and rinse it with warm water. With the soft part of a sponge and mild dish soap, carefully wash the inside of the body. By washing the inside of the body, the oils used to release the body from its mold will be washed away. This will allow the paint to adhere better.

Things to do before you begin

• Choose an airbrush. There are many companies that manufacture airbrushes. I personally use a Paasche model H. It's a basic single stage airbrush, and it is perfect for the job. Badger is another company that is known for quality airbrushes.

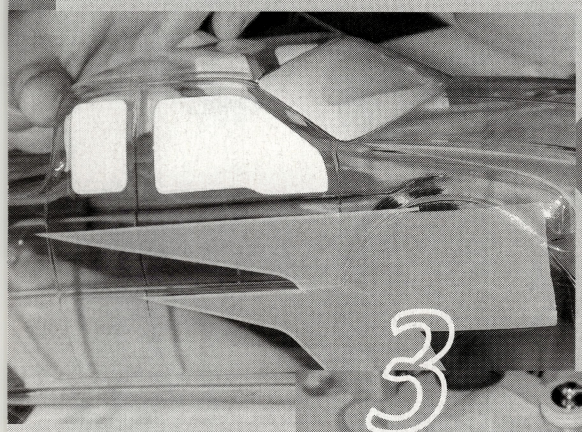
• Plan a design. This would involve making a rough sketch of what you want the body to look like. This can be done on a piece of paper, or by drawing the design on the body itself. At the same time, think about the colors you want to use.

• Buy the colors and thinner. The most well known provider of R/C paint is Pactra. They provide a wide variety of colors ranging from fluorescent yellow to metallic blue. There are other companies, such as Parma, but Pactra is just fine.

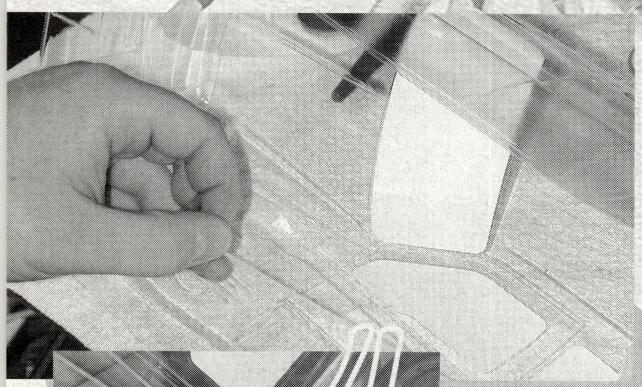
• Prep your airbrush. Take the time to clean it out and make sure that there isn't any old paint left inside (if it has been used before). I like to use "Sunny Side" paint thinner to clean the airbrush and mix my paint (make sure that the thinner you choose does not include mineral spirits).



Step 2: Dry the body thoroughly with a lint-free cloth.



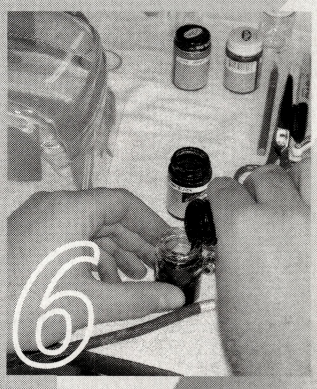
Step 3: Take the provided window masks (if applicable) and apply them to the inside of the body. If it is hard to see the window lines, simply outline them with an erasable marker such as a Vis-à-Vis.



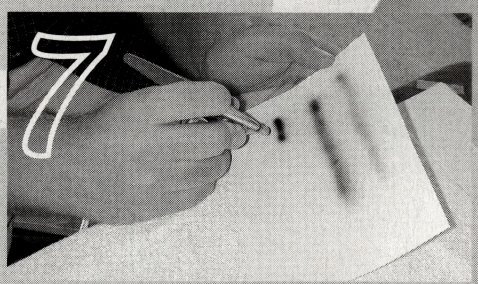
Step 4: Now it is time to place your design onto the inside of the body using pin striping tape. When applying the tape, press it down firmly so that when you change directions the tape won't peel up. I like to use 3M pin striping tape. It can be found in any auto body shop and some hobby shops. To cut the points of your design, use a No. 11 X-Acto knife to cut the tape.



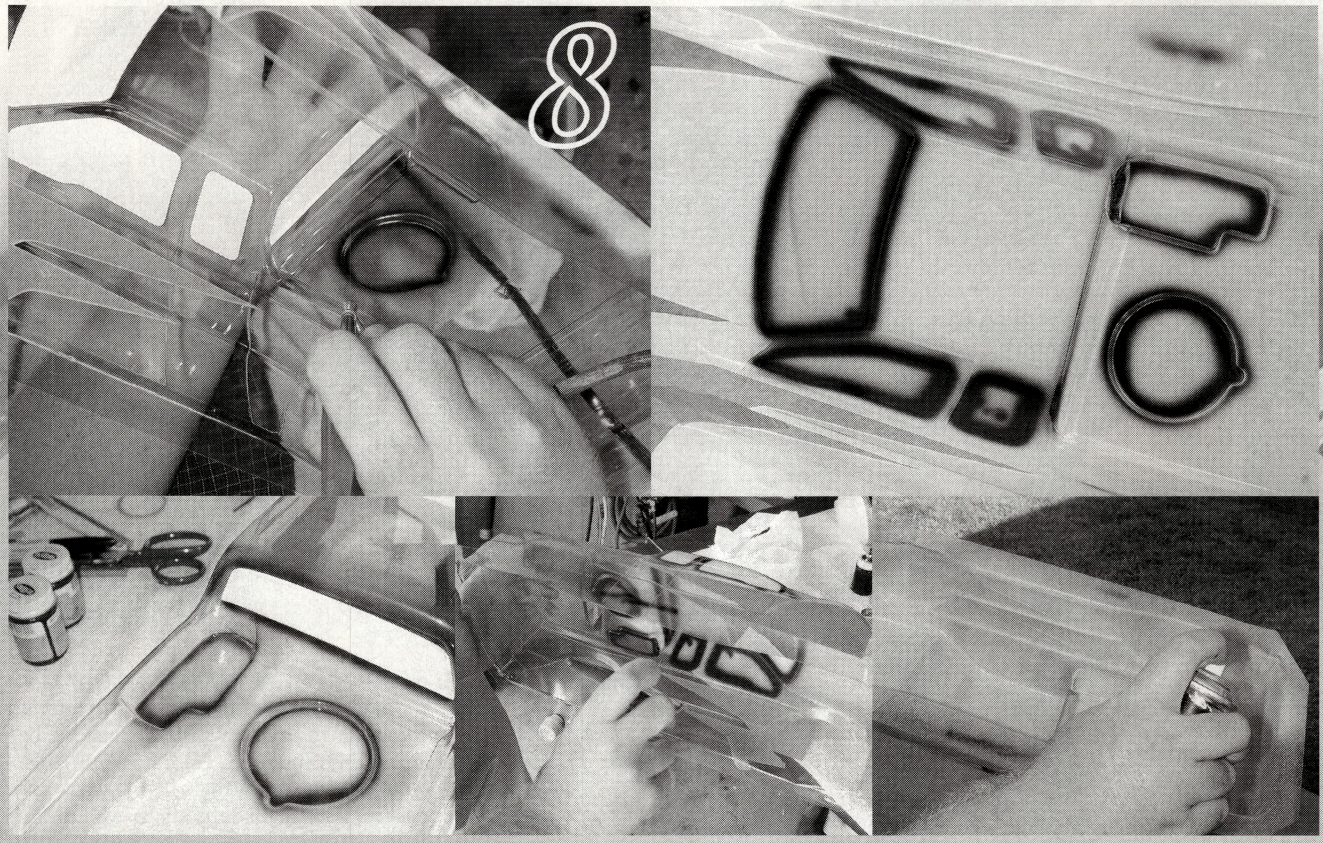
Step 5: Now that you have the pin striping tape laid out, it is time to mask off the different sections. Keep in mind that the darker colors need to be sprayed first and then the other colors that progressively get lighter. When masking off, I like to use 3M's blue masking tape. This tape sticks well to the body and does not leave any of its glue residues behind. When taping off large areas I like to use notebook paper so that I don't have to use a lot of tape.



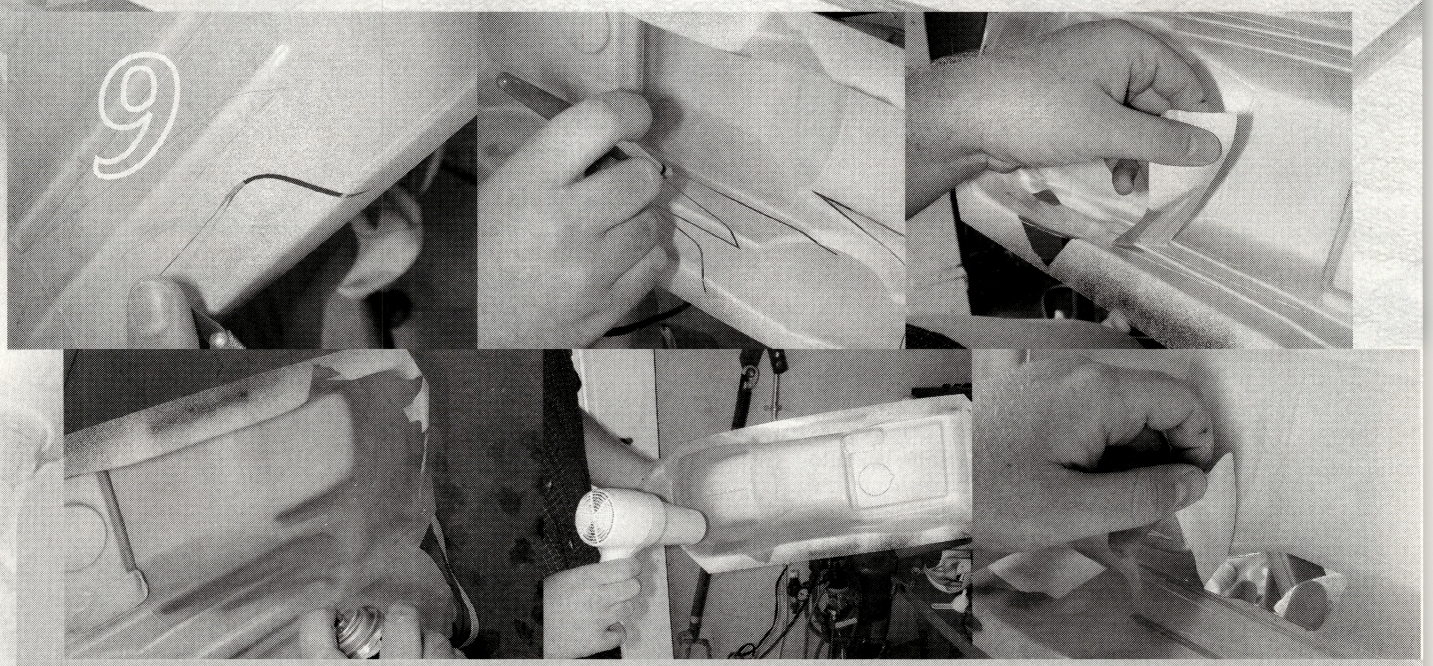
Step 6: After you have sectioned off your first area to paint, now it is time to mix the color. Pour the paint into your mixing bottle, filling it about a third of the way. Then take your thinner and pour about another third into the bottle. This is a good starting point for colors that need to be applied in large areas. Then take the cap from the paint bottle and place it onto your mixing bottle. This will allow you to mix your paint without contaminating your other caps. Shake it well and then place the nozzle onto the mixing bottle.



Step 7: Before you start spraying the body, first test the airbrush on a piece of paper. By doing this you can adjust how much paint you want to come out, and if it's clean or not. Depending on the color you use, you may have to adjust the pressures at which you spray. For metallic colors I set the pressure at 32 to 35 psi. Because metallic colors are thicker they take more pressure to successfully apply them to the body. For light or candy colors I decrease the pressure to about 24 to 27 psi. By decreasing the pressure it will prevent the paint from building up in one spot, considering the paint is thinner and flows more easily.

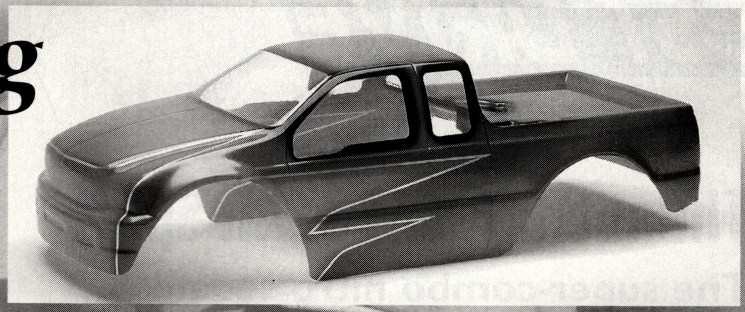


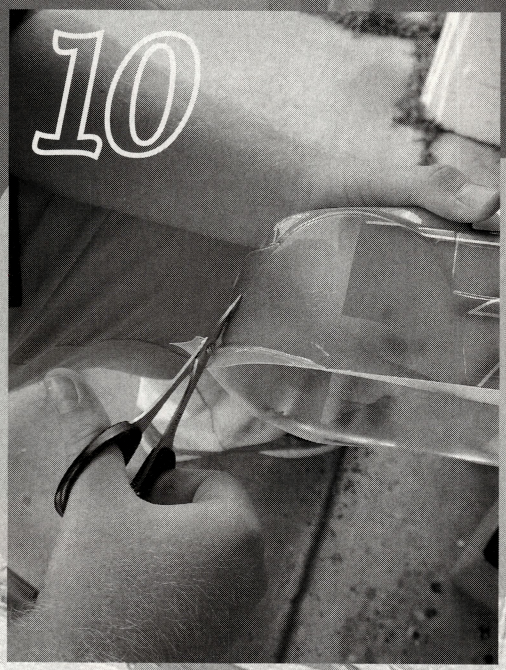
Step 8: Since all of the hard work is done now, it is time to paint. When applying the first coats of paint, apply a thin layer. This will allow a small amount of paint to adhere with no problem, and it will set a good base. As you apply more and more coats, the coats can go on progressively thicker. Between coats, allow an adequate amount of time for it to dry—use your own discretion. Remember that weather is a huge factor. Ideally you want it to be a warm day, about 72 to 82 degrees), with low humidity. This will allow the paint to stick better and keep the moisture out of the paint. If you have to paint in colder temperatures, you can try setting up a spray booth in your garage (don't forget that respirator!). The colder it is, or if it's very humid, the paint may not adhere to the body as well as it could.



Step 9: When the main colors of the body are painted, it is now time to peel up the pin striping tape. Make sure that the paint is dry before you attempt to peel up the tape. If the paint is not dry, you will peel the paint up along with the tape. And since you worked so hard on the body you certainly do not want that to happen! When the tape is all peeled off, you can spray the final color for striping.

Body Painting Basics





Step 10: When all of the colors are finished, it is now time to cut the body out. I use Trinity Lexan scissors for this job. When cutting out the bottom of the body, I like to place a strip of tape along the body line to ensure a straight cut. Leave the window masking on until you are finished cutting the body, because you may scratch it and have to make touch-ups.

Time to hit the track

Now that you have that beautiful custom-painted body, what's next? Time to have all your buddies at the track bash it around and scratch it all up for you! Hey, that's cool, though, because at least now you won't be afraid to tackle that next painting project. Stay tuned to future issues of *R/C Car* where we take on such tricks as painting custom flames, checkered sections, and how to do gradual fades from color to color and even trick-looking graphite finishes! ◆

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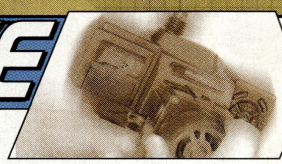


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TEST DRIVE



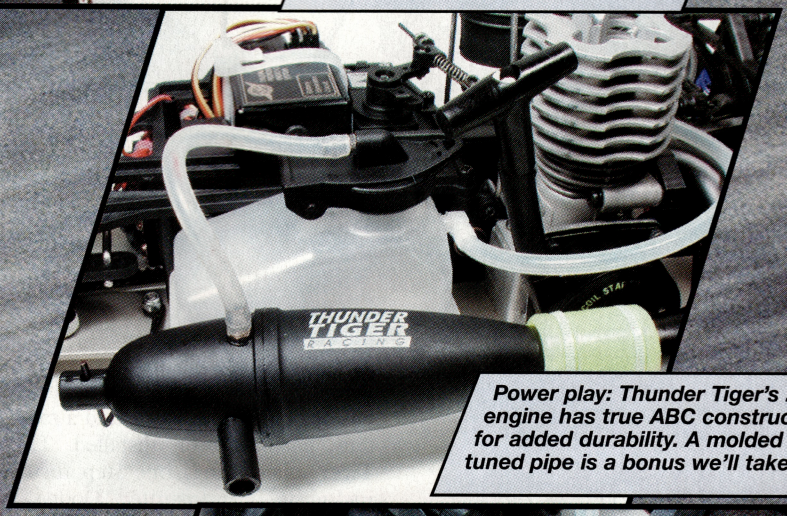
Thunder Tiger TS-4n Sport

The super-combo nitro sedan!

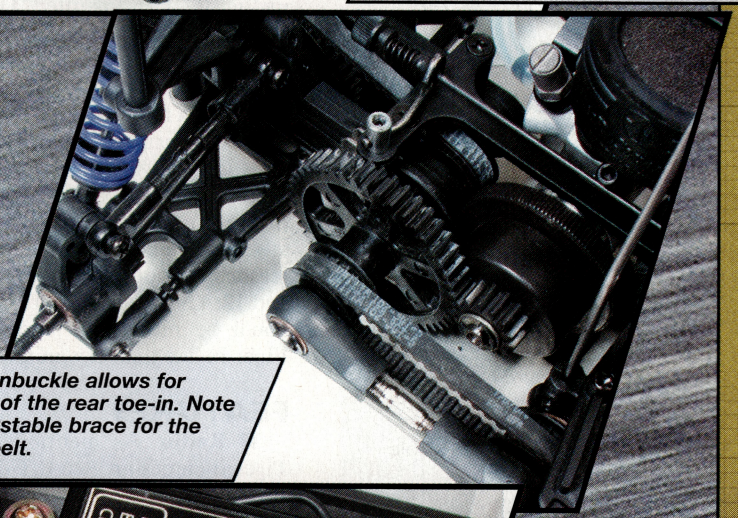
Nitro touring cars are great. They're fun and fast, plus they look like real cars that you might see on the street (or get to drive, if you're lucky enough). Unfortunately, most of them come as unassembled kits which you must build. Then, you'll have to buy a clear body and paint and detail it yourself. Finally, there's all that extra stuff that you'll need to buy—the radio, the glow-igniter, an engine, etc. Sound like a turn-off to you? Then you'll really like the new TS-4n Sport from Thunder Tiger.



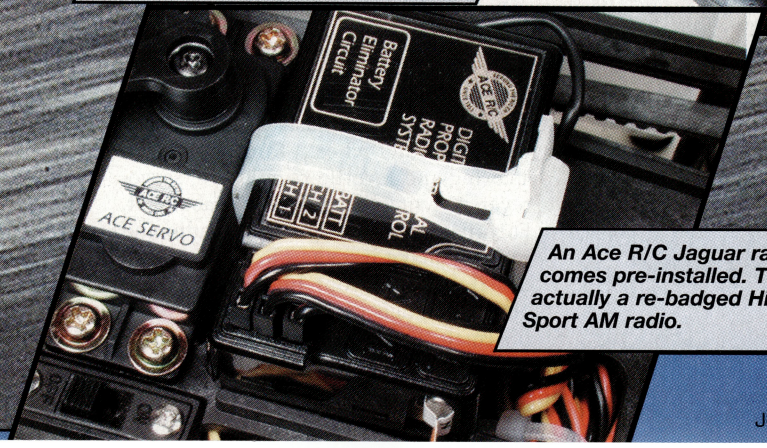
Race feature: the TS-4n's racing heritage is apparent here. Note the pillow-ball suspension and adjustable caster.



Power play: Thunder Tiger's .15BZ engine has true ABC construction for added durability. A molded tuned pipe is a bonus we'll take!

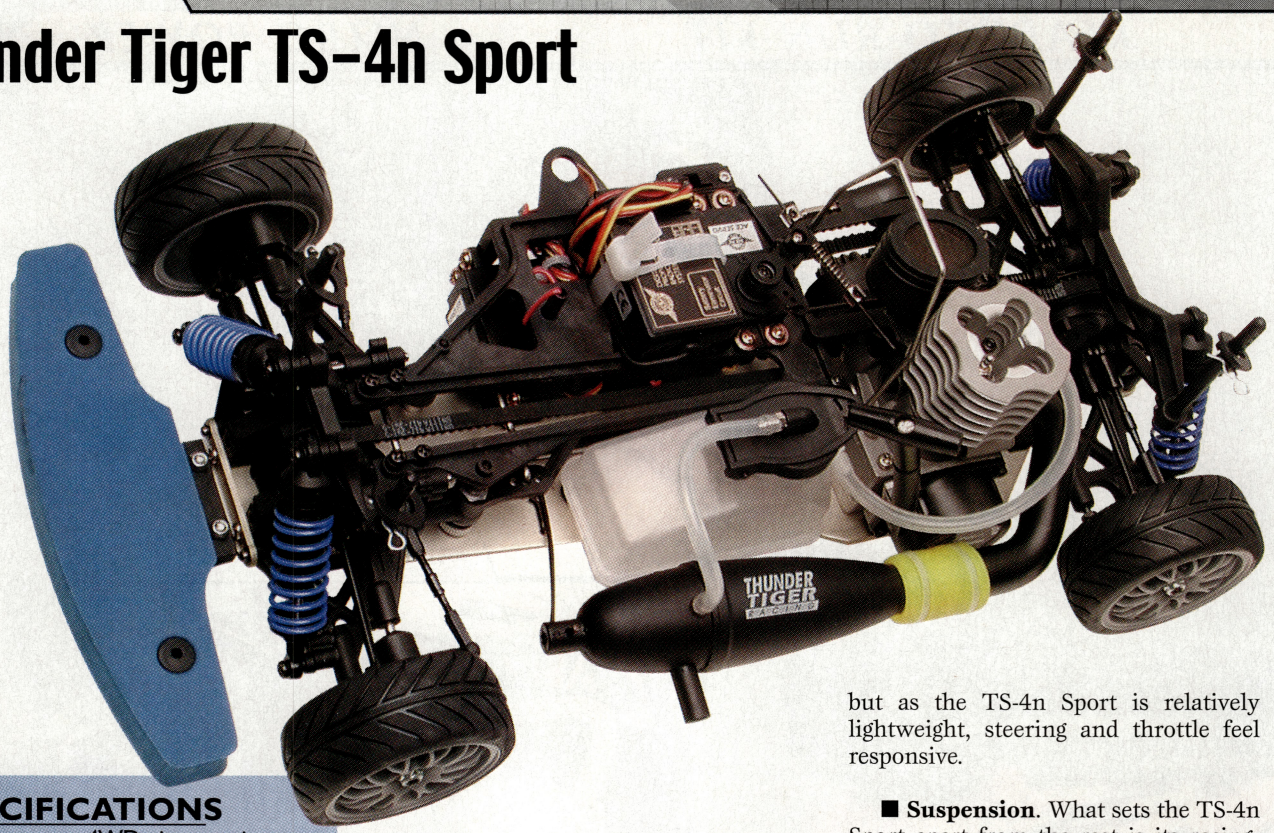


A small turnbuckle allows for adjustment of the rear toe-in. Note also the adjustable brace for the center drive belt.



An Ace R/C Jaguar radio system comes pre-installed. This system is actually a re-badged Hitec Lynx Sport AM radio.

Thunder Tiger TS-4n Sport



SPECIFICATIONS

Type	4WD nitro touring car
Scale	1/10
Retail price:	$309.99
Average street price:	$289.99
Length	375mm
Width	200mm
Wheelbase	265mm
Track	175mm
Weight (RTR)	3 lbs., 9.2 oz

Transmission:

Type	Belt-driven 4WD
Differentials	F/R gear diffs
Driveshafts	Steel dogbones/axles
Bearings	Bronze oilite bushings

Suspension:

Type	4-wheel independent
Material	Molded nylon

Front end

Caster	Adjustable
Camber	Adjustable
Toe	Adjustable
Down-travel	Adjustable

Rear end

Anti-squat	Non-adjustable
Camber	Adjustable
Toe	Adjustable
Down-travel	Adjustable
Shocks	Oil-filled coil over
Springs	Kit blue
Wheels	Gray mesh
Tires	Radial tread
Insert	Standard foam
Body	200mm Dodge Viper

The TS-4n Sport is an RTR (ready-to-run) kit, which means that the chassis has already been built for you, the engine has been bolted in place, and a radio system has also been installed. Thunder Tiger takes things one step further by including a pre-painted Dodge Viper body that's been trimmed, decaled and mounted to the chassis. Inside the box you'll also find a small squeeze bottle for refueling, a four-way box wrench (which also stores spare glow plugs) and a NiCad glow igniter with AC wall charger. Talk about a complete package! When you buy this kit, the only other items you'll need are fuel (which, for safety and freshness reasons cannot be included in an RTR) and 12 AA batteries for the radio system. You'll be hitting the street with your Viper in less than two minutes!

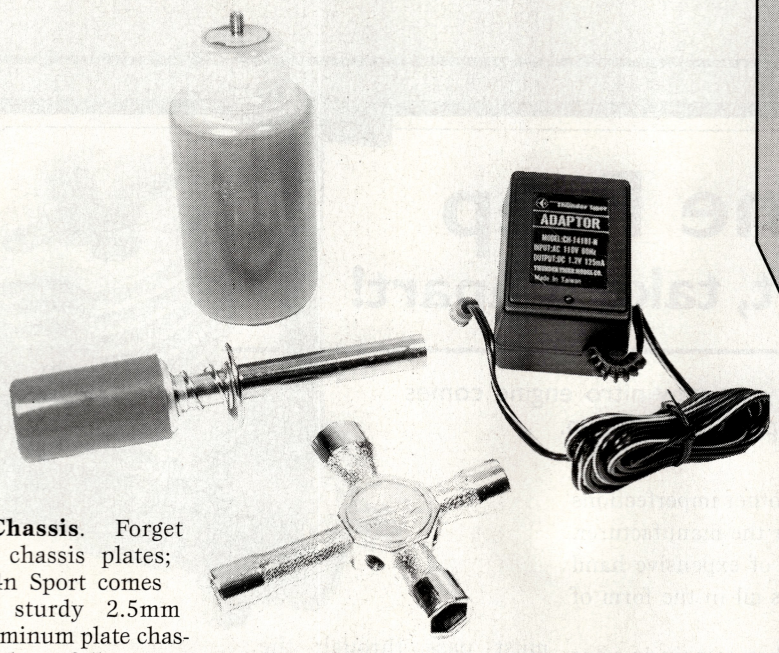
FEATURES

■ **Radio**. As mentioned, Thunder Tiger includes an Ace R/C Jaguar radio system, which is actually a Hitec Lynx Sport in disguise, which is another good thing, because Hitec radios are known for exceptional signal clarity. The transmitter is about as basic as they come, with steering wheel, throttle trigger, steering and throttle trim levers, servo-reverse switches and that's about it. Fortunately, the design of the radio and receiver make it a snap to change crystals if you and your buddy happen to bump channels the next time you're on the track. The servos are standard-issue, but as the TS-4n Sport is relatively lightweight, steering and throttle feel responsive.

■ **Suspension**. What sets the TS-4n Sport apart from the rest is its racing-style suspension, which allows not only for the "standard" range of adjustments (camber, toe-in and ride height), but provides additional settings for front caster and rear toe-in—features usually reserved for the most expensive racing sedans. In addition, suspension tuning is made easy, thanks to turnbuckle-style tie-rods.

■ **Engine**. If you want to talk power in a .15-size sport engine, then you're speaking of the Thunder Tiger Pro-15BXS engine. This side-exhaust engine features true ABC piston/sleeve construction (aluminum piston with chrome-plated brass sleeve) for extra-long wear characteristics with improved piston/sleeve sealing for better compression and more power. A handy pull-starter means that you won't have to invest in a starter box, and the limited trade-offs created by the subtle drag of the pull-starter and the slightly taller engine position are offset by the high power-to-weight ratio of this car.

■ **Fuel tank**. Most sport-level nitro kits come with plunger-primers on their fuel tanks. Racers know that these primers can be a source of air leaks, which can lead to poor engine performance and erratic tuning. The TS-4n Sport comes with a competition-style 75cc flip-top fuel tank that omits the primer. A few quick tugs on the pull-starter with your finger over the exhaust outlet sends fuel to the carb, and you don't have to worry about leaks!



■ **Chassis**. Forget cheaper chassis plates; the TS-4n Sport comes with a sturdy 2.5mm thick aluminum plate chassis that's been fully countersunk to accommodate flat-head screws. These types of screw sit flush with the underside of the chassis so that nothing can snag on the ground and slow the car. A molded upper deck and rear brace team with the lower plate to provide exceptional stiffness for a sport-level car.

■ **Wheels and tires**. Included with the kit are a set of four sharp-looking gray-mesh wheels molded from durable nylon. Thunder Tiger includes a set of treaded radial tires and medium foam inserts, which will work quite well on most untreated pavement. The grooves in the tires help the rubber to "cut" through the dust and gain traction.



Hits

- Unlike many race kits, the TS-4n Sport's instructions include a helpful section of tuning tips.
- Eccentric cam-plates in the front and rear bulkheads allow the tension of the drive belts to be set.
- The pre-finished Dodge Viper body looks fantastic, and the decals have been applied very professionally.

Misses

- Suspension flexes too much. Flex helps prevent damage during a crash, but too much causes erratic handling.
- There's also a lot of wheel slop caused by poor tolerances between the axles and the metal bushings. You can't tighten the front wheel nuts sufficiently to eliminate play, as doing this binds up the axles.
- Thanks for trimming the Viper body, but how about doing a better job on the wheel wells?

SOURCES

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

PERFORMANCE

Location: Valencia, CA
Weather: Cool and overcast
Conditions: Dusty asphalt

Engine—The problem with sport-level kits and RTRs is that they often come with cheap, low-quality engines that are difficult to start and tune. This isn't the case with the TS-4n Sport, which comes with Thunder Tiger's .15 BZ engine. Straight out of the box, we filled the tank with Trinity's Monster Horsepower fuel (16-percent nitro), attached the included NiCad igniter to the glow plug, and the engine fired and idled consistently after just two tugs of the starter cord.

If you're after top speed, then you'll be plenty happy with the Thunder Tiger engine. There are two things to be aware of: first, the factory carb settings were a tad lean for initial running. Since there's only one needle (for high-speed), this is all you'll need to concern yourself with. We richened the needle by about a quarter turn (counterclockwise to richen), and this produced more blue smoke from the exhaust (a sign that the engine is receiving adequate lubrication). Also, we found that the engine was very sensitive to fuel mixture. When we attempted to lean the engine to a "race tune" state, the points at which it made maximum power and at which it cut out from fuel starvation were close—too close!

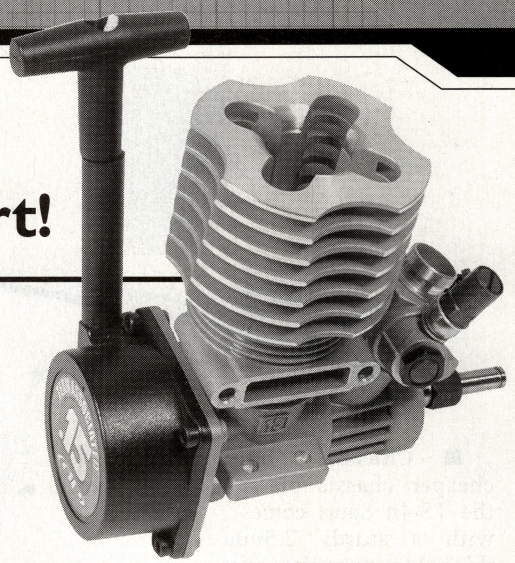
Acceleration and top speed—Considering that the TS-4n Sport has bushings supporting its drivetrain instead of free-spinning bearings, we found that the car had quite a bit of punch. From a dead stop, the 4WD system puts down the power without any drama such as wheelspin or a lurch to one side. Out of turns, there's enough on tap to pitch the car into a controllable four-wheel drift. Once things top out, top speed is in the 40 mph range.

Steering and handling—As it comes from the factory, the TS-4n is set up to be easy to drive. It has stiff blue springs at all corners, and its front ride height is significantly higher than the rear. As a result, the car has a push when entering faster turns. This can be a little frustrating if you're on a tight track, but for the most part, the car feels well planted and easy (read "fun" for beginners) to drive. As the chassis allows for quite a bit of adjustment, those seeking more responsive steering can easily get it by changing the car's caster, toe-in or rear toe-in angles.

Durability—We've no reason to doubt this car's toughness. We know from experience with Thunder Tiger's ABC engines that they last a long time. As for crash-worthiness, this thing has so much flex in the suspension that we can't see how anything short of a head-on with a curb could possibly break anything. So, the lesson here is that flex is good at absorbing impacts, but not so good when it allows the suspension to "wander" all over the place.

New Engine Prep

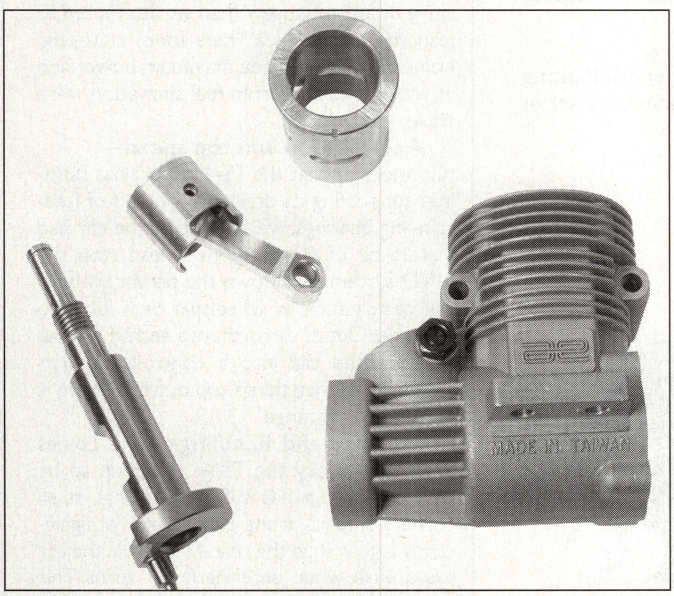
Before you start, take it apart!



Like any mass-produced item, your new nitro engine comes from the factory in less-than-perfect condition.

What we're referring to are burrs and other imperfections left over from the machining process. For the manufacturer, removing these burrs would entail a lot of expensive hand work, and this extra effort would cost us all in the form of higher prices.

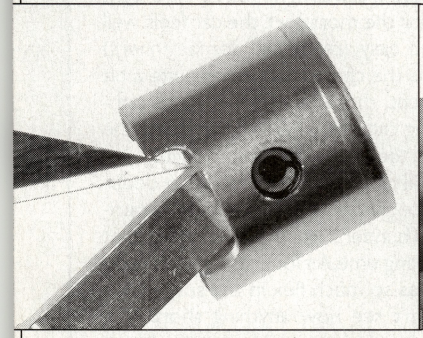
So what happens to these burrs? Do they remain in your engine? Not exactly. Eventually, these imperfections are worn off as the engine runs, and this would be fine if not for the fact that this process produces tiny metal particles that must pass through the engine on their way out the exhaust port. And during their journey, these particles can cause undue wear and scratching on the engine's precision surfaces.

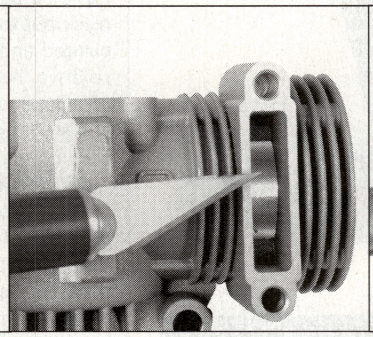


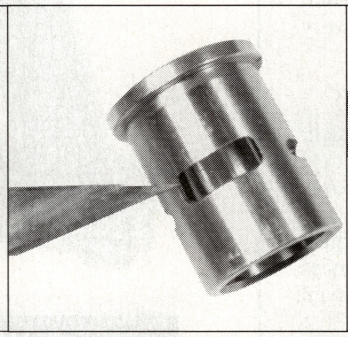
Fortunately, there is something you can do to prevent this; you can get rid of these burrs before you ever start your new engine! With a little time and skill, you can increase the engine's life, allow it to reach its maximum performance, even make it easier to start. Because they entail disassembly of the engine, these tips are recommended for the more experienced racer.

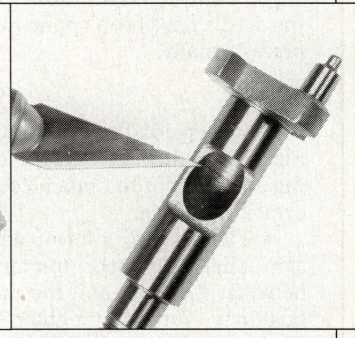
Step 1: Disassembly

To properly deburr your engine, you will need to take it apart. Begin by removing the carburetor, backplate and cylinder head. Next, take out the piston sleeve, piston and connecting rod. Finally, remove the crankshaft by pushing it out through the backplate hole. You don't have to remove the bearings, as they require special tools for proper re-installation.



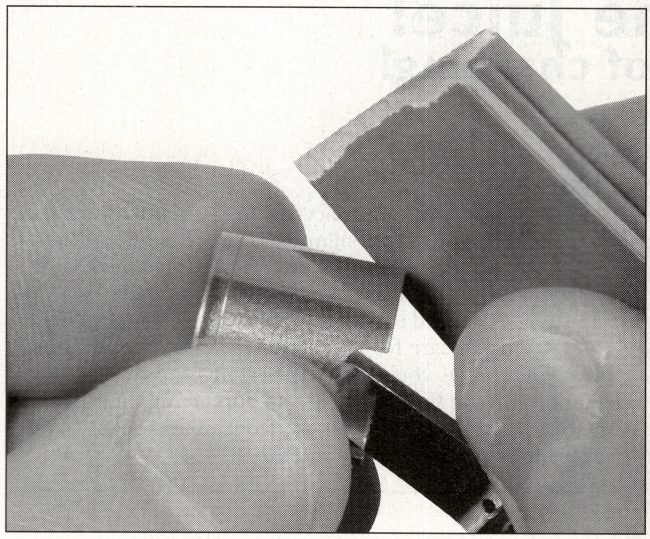


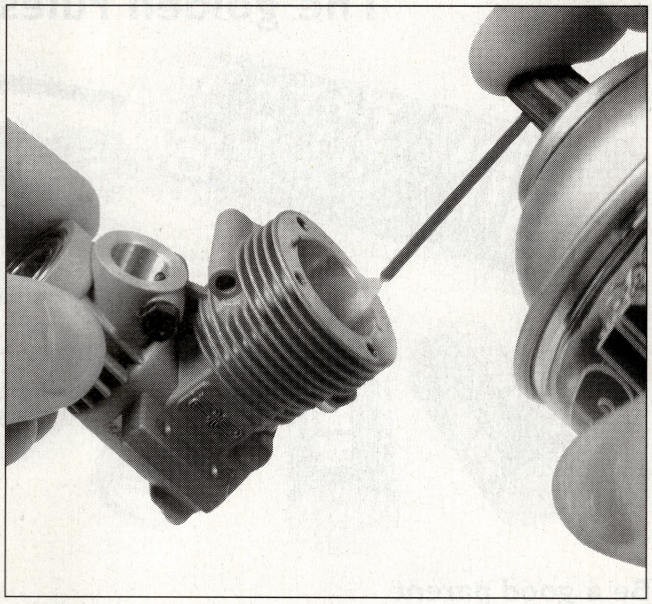




Step 2: Find the burrs

Burrs can exist anywhere that metal has been machined, but in particular, we are concerned with the sharp edges of the crankshaft inlet, the piston sleeve's ports and the piston itself. As these are the parts of the engine that wear against each other, this is where the burrs should be removed before they have a chance to work through the engine.





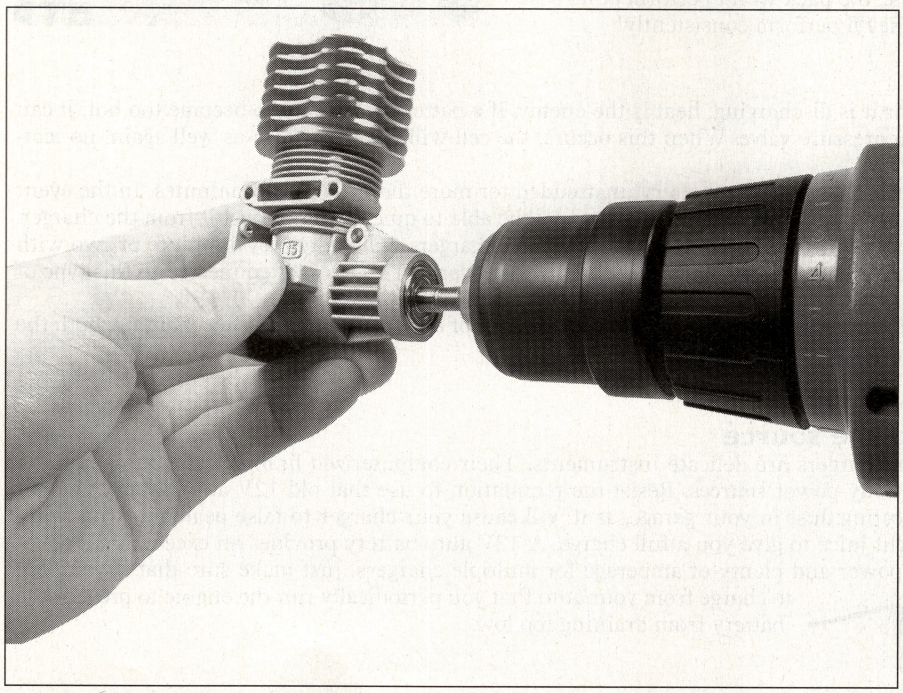
Step 3: Burr be-gone

There are several effective ways to remove burrs without damaging the surrounding metal (the parts we want to keep). You can use a small piece of very fine-grit sandpaper (between 1,000 and 1,500 grit works well), a precision diamond file, or even a rotary tool with a grinding stone (but only if you're really good with your hands).

To remove the burr, rub the area with the sandpaper or file in slow, gentle motions that go along the edge of the part. When using a file, work in one direction only and avoid using too much pressure, as you can very easily remove too much material and ruin the part. Remember, all you need to do is take away a tiny bit of edge.

Step 4: Clean-up

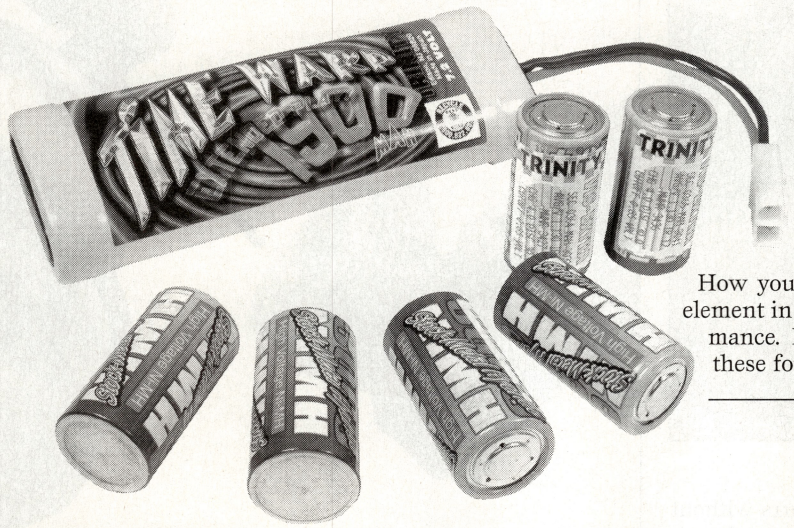
Once you've de-burred the engine parts, you'll need to clean them to get rid of any tiny metal particles that might remain. For this job, a can of motor-cleaning spray works great. Wear rubber gloves to protect your hands from the solvent and give everything a thorough blast. Dry the parts and re-assemble the engine.



Step 5: The wear-in

Once the engine has been re-assembled, the last step is to help the parts wear in. To do this, we like to partially fill the engine with Mobil or Castrol synthetic motor oil and spin it by attaching an electric drill to the crankshaft. As the engine spins, the oil aids the metal surfaces as they lap together, resulting in smooth surfaces that fit together with reduced friction. Spin the engine at a low rpm for a few seconds at a time to prevent the parts from heating up (this heating/cooling process is reserved for during engine break-in). Drain the oil, flush the engine with solvent or fuel, and you're ready to install it in your chassis and perform whichever break-in procedure you prefer. When you're finished, you'll have a smoother running engine that will break-in better, run stronger and produce more power! ◆

Let Loose the Juice!
The golden rules of charging!

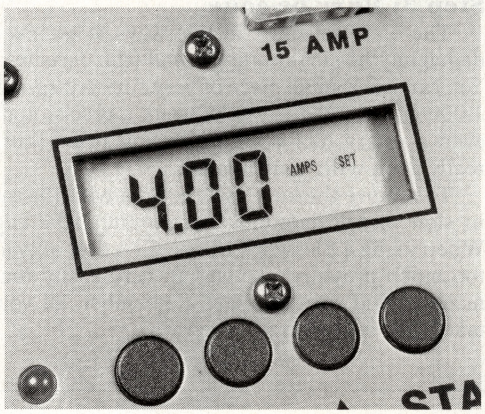


If you're an electric racer, chances are that your most significant investment isn't your car or truck, your radio or your ESC; it's your batteries. Good packs can give you an edge, and can allow you to run longer, but if you don't care for them, you've wasted your money. How you charge your packs is perhaps the most critical element in prolonging their life and enhancing their performance. If you want the most from your packs, follow these four common-sense rules.

Be a good parent

Consistency is the key to raising well-rounded, respectful children, and likewise, batteries should be handled with care and consistency because if you mistreat them, they'll remember it! No, we don't mean that you should send your pack to bed without supper if it dumps in the A-main, but you should always charge and discharge it the same way each time you use it.

When you get a new pack, determine a suitable charge rate, then stick with it. For example, if you plan on using stock motors for the majority of the time, choose a higher charge rate, such as 4-1/2 amps. For mod motors, where a bit more run time is desirable, a slightly lower rate of between 3-1/2 and 4 amps would be good. Eventually the pack will become conditioned to this charge rate. If you constantly vary the charge rate, the pack won't perform at its best. Treat your packs with consistency and they'll perform consistently!



Keep cool

Whether your pack is being charged or it is discharging, heat is the enemy. If a battery is allowed to become too hot, it can vent its internal fluid through its built-in pressure valve. When this occurs, the cell will never perform as well again, no matter how many times you cycle it.

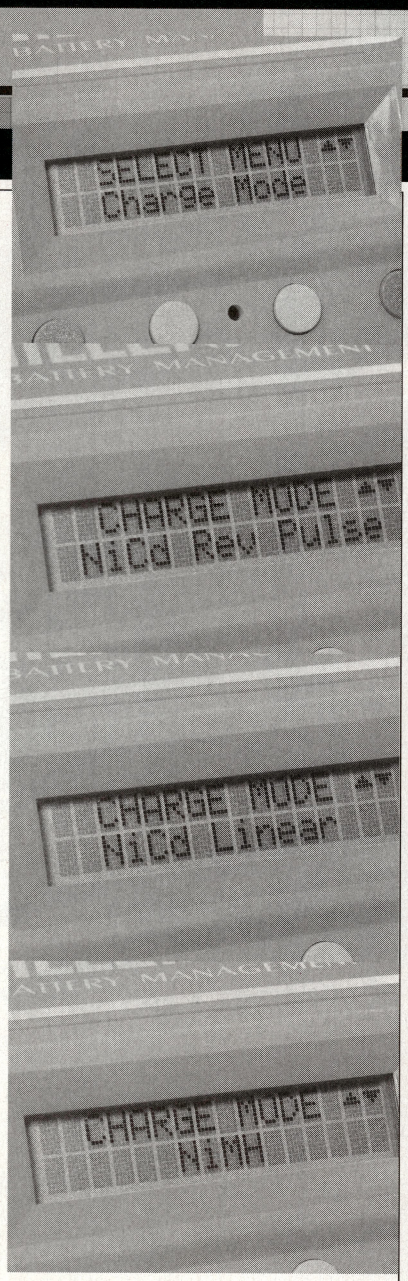
In order to prevent overheating, never leave a charging battery unattended for more than a couple of minutes. In the event that the pack may already be charged (don't laugh, this happens a lot), you'll be able to quickly disconnect it from the charger. To prevent the false peak that can occur when a pack is first connected, some chargers will charge for a minute or two with the peak-detection circuit bypassed. A pack that's already been fully charged can overheat and vent if connected to this type of charger.

Also, keep your packs away from heat sources (especially open flames) and out of direct sunlight. During charging, both the battery and charger should be kept in the shade.



Right to the source

Today's chargers are delicate instruments. Their computerized brains prefer to operate on "clean," steady power sources. Resist the temptation to use that old 12V auto battery charger that's collecting dust in your garage, as it will cause your charger to false peak and won't provide the right juice to give you a full charge. A 12V auto battery provides an excellent source of power and plenty of amperage for multiple chargers. Just make sure that if you plan to charge from your auto that you periodically run the engine to prevent the battery from draining too low.



In the mode

Most modern peak chargers use microprocessors to control and monitor the charge process, and this allows for several types of charge modes. If your charger has two or more modes, follow these simple rules of thumb:

■ Linear charging is good for newer packs, NiMH packs or for when charging smaller cells such as AA-sized NiCad or NiMH packs.

nPulse or reverse-pulse charging is great for restoring performance in older NiCad packs.

■ If your charger has a specific mode for NiMH cells, use it; these types of cells don't have a charge "curve," which makes it more difficult for typical peak chargers to know when the pack is charged. ◆

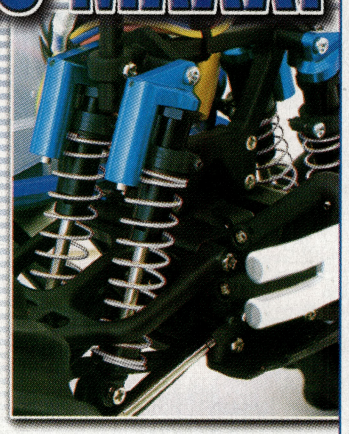
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Second Annual



The world's best nitro racers battle it out in "The Dirt"!

Back in the day...and we're talking almost ten years ago...before gas racing was as popular as it is now, there were three "big" gas races—Detroit, Atlanta (later replaced by King, North Carolina), and Hemet.

Of the three, Detroit arguably held the most prestige, but most racers felt that Hemet was tops when it came to track layout and design. For some reason, though, the SoCal Hemet race disappeared and it wasn't until last year that, under new ownership, they held their first big race again. Now going by the name "The Dirt," the Hemet race is back in business, and it's drawing in the big names like it did in previous years—names like Saxton, Kinwald, and even current 1/8- scale World Champ Yuichi Kanai. This year's event, sponsored by Pro-Line, *Xtreme R/C Cars*, and O'Donnell, provided intense racing action over the weekend of February 2-4. Coming out on top were Kyosho's Chad Bradley in the hour-long 1/8-scale A-main with his MP-7.5, winning by almost over two full laps, and Adam Drake in the 1/10-scale gas truck hour-long A-main with his Losi Triple-XNT. Both Chad and Adam graciously let us borrow their vehicles so we could pass along their winning setups to our readers. For all you gas racers who are out there, check out their cars—the Hemet track features a great Supercross-style layout, so if you're looking for good suspension setup for your car or truck, this is how you wanna set it up!

"The Dirt" Nitro Challenge

1/10-Scale Truck

Fin	Qual	Name	Truck	Engine	Fuel	Radio	Tires (F/R)	Body
1	4	Adam Drake	Losi XXX-NT	Trinity Picco	Trinity 20%	Airtronics	Losi/Losi	Losi
2	1	Richard Saxton	Associated GT	Mugen/O'Donnell	O'Donnell 20%	JR Racing	Pro-Line/Pro-Line	Associated
3	9	Travis Amezcua	Associated GT	O.S.	O'Donnell 20%	JR Racing	Pro-Line/Pro-Line	Pro-Line F150
4	6	Ryan Cavalier	Losi XXX-NT	Trinity Picco	Trinity 20%	Airtronics	Losi/Losi	Losi
5	10	Todd Hodge	Losi XXX-NT	Trinity Picco	Trinity 20%	JR Racing	Losi/Losi	Losi
6	7	Greg Degani	Kyosho Ultima	O.S.	O'Donnell 20%	Futaba 3PJ	Pro-Line/Pro-Line	Kyosho
7	8	Ron Rossetti	Losi XXX-NT	Trinity Picco	Trinity 20%	Airtronics	Losi/Losi	Losi
8	2	Brian Kinwald	Losi XXX-NT	Trinity Picco	Trinity 20%	Airtronics	Losi/Losi	Losi
9	3	Jared Tebo	Associated GT	Mugen/O'Donnell	O'Donnell 20%	Airtronics	Pro-Line/Pro-Line	Pro-Line F150
10	5	Scott Hughes	Associated GT	Mugen/O'Donnell	O'Donnell 20%	KO Propo	Pro-Line/Pro-Line	Pro-Line

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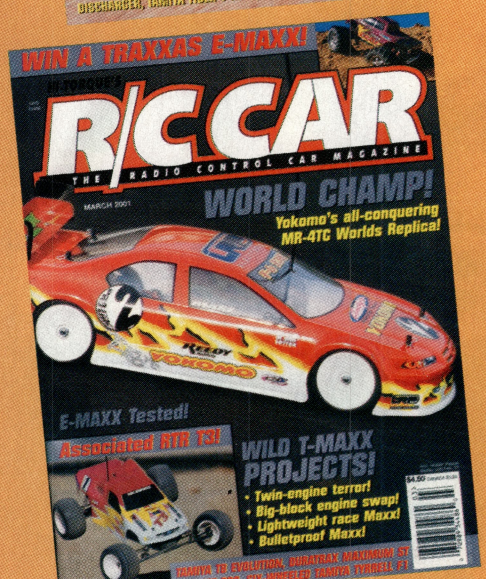
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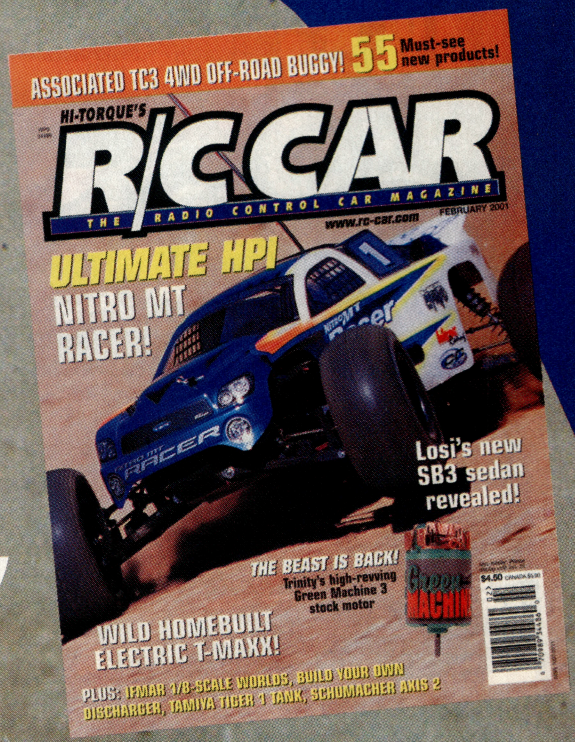


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1/8-Scale Buggy

Fin	Qual	Name	Truck	Engine	Fuel	Radio	Tires (F/R)	Body
1	2	Chad Bradley	Kyosho MP7.5	O.S.	O'Donnell 30%	JR Racing	Pro-Line/Pro-Line	Kyosho
2	7	Greg Waller	Mugen XRWorks	RB Concepts	O'Donnell 30%	Airtronics	Pro-Line/Pro-Line	Mugen
3	3	Jared Tebo	TTR EB-4	RB/ODonnell	O'Donnell 30%	Airtronics	Pro-Line/Pro-Line	Thunder Tiger
4	6	Dean Sexton	Kyosho MP7.5	O.S.	O'Donnell 30%	Airtronics	Pro-Line/Pro-Line	Pro-Line
5	9	Richard Saxton	Mugen XRWorks	O'Donnell	O'Donnell 30%	JR Racing	Treadz/Treadz	Mugen
6	10	Derek Furutani	Kyosho MP7.5	O.S.	Trinity 30%	Airtronics	Pro-Line/Pro-Line	Pro-Line
7	4	Greg Degani	Kyosho MP7.5	O.S.	O'Donnell 30%	Futaba	Pro-Line/Pro-Line	Kyosho
8	8	Yuichi Kanai	Kyosho MP7.5	RB Concept	Kyosho 30%	Futaba	Pro-Line/Pro-Line	Kyosho
9	5	Jeremy Kortz	Kyosho MP7.5	O.S.	Dynamite 30%	Airtronics	Pro-Line/Pro-Line	Pro-Line
10	1	Brian Kinwald	Kyosho MP7.5	O.S.	Trinity 30%	Airtronics	Pro-Line/Pro-Line	Kyosho

Current IFMAR 1/8-scale off-road World Champ Yuichi Kanai holds up his Kyosho MP7.5 that won the title—not only did he win with this car, he designed it as well!

"The Dirt" Nitro Challenge

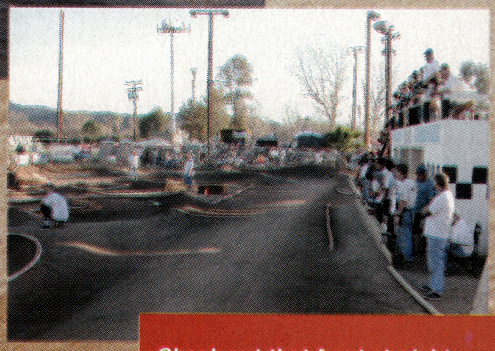




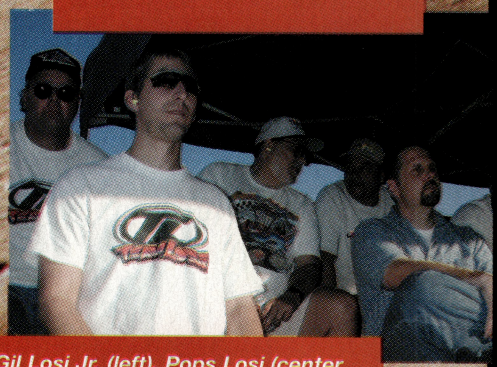
Nitro Guru extraordinaire Steve O'Donnell tunes one of his guy's engines minutes before his car hits the track.



"The Dirt" track in Hemet, California has one of the most challenging layouts of any off-road track we've ever seen.



Check out that front straightaway! Think you could generate some speed with a screaming 1/8-scale buggy cruising wide-open down that stretch of dirt? Better have some fresh brakes!



Gil Losi Jr. (left), Pops Losi (center in back) and Jack Johnson (right)—all gas racing veterans—check out the racing action during the late afternoon. We can't even hazard a guess at the collective amount of R/C experience between the three of them—let's just say it's well over 50 years!





The sun starts to set on the racetrack—it ain't gas racing if it doesn't go into the night.

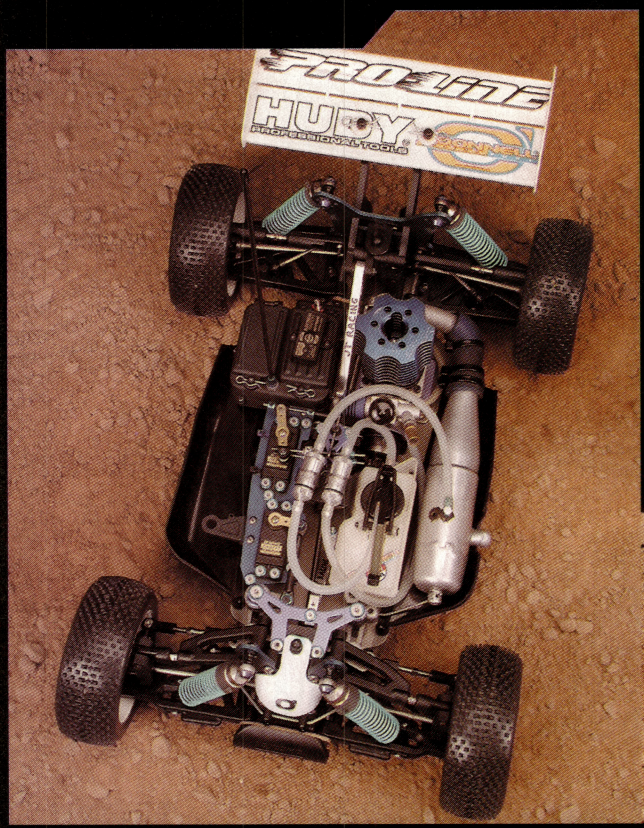






Adam Drake's Losi Triple-X NT

Front Suspension—
Toe: 1° toe-in
Ride-height: Arms level
Camber: 1° negative
Caster: Stock (30°)
Swaybar: None
Front Shocks—
Oil: 30wt. Losi
Piston: 56
Spring: Red
Limiters: .120 inside
Shock mounting: 2 on tower/middle on arm
Number of washers under ball-stud: 1/spindle; 0 bellcrank
Servo position: Towards front
Steering Ackerman: Outside
Spindle location: Bottom
Camber link: B on hub/3 on bulkhead
Rear Suspension—
Toe: 3° (inside)/1° outside
Pivot Support: 2°
Ride-height: Bones just above level
Camber: 0 -1° negative
Rear hub spacing: Center
Swaybar: No
Drivehshafts: MIP CVDs
Outdrives: Steel
Rear Shocks—
Oil: 40wt Losi
Piston: 56
Spring: Orange
Limiters: None (unthread shock end two turns)
Shock mounting: 4 on tower/inside on arm
Camber link: A on hub/2 on tower
Miscellaneous
Front tires: Losi Directional (Red) w/firm Losi foam
Rear tires: Losi Step-Pin (Red) w/firm Losi foam
Body: Stock Losi
Engine: Trinity Picco w/rotary carb
Plug: Picco
Fuel: Trinity 20%
Muffler: Associated
Manifold: Losi
Spur/Clutchbell: 51/18
Clutch: MIP w/Losi spring (trailing configuration)



Chad Bradley's Inferno MP7.5

Front Suspension—
Front shocks—
Oil: 35wt Associated
Piston: 2.3 Kyosho
Spring: Blue Kyosho
Front diff: 5000wt Kyosho
Camber: 2° negative
Toe: 2° toe-out
Ride height: Arms slightly above level
Center—
Center diff: 7000wt. Kyosho
Clutch: Kyosho 3-shoe
Pinion: 13-tooth
Rear Suspension—
Rear shocks—
Oil: 25wt Associated
Piston: 2.3 Kyosho
Spring: Blue Kyosho
Rear diff: 1000wt Kyosho
Camber: 2° negative
Toe: 2° toe-in
Ride-height: Dogbones level
Miscellaneous:
Tires: Pro-Line Crime Fighter (M2 compound) stock foam
Fuel: O'Donnell 30%
Body: Pro-Line Crowd Pleaser



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HCR-00310

E-Maxx T6 Chassis

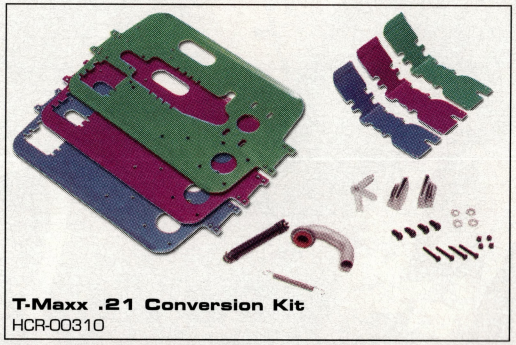


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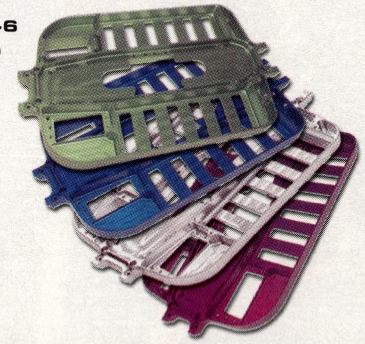
HCR-00330

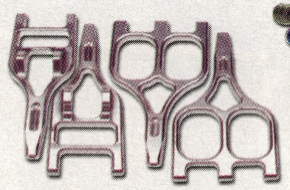
6061 T6 ALUMINUM • 6AL4V TITANIUM • 6061 T6 ALUMINUM • 6AL4V TITANIUM • 6061 T6 ALUMINUM • 6AL4V



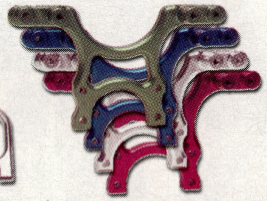
T-Maxx .21 Conversion Kit
HCR-00310

E-Maxx T-6 Aluminum Chassis
HCR-00330

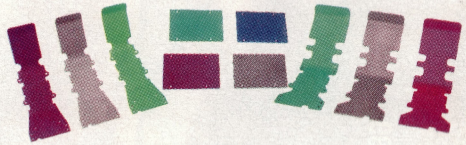




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HCR-00304



T-Maxx/E-Maxx Billet Aluminum Shock Towers
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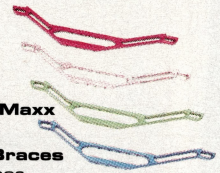


T-Maxx/E-Maxx Titanium Skid Plates
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Center: HCR-00307
Rear: HCR-00309



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Stomper - HCR-003112
Pounder - HCR-003113



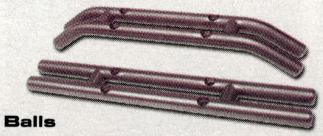
T-Maxx/E-Maxx Aluminum Chassis Braces
(pair)HCR-00303



T-Maxx Hyper-Laminate Brake Disc and Titanium Calipers
HCR-00301(brake disk)
HCR-00302 (calipers)



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HCR-01504



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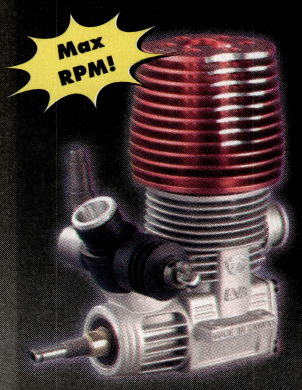
TTR 6181-F TS4n Mercedes Super Combo
TTR 6186-F TS4n Viper Super Combo



PD1101 Alfa Romeo



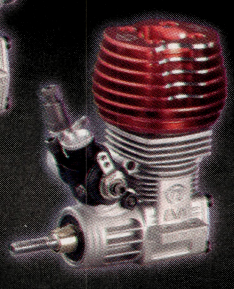
Wheelbase: 265 mm
Front Track Width: 200 mm
Rear Track Width: 200 mm
Weight (dry): 1660 grams



EVO COMPETITION ENGINES

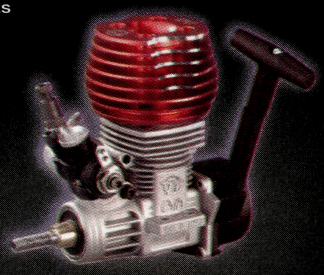
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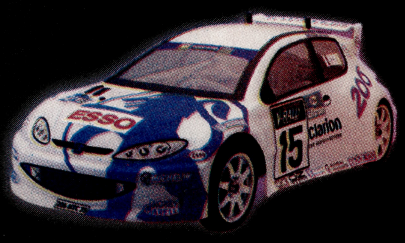


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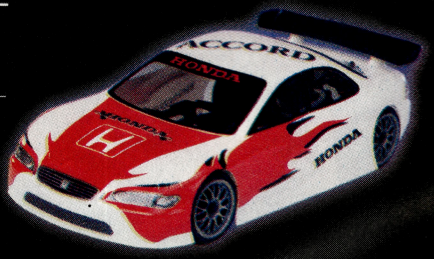
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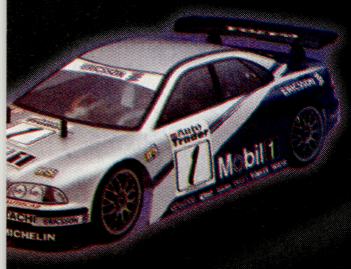
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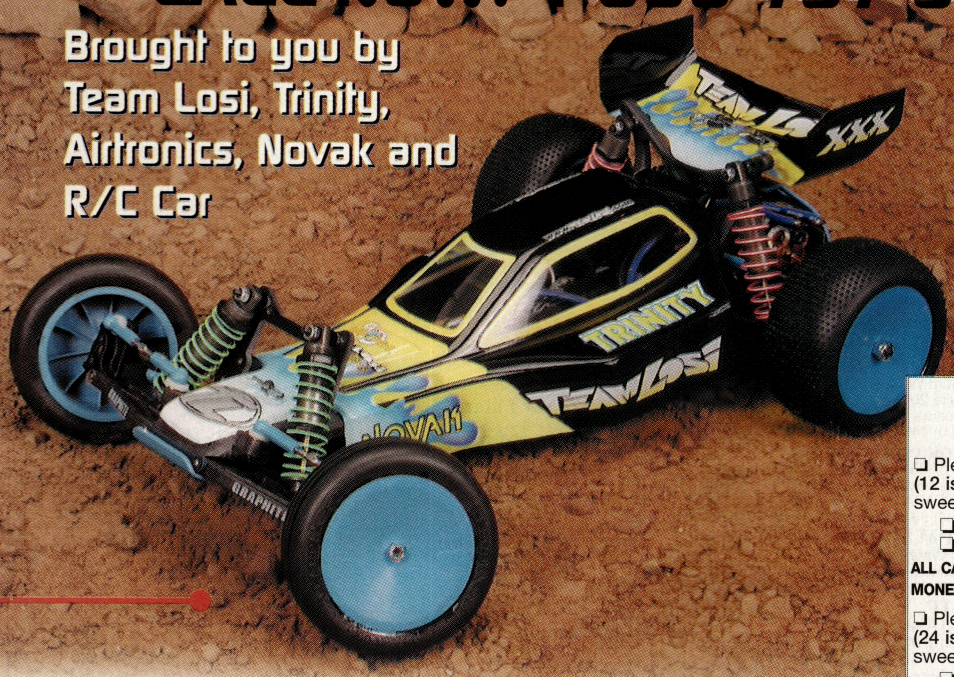
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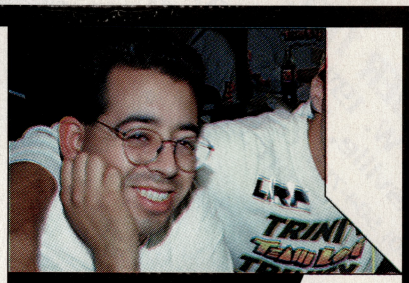
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Refurbishing Styrene Tamiya Bodies

Steps on how to restore that vintage ride!



BY RICHARD TRUJILLO

Lately it seems that there are more and more Tamiya enthusiasts interested in vintage Tamiya R/C cars. Cars like the Rough Rider, Sand Scorcher, Super Champ etc. are becoming very popular to restore. Most people who collect these cars usually will find them on auction sites like eBay. I recently acquired the Tamiya Subaru Brat, which was released in 1982. Luckily, the body had never been completely painted and only the moldings and other parts were painted and the original kit stickers applied. Here are some steps that I took to refurbish the body.

• First, take the body apart. Be sure to put all the screws and hardware safely in a Ziplock bag or Tupperware container.

• Next, pull all of the original stickers off. On most of the older Tamiya cars, odds are the stickers are already peeling off. These should all come off fairly easily if you take your time. I like to heat them with a hairdryer for a few seconds. This will help soften the sticker and glue. If you still have some sticky residue left on the body from the sticker, a little rubbing alcohol on a rag should help remove it. There are a lot of other products out there designed to help remove sticky residue, but be careful; some can be too strong and damage the body. Test on a scrap piece of plastic first.

• Removing the paint is going to be the hardest part. Remember this procedure is for the Styrene type bodies and not the Lexan type. One of the best things to remove paint from Styrene bodies is Easy Off oven cleaner—yes, Easy Off! There are other paint removers, but pretty much all of them are too strong for plastic and will turn your old Tamiya body into a big blob of plastic.

• When your are ready to remove the paint, I would suggest you wear some gloves to protect your hands and some old clothing you're not afraid to mess up. This job can get pretty messy. Spray the body with a coat of oven cleaner and let it sit for about an hour. After this time, the paint should bubble up off of the body. Using an old toothbrush, scrub away the paint. If there are some spots where the paint did not come off the first time, simply re-apply some oven cleaner as many times as you need until all the paint does.

• Once you have removed all the paint, wash the body completely off with dish soap and warm water. Be sure to thoroughly remove any of the oven cleaner residues.

• If your body has some scratches in it, use some really fine sand paper to get them out. Usually your local hobby shop will have some sort of "modeling" sand paper that can be used for this process.

• Now that you have taken all the scratches and scuff marks off of the body, you're ready to paint! Choose your favorite color enamel and apply several light coats until you get the finish you desire.

• Now it's back to eBay to find those old stickers you need to complete your project. You might not be able to find them right away, but if you persist and you're the highest bidder, you'll find those stickers and finish your body. Now it's time to refinish the chassis……Stay tuned! ◆





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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

KANSAS

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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Pit Stop Hobbies, 106 A Street, Benton, KY 42025, (502) 527-8216

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

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

LOUISIANA

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

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

MAINE

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

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

MARYLAND

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

Doug's Raceway, 2935 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

MASSACHUSETTS

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

MISSOURI

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

Greentree R/C Racepark, Marshal Road, Kirkwood, MO (314) 831-2194

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

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

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

NEBRASKA

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

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

RC Motorsport Off-Road Raceway, 5600 Mass Rd., Omaha, NE 68164, (402) 593-6133

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

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Big Boys toys 1735 Juantabo N.E. Albq., NM 87112 505-298-1023 505-294-1543

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

NEW YORK

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

THUNDER TIGER RACE PLACES

Hobbies and More, 1570 S. Main str., Darlington, SC 29532; Jerry Pollard (803) 393-0355

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

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

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

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

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

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

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

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

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

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

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

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

WASHINGTON

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

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

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

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

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

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) 469-5566

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

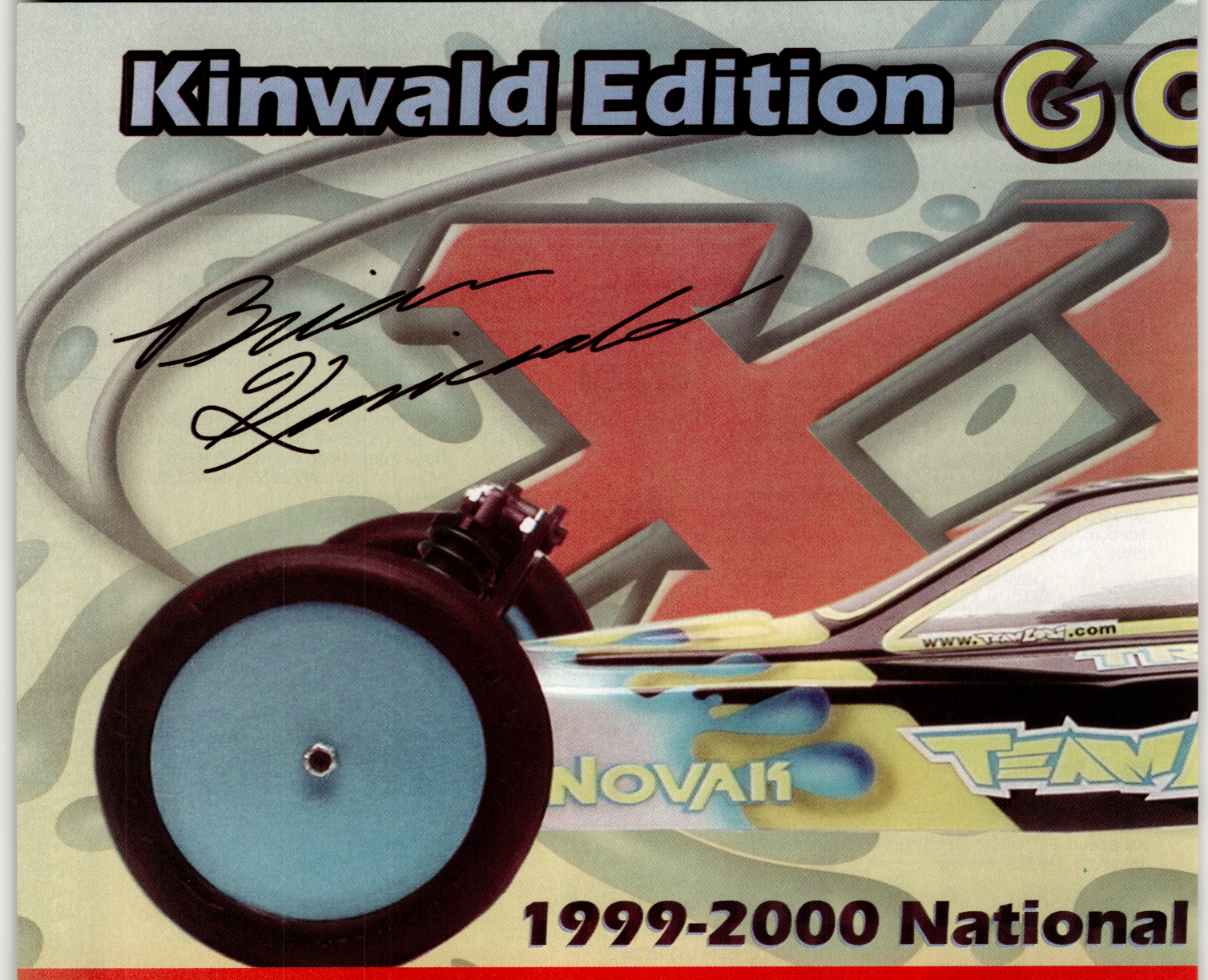
S&N's Trackside Hobbies and Raceway, 6405 N. Green Bay Ave., Milwaukee, WI 53209; Scott Ernst, (414) 351-1910

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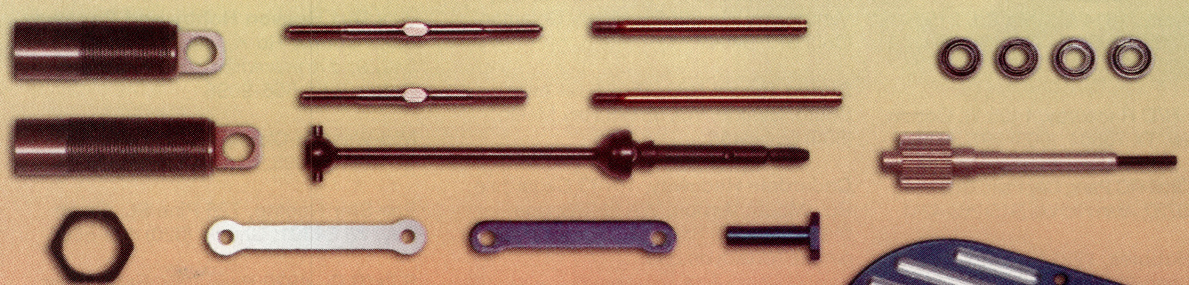
Wind River R/C Racing Association, 309 N. 4th West, Riverton, WY 8250; Shannon Watts, (307) 857-0418

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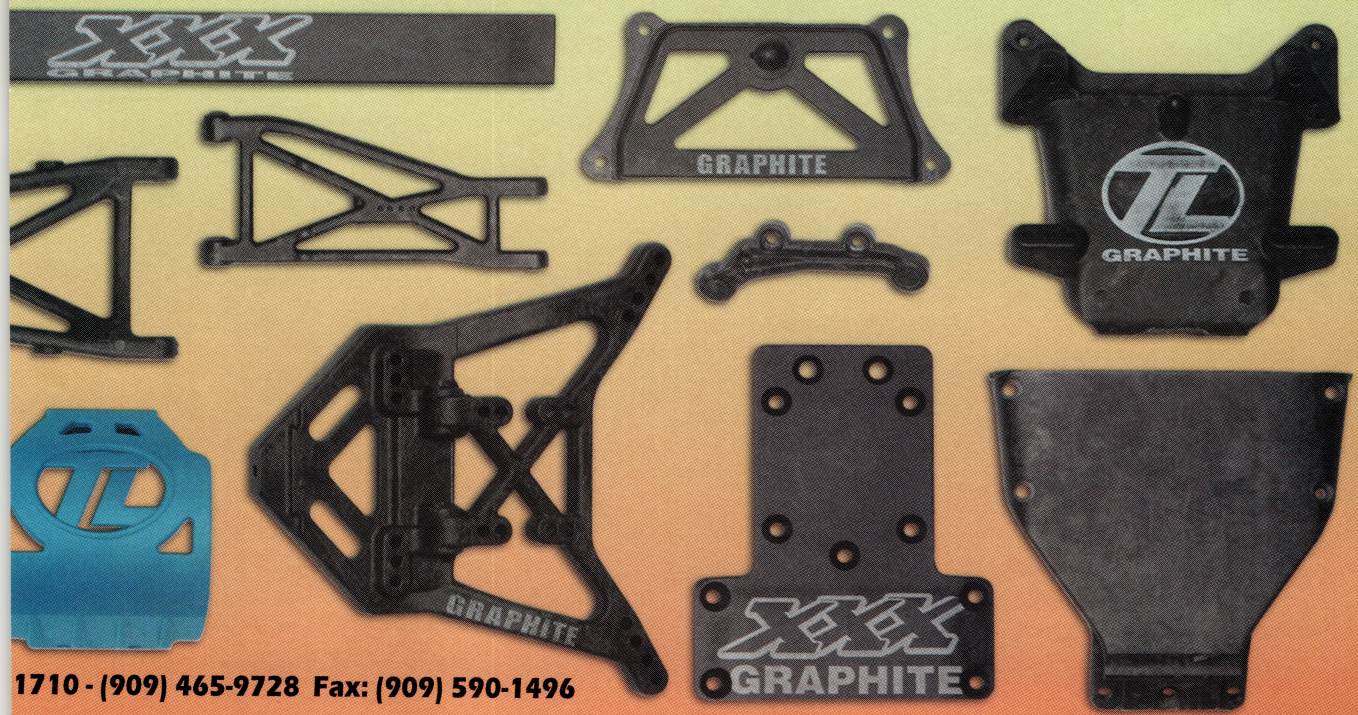
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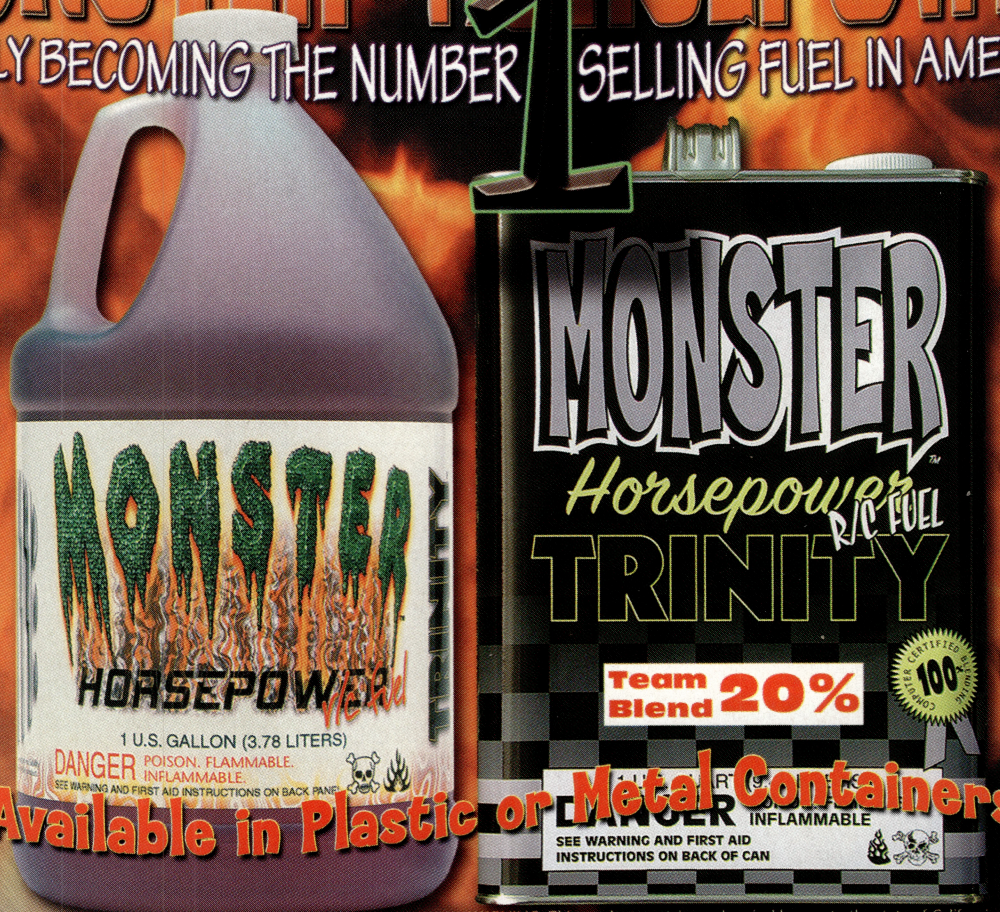
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