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- Etiquette on The Track



Tamiya TA04 pg. 36

December 2000
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Issue 6.3

FACTORY Team T3

Since its introduction in 1997, Team Associated's RC10T3 truck has been the dominant force in electric truck racing, winning three consecutive NORRCA World Cups, the 1998 ROAR National Championship, the 1999 Florida Winterchamps, and many other national titles. Now the Team introduces the RC10T3 "Factory Team" edition, the fully-optioned ultimate factory race truck kit, and the new, updated RC10T3 "Team" kit.

Over $179 Worth of UPGRADES!



Send for your FREE RC10T3 Catalog



RC10T3 Factory Team Kit shown with items not included in kit: LRP Speed Control, Reedy modified motor, Reedy Zappers batteries, 2-channel radio gear and servos.

Factory Team T3 #7048

FEATURES:

- Sealed Ball Bearings
- Factory Blue Titanium Turnbuckles
- Factory Blue Chassis Plate, Motor Mount and Front Kickup
- Full Graphite Chassis, Shock Towers, Suspension Arms, transmission brace, and more.
- Pro-Line Chevy Silverado Body

Also, New Updated...

RC10T3 Team Kit #7038

FEATURES:

- Sealed Ball bearings
- Composite Shock Towers
- Hard-Anodized, Teflon-coated Shock Bodies
- Pro-Line Tires, One-piece Wheels
- Pro-Line Chevy Silverado Body

***3*-TIME WORLD CUP CHAMPION!**





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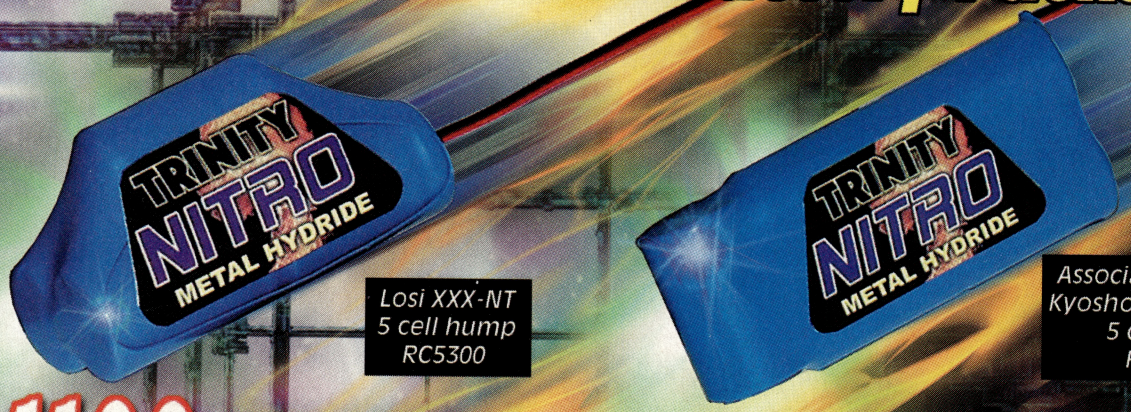

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RC5300

Associated RC10GT
Kyosho Ultima GP10
5 cell stick
RC5301

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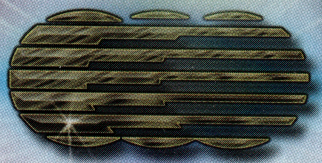
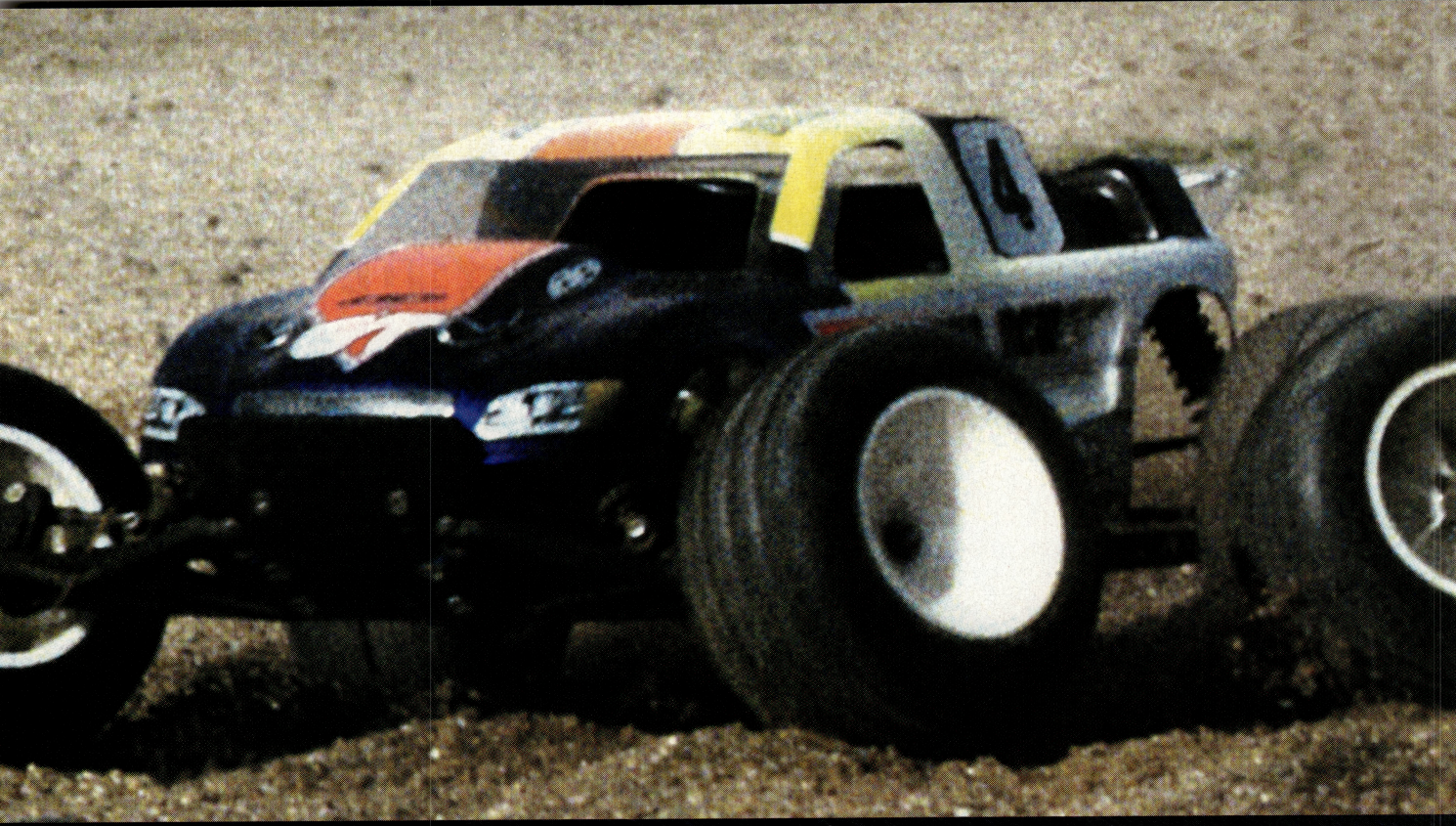




Don't Settle For Anything Less...

Here's The Team Associated RC10GT Lineup For 2000...
A GT For every racer, from Novice to Factory Pro!

Team Associated RC10GT's have been the dominant force in nitro truck racing since their introduction in 1993. No other nitro truck even comes close to the GT's winning record, including 3 NORRCA Truck World Cup wins.



All Team Associated RC10GT's feature fully adjustable caster, camber, and toe-in, fully adjustable oil-filled shocks, and our race-proven Stealth differential with 2.60:1 final drive ratio to handle the power of today's nitro engines.

The new, updated RC10GT Team kits feature one-piece racing wheels, Pro-Line F-150 Truck Body, MIP CVD's and a new, heavy-duty one-piece blue-anodized chassis which virtually eliminates chassis flex problems, and increases the GT's wheelbase to the maximum legal length.

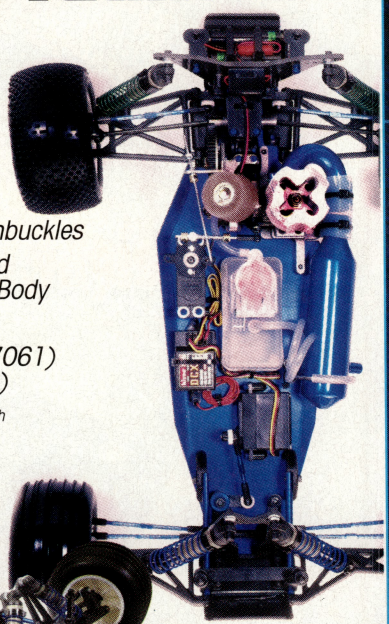
The new RC10GT "Factory Team" kits also include a Factory Blue Tuned pipe and manifold, Factory Blue Titanium turnbuckles, graphite shock towers, blue screws and more... it's the full "factory ride" GT!

The RC10GT is also available in a fully-assembled Ready-To-Run version, kit #7090, complete with .15-size engine and 2-channel radio.

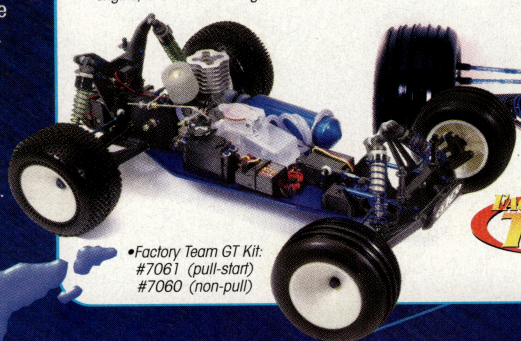
Nobody knows Nitro truck racing better than the Team!

Factory Team Kit

- *New super-rigid Alloy chassis, blue anodized*
- *Factory Blue Tuned pipe and manifold*
- *Sealed ball bearings*
- *Graphite shock towers*
- *Factory Blue Titanium turnbuckles*
- *Pro-Line Racing Tires, and #3078 F150 Ford Truck Body*
- *MIP CVD's*
- *Available in Pull-start (#7061) or Non-pull Start (#7060)*



RC10GT Factory Team Kit #7060 shown with items not included in kit: .12 to .15 size engine, 2-channel radio gear and servos.



•Factory Team GT Kit:
#7061 (pull-start)
#7060 (non-pull)

FACTORY Team GT

RC10GT

For more information on the RC10GT, visit our website:
www.rc10.com • www.teamassociated.com



Get a REAL Associated RC10GT!

Team Kit

- New super-rigid Alloy chassis, blue anodized
- Tuned pipe and manifold
- Sealed ball bearings
- Composite shock towers
- Hard-anodized, Teflon-coated shocks
- Pro-Line Racing Tires, and #3078 F150 Ford Truck Body
- MIP CVD's
- Available in Pull-start (#7067) or Non-pull Start (#7068)

RC10GT Team Kit #7068 shown with items not included in kit: .12 to .15 size engine, 2-channel radio gear and servos.



•RC10GT Team Kit: #7067 (pull start) #7068 (non-pull)

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.15 Engine Lifetime Replacement Policy!



•RC10GT RTR #7090 Complete with .15 engine and 2-channel radio

RC10GT Ready-To-Run

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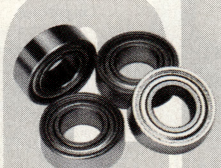
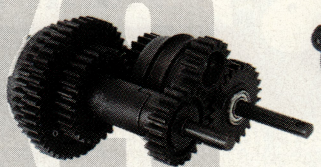
When T-Maxx was unleashed, the monster truck world was turned upside down. Never before had anyone seen a Nitro truck with two speeds and reverse that shifted from a 3-channel transmitter! 3½ inches of seemingly endless suspension travel is dampened by 8 oil-filled shocks. This big, mean, drive-over-anything monster has become the benchmark for all others to follow. It's tough, serious RC that's made for the way you like to play.



- Pro .15 nitro power with EZ-Start one button starting
- Nitro with reverse, that's shifted from the transmitter
- Autoshifting two-speed transmission works in forward and reverse. 30+ MPH in high gear!
- Fully assembled and Ready-To-Run®
- Full-time four wheel drive
- Hardened steel differential gears
- 30 precision ball bearings
- Four inches of ground clearance
- Oversized disc brake provides powerful 4-wheel braking







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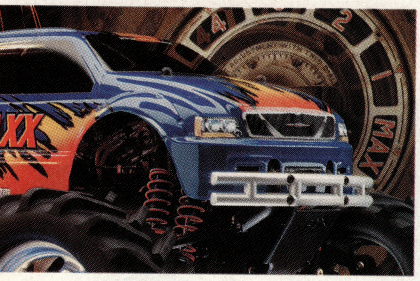
New Electric E-Maxx!

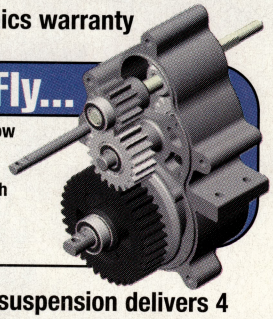


When it comes to gut-wrenching, wheelie popping monster torque, nothing comes close to E-Maxx, not even T-Maxx. Twin Titan™ 550 motors, trick 14.4 volt ESC power system, and shift on the fly 2-speed transmission all put the E-Maxx in a class by itself. If you want the best, most innovative electric monster truck there is, look no further. E-Maxx breaks the rules and beats them all!

- Big Block motors: Twin Titan™ 550 fan-cooled motors have 30% longer armatures than a 540.
- More power: The all new MOSFET VX-12 forward-reverse electronic speed control delivers a whopping 14.4+ volts to the motors from dual 6-cell battery packs*. That's twice the power of ordinary RC Models! Plus, it's backed by our limited lifetime electronics warranty

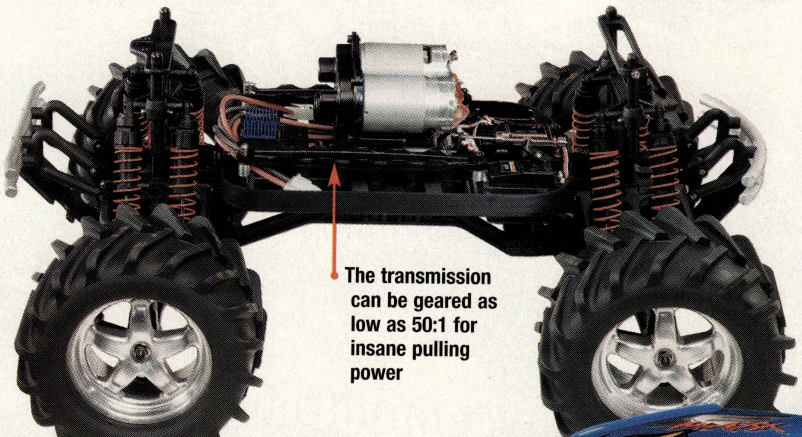
Shift on the Fly...

from your transmitter! Select low gear for monster climbing muscle, then power shift to high gear for unbeatable top speed.



- Incredible T-Maxx style suspension delivers 4 inches of maximum ground clearance and over 3½ inches of super plush suspension travel with 8 oil-filled shocks.
- Real quality! The E-Maxx includes over 30 precision ball bearings

*Batteries not included



The transmission can be geared as low as 50:1 for insane pulling power

ProGraphix™

- The awesome new E-Maxx includes a 6-color painted and trimmed body. Choose from 4 different base color schemes.



E MAXX

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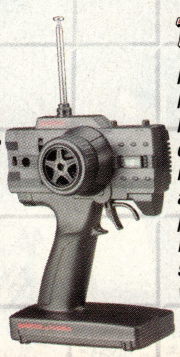
Includes servo reversing, LED battery status indicator, steering and throttle servo trims and 12 "AA" batteries.



TORQ.16 nitro engine

Heavy-duty design delivers high horsepower for take-anything trucking. Includes true ABC construction, recoil starter, air filter... plus a FREE start-up video.



FREE Nitro Starter Pack!

Includes an 8-ounce (250cc) bottle for easy refueling and a glow starter with "C"-size alkaline battery.



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Truck bodies are molded from crash-resistant polycarbonate, and arrive cut, trimmed and professionally painted.



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- ✔ Fast two-speed transmission
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- ✔ Throttle return spring
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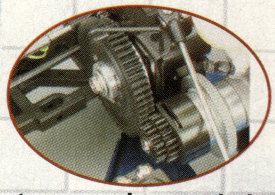
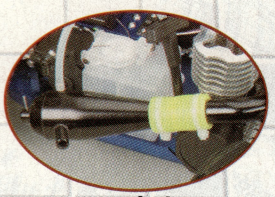
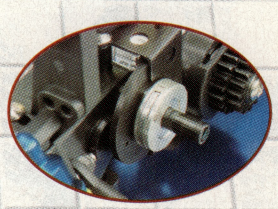
- ✔ **FIBERITE™** Disc Brake
- ✔ **RAPID-TUNE™** oil-filled shocks
- ✔ Custom chrome wheels



two-speed transmission



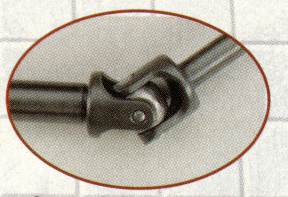
tuned pipe



Fiberite™ disc brake



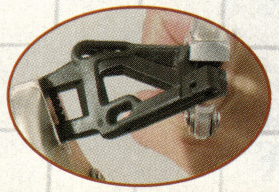
Rapid Tune™ turnbuckles



universal dogbone/axles



aluminum parts



STRESS TECH™ Plastic Parts –
so tough, they come with a 6-month guarantee of FREE replacement if any should break!



Maximum ST Pro



Maximum MT Pro





Maximum MT Pro Added Features:

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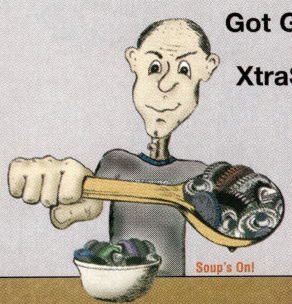


Other stuff in this issue:

Sky Hotel Survivor, Lots of Chicken Balls, Is it dirt or is it asphalt? A mystery in your pants? Old high school memories, Japanese hotties, Southern Belles, and lots, lots more.

Cover Photos by: Elliot Crabtree

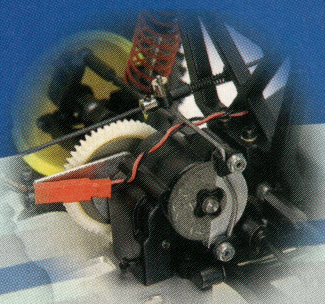


Want to earn 10K a week in your spare time? Turn to page 109 to find out how.

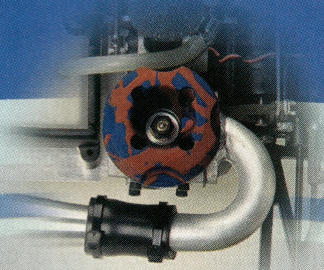
XXX TECH GOES NITRO!



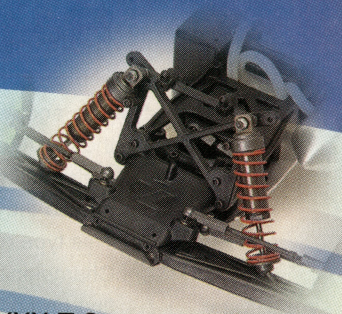
Molded battery Box/Bumper



Powerful Disc Brake



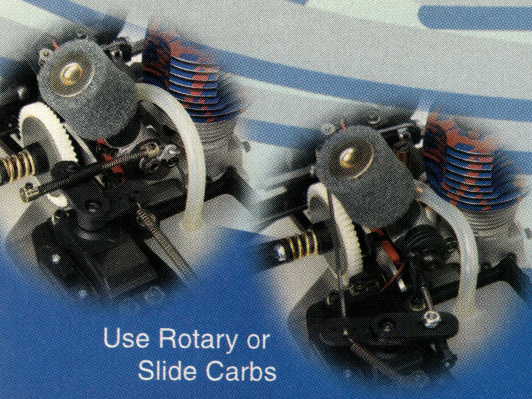
Tuned Exhaust System



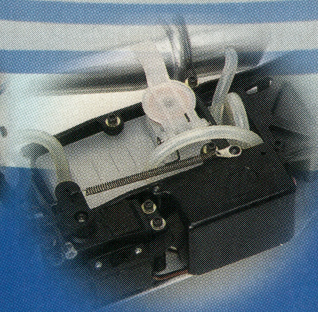
XXX-T Suspension Package



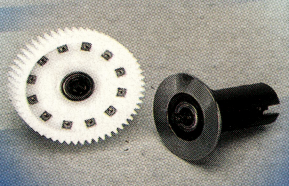
2000 NORCA NATIONAL CHAMPION



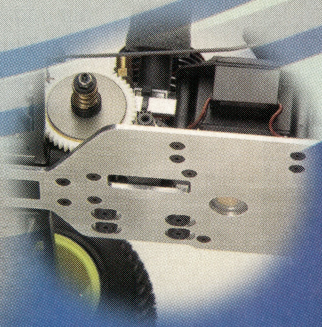
Use Rotary or Slide Carbs



Molded Reciever Box



Tough "Monster" Diff



Thick Machined Chassis

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Hey! Watch It!

Years ago, we came up with "IFMAR starts" for racing. When using the IFMAR start system, everybody is on a separate clock during their qualifying race. The drivers' numbers are called out one by one so they can leave the line and start racing against the clock. This type of system was intended primarily for use at World Championship events so that racers didn't have to worry about a first turn pile-up. But, for a time, a number of small local tracks adopted this type of qualifying setup, which made for some very boring racing with no appeal to spectators. Since everybody's on a different clock, many times the order on the track does not reflect the actual race order. What happens when somebody comes across a race like this as a spectator for the first time? Nothing. They're bored. As a spectator, who wants to watch a clock? Luckily, on the local level most tracks have scrapped the IFMAR start type of starting system in favor of a conventional, "on-the-sound-of-the-tone" type system.

This begs the question: During regional and national events, are IFMAR starts necessary or are they actually keeping spectators away from our sport? R/C car races can be just as exciting to watch as any other form of racing. But at a regional or national event, where presumably you've got some good drivers together, only the mains are exciting to watch because qualifying is plagued by these tedious IFMAR starts. How about using track designs that don't increase the chance of a first turn pile-up and simply rotating the starting grid for each qualifier just like most local tracks do for club racing? Would this be the first step towards making larger race events more spectator-friendly? I'd love to hear what you guys think about this subject. You can drop a line on *Hot Topic* at www.xtremerc.com.

Issue Notes

You're holding our first ever Japan Rules! Special. Not only have we got about ten pages of coverage from the 2000 IFMAR On-Road Electric World Championships from Japan, we've got coverage of Tamiya's TCS World Championship where four lucky winners won trips to Japan. But racing isn't the only thing to make this our Japan Rules! Special. We've got four killer Performance Tests from Tamiya and Kyosho, two of Japan's biggest R/C car makers. What does all this mean? Absolutely nothing, other than coincidences are possible. But don't fret. We've also got tons of how-to's and other articles that have absolutely nothing to do with Godzilla and pocket pets.

Domo,



Mike Velezimoto
Publisher/Editor/Tourist

Next month will be our Yugoslavia Rules issue.

Xtreme R/C Cars

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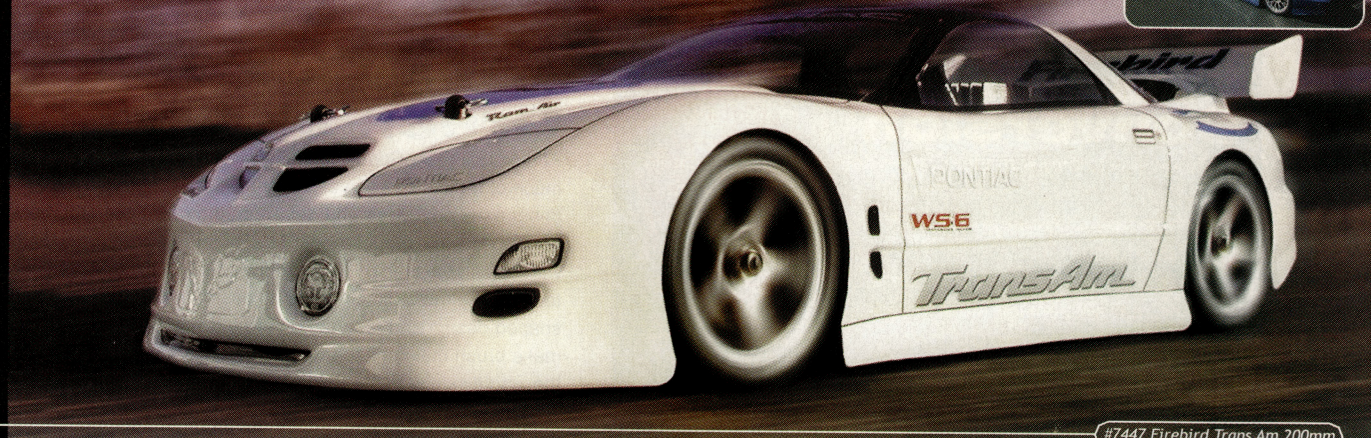
NEW BODIES

ONE OF THE MANY NEW BODIES AVAILABLE FROM HPI



#7447 Firebird Trans Am 200mm

TOURING CARS

The HPI body selection keeps getting bigger and bigger. Completely transform the looks of your touring car with one of our exciting new shells!

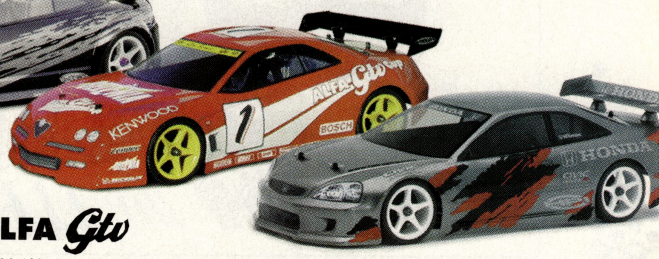


911 Turbo
#7335 Porsche 911 Turbo (190mm)



ELISE
#7433 Lotus Sport Elise (200mm)

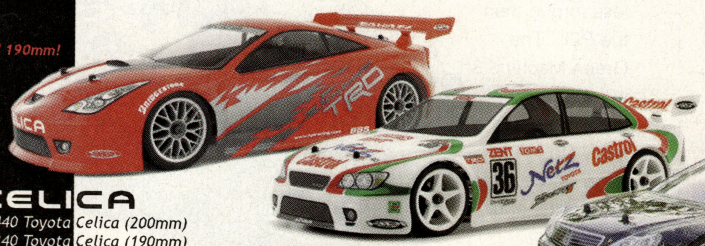
COUGAR
#7437 Ford (Mercury) Cougar (200mm)



ALFA Gtv
#7439 Alfa Romeo GTV (200mm)

CIVIC COUPE Si
NEW #7438 Honda Civic Coupe Si (200mm)
#7338 Honda Civic Coupe Si (190mm)

NEW 190mm!



CELICA
#7440 Toyota Celica (200mm)
#7340 Toyota Celica (190mm)

ALTEZZA
#7346 Toyota Altezza Netz Castrol (190mm)
#7315 Lexus IS 200 / Toyota Altezza (190mm)



Mercedes-Benz AMG
#7443 Mercedes-Benz AMG S-Class (200mm)

Silvia
#7341 Nissan Silvia (S15) (190mm)

NISSAN GT-R SKYLINE
#7427 Nissan Skyline R34 GT-R (200mm)
NEW! #7327 Nissan Skyline R34 GT-R (190mm)

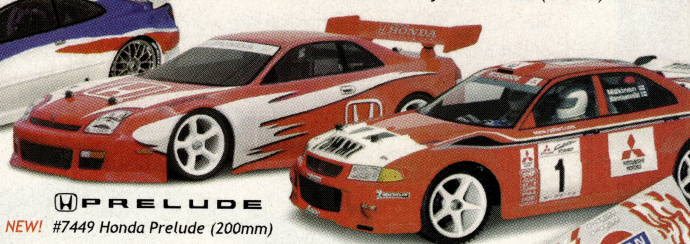


Stratus
#7416 Dodge Stratus (200mm)
#7316 Dodge Stratus (190mm)

BMW M Coupe
#7432 BMW M Coupe (200mm)



PEUGEOT 406 Coupé
NEW! #7426 Peugeot 406 Coupé Body (200mm)
#7326 Peugeot 406 Coupé Body (190mm)



PRELUDE
NEW! #7449 Honda Prelude (200mm)



LANCER Evolution
NEW! #7348 Mitsubishi Lancer EVO VI (190mm)
#7448 Mitsubishi Lancer EVO VI (200mm)

Free vinyl decals complete with headlights, tail lights, window lines and logos are included with each body.



ECLIPSE
NEW #7451 Mitsubishi Eclipse (200mm)

BMW M5
NEW #7450 BMW M5 (200mm)

PONTIAC Firebird
NEW #7447 Pontiac Firebird Trans Am (200mm)



Painting bodies are made easier with full-color painting tips, step-by-step decal instructions and window masks!

HPI

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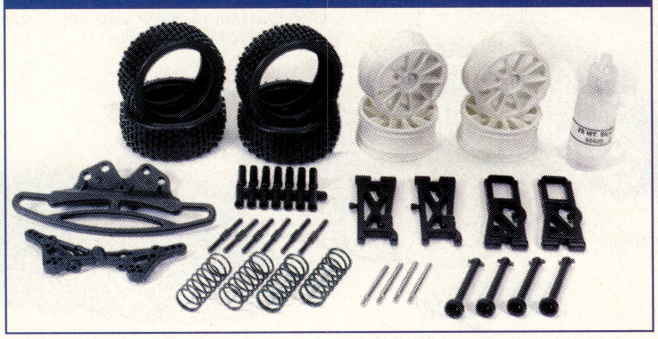
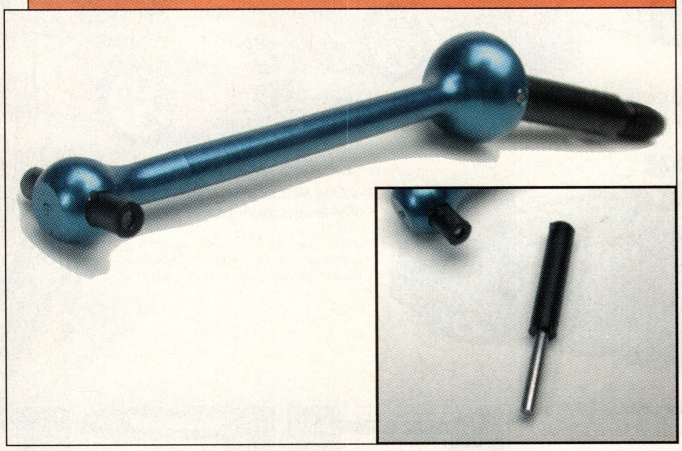
TC3 Rally Conversion

You knew it was only a matter of time before Team Associated would jump on the rally bandwagon. But rather than launch a whole new rally kit, Team Associated has come up with a rally conversion for their TC3 car kit. The kit comes with everything you need sans a rally body. The conversion kit includes longer front and rear suspension arms to widen the car's track to 200mm, longer composite CVDs, longer turnbuckles, Pro-Line rally car wheels and tires, longer shock shafts, rally-tuned springs, shock oil, and a redesigned kicked up front bumper that won't dig into the dirt on hard landings. The whole kit will carry a suggested retail price of $79.99. Each of the parts included with the conversion kit will also be sold separately.



Kimbrough Working for IRS?

To keep things as fast and as light as possible, many drivers have found benefits from using lightened aluminum diff halves. These diff halves increase acceleration and run time, but can wear prematurely thanks to the tremendous amount of friction between the dog-bone/universal shaft during acceleration. Kimbrough Products has been working with Dave Irrgang of IRS Racing on developing a solution for this problem. Introducing Pin Cushions. Basically what you do is remove the roll pin at the end of the CVD or dog bone and replace it with a Pin Cushion. The cushion surrounds a thin steel pin. The pin coupled with the cushion gives you strength and low friction. IRS and Kimbrough are working together on some type of pin pulling tool. Look for Pin Cushions from IRS, Kimbrough, and other companies soon.

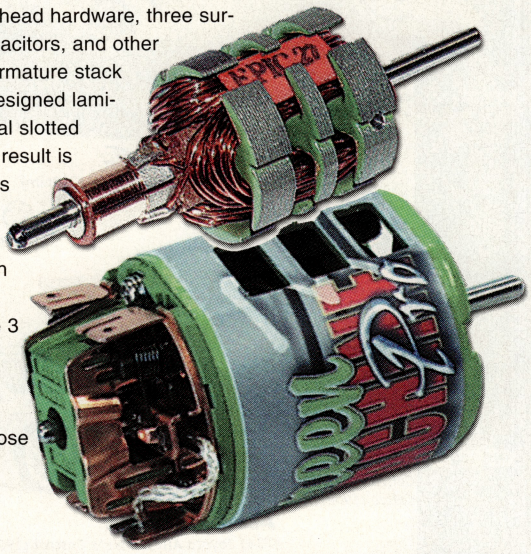


Look closely at one of the photos on the opposite page, you can peek a pic of D5.

Trinity D5 and Green Motors

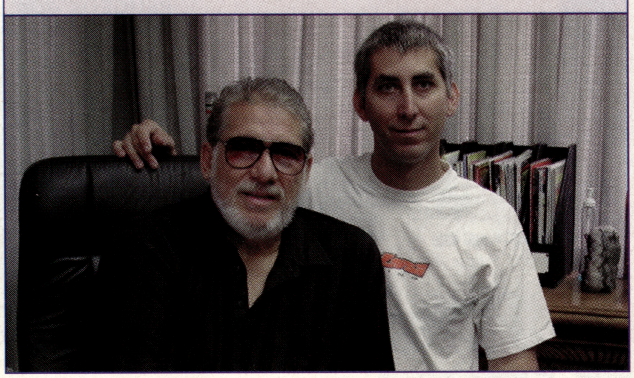
At this year's On-Road Worlds, we got a sneak peak (couldn't get much of a picture however) at a new Trinity modified motor set to debut early next year. The details on the new D5 motor are sketchy, but we do know the following: The motor is the first modified motor with adjustable timing to use Trinity's Flat Can Technology. In order to allow the motor timing to be adjusted, the endbell has a unique shaped design and features other modifications that Trinity says will make brush maintenance much less of an issue. We expect to get the whole skinny in the next couple of months..

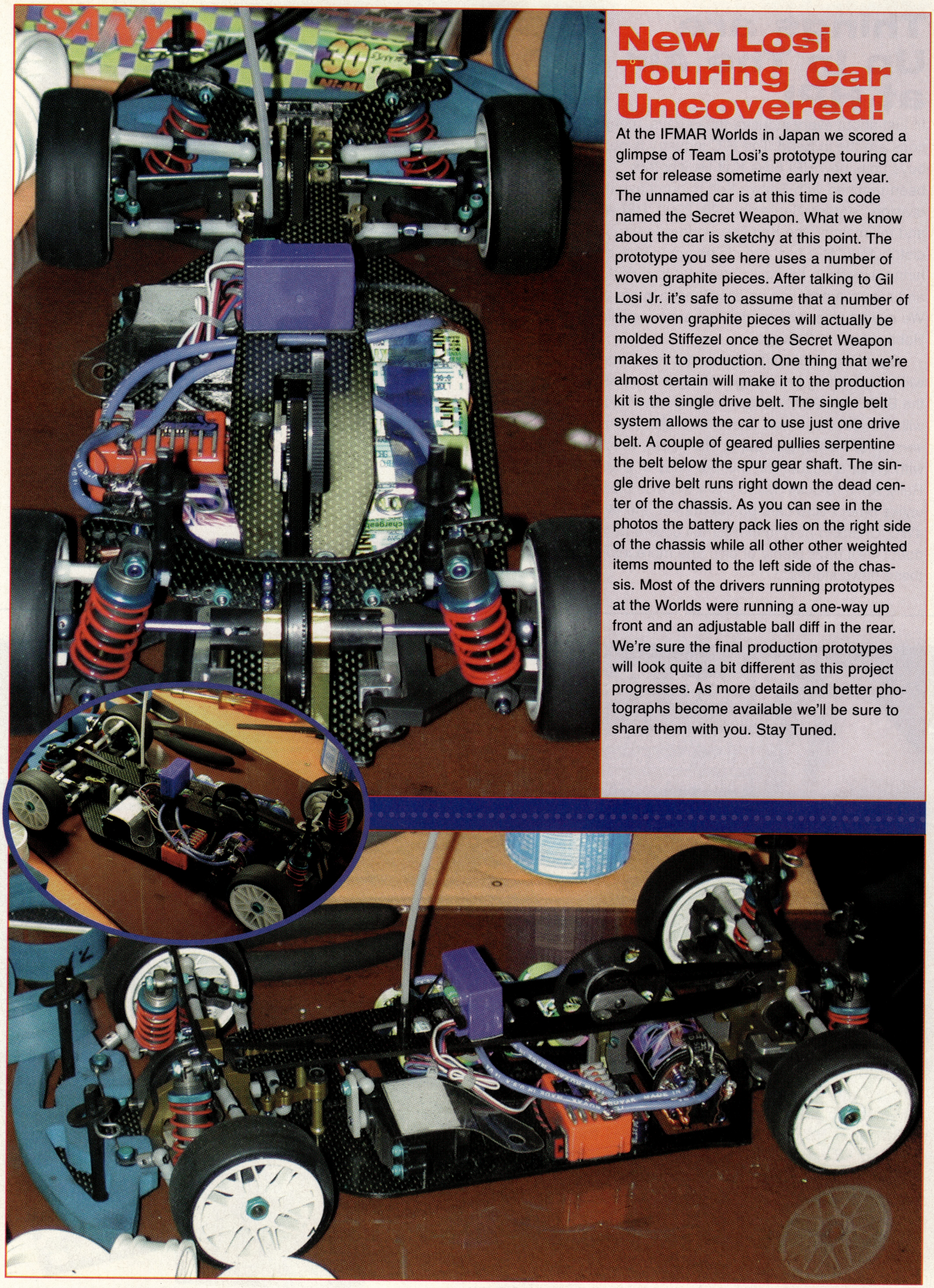
The Green Machine 3 is also new from Trinity. It will be sold under the SpeedWorks label. The new motor will be debuted at the upcoming Hobby Show in Chicago. The Green Machine 3 will feature many of the features first found on the P2K, including a flat-can design, Copperhead hardware, three surface mount capacitors, and other features. The armature stack will feature redesigned laminates and a dual slotted stack. The end result is a motor that has more RPMs and slightly less torque than the P2K. The Green Machine 3 will not replace the P2K, but is tailor made for large tracks, loose dirt tracks, and ovals.



Horizon buys Team Losi

Horizon Hobby Distributors has stepped up and purchased 100% of Team Losi from Gil Losi, Sr. You might not recognize the Horizon name, but surely you'll recognize their products. The Dynamite line is Horizon's primary proprietary line. Horizon is also the exclusive distributor of JR Racing radios and servos. We've been told by both companies that day-to-day operations at Team Losi will remain the same, as will all customer service contacts. It will be interesting to see what results come from the buy-out in the months to come. You know we'll keep you posted.



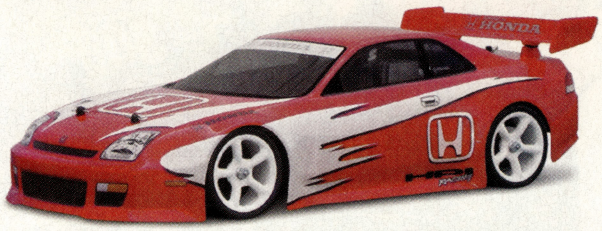


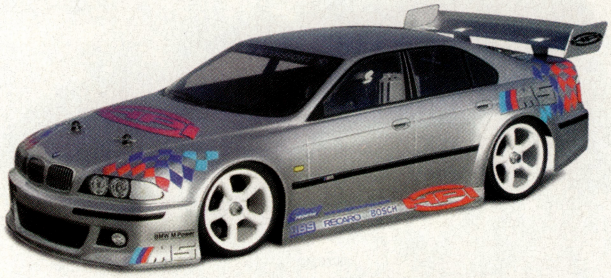
New Losi Touring Car Uncovered!

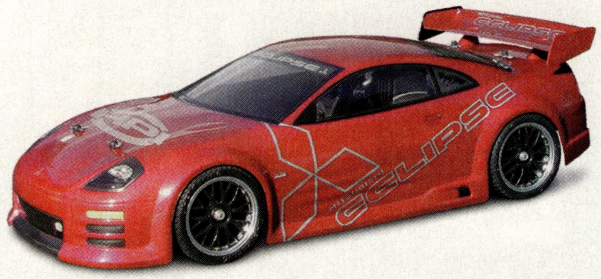
At the IFMAR Worlds in Japan we scored a glimpse of Team Losi's prototype touring car set for release sometime early next year. The unnamed car is at this time is code named the Secret Weapon. What we know about the car is sketchy at this point. The prototype you see here uses a number of woven graphite pieces. After talking to Gil Losi Jr. it's safe to assume that a number of the woven graphite pieces will actually be molded Stiffezel once the Secret Weapon makes it to production. One thing that we're almost certain will make it to the production kit is the single drive belt. The single belt system allows the car to use just one drive belt. A couple of geared pullies serpentine the belt below the spur gear shaft. The single drive belt runs right down the dead center of the chassis. As you can see in the photos the battery pack lies on the right side of the chassis while all other other weighted items mounted to the left side of the chassis. Most of the drivers running prototypes at the Worlds were running a one-way up front and an adjustable ball diff in the rear. We're sure the final production prototypes will look quite a bit different as this project progresses. As more details and better photographs become available we'll be sure to share them with you. Stay Tuned.

What do you think would be a good name for Losi's new car? email us.

Things are Up In The Air at HPI







In just about every industry these days, mergers and acquisitions are the in trend. The R/C industry is no different. Horizon buys Losi, now HPI buys Kalt Helicopters. "...An agreement has been reached with Sanwa Kalt to purchase their Kalt Helicopter division. Starting September 20, 2000, HPI will begin supplying and maintaining the Kalt line worldwide through existing Kalt distributors." HPI has already begun to shake things up by hiring experts in the helicopter field to redesign the existing line and create a new line up of HPI helicopters and accessories. We expect more information to become available after the Hobby show in Chicago.

Speaking of Chicago. We've got the inside line on what HPI will be exhibiting in Chicago. Along with some new bodies like the BMW M5, 2000 Eclipse and Honda Prelude shown, HPI will showcase two new unseen car kits. The first will be a rally version of the popular Super Nitro RS4, which will be available with either a Suzuki Hill Climber body or a Mitsubishi Lancer Rally. An 1/18-scale Micro RS-4 will also make its debut. But, unlike other micro cars on the market, the Micro RS-4 will be 4WD. Check in next month for full coverage from Chicago. No doubt we'll have plenty of pics and more information on all of these news stories.



Need Results?

Winner:

- '99 ROAR Off-Road Nats 1/10 & 1/8
- '99 Silver State Challenge 1/10 & 1/8
- '99 ROAR On-Road Nats
- '99 Manufacturers Cup 1/10 & 1/8
- '99 Reedy Truck Championship
- '99 Kyosho Challenge 1/10 & 1/8
- "00 NORRCA Nats 1/10 & 1/8
- '00 Silver State Challenge 1/10 & 1/8
- '00 ROAR Off-Road Nats 1/10 & 1/8 Truck
- '00 Kyosho Challenge 1/10 & 1/8

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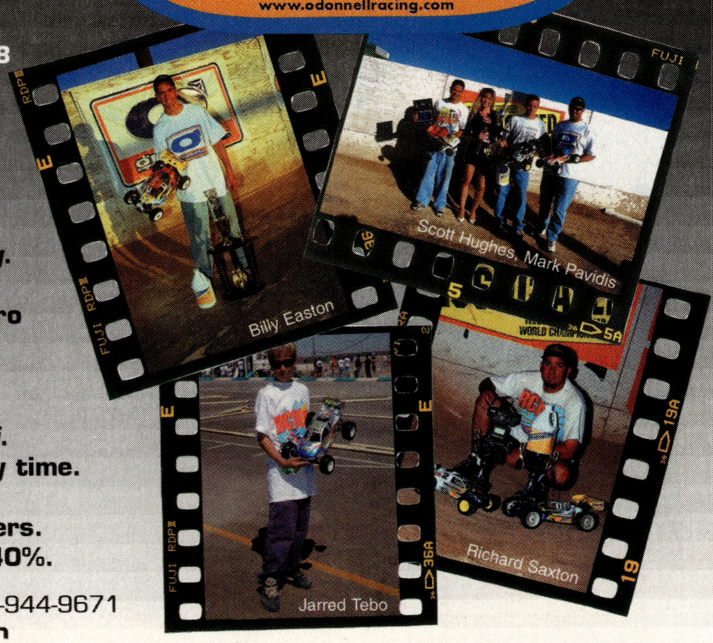

HAVE SOME FUN IN THE DIRT WITH A COMPANY WHO KNOWS A THING OR ~~TWO~~ SEVEN ABOUT OFF ROAD

MR-4MT
4WD Monster Truck

- LOW CG 2-Belt 4-Wheel-Drive System
- Front and Rear Double-Wishbone Suspension
- Lightweight Molded Composite Chassis
- Limited-Slip Front & Rear Ball Differentials
- Long Stroke Oil-Filled Shock Absorbers
- Precision Bearings & Bushings
- Turnbuckle Tie-Rods
- Front Universal Driveshafts
- Aluminum Heat Sink Motor Mount
- 9-Spoke Lightweight Truck Wheels
- Toyota Tundra Body with Decals & Masking



MR-4BC
Super Dog Fighter 2
4WD Off Road Buggy

- LOW CG 2-Belt 4-Wheel-Drive System
- Front and Rear Double-Wishbone Suspension
- Lightweight Molded Composite Chassis
- Limited-Slip Front & Rear Ball Differentials
- Long Stroke Oil-Filled Shock Absorbers
- Precision Bearings & Bushings
- Turnbuckle Tie-Rods
- Front Universal Driveshafts
- Aluminum Heat Sink Motor Mount
- Yokomo Lightweight Buggy Wheels
- Paint Scheme Decals Included



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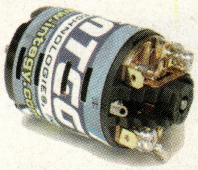
What's Going On at Integy?

They've been busy at Integy. Integy will soon be importing new motors from Atlas in Japan. The new motors are machine wound modifieds that will come with a relatively low retail price. The new Atlas motor features a vented can, stand up brushes and an open endbell. Also new from Integy is the Xipp Xapper DCX. The new zapper can be used more often than earlier zappers. The Xapper DCX uses standard 12V power supplies and can deliver up to a 90V shock to your batteries to increase output voltage. The voltage value is completely adjustable depending on the age and use of your cells. No word yet on the retail price. We'll give you the whole scope as soon as more info becomes available.





Babe of the Month

Gillian Anderson



We've got some news. This is our last "Celebrity" *Babe of the Month.* Next month we've got a new format we'll introduce to you. It's going to be great. We'll profile different young ladies every month that are actually, real, local girls. We just might even give you their email addresses if you're nice. So, for this last "Celebrity" *BotM* we're pleased to present to you one of our favorite celebs, Gillian Anderson.

About Gillian: Gillian grew up in Puerto Rico, London, and Grand Rapids, MI before she decided to pursue acting in New York ten years ago. She's the oldest of three. Aside from here work in the X-Files she really hasn't done much. Gillian has a little girl, Piper, and is divorced.

Why we like Gillian: She's got the amazing gift of going from Plain Jane to Super Model in about one cat suit and a little make up.

She's Single! Didn't David Duchovny ever watch NYPD Blue and that other moron (the red headed guys, what's his name?) that decided to pursue a career in the movies. Guess not. Now that Fox will be gone from The X-files Gillian's looking for a new partner. But don't get any ideas. We've already sent in our audition tapes. The role is as good as our. Sorry suckers.





1/10 SCALE
GAS POWERED 4WD TOURING CAR

NITRO MTX-2

The Fastest 1:10 Nitro Powered Touring Car!

NEW

CHASSIS KIT
CHASSIS With MT12 ENGINE KIT

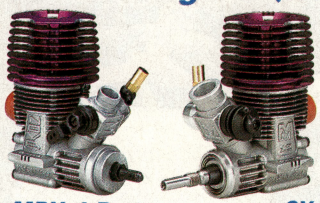
- Belt Drive 4WD
- Cam Type 2-Speed Gear Housing
- 3PC Clutch
- Disk Brake
- Turn Buckle Steering Rod
- 3mm (A70-75) Chassis
- Front Urethane Bumper
- 75c.c. Fuel Tank Filter-equipped
- Resin Radio Plate
- Manifold for MT12Engine
- Air Filter
- Adjustable Front Bump Stop/Rebound Stop
- Adjustable Rear Bump Stop/Rebound Stop
- Adjustable the angle of Front/Rear Damper
- Adjustable Camber/Toe/Caster angle (only Front)
- Full-Bearing



■Technical Date■

• Length	380mm	• F.caster Angle	6.2°~14°
• Width	198mm	• Gear Ratio	1st 7.421:1/2nd5.717:1
• Wheel Base	260mm	• Weight	1,640g
• Tread (F/R)	172mm/172mm		

MT12 Engine (Rear Exhaust)



MT12S1 SG-Shaft, Slide Carb.

MT12R2 STD-Shaft, Rotary Carb.

MT12S2 STD-Shaft, Slide Carb.

Cubic Capacity : 2.1c.c. Bore : 13.80m/m
Power : 1.15HP Weight : 215g
Rpm : 36.500rpm Shaft : φ11m/m
Stroke : 14.00m/m

MBX-4 Parts



C0179
Al.Rear Tension Rod for Long Chassis

CX12 Engine (Side Exhaust) Parts for MTX-2

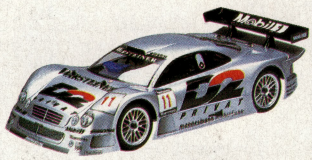


T0701Engine Shaft for CX12
T0903Manifold for Side Exhaust
51601Black Pipe (12)

PRIME12/MTX-2 BODY 200mm



K1001 CASTROL TOYOTA TOM'S SUPRA GT BODY



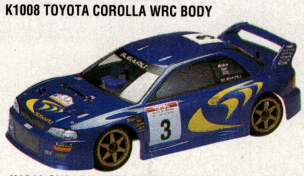
K1005 MERCEDES BENZ CLK-GTR BODY



K1008 TOYOTA COROLLA WRC BODY



K1014 PEUGEOT 406 STW BODY



K1010 SUBARU IMPREZA WRC BODY



K1016 TAKATA DOME MUGEN NSX BODY



K1012 MITSUBISHI LANCER EVOLUTION V WRC BODY



K1018 DODGE RAM TRUCK BODY

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E-Maxx Profile

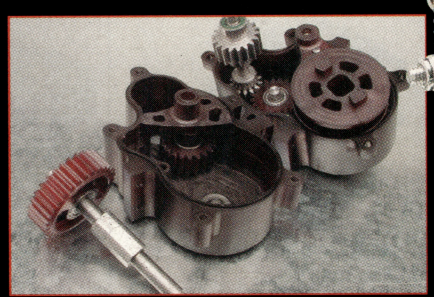
Xtreme R/C On-Line broke the news to the world. Now we've gotten out hands on the closest to production prototype sample to date. Traxxas looks to create redefine the electric monster truck category with their upcoming offering, the E-Maxx. We typically wait for a complete production sample before we review a product. But this one couldn't wait. We received an almost production sample that is completely pre-assembled and almost ready to go. Before the UPS truck came to a complete stop, our battery chargers were already going. That same day we ran our sample truck for about two hours straight. Here some quick opinions and a look at what the E-Maxx has to offer.

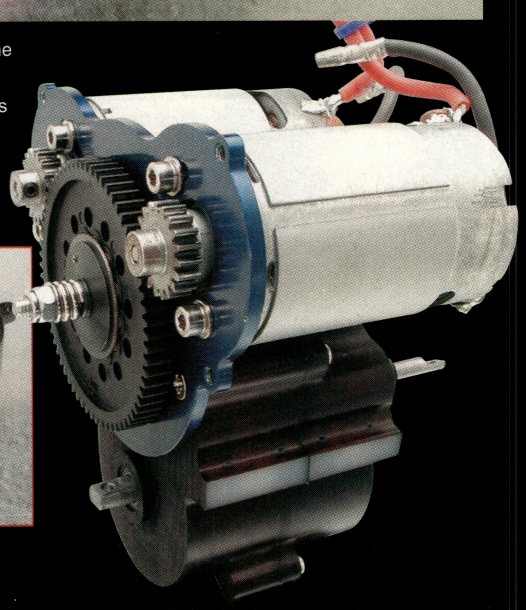


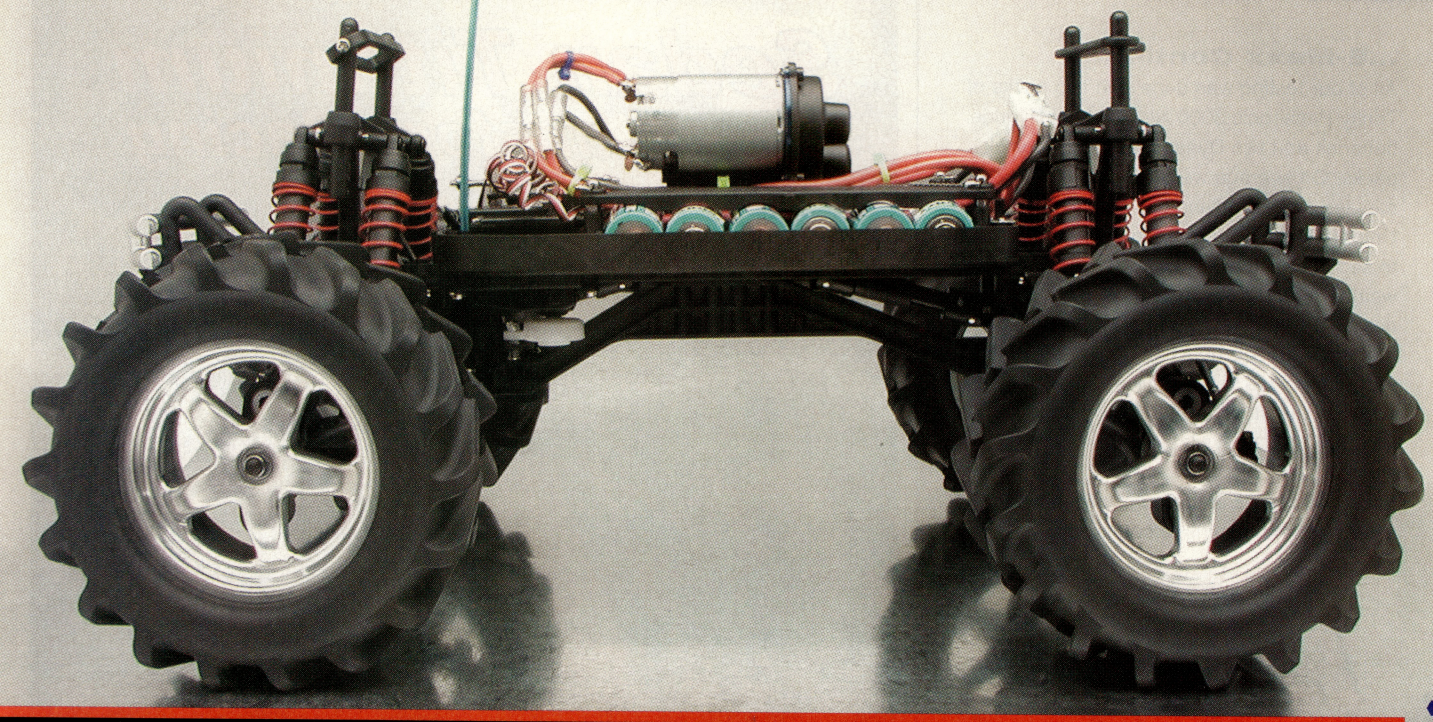
We want the E-Maxx. Yo Traxxas, send three.

Drive Train

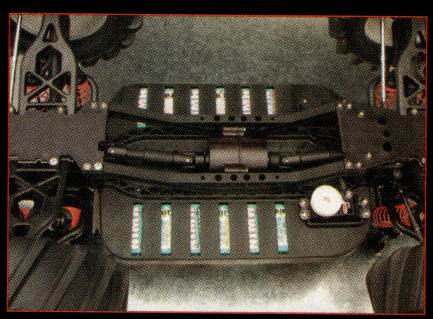
The E-Maxx's drive train, along with much of the truck, shares almost all of the main components found on the nitro T-Maxx. The center-mounted transmission harnesses the power of two 550 electric motors to get the spur gear moving. Once the spur gear gets moving, the gear box's internals go to work. Inside the gear box are two separate 3-gear drive trains. A toggle is switched between the final gears in each gear train. This actaully shifts the truck from first gear to second gear while the truck is running. One of the final gears is the first gear drive; the other final gear is the second gear drive. From there, power is distributed to the front and rear geared differentials. The E-Maxx's transmission uses a unique, manual-shifting 2-speed transmission with the ability to shift on the fly and while in reverse. Both the pinion and spur can be changed to alter the reduction ratio from 51:1 to 19:1. Traxxas says they've tested the gear train with two Astro Flight Cobalt drag motors, so the drive train should handle just about any motor combination you can install.







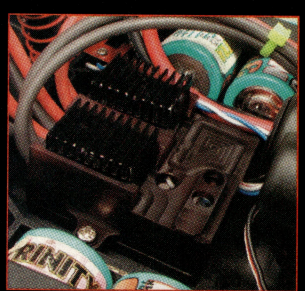
Chassis



E-Maxx uses a molded composite tub chassis. There are 12 cut-outs to accommodate two 6-cell stick or side-by-side battery packs on each side of the chassis. The receiver, steering, and gear shifting servos mount in front of the battery packs and the transmission. The ESC mounts behind the transmission.

Power

What powers the E-Maxx you ask? Two 550 motors attached to the motor plate. Each motor has a pinion attached and both pinions turn the single spur gear. The 550 motors are larger in length than standard 540 motors. The 550s produce more torque and raw horsepower than smaller motors. The two motors get voltage from the VX-12 ESC designed specifically for this truck. The ESC puts the batteries in series. So the power going into the ESC is 14.4V (7.2v x 2). From the ESC the motors are wired parallel. Which means each motor is getting 14.4V. This is the most efficient way to wire up the two motors and two batteries with minimal power loss.



Other Features

The E-Maxx shares a large number of parts with the nitro T-Maxx, including aftermarket items from Traxxas and other companies. This includes just about everything except for the items specific to the use of a nitro power plant. The E-Maxx will come ready to run out of the box with a pre painted ProGraphix body all cut out and fitted to the chassis. The TQ 3-channel radio is back once again and all set for action.

Driving the E-Max

The E-Maxx accelerates like a witch. With either Ni-MH or Ni-Cads we could pull wheelies at a moments notice from a dead stop. The E-Maxx accelerates harder than any electric monster truck we've seen, even with stock motors. Thanks to the two-speed transmission, top speed isn't too shabby either. The E-Maxx is not as fast as a stock T-Maxx but once again, faster than any electric out-of-the-box monster truck we've ever come across. If you shift gears while accelerating or going up a hill, you'll notice about a two- to three-second delay before the truck shifts. If you simply let off the throttle a bit after you hit the togle switch on the radio, the shift to second gear is immediately no matter where the truck is on the acceleration curve.

The ESC that comes with the E-Maxx doesn't have a brake, just reverse. This means coming to a dead stop takes a little finessing. If you give the truck full reverse throttle when the truck is near a stop, the truck will do a wheelie on the front tires. This is a very cool sight to see. Despite the large monster truck tires, the E-Maxx produces a very narrow turning radius. Coupled with reverse you can take the E-Maxx just about anywhere. If you're good with the throttle you can even drive the E-Maxx up a stairwell.

Continued on the next page.



Mud, dirt, carpet, cats, no problem for this rig.

...E-Maxx Continued

All of our testing was done with two packs of Trinity Panasonic 3000 Nickel Metal Hydride batteries and two Dynamite 1700mAh stick packs. On average we got about 10 to 12 minutes of hard driving per charge. Unfortunately, when our fun was over we had to send our E-Maxx back to Texas. We can't wait for the production version to hit our desks. We've been told that our test truck was more than 95% production so it should be very, very close to the truck you see here. Word on the street is that Trinity will have modified motors available for the E-Maxx when it finally hits store shelves. Look for a more complete and thorough review on the E-Maxx in the months to come.

hitec Racing

Hitec RCD is Stepping Up

Hitec RCD is putting their money where the mouth is. Hitec has begun a Track Improvement Fund. This fund was created to help the clubs, managers and owners of R/C tracks improve upon existing facilities. What a great idea. We hope other companies will follow Hitec's lead with other similar programs. Any track representative can apply to Hitec RCD, Inc. with a plan that must include the following verifiable information:

- Contact name, address and phone number.
- The same data for two other members of the tracks board of directors.
- Number of races held per week and typical numbers of entries.
- Short plan of proposed improvements.
- Let Hitec know if the track is club, government or privately owned or leased, and if leased, how long is left in the lease.
- In addition to the above information give them an emotional, heartfelt statement that in 100 words or less defines why your track should receive money from this fund.

Entries must be postmarked before February 1st. 2001 and money will be awarded as ten $1000 gifts by April 1, 2001 (No, this is not an April Fool's joke.).

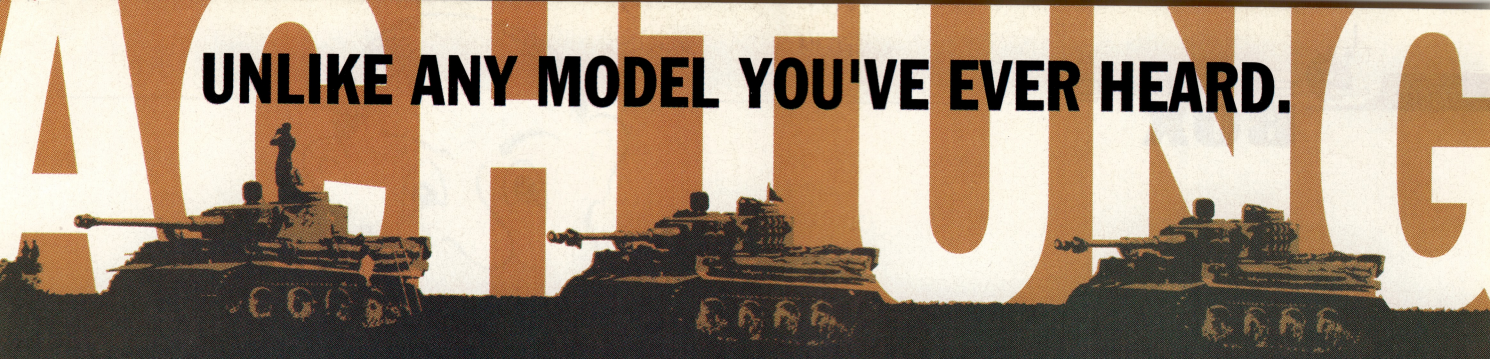
Send your entry to:
Hitec RCD, Inc.
Track Fund
12115 Paine St.
Poway, CA 92064

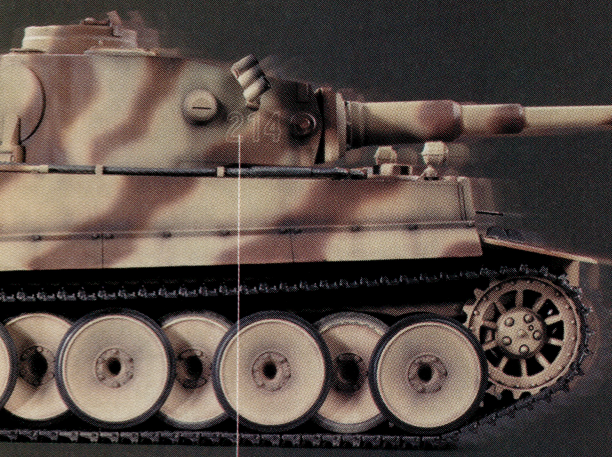
I don't think your backyard track is what Hitec has in mind. So save the stamp.



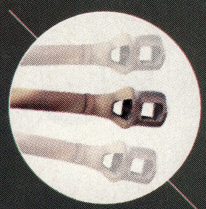


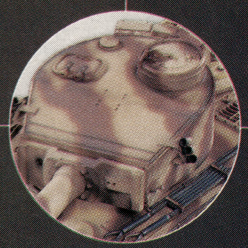
UNLIKE ANY MODEL YOU'VE EVER HEARD.



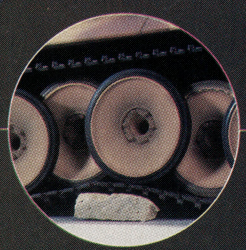


A complete range of motion allows the barrel to be aimed. The entire cannon recoils with the force of each shelling.





Rotate the turret 340° and elevate the cannon to blow off the baseboards. All to the tune of grinding, German machinery.

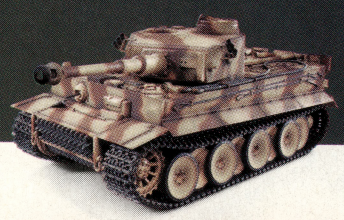


It doesn't matter what gets in the way. Not with independent torsion bar suspension on all drive wheels.



With a flash of light, the replica MG34 machine gun rattles off a few rounds. All on your command.

The next breakthrough in RC realism is here – the Tiger I from Tamiya. You'll hear the engine crank up and accelerate when you move, the turret gears turn and when it fires, you'll swear you're standing next to the real deal. Researchers spent weeks in France recording the only working Tiger I in the world. No RC on the market can even come close to the incredible detail and driving excitement of this beast, much less claim sound. Demand the Tamiya Tiger I from your hobby source today or visit www.tamiya.com



1/16 RC GERMAN TIGER I

1/16 RC German Tiger I early production full-option complete kit 56010

A four-channel RC unit is necessary to operate this kit. Two 7.2V Tamiya Racing Packs (or equivalent) and charger are also required.

TAMIYA

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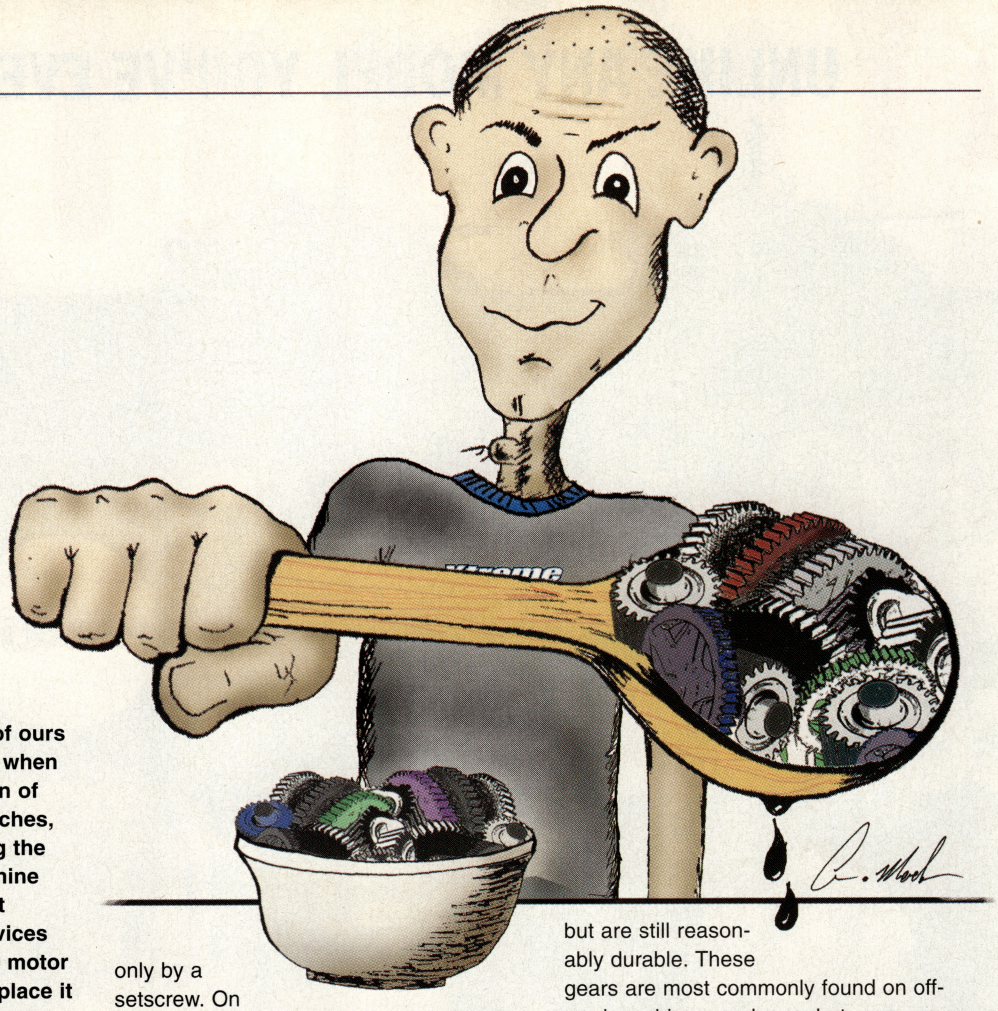
Today's Special:

GEAR SOUP

Wade through the goulash of gearing

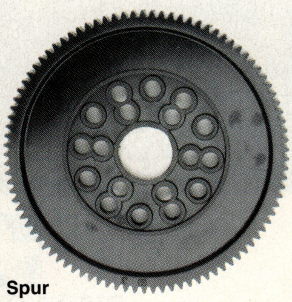
By Nathan C. Miller



One aspect of this great hobby of ours that seems to confuse everyone when they first start out is the question of gearing. With all the different pitches, gear sizes, and brands, selecting the right type of gears for your machine can be a bit confusing. The most common mistake I see many novices make is when they swap the 540 motor that many kits come with and replace it with a modified motor. They leave the kit-supplied gear ratio in place and then wonder why a few runs later the motor is toast. With this article, I'll explain some of the basics about gears and gearing, so you don't wind up with a roasted car or one that performs poorly on the track.

Stuff Ya Gotta Know

Let's start out with some basic terms and definitions. There are two types of gears that can be swapped in and out on an R/C. These are the pinion and the spur gear. The pinion is the smaller of the two, which on an electric car attaches to the motor's shaft, and on a nitro vehicle attaches to the clutch. The spur is the larger gear that attaches to the transmission layshaft or on to the axle on a direct drive car. In most cases, changing the pinion gear is an easier operation, as it is usually held in place only by a setscrew. On some cars changing the spur gear can be a serious operation that requires tearing down the driveline, replacing the gear, and then putting everything back together again.



Spur



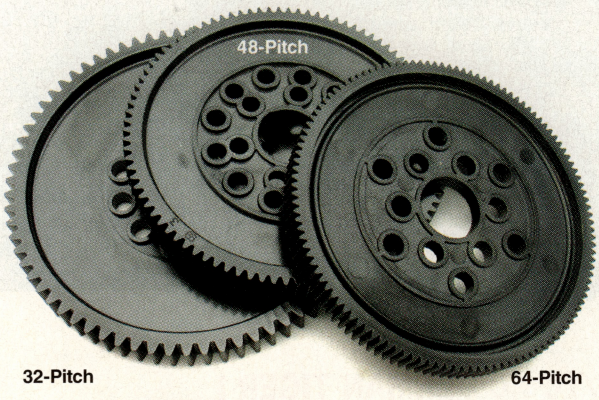
Pinion

Here's the Pitch

Next, knowing what pitch your car uses is crucial. A gear's pitch is determined by how many gear teeth could fit in an inch if laid flat. The lower the number for pitch, the larger the gear teeth are. For example, a 32-pitch gear uses large, coarse teeth, while 48-pitch gears are smaller and finer. R/C gears come in three standard pitches, each with its own practical use. There is also the new BK pitch gear from Trinity (see sidebar). First, we have the aforementioned 32-pitch gears, which are larger and less efficient than finer toothed gears, but are extremely durable. This durability makes 32-pitch gears the perfect choice for nitro cars, since their higher power output puts a significant strain on the driveline. 48-pitch gears are finer than 32-pitch, but are still reasonably durable. These gears are most commonly found on off-road machines, and are what many manufactures issue with their kits. Lastly, there are the fine-toothed 64-pitch gears, which are efficient, but a bit fragile. Great uses for these gears are in pan cars and touring cars were smaller loads are placed on the drive line. Many seasoned drivers also like 64-pitch gears because they allow for very subtle gear ratio changes. The only other thing to look out for is to make sure your car uses standard pitch gears and not metric, or module gears. While they look the same, they are different enough to make a mess should you try to interchange them. The only carmaker to include metric gears in their kits nowadays is Tamiya.

Don't Mesh It Up

Setting proper gear mesh is crucial to gear life and performance. The easiest way I

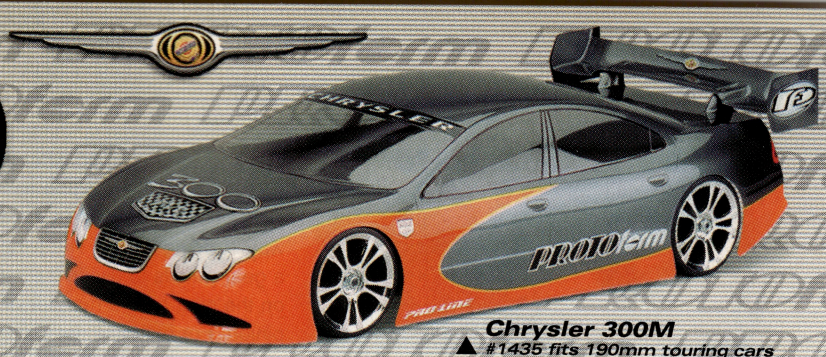


32-Pitch

64-Pitch

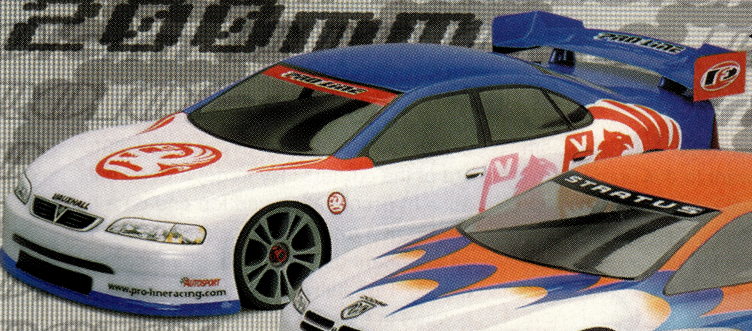
Don't just change your gearing on the "spur" of the moment. Ha, get it? Spur?



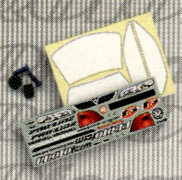


Chrysler 300M
▲ #1435 fits 190mm touring cars

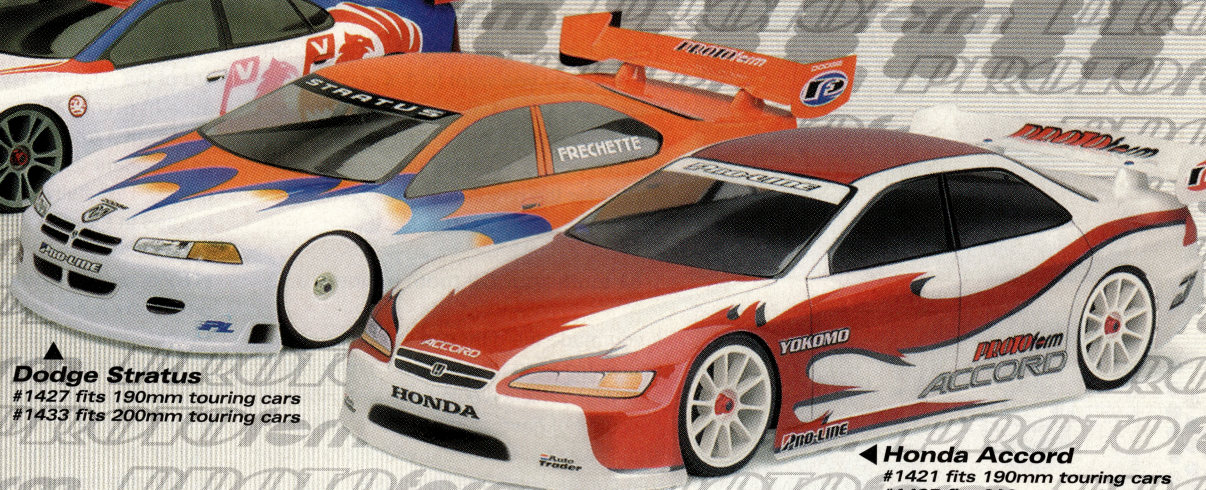
200mm



◀ Vauxhall/Opel Vectra
#1429 fits 190mm touring cars
#1432 fits 200mm touring cars



All PROTOform Race Bodies include free vinyl decals, window masks, an add-on wing, and mounting hardware.



▲ Dodge Stratus
#1427 fits 190mm touring cars
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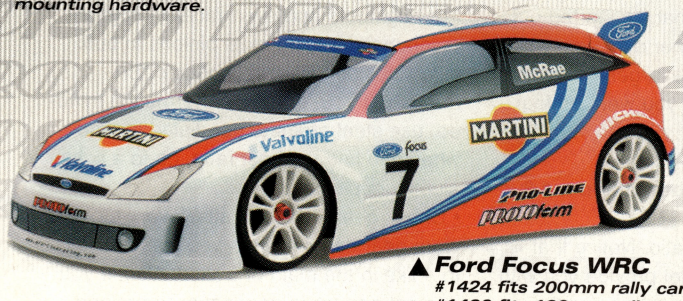
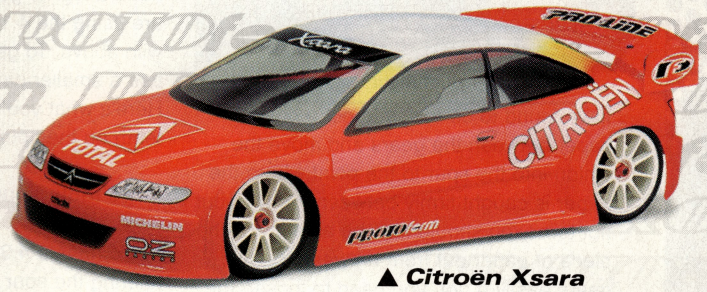
◀ Honda Accord
#1421 fits 190mm touring cars
#1425 fits 200mm touring cars



▲ Ford Focus WRC
#1424 fits 200mm rally cars
#1426 fits 190mm rally cars



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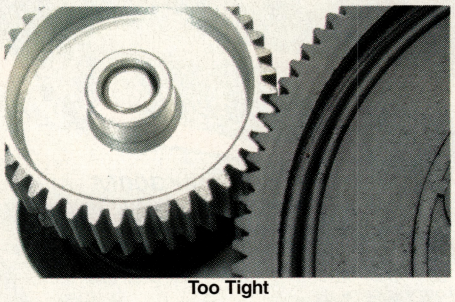
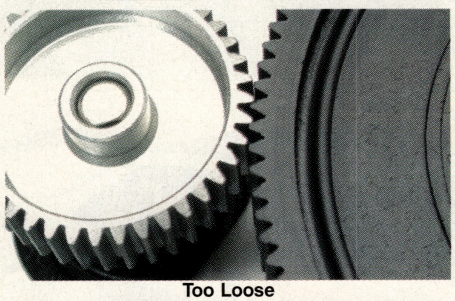
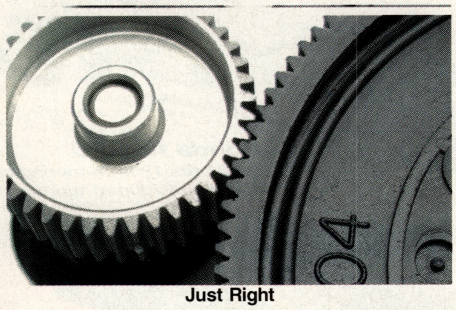


Too Tight



Too Loose



Just Right

have found to do this is to put a piece of paper between the gears and move the pinion into the spur to the point where the paper is caught firmly between the two, but not torn. You should also be able to roll the piece of paper out from between the two gears easily If not, you need to loosen the pinion gear a bit. Another method that works well especially on 48-pitch gears is to bolt on a pinion that is one tooth bigger than what you need, and move it firmly against the spur. Then remove the pinion and replace it with the gear you want to use, that is one tooth smaller. The mesh is now perfect!

No matter how you set the mesh, keep this in mind; there should always be a little bit of play between the gears. This is called backlash. A little backlash is necessary. If the gears are too tight, this will add strain on the motor and possibly cause it to overheat. Too much backlash and the gears will not make proper contact and you'll end up with a munched spur.

One Up Or Two Down?

In simple terms, a gear ratio is a mathematical expression for the relation between the pinion and spur gear you are using. Finding the proper gear ratio isn't as tough as it may sound. Some people use the old trial and error method when selecting a gear ratio. While in some cases this may work, it's not exactly the most scientific way of doing things. The simple way to find a gear ratio is to divide the number of teeth on the spur by the number of teeth on the pinion. For example, let's look at what we would get with an 82-tooth spur and a 20-tooth pinion:

82 tooth spur /20 tooth pinion = 4.1

This 4.1 is your gear ratio. Now, for example, let's say you want to dial your car to have more speed. You want a gear ratio that is lower than 4.1. Using the simple formula above, you can plug in different values for the pinion and spur gear. For example:

82 tooth spur /22 tooth pinion = 3.72

If you made the gear change listed above, you would wind up with a 3.72 gear ratio, and your vehicle would be faster. However, it would not have as much punch off the line. If you do want a car with more torque that comes out of the hole faster, you'll need a higher gear ratio. Let's say that you are using the 4.1 ratio that we started out with above. To get a higher ratio, you would use a smaller pinion or a larger spur gear. Here's what you'd get if you went up four teeth on the spur:

86 tooth spur/20 tooth pinion = 4.3

You'd have a 4.3 gear ratio. Notice that altering the spur does not provide you with a big a change in ratio as changing the pinion. This is useful to remember when it comes time to make small changes in the ratio.

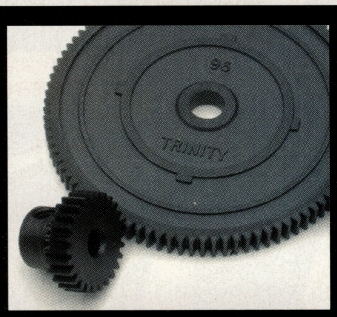
So what's the perfect ratio for you? It all depends on what you plan on doing with your vehicle and on the track conditions. If you plan on just bashing, try to settle on a higher ratio that gives you decent run time and a speed that you are happy with. The higher the ratio, the lower the speed, but the better you're run time will be. Experiment a little, and don't be afraid to use the calculator. If you're racing, take these basics into consideration. A track with longer straights will let your car reach a higher top speed, so start out with a lower gear ratio. A good ratio on long tracks will allow your car to get up to full speed at about the midpoint of the straights. On tighter tracks, you'll need a higher ratio to allow your car to pull hard out of the corners. Try to get a good balance of acceleration and top end on a tight track. On a track like this, top speed is not as important as getting out of the corner quickly. Hopefully, these tips will get you pointed in the right direction.

Here are a few more pointers to consider:

- When putting in a hotter motor, you should always go to a higher ratio. Carefully monitor the motor's temperature. If the motor still starts to heat up, go with a higher ratio until the motor runs at an acceptable temperature.
- It pays to keep plenty of gears around. For beginners and even racers, I highly recommend buying steel pinions in bulk (like Robinson Racing Products "Six-Packs"). If you're really performance minded, use steel gears to get dialed in, and when you find the best ratio, go to a lighter aluminum pinion.
- Check gears for wear after every run. A worn gear can fail when you least want it to – like in the main of a race. Also, if you can get one run a gear cover to prolong gear life.

Learning how to gear your car just right will take a little practice, but is a skill worth knowing and honing.

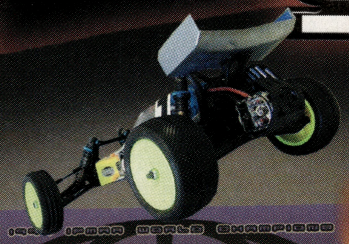
BK pitch gears



Trinity recently came out with their line of BK pitch gears, which in actuality are 56-pitch gears. The claimed advantage of these gears is that they are strong enough for off-road, but allow subtle gear changes for on-road. To the racer who runs both, this potentially means only one type of gear to keep on hand. The downside? What if you already have a full box of both 48- and 64-pitch gears? It doesn't make sense to scrap them all. At the moment, Trinity is the only company making these gears. Whether you use these is entirely up to you. What kinds of racing you do, and whether or not you can afford an entirely new set of gears. For the diehard who wants to simplify the pit box, these just may be the way to go.

The captions on this page bring back memories of high school.

Chrome Stock RS





Precision machined dual rotor armature





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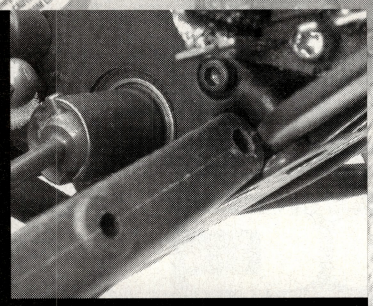
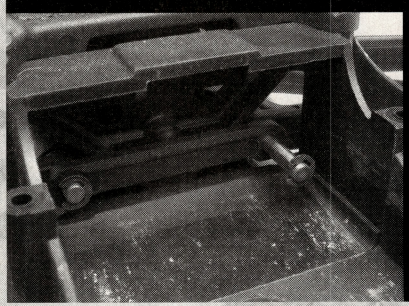
Mended Broken Arms

The next tip was sent in by Travis Dupre. For his trouble Travis will receive a free *Xtreme R/C Cars* T-shirt. If we use your Quick Tip we'll send you a free T-shirt.



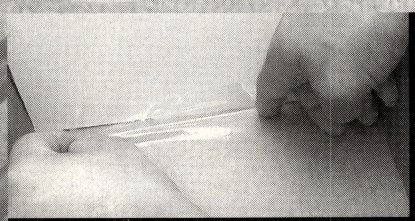
Like me, I'm sure you sometimes break a rear A-arm and that's a pain to fix. But I'll make this repair easier for all of you guys, or girls, who own a Team Losi Triple-X. By following this trick, you can remove your rear arms without taking the rear end apart. Remove the foam in the back of your battery. Next, take off the back e-clips on the rear hinge pins. Then take an Allen wrench or similar thin metal tool and push the hinge pin through the battery slot. Viola! Now you just have to put the arm back together by lining up the holes and pushing the hinge pin back through the battery box.



Containers

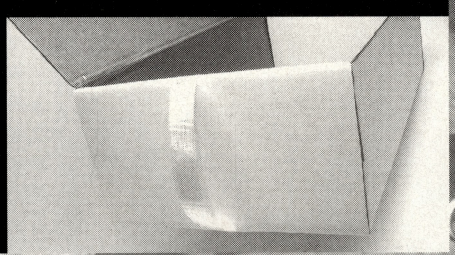
The worst thing in the world is having a work bench crowded with tons of screws, e-clips, and nuts rolling around. You've heard it before – use parts trays to keep all of your important pieces separated and in their proper place. But if you're running short on containers, take a look around the house. The refrigerator is a great place to find sealed containers. Don't throw out good food. But once you're done, wash the container out and keep it on your work bench. Use a permanent marker to indicate what each container is for. If there's a baby near by, wipes containers are a cheap tool box just waiting to happen.





Get A Grip

Those of you using a convenient hauler bag from companies like Trinity, Orion, Yokomo, Associated, and others know that the boxes that line the inside of those bags can become worn and tattered over time. You can easily extend the mileage on each of those boxes by reinforcing each box before you put the whole thing into use. Once you've assembled each box, pick up some 3M® clear packing tape – the heavy duty stuff – at the local office supply store. Then run the tape along each angle on the hauler bag boxes. Run the tape along all the angles on the inside of the box. Also tape the angles on the outside except for the front angles that the box top flaps must be inserted into. Taping all these angles (as shown) will greatly improve the durability of the box. You can also put a handle on each box with reinforced strapping tape. Cut a twelve inch piece of tape and then cut another piece eight inches long. Center the 8" piece over the 12" piece and stick the two pieces together, sticky sides facing each other. You'll be left with a 12" piece with 2" of stick on each side. Now open your constructed box and stick one end of the tape to the bottom of the end of your box 2" deep (as shown). Now loop the tape around and stick the other 2" strip to the inside of the box so that the tape now becomes a handle.



Three's a Crowd, but...

Here's a tip for you hardcore electric guys. Want the absolute best performance from your high-end ESC? If your speed controller utilizes an external power capacitor like the Novak Cyclone, you can improve performance by using two additional power capacitors. Wire the caps in parallel. Be sure that the polarity lines up so that all of the negative ends are on one side and all the positive sides are on the other. Next, solder the two ends still unsoldered. just like you would a single capacitor. The end result will be a slightly better acceleration feel and braking feel.



Now you've finally got a use for all those empty Ben & Jerry's® containers.

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Idle-Up
great for nitro and gas cars

Auto Dual Rate Steering
adjust high and low speed steering rates separately

Digital Trims

DSC
(Direct Servo Control)

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Kyosho Inferno MP7.5

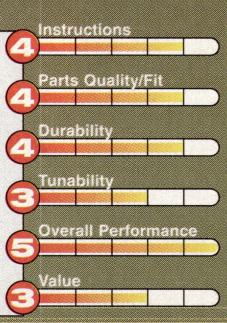
by Mike Velez

P7.5 KYOSHO **MP7.5** KYOSHO **MP7.5** KY

In today's modern world of computers, our society has become accustomed to seeing software upgrades come in versions (e.g., Windows 2.0, Windows 3.1, Mac O.S. 8.6, etc.). Kyosho picked up the numbering system to keep you updated as to which version of vehicle is their most current. For example, back in the early 90's it was the original Inferno, then the Turbo Inferno, then the Inferno MP5, and most recently the MP6. The normal progression would tell us that the MP7 should be next. But, Kyosho's current offering is so different in terms of suspension and drive train they decided to kick in an extra half point. So, we're set to review Kyosho's newest edition of the Inferno line, the MP7.5. The MP7.5 adds a number of additional features not yet seen in 1/8-scale off-road nitro. Right out of the starting gate the MP7.5 took home the win and seven of the top ten spots at the most recent ROAR Nationals. But do all the changes make a better buggy for the average racer? Let's find out.

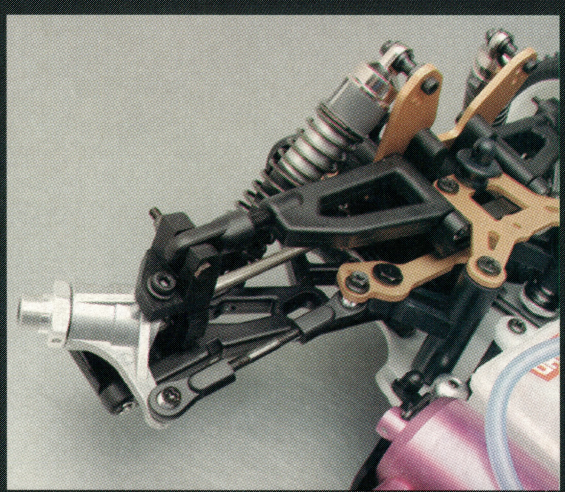
Hits:
- Great tight track handling.
- Turns on a dime.
- Good braking power.
- Durable is an understatement.
- Builds relatively easy.

Misses:
- Comparitively priced on the high end of the spectrum.
- Needs turnbuckles intead of simple tie-rods.

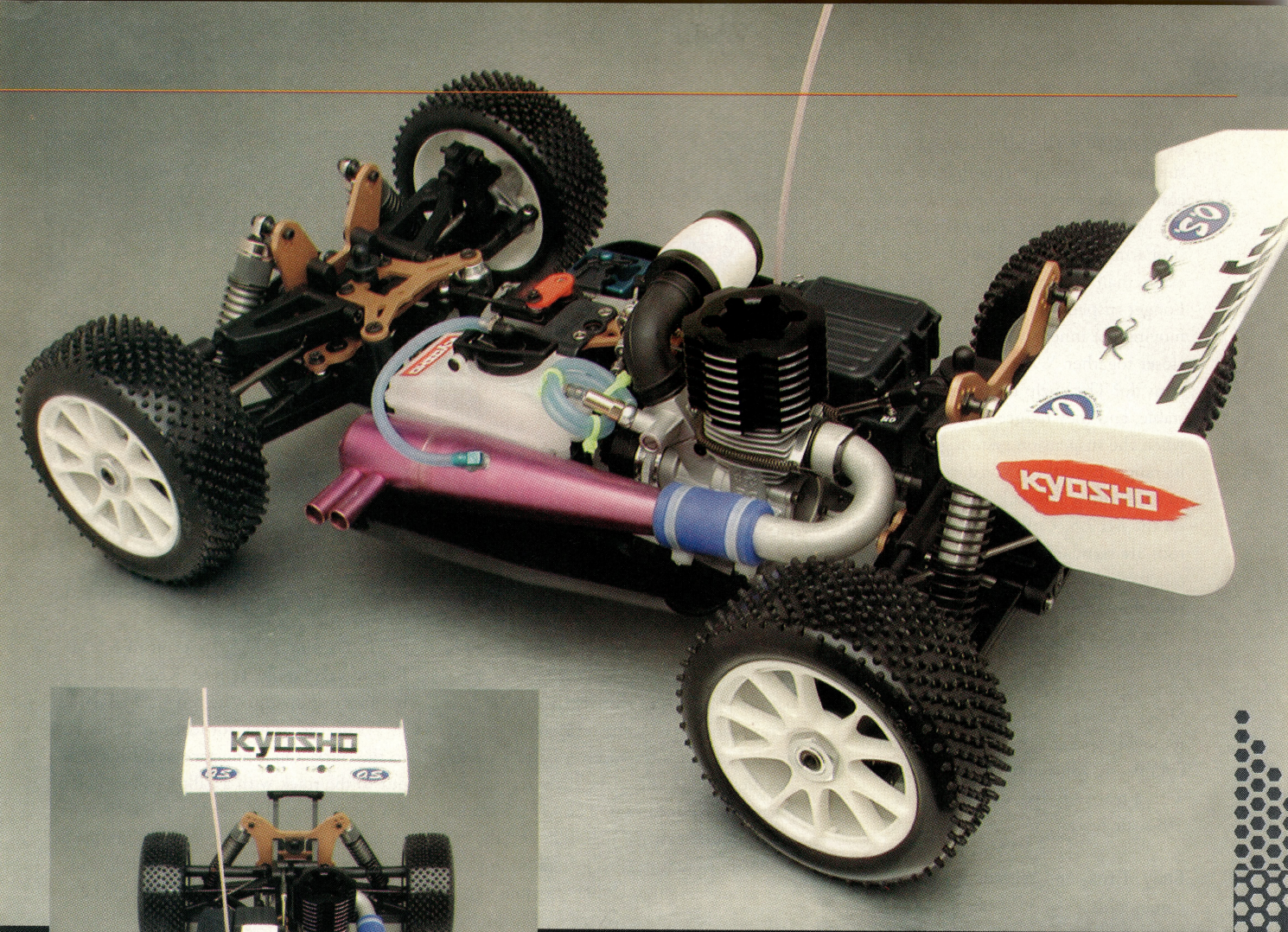


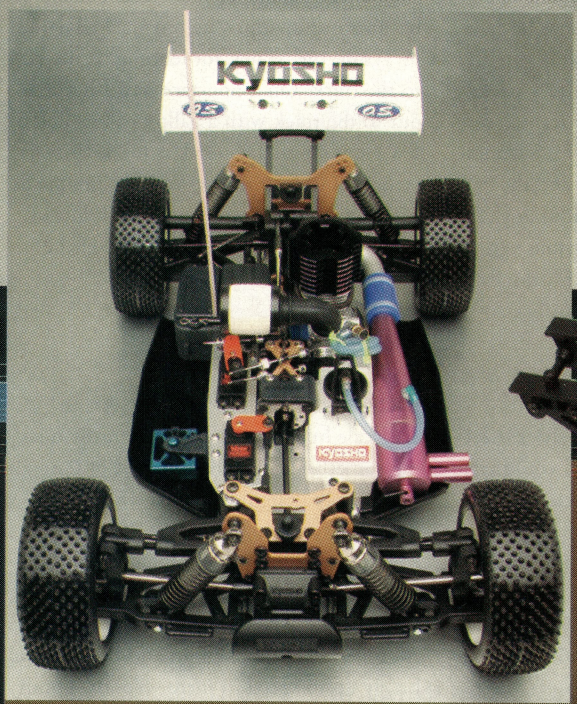
Steering

The steering system on the car is very standard. Two large heavy-duty bellcranks – one with a built-in servo saver – handle servo movement and move the front wheels. Adjusting front toe requires removal of the steering rods thanks to no hex or hole to lengthen or shorten the rods when in place.

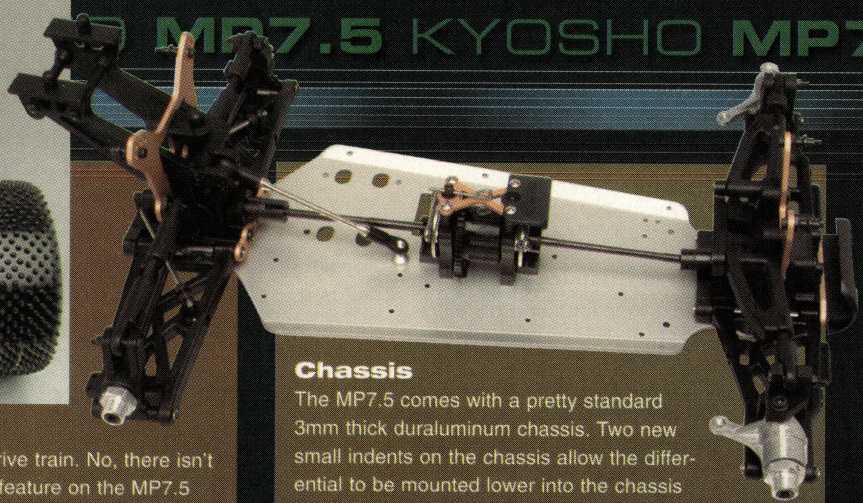


What programs does *Xtreme R/C Cars* use every issue you ask?





MP7.5 KYOSHO MP7



Drive Train

The most dynamic new feature of the MP7.5 is the drive train. No, there isn't a fourth differential or some new belt drive. The new feature on the MP7.5 seems very simple, but has a profound effect on the car's performance. The front and rear differentials have been made smaller. This serves two purposes. First, the small differential coupled with the chassis indents can be mounted lower in the chassis. A lower diff can lower the overall center of gravity and reduce chassis roll in cornering. Second, the smaller diff reduces the gyro effect of the differentials. The more weight you have away from the center of diff rotation the more of a tendency the diff has to act as a gyro. The differential gyro effect makes the car want to stay in the direction the car's traveling, usually straight. The smaller the diff, the less gyro effect and the sharper the car can turn. Other than the smaller diffs, the drive train is pretty standard. Dog bones between the front and rear diffs move power front and back. Up front, universals move the front wheels. Stopping power is provided by dual, 2mm-thick, vented disk brakes. Front and rear brake bias can be set independently.

Chassis

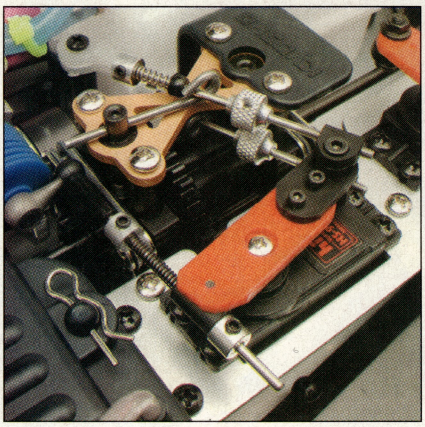
The MP7.5 comes with a pretty standard 3mm thick duraluminum chassis. Two new small indents on the chassis allow the differential to be mounted lower into the chassis than any other 1/8-scale buggy. The basic chassis layout is similar to the previous MP6. The engine mounts in front of the rear suspension on the left side of the chassis. The center differential mounts near the absolute center of the car, the fuel tank sits to left of the center differential, and the servos sit to the right. The front of the chassis features a slight kick-up. A rear brace coming from the chassis supports the rear suspension. A lowered engine mount lowers the engine by 3mm.

We use Photoshop 5.5, Illustrator 8.0, and Quark Xpress 4.1.

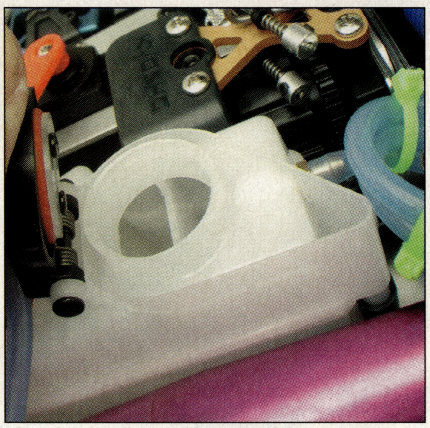
Suspension • The MP7.5 uses a number of suspension developments that are more commonly found on touring cars and electric off-road buggies. The MP7.5's suspension arms are longer, about 4mm to be exact, than on previous Kyosho offerings. Longer suspension arms are achieved by moving the inner suspension arm mounts closer together. What do longer suspension arms do? They help make the buggy more stable, and they reduce camber change when the suspension system goes through its range. Everything you'd expect to be able to adjust on a 1/8-scale buggy is adjustable on the MP7.5. Unfortunately, threaded tie-rods are standard, meaning if you want quick camber adjustments you'll need to take things apart. Aside from that, all the other suspension adjustments are standard. The Teflon®-coated shocks use the same shock springs as previous Kyosho buggies. Shock pre-load is made by adding or removing spacer clips. Shock position is completely adjustable. The MP7.5 comes with a rear sway-bar, usually a must in 1/8-scale racing.

Body, Tires, and Wheels • The MP7.5 comes with a standard 1/8-scale buggy body and large white molded rear wing. The kits comes with Kyosho's standard Mini-Pin tires front and rear. You will need to go out and get some tire foam before you seal the tires to the wheels. The tires are mounted to nice looking, white, 10-spoke wheels.

Other features • The MP7.5 comes with some other very nice features. First off, the wheel screws that were found on the older MP6 are traded in favor of a more standard wheel nut used to hold the wheels to the axles. The battery box has been lowered and spread out a bit and now features two doors to allow independent access to either the battery pack or the receiver. Before both items would need to be removed if you needed to access the receiver battery pack. Needless to say, the entire drive train is supported by ball bearings. The MP7.5 comes with a round exhaust manifold and the hardware to mount it to just about any .21 rear exhaust engine. Unlike previous versions, the MP7.5 comes only with the flywheel hardware to strap in a non-Picco style engine with a shorter crankshaft.



Throttle and brake linkage are very accessible and adjustable.

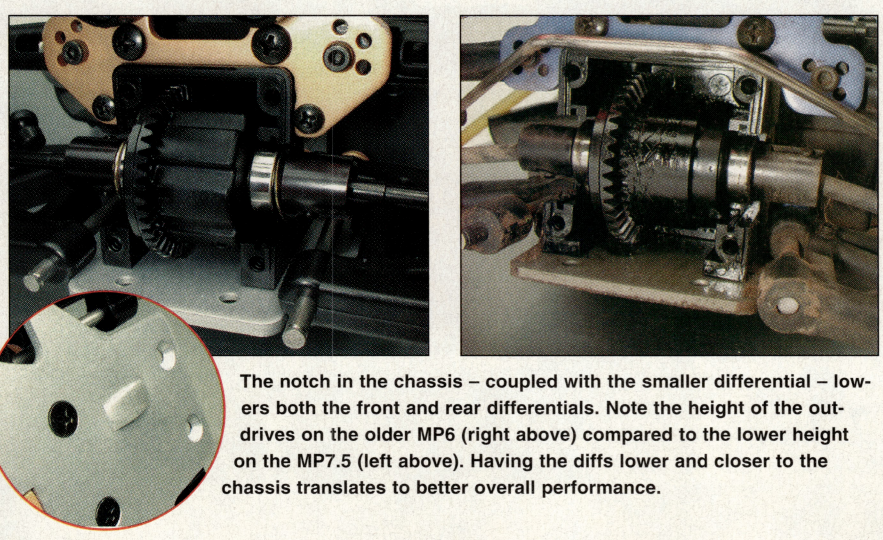


The fuel catch to the right of the tank opening routes fuel straight through to a hole at the bottom of the chassis.

Setup and Track Test

The MP7.5 comes with a setup sheet. I set my buggy up as close to this as I could. The only real difference was the shock oil and diff oils. For advice on this, I called Mark Pavidis over at Pro-Line. He suggested 40wt oil in the front shocks and 30wt in the rear. In the diffs, I used Mugen 5,000 oil in the front diff, 10,000 in the center diff, and 1,000 in the rear. Aside from this, the setup was all stock.

To test the MP7.5, I set out to K&M Raceway in Grand Terrace. K&M has become our own private test track. Thanks to Tyson, the owner, for lending us the keys to the track. On a non-race day, I headed out to the track with a gallon of fuel and a few glow plugs. The track is for 1/10-scale vehicles and features lots of huge jumps. So running an a 1/8-scale buggy with lots of horsepower should be a good test of the car's handling ability.



The notch in the chassis – coupled with the smaller differential – lowers both the front and rear differentials. Note the height of the outdrives on the older MP6 (right above) compared to the lower height on the MP7.5 (left above). Having the diffs lower and closer to the chassis translates to better overall performance.

Testing

Acceleration • If you've never seen an 1/8-scale buggy take off, you're really missing something. The high-output of the O.S. .21 RG engine coupled with the MP7.5 was a thing of beauty. Once the engine was completely broken-in and purring smoothly using O'Donnell 20% fuel, acceleration was ballistic and violent. All four wheels hooked up and brought the buggy up to speed in mere seconds. On dry conditions or wet, the MP7.5 accelerated hard with a fair amount of squat in the rear.

Top Speed • The track layout had two long straightaways. The front straight featured a large table top jump and the back straightaway featured a large triple. The MP7.5 was a rocket on both straightaways and sailed over both jumps quickly. Before the day was over, I took the MP7.5 out on the street near the track to see the car's top speed. Top speed was great. With the engine tuned correctly, top speed was reached in about 50 feet.

Like many of us, the MP7.5 has a low profile.

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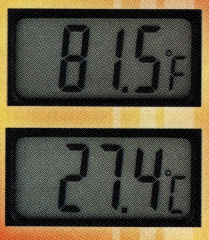

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Jumping • During the entire practice day the MP7.5 stayed on all four wheels. On the large jumps in the middle of each straightaway, the buggy handled great. Letting off the throttle caused the buggy to nose-dive and keeping the throttle pegged brought the nose up. After a few laps, I got the hang of letting off the throttle just a bit once the car was airborne and I was able to land perfectly on all four tires every time. On the rutted washboard section, a simple punch of the throttle allowed the buggy to skate over the top of the ruts. There was one jump positioned just in front of a hard left hand turn. This jump took a little getting used to. The angle of the jump and the following turn meant I had to be ready to get on the brakes hard once the buggy landed. I had to hit this jump at an angle, but the buggy remained very stable and only went head-over-heels once in a great while.

Braking • As I mentioned earlier there were a few jumps on the track that required me to brake hard. Braking was also required for most of the track's turns thanks to the tight circumstances. The MP7.5's brakes handled stopping pretty well. The car dove consistently once the brakes were applied. After a while I put more of the brake bias to the rear and this seemed help things out a bit. After three tanks of gas without stopping, brake fade was minimal at worst.

Low-Speed Turns • Thanks to the tight circumstances of our test track most of the turns had to be taken at low speeds. Getting around most turns required me to hit the brakes before tackling each turn. Off power, the buggy coasted pretty well around each turn when the track was dry the stock tires had a tendency to break loose in the rear. Once some water was put down, the problem was gone. On power through the turns, the buggy coasted through with little push or oversteer. The lower center of gravity and less gyro effect translated into a car that was very comfortable feeling from the first track.

High-Speed Turns • At the end of one straightaway was a high berm with a right-hand turn. I had to take this turn at half throttle. Even at half throttle I would consider this a high-speed turn. Consistently, I was able to get through this turn section faster and faster. By the end of the day, I had this turn and most of the turns dialed.

Damage • Despite the occasional rough landing, the only damage I had to speak of was due to a dumb mistake on my part. My fuel line going to the engine worked its way between the pinion and spur. This killed the engine and brought the car to a halt. Once I pulled the fuel tubing out from between the gears and scrapped the melted tie-strap off of the clutchbell, I was ready to cut some new fuel tubing and hit the track once again. After a long day of running the car appears to be free of any damage or stress. Like most 1/8-scale buggies, the entire buggy is made to take plenty of abuse.

Trackside Tuning • The only trackside adjustment I made was to raise the front end slightly and play with the rear sway bar a bit. Both of those adjustments were very easy to make and yielded some performance gain. Adjusting toe or camber would have meant breaking out the toolbox. If racing's in your future, I would suggest picking up a set of adjustable tie-rods for all four corners.

Building Tips

Building an 1/8-scale nitro rig is a painstaking task. It's not easy and you need to give yourself plenty of time. With that said, building the MP7.5 is relatively easy. Here are a few pointers that should make the building process as painless as possible.

- In many of the steps you'll see a little black box with arrows pointing from 1 to 3. These are very important; they indicate the order in which to do things. Don't deviate from this order ever.
- Some screws are very close in size to other screws, as close as 2mm. Keep a ruler or a calipers handy so that you don't make any mistakes.
- Use thread-lock wherever it's indicated in the instruction manual.
- The instruction manual does come with one brief page of setup advice, photocopy this and keep it handy.

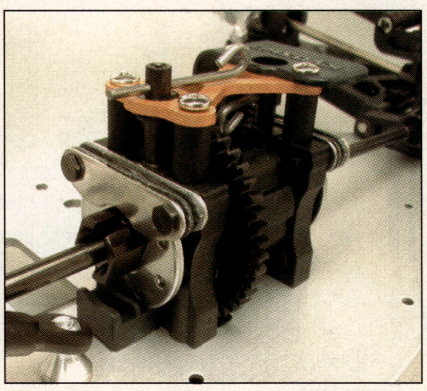
Maintenance • There's nothing special about the maintenance on this car. The little drain on the fuel tank came in handy, but if you're going to splash fuel around when refueling I think it's going to get all over the place no matter what kind of drain you've got. The car cleaned up nicely with some Traxxas Nitro Wash and an air compressor. Nothing seemed out of the ordinary. There was no concentration of diff oil or shock oil anywhere on the exterior of the different components.

Conclusion

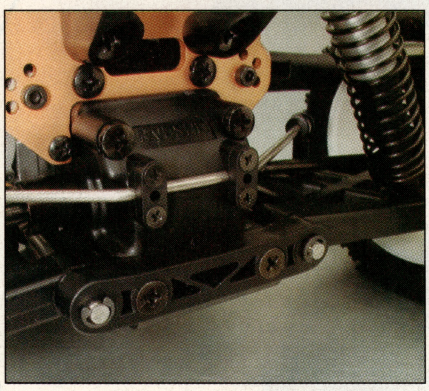
On the national and world level of competition, the MP7.5 has already proven itself at the top of the pack t; it placed 7 out of



The dual-door battery box is a nice touch and allows for more weight to be concentrated lower on the chassis.



The center diff height remains the same.



Getting to the rear diff only takes the removal of four screws, two e-clips, and the loosening of two set screws.

The Specifics

Item Info
Part # KYOC-31081
Estimated Street Price: $500-$550

Vehicle Type
Nitro .21-size engine powered, 4WD, off-road competition buggy.

Chassis Type
Type: Flat Pan with braces.
Material: 3mm thick duraluminum chassis with countersunk holes.

Wheels and Tires
Kyosho 10-spoke white wheels with Kyosho Mini-Pin tires.

Transmission
Type: 3 diff 4WD sstem
Diff: 6-gear bevel
Drive Shafts: Universal/ Dog bone
Bearings: Sealed bearings

Suspenion Deisgn
Type: Independedn molded lower arms with upper adjustable arms.
Damping: Coil-over, oil-filled large volume Teflon®-coated shock bodies.

Other Items You'll Need
2-channel radio with 2 servos, receiver, radio battery pack, fuel, fuel bottle, .21 size engine with Picco style crankshaft, pipe, glow-plug ignitor, stargin box, paint, CA Glue.

Our Test Gear
Hitec Lynx 3D radio with DCX reciver, 2 Hitec HS-925MG servos, Trinity 1100mAh Nitro Metal Hydride receiver pack, O'Donnell 20% fuel, O.S. .21 RG engine, CVEC pipe, Duratrax Glow-Starter, O.S. A-3 plug, Mugen B11 Starter Box, Thunder Designs paint mask with Faskolor paint.

Main Competition
Thunder Tiger EB-04, Mugen MBX-4RR, Kyosho MP-6 International.

10 in the A-Main at the ROAR Nationals, and many of those drivers had just gotten their hands on their kits a week before the race. But all this big race placement doesn't mean much if the car's not user -riendly and easy to drive. That's were the MP7.5 excels. Many of the car's new design features helped make the MP7.5 easy to drive. I don't have too much racing experience in this scale of racing, but I'm ready to take on the world thanks to how comfortable I feel with this car. If racing's not in you plans, the car is dialed out of the box with no need for any accessories. If racing is in your plans, go for some adjustable tie-rods and plenty of different springs and oils to experiment with. The MP7.5 is priced in the middle of the pack. It's not the cheapest nor the most expensive car in the market. Given the MP7.5's performance, innovations, quality, and price, it's one of the best values of any of the 1/8-scale buggies out there.

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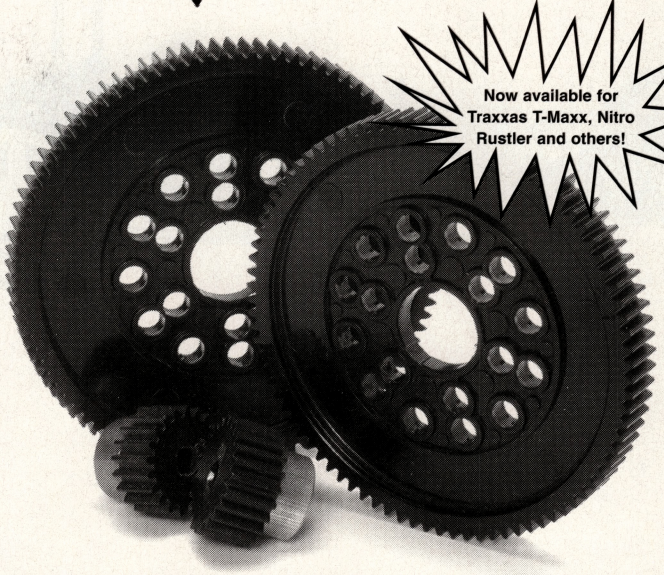

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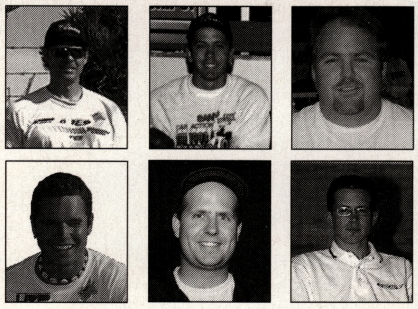

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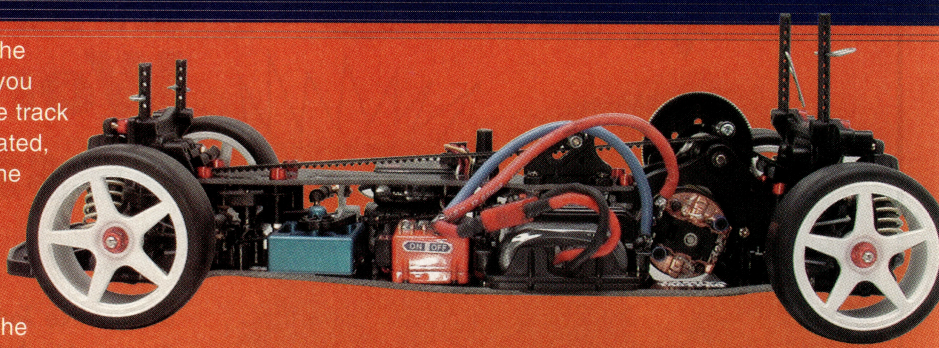
TAMIYA TA04 PRO

by Aaron Bellis

TA04 PRO TA04 PRO TA04 PRO TA04 PRO

David Jun was the 12th qualifier with his 414X at the IFMAR Worlds.

At any parking lot track around the country on an given weekend you can find the fastest guys on the track running cars from HPI, Yokomo, Associated, Losi, Schumacher, and a few others. One name that has been sadly absent from that list recently has been Tamiya. Tamiya is the company that invented this class of racing. A while back Tamiya released the 414X in small quantities. The chassis 414X was used as a developmental car for many of the features found here.



Hits:
- Performance rivals that of similarly priced race cars.
- Parts fit perfectly.
- Kit tires compare to top dollar, optional tires.
- Worthy of its Pro moniker.

Misses:
- No way to use saddle pack batteries.
- Needs turnbuckles not tie-rods.

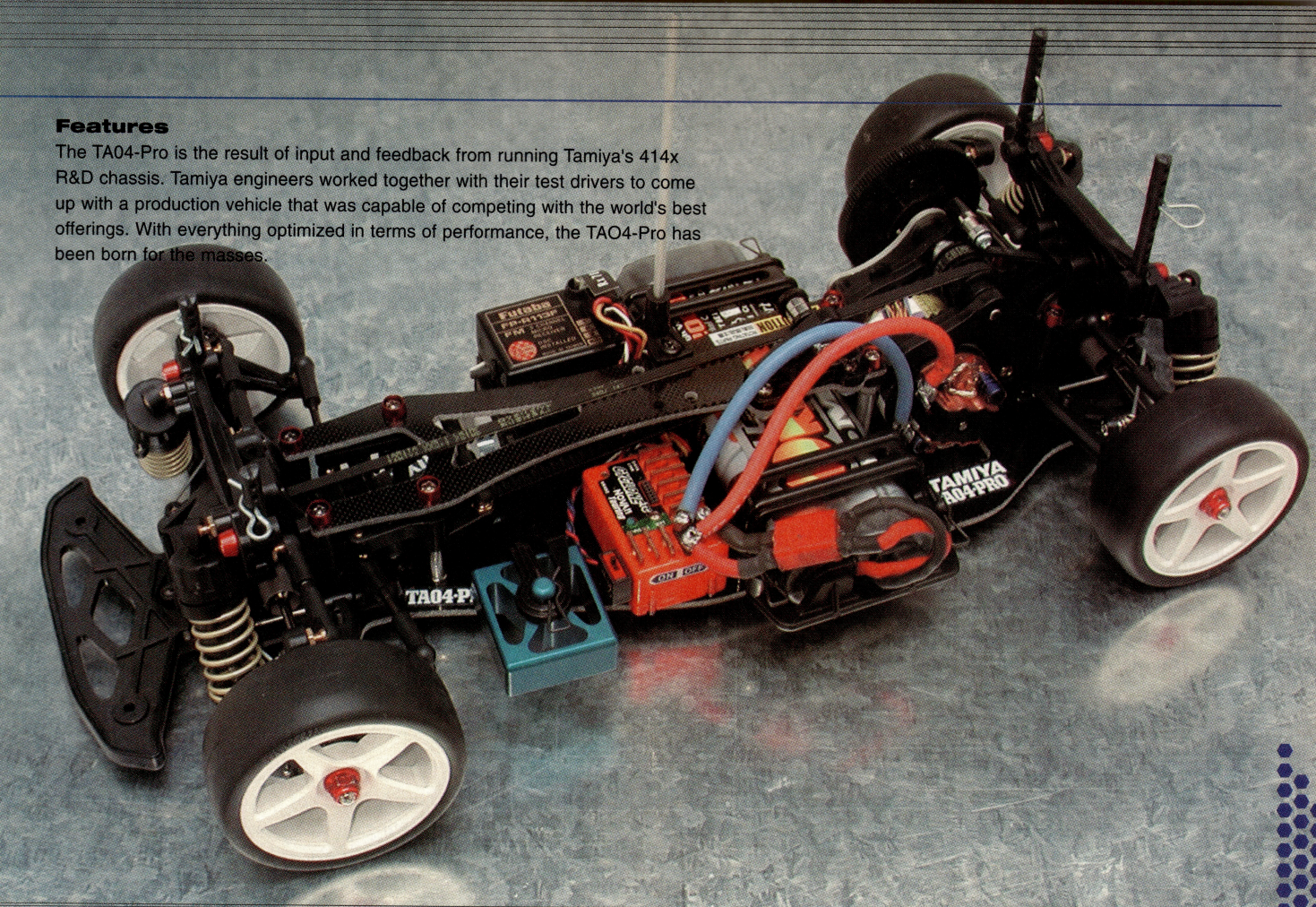
Instructions	4
Parts Quality/Fit	4
Durability	4
Tunability	4
Overall Performance	4
Value	4

Chassis

The main chassis plates are made of FRP (Fiber Reinforced Plastic). Unlike the competition, the Tamiya lower deck is almost solid, save for a large cutout under the motor mounting area and small channels that keep the front and rear bulkheads aligned correctly. A pair of molded battery holders are on each side of the chassis. Up top, the upper deck has an "H" design with narrow sides. The 2.5mm-thick lower and 2.0mm-thick upper decks are lightweight, but very stiff once assembled, providing a more rigid platform than previous TA-series chassis. Since I'm on the subject, I really expected a saddle-pack chassis to be standard equipment. Both the 404 and 414x had graphite chassis with saddle-pack cutouts, but with the TA04-Pro all you get is a flat piece of FRP. The dimensions of the TA04 Pro's chassis are pretty close to the 414x, so don't be surprised if the saddle-pack chassis shows up on hobby shop shelves (or better yet, a TRF version or the car).

Features

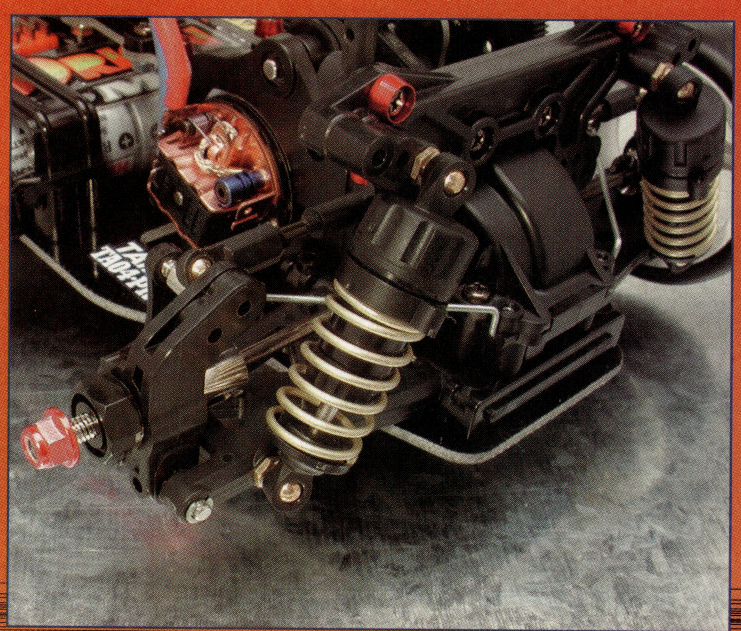
The TA04-Pro is the result of input and feedback from running Tamiya's 414x R&D chassis. Tamiya engineers worked together with their test drivers to come up with a production vehicle that was capable of competing with the world's best offerings. With everything optimized in terms of performance, the TAO4-Pro has been born for the masses.



TA04 PRO TA04 PRO TA04 PRO TA04

Suspension

There is practically nothing connecting the TA04-Pro to the chassis it replaced, the TA03. The TA04-Pro comes with standard thick molded front and rear shock towers. Although molded, they still offer multiple shock and camber arm mounting points. Both front and rear upper arms use ball-ends and a threaded rod. I was hoping for an adjustable turnbuckle, but to make changes on the kit upper arms, you have to remove one end to twist the ball end yourself. Both shocks and upper arms mount via Tamiya's familiar gold ball ends, so removing or swapping can be done without a screwdriver.



The TA04-Pro's lower arms position the hubs as far away as possible from the chassis while still staying within the 190mm legal limit for touring cars. Molded blocks capture the inner suspension hinge pins. These blocks position the lower arms for both toe and anti-dive/anti-squat. I suspect that maybe in the near future Tamiya will come out with optional blocks to vary the suspension geometry. In kit form, the front end has 10 degrees of caster and the rear end has 2 degrees of caster and toe-in.

The familiar Tamiya CVA oil-filled dampers are found on each corner of the TA04-Pro. These units feature bladder and silicone O-ring seals, stainless steel shock shafts, three different piston choices, and Tamiya shock oil. One Tamiya gold spring is found on each shock. There is no "variable compensation," external reservoirs, aluminum caps, or dual springs on these babies. They are simple, straight to the point, and (ask any Tamiya owner) can be tuned to handle the track just as well as the higher-priced, aluminum units from other manufacturers.

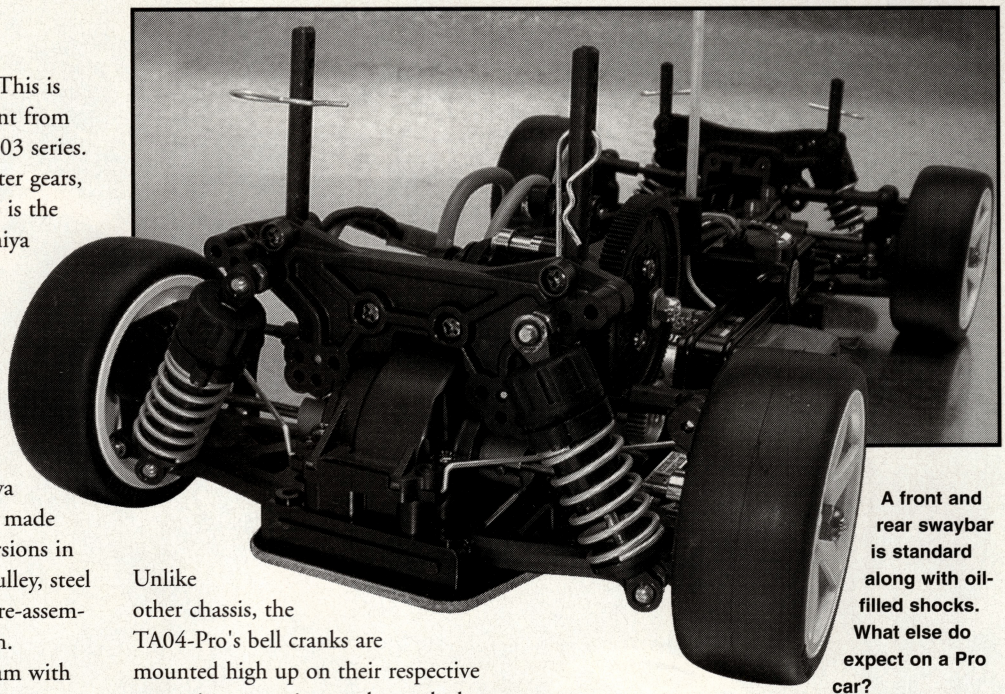
Will a TRF version be in the works?

Other Features

Drive Train and Transmission • This is where the TA04-Pro looks different from any of the previous TA-02 or TA-03 series. Now there are no shafts, no counter gears, and no idler gears. The TA04-Pro is the first production vehicle from Tamiya using the familiar two-belt drive system. Tamiya's version features two, very thin, Aramid fiber-reinforced belts running to each end of the chassis. Inside each bulkhead you'll find a newly-designed ball differential. These ball diffs aren't like the old Tamiya ball diffs where adjustments were made with the box wrench; the new versions in the TA04-Pro kit use a thinner pulley, steel out drives, and ball bearings. A pre-assembled thrust bearing is a nice touch.

The TA04-Pro stays mainstream with the use of molded bulkheads. This saves weight and also makes the TA-04 more mass-production friendly. Both front and rear molded bulkheads are identical, except that the rear has an extra assembly attached to it that holds the center layshaft and motor mounting plate. The center layshaft features two identical pulleys that divert power from the spur gear to the drive belts. Tamiya includes three different spur gears in the kit: 112-, 120-, and 128-tooth. A matching, fluorine resin-coated, 40-tooth aluminum pinion gear is included; the only gripe is that the gears are what seems to be Tamiya's favorite 0.4 module pitch. To save yourself some money, opt for a standard 64- or 48-pitch spur in pinion if you're going to start experimenting with different ratios beyond what's included in the kit.

Steering • The TA04-Pro features a more conventional bell crank steering setup.

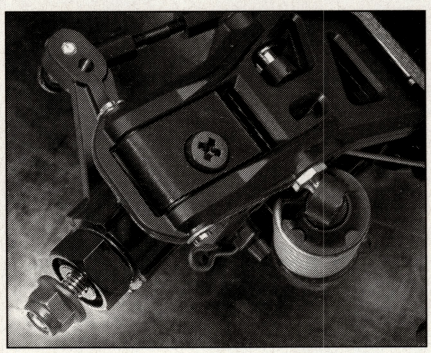


A front and rear swaybar is standard along with oil-filled shocks. What else do expect on a Pro car?

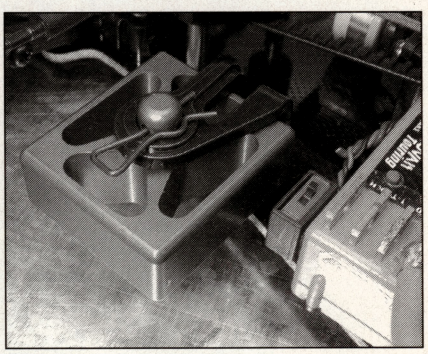
Unlike other chassis, the TA04-Pro's bell cranks are mounted high up on their respective mounting posts, just underneath the upper deck. This design brings the steering rods closer to level for a minimal possibility of bump steer. The bell cranks ride on ball bearings, and Tamiya also includes their Heavy-Duty Servo Saver in the mix. Instead of a metal Z-bend rod or the use of slop-inducing step screws, a molded link that rides on a screw/sleeve connects the two bell cranks. Two servo fittings are included for practically all servo types.

Tires, Wheels, and Body • The TA04-Pro does not include a body. Tamiya says any 190mm body will fit the TA04-Pro. Their GT style bodies fit perfectly (Nissan R390 GT1, Mercedes CLK-GTR), but if you go with a Tamiya sedan body, you might have to redrill the rear body holes because the TA04-Pro's rear body mounts are closer to the centerline of the axles. Gone are the familiar standard slick tires with which many Tamiya owners are familiar. In their place is a set of special Type-A compound racing slicks. You will also find molded inserts in place of the less sophisticated foam inserts usually found in kit tires. A set of black, molded, 5-spoke wheels feature zero offset to keep the TA04-Pro within the 190mm legal limit in sanctioned touring car racing.

Other Features • Other extras include a molded transponder mount (yes, Tamiya is getting serious) that attaches to one of two separate points on the chassis (depending on your liking; see building tips for my suggested location) and a molded adjustable front belt tensioner. In lieu of a belt tensioner, the rear belt gets a stationary "belt stay" to keep the belt as close to the drive pulleys as possible. Even the belt tensioner and rear belt stay get their own set of ball bearings. Thank you, Tamiya! There is also a molded foam bumper and sturdy mount to protect the front end of the chassis (not shown in the pictures for clarity). Finally, a small, but well received item included with the TA04-Pro is Tamiya's special AW (anti-wear) grease. This grease works better than plain diff grease for reducing wear and tear from any metal-to-metal contact points, such as dogbone to outdrive.



The suspension arms put the hinge pin mounting points as far away as possible.



A transponder holder means serious racing business.

Testing

Test Gear • I used Tamiya's Calsonic Nissan Skyline GT-R body, painted like the actual car. For controls, I enlisted my

Jimmy Jacobson also competed in the Worlds with a 414X.

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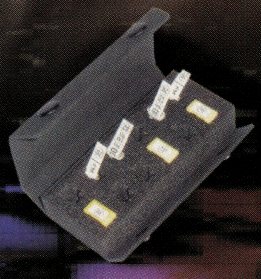
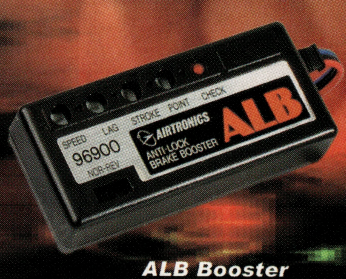


Crystal / Glow Plug Case Part # 96730



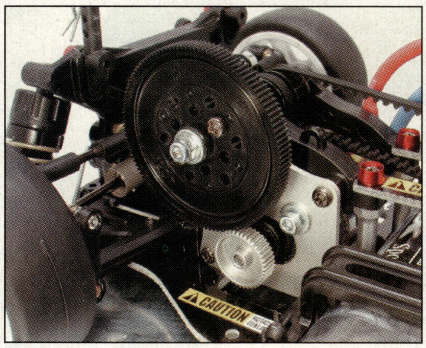
ALB Booster Part # 96900



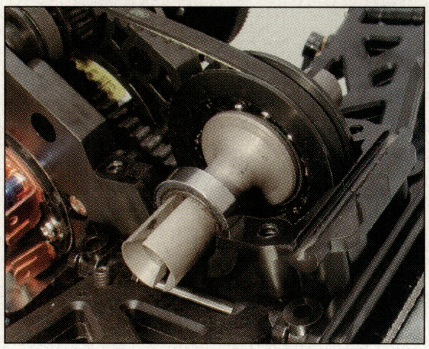
Deluxe Transmitter Wrist Strap Part # 99104

Airtronics CX 2P FM radio, receiver, and steering servo, and a Novak Cyclone TC electronic speed controller. Motivation came courtesy of Trinity 2400 mAh matched packs and a Trinity Chrome RS dyno-tuned stock motor. I also mounted a Trinity dummy transponder on the molded transponder mount to simulate actual racing conditions.

My buddy Mike W. and I headed off to a local parking lot track bright and early for lots of practice and a full day of racing.



The 0.4 pitch gearing can be easily replaced with standard 64 or 48 pitch gearing.



Standard adjustable ball differentials are found in the front and in the rear.

Acceleration •Upon my first pull of the trigger, the TA04-Pro took off without much of a ruckus. In fact, it was so quiet that all I could hear was the whine of the 24-degree motor. Acceleration was quick. With the kit gearing, the TA04 Pro seemed to have the ratios right as it accelerated. Acceleration was dead-on straight as can be, with no pulling to one side and little wheel spin on takeoff. The kit-included tires did great off the starting line.

Top Speed • Again, with kit gearing the top speed of the TA04-Pro held well against the other cars on the track. Personally I would have liked a little bit more on the top end but all that takes is a simple pinion change. I'd say a tooth higher would be perfect. This is of course with a stock 24-degree motor. For modified, the included spur gears give you a host of options when adjusting gear ratios. So acceleration and top speed passed the test, but as us racers know, speed isn't everything; it is the handling that counts.

Low-Speed Handling • Low-speed handling was excellent. I felt as if the TA04-Pro was actually connected to the steering wheel of my transmitter. Trigger modulation at low speeds didn't upset the chassis balance, and there were no hints whatsoever of excess understeer or oversteer. Chassis roll at low speeds was non-existent, and I found it easy to thread the needle through the technical course at low to mid speeds with all the best drivers at the track.

High-Speed Handling • The TA04-Pro did well on the high-speed sweeping turns, but

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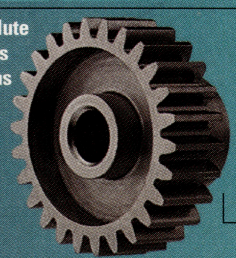

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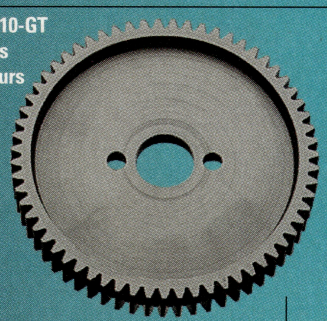
RC10-GT Gas Spurs



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Building Tips

Step 7, page 6 (and Step 14, page 8): In both of these steps, you are instructed to install two small set screws to hold the stabilizers in place. Screw them down until they barely touch the stabilizer bar. If you overdo it, you will cause the bulkhead cover to tweak and although it shouldn't affect performance it will cause the bulkhead cap to not sit flat with the bulkhead.

Step 9, page 7 (and Step 16, page 9): Make sure you cut the dogbone spacers exactly to length, and don't forget the anti-wear grease. These two steps \keep drive train wear to an absolute minimum.

Step 33, page 17: Don't forget the rear belt stay! Also, if your antenna wire isn't long enough to reach the antenna mount, the mount can be easily relocated to the upper deck. I positioned my antenna mount using one of the holes intended for the transponder mount. Extra hardware is included to do this, and with this setup you can move the transponder mount to its other location on the lower deck in front of the ESC mounting area.

it was in the S sections where it showed its true potential. The track had three specific S sections: One had equal radius left-to-right turns; the next had a small radius right turn followed by a larger radius left; and the third had a large radius right turn followed by a tight, almost 180-degree left. In all three sections, the TA04-Pro didn't even break a sweat. The turning radius of the TA04-Pro was very predictable with relation to how much throttle I was giving it, and it just seemed to hold onto the curves, no matter how fast I was going or how late I would brake. Chassis roll may have been present, but not apparent. The Nissan Skyline body I was using never scraped the asphalt. (I had it sitting pretty low, too.)

Tight Turns • The TA04-Pro's turning radius was very tight, and yet if I got on the throttle mid-turn the back end wouldn't kick out. It took all of the tight hairpins and 90-degree turns as well as, if not better than, my other two chassis to which I was comparing it. If I came into a particular turn too fast, a quick blip of the brake was all it took to correct the TA04-Pro's racing line. Even the tighter turns were easy to negotiate with the TA04-Pro's superb tire and chassis-setup combination. Remember, this is BOX STOCK!

Braking • The braking performance of the TA04-Pro was exactly like the acceleration test, with the exception that it took less space to slow down to a complete stop. I noticed that if I feathered the brakes through high-speed turns, the rear end would stay planted all the while the chassis would have an extra amount of steering to get me around the curve. Going "on-off-on" with the brakes while entering a tighter turn didn't jar the TA04-Pro off its course. After a few laps I found myself diving deeper and deeper into the turns before slowing down, since I knew I could rely on the TA04-Pro's handling characteristics to make it easy for me to exit the turn. I didn't notice any chassis dive, and this was confirmed by the absence of scrape marks on the forward part of the lower chassis plate.

Maintenance • When compared to the earlier TA-series chassis, the TA04-Pro blows

continued on page 47

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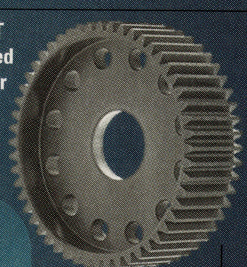

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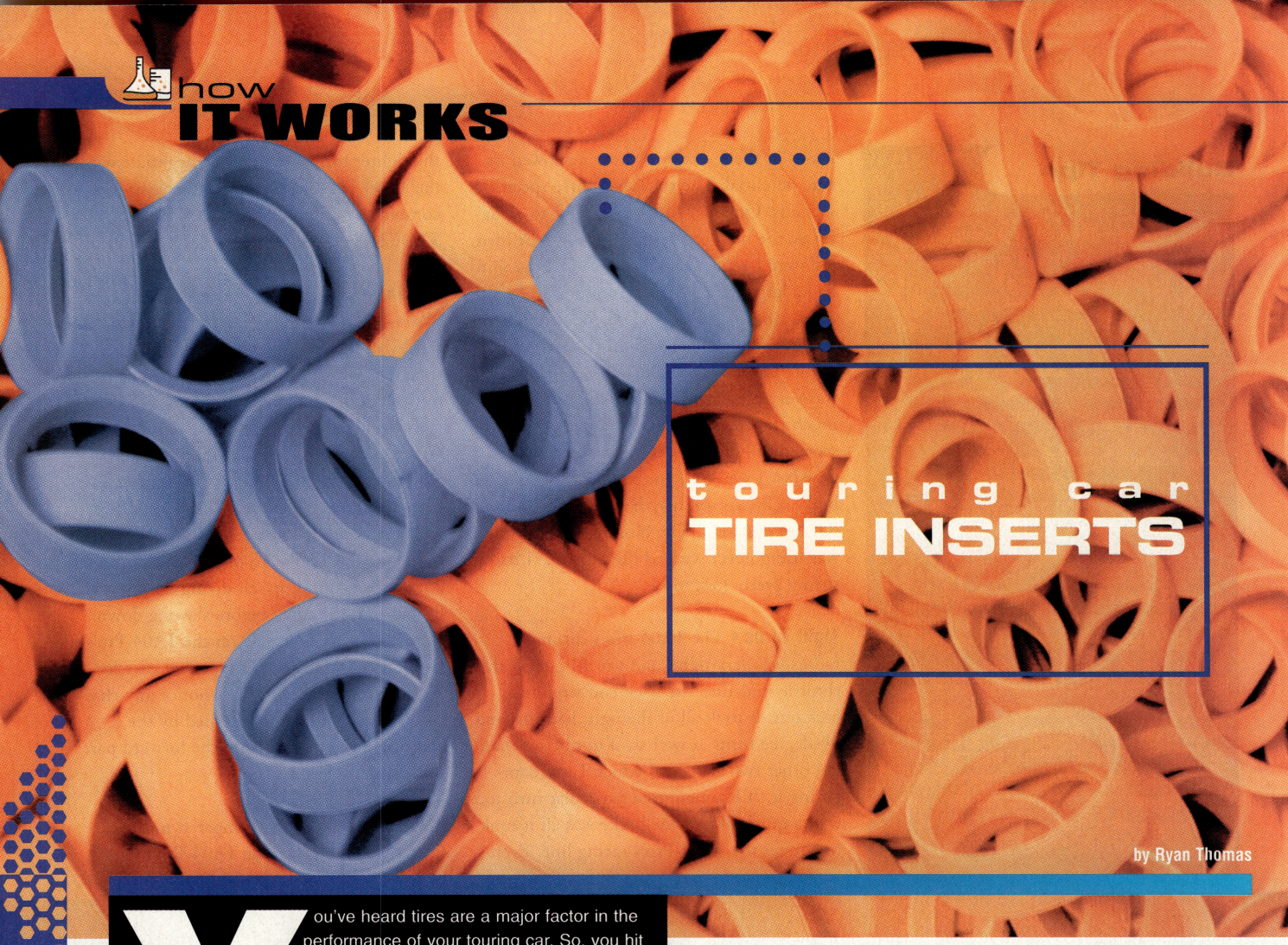
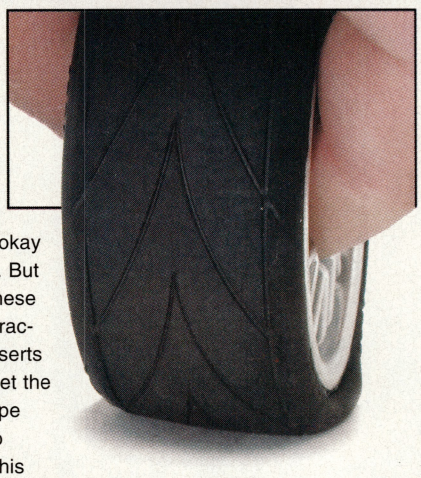


touring car TIRE INSERTS

by Ryan Thomas

You've heard tires are a major factor in the performance of your touring car. So, you hit the shop, pick up some new kicks, a set of wheels, and head to the counter. While trying to hide a smile, the guy behind the register says, "You're not going to run the stock inserts are you?" This is where the shop guy should take you aside and explain the ins and outs of choosing the right tire insert for what you plan to do. But since he probably didn't, we will.



First, dump the open cell foam inserts – those standard grey or blue inserts that come with many tires. The open cell (so called because you can see the bubbles that make up the foam) inserts are okay for driving on your street. But if you plan to race with these in your tires, prepare to traction roll! The open cell inserts are really soft and don't let the tire hold their proper shape as the car is subjected to cornering forces. When this happens, we say the tire is folding over. This is bad!

The inserts you want for racing are called molded inserts, which means they fit inside the rim of the tire and fill out the tire so that they don't fold over while driving through corners. Most molded inserts are much firmer than the open cell foams they replace, so you might think these molded inserts give you less traction. Wrong! They will actually give you more traction and more consistent handling. Molded inserts fit better to conform to the inside of the tire and keep their shape.

Different inserts, different uses

Open Cell Foams

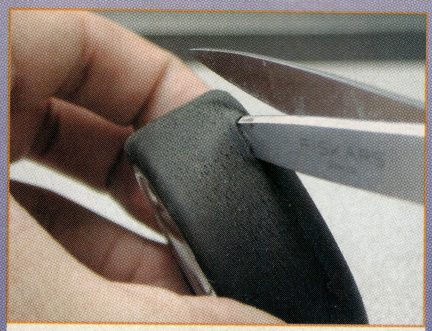
- Some companies include foam strips that must be glued end-to-end to make a donut. In use, the foam strips are the same as the standard foam inserts you get with many tires. These are the generic strips of soft, open-cell foam that are included just so you have an insert. While not recommended by anyone for racing, these foam strips are fine for running in your street or driveway. Most companies only offer their standard foams in a single density, so there's no tuning the car with foams. If you DO race with these inserts, they work okay on bumpy parking lot tracks. Also remember, when gluing the ends of the strips together, do not use CA (cyanoacrylate) glue. It will eat away the foam and you'll have flat spots on the tires. Use rubber cement or weather stripping glue. You can choose not to glue the strips at all, but the foams will just bunch up in the tires and you'll wonder, "Why does my car bounce around like that?"
- Some companies, like Ride and HPI, offer firmer strips for their super size cars (TGX, Super Nitro RS4, Super Ten). These inserts come with a strong tape that you use to join the ends together, and it actually works. For super-sized cars, try the firm inserts in front and the soft inserts in the rear.
- HPI and Yokomo offer what they call "Low Bounce" or "Non-Repulsion" foams, respectively. These inserts use foam that is very slow to rebound, so they feel really soft and sort of weird. I haven't seen the Yokomo foam in stores in a while, but HPI offers this foam for 24mm, 26mm, and super size tires. These are typically better on bumpy outdoor tracks than standard foams, so give them a try.

At the IFMAR On-Road Worlds in 2002, foam inserts will also be handed out.

Recycling your foam:



Step 1: Make a small slit.



Step 2: Cut around the sidewall.



Step 3: Cut across the tire.



Step 4: Peel out the insert.



Step 5: Don't sweat the leftovers.

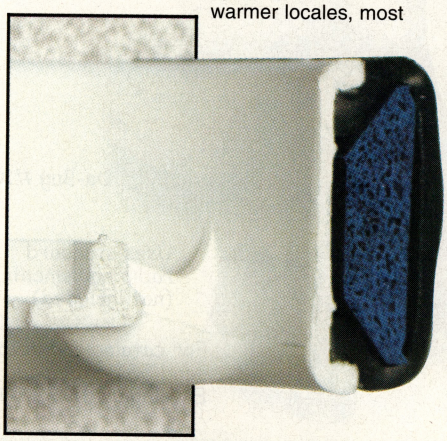
Molded Inserts

Molded closed-cell inserts are called closed-cell because when you compare them to the standard inserts you see hardly any bubbles in the foam. Most companies that produce tires and foam inserts have them in several densities, from soft to super firm. What I always suggest is that you start with the tire that everyone at your track seems to use (e.g., for me it's the 33R from HPI or the 138-G from Yokomo) and a medium or medium-soft insert. Then tune your car from there.

• Soft and medium-soft molded inserts are what most racers use. If you race at night, indoors, or where it's cool, this is what you should try first, especially if you run a stock motor in your car. These also work decently on parking lot tracks where it's a little bumpy.

• Medium molded inserts are better for warmer locales, most modified racing, and smoother tracks, especially permanent tracks. If you have a lot of steering and have the extra pair, try using softer inserts in the rear and mediums in the front.

• For hotter weather and on really flat permanent tracks, give the really firm inserts a shot. They are much stiffer than the other inserts, so on a bumpy track they will make your car bounce around a lot.



Experiment

Keep in mind that one company's medium may be different than another company's. Most experienced racers will know what inserts are similar between the brands, so ask around or check out Internet bulletin boards for answers. Most racers online don't mind sharing information. Sometimes racers at your local track may be a little tight-lipped. Another way to determine foam density is to pick up a tire durometer. One can be had for around $50. A durometer can give you an accurate density reading so that you can compare brands.

Mounting

Now, let's talk about mounting the inserts in the tires. The first thing you'll notice is that the inserts are shaped with the inside edge narrower than the outside edge. In a cutaway view, the insert would be triangular with the tip of the triangle cut off. This is what allows the insert to fit the wheel and the tire so well. All you have to do is fit the insert inside the tire, with the fatter edge of the insert along the inside of the tire. What I do to make sure the insert is properly seated inside the tire is put my thumbs inside the tire/insert, then rotate the tire a couple of times. This makes sure the rubber of the insert and the tire haven't gotten stuck to each other, which could result in a really imbalanced tire on the track.

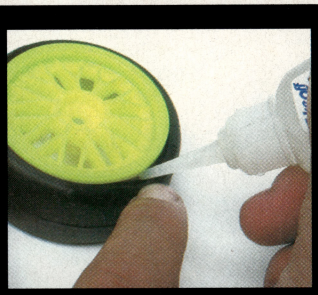
For an unbelted tire, doing the thumb technique can stretch the tires considerably, so I put the tires on the wheels right away. Then I go get a soda or chat a bit while the tires retract to their original size. This makes sure the tires don't have any gaps between the wheel and the sidewalls while I glue the tires on.

Recycling Foam

After you're done racing and your tires are worn out you just throw the whole set away, right? Wrong! The best thing about molded inserts is that in most cases you can use them over and over again! The only exception is if you race in an area that gets really hot. The extreme heat (asphalt tracks can reach temperatures of over 140 degrees Fahrenheit!) literally breaks down the foams and makes them almost useless. For summertime racing, check your foams after you wear out the tires. You just might need to

Random fact: World Rally Championship full-size cars use foam inserts!

Stick To It



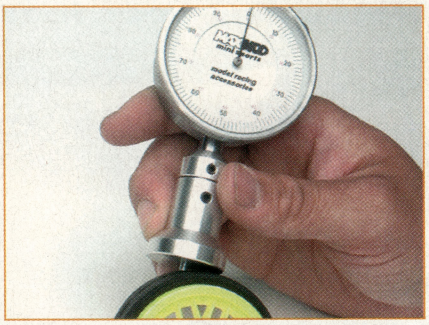
Okay, quick tire gluing refresher course: Pick up some high quality Thin Pacer Zap CA glue or Team Losi Tread Lock. These are the glues I've found to work the best, although any high-quality brand will work. I usually spray motor cleaner on a rag and wipe the wheel edges and the bead of the tire to remove manufacturing oils. Fit the tires on the wheels and wait a few minutes to let the tires shrink back from the stretching. I set my tires in a line, and then glue each tire in sequence. Use your thumb to pull back the sidewall to make a small gap and apply a drop of CA. Work it around so the CA gets around the whole wheel between the tire and wheel. Set each tire aside, in order, to let it air dry then glue the other side. You can use small diameter, wide rubber bands to help hold the tires on while the glue is drying, and prevent any gaps between the tire and wheel.

replace them.

To use the foams again, you have to (duh) take them out of the tires. All you need is a decent pair of scissors. Make a small slit in the tire sidewall, then insert the tip of one blade into the slit, and cut around the tire. With a belted tire, you'll have to make cuts across the tire to be able to flip the tire inside out on the rim and get at the insert. If you did a good job gluing the tire, you won't have to tug at anything to get the insert out. However, if you find that the insert was glued to the wheel or tire, you can usually carefully pull away the insert (pretend you're taking a bandage off a painful knee scrape). You'll lose a little tiny bit of the insert but in most cases it won't matter. If you've totally doused the insert with CA glue, you can try to carefully cut away the insert with a sharp hobby knife, but you'll probably end up throwing away the whole thing. Lesson learned!

In the End

Hopefully you've learned something about touring car inserts and how they can be used to make you faster. I'll bet you can gain a couple of laps per race if you just had a car that handled well. Now go out there and get'em! Good luck racing!



To take a quick durometer reading, place the foam over a wheel and/or roll the foam and wheel over the durometer peg.



Note the highest reading on the durometer. Repeat the process on other parts of the foam. Figure out the average measurement and you'll have an accurate reading.

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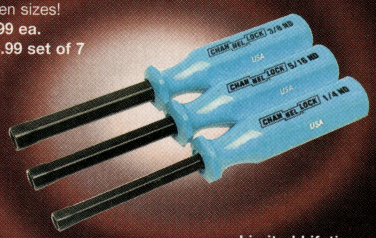

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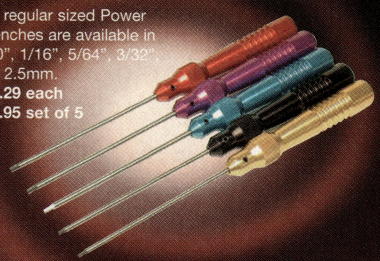

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Tunnel Design Car Stands
Tunnel design car stands made to fit all cars including Losi and Associated models. Available in neon blue, neon green, neon orange, neon pink, smoke, and violet.



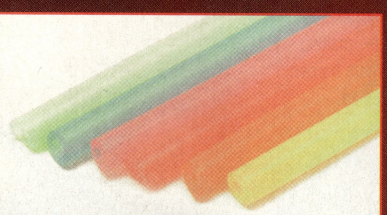
RE0037B-RE0037V **$10.50 each**

Finger Drill Bits
Finger drill bits for drilling pistons are what all of the team drivers use to get the edge. Available from #54 to #59.



RE7054-RE7060

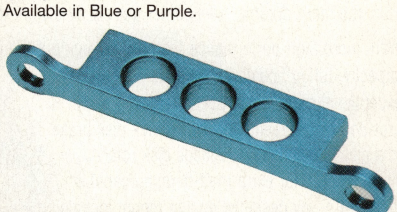
$1.75 each
$8.50 set of Six



Super Flex Silicone Fuel Tubing
Available in 2 foot packages in red, blue, yellow, orange, pink, and green.

RE3500-RE3505 **$2.00 / 2 feet**

B3 Front Brace
Keep your B3 safe and in one piece with this high-quality machined aluminum B3 front end brace. Available in Blue or Purple.



RE9120B & RE9120P **$14.99**

Raytek Temp Gun
Tune your engine right. Takes accurate temperature readings every time. Available with or without



Discharge Bulbs





Tool Center
Keep your tools in order with the tool center. Works perfectly with Racers Edge or any Allen and nut drivers. Anodized in bright blue

Inferno MP-7.5

It's a blast furnace on wheels.

The .21 4WD Racing Buggy

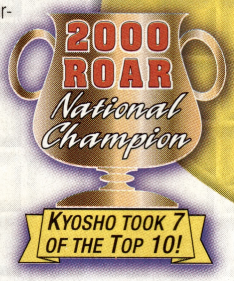


Length: 19.5 in (496mm) • **Width:** 12.1 in (307mm) • **Height:** 7.4 in (189mm) • **Wheelbase:** 13 in (328mm)
Front/Rear Track: 10.1 in (258mm) • **Ground Clearance:** 1.1 in (28mm) • **Approx. Weight:** 7 lb (3200g)
Requires: 2-channel radio w/2 servos, .21 nitro buggy engine, manifold, tuned pipe, fuel, starting equipment



As sure as the competition is trying to mount a challenge, the Kyosho Inferno MP is gearing up to meet that challenge. The reigning four-time 1:8 scale IFMAR nitro World Champion is out to successfully defend its title this year with the Inferno MP-7.5, Kyosho's most upgraded powerhouse yet. With a lineage based on the MP-5 and MP-6, this buggy boasts a winning tradition — but with so many re-designed parts and new technology, it's also a practically brand-new machine.





Ready, willing and able to continue the Inferno legacy.

Inferno MP-7.5 advancements start with the main chassis, which is a sturdy 3mm thick, and features cut-outs front and rear that allow the diffs to be mounted lower. The diff gears are smaller, which offer two benefits: 1) you'll make sharper turns because gyro effect will be reduced, and 2) the suspension arms can be made 4mm longer — and stiffer — making the MP-7.5 more stable, and able to dive in and out of the corners harder. Plus, the more durable steel center gear is a new one-piece design.

Want more high-performance features? Check out the special large-capacity, Teflon®-coated shocks all around for exceptional dampening. Super stopping power is provided by a dependable 2mm-thick disk brake in a plastic holder that reduces disk rotor vibration. And for extra road-hugging capability, there's a newly designed engine mount included that lowers the buggy's CG by 3mm.

These are just a few of the high-tech changes you'll find on the Inferno MP-7.5. To truly appreciate how awesome this off-roader is, you'll have to see it at your local hobby shop. When you do, you'll agree that Kyosho is warming up to the challenge of repeating once again as the champion of the world.

Here are other newly designed parts you'll find on the Inferno MP-7.5:



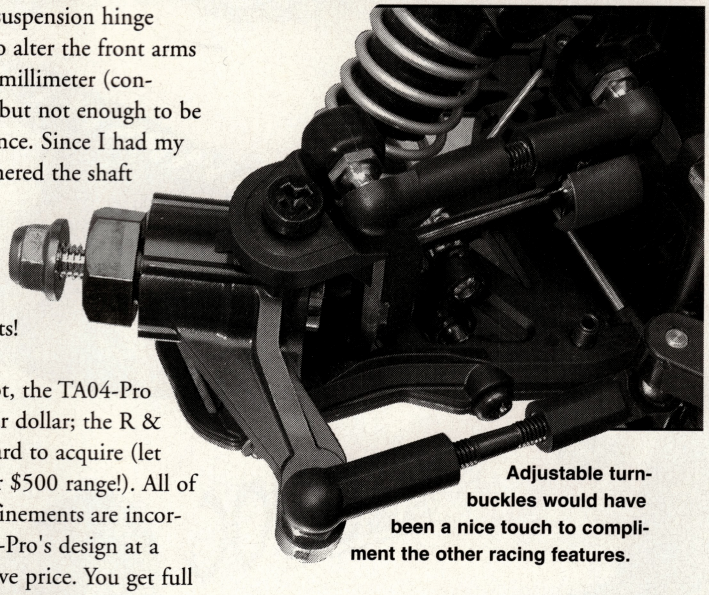
- Upper deck
- Front hub carrier
- Front and rear
- Side chassis guard
- Receiver box

continued from page 41

them away in terms of ease of maintenance. The shocks are mounted on gold ball ends for easy removal. The thin upper chassis plate does not to interfere with any chassis-mounted electronics. One very nice design feature on the TA04-pro is that both the front AND rear bulkheads can be opened up with the removal of only 4 screws. Not only does this save time in the pits (those who remember the agony of getting to a TA-03 diff when you have the FRP chassis will agree with me), but also it makes diff access a heck of a lot easier.

Damage Report •On the very last race (out of four total), I went to pass my buddy Mike on a sweeper and accidentally drove the TA04-Pro too wide, hitting a patch of dust. The resulting understeer combined with full throttle resulted in the TA04 Pro flying off the track and jammed underneath the front tire of my real car! At first glance I didn't see anything broken (note that the same incident broke a front suspension arm and bent a front universal on my personal car) so we continued our race. On the next turn the TA04-Pro didn't feel right, so I brought the chassis in for a longer look. Upon closer inspection, I found that I had bent one of the front suspension hinge pins. It bent enough to alter the front arms position back about a millimeter (confirmed with a caliper) but not enough to be noticed by a quick glance. Since I had my tools with me, I hammered the shaft flat, reassembled the TA04-Pro, and continued with my drive. Luckily there were no broken suspension parts!

Value •For what its got, the TA04-Pro makes the most of your dollar; the R & D Tamiya 414x was hard to acquire (let alone cost in the upper $500 range!). All of the 404 and 414x's refinements are incorporated into the TA04-Pro's design at a much lower, competitive price. You get full ball bearings even in the steering bell cranks, the proven two-belt drive train design that many racers look for, numerous adjustments for suspension and chassis setup, and Tamiya's well-respected attention to design and quality. From the first page of the instruction manual to the installation of the final body clip, Tamiya's TA04-Pro is one hell of a value for those looking to get competitive in the sedan racing scene.



Adjustable turnbuckles would have been a nice touch to compliment the other racing features.

The Specifics

Item Info
Part# 58261 (Tamiya TA04-Pro),
Estimated street price:$230-250
Manufactured in Japan.

Chassis Type
FRP (Fiber Reinforced Plastic) double-deck design with narrow-type upper deck and countersunk lower deck.

Wheels and Tires
Tamiya 5-spoke star design, zero offset, one-piece molded black wheels. Tamiya Type-A slick tires. One-piece rubber molded inserts.

Transmission Type
Twin Aramid fiber-reinforced belt driven four-wheel drive, ball differentials, steel out drives, axles, and dogbones, and full ball bearings.

Suspension Design
Independent suspension, with adjustable-length upper arms and molded lower arms with tweak screws, steel suspension shafts, front and rear stabilizer bars.

Suspension Dampening
Coil-over, oil -filled shocks with molded shock bodies and caps, O-ring and bladder seals, gold springs, ball cup mounts, molded shock towers.

Vehicle Type
Electric-motor powered, four wheel drive belt-driven touring sedan.

Other Items Needed
Electric motor, Electric Speed Controller (ESC), 6-cell stick pack battery, 2 channel radio with one servo, 1/10 scale 190mm body and CA glue for the tires.

Test Gear
Airtronics CX-2P Radio system, Trinity 2400 mAh matched packs, Orion Chrome Stock RS dyno-tuned motor, Novak Cyclone ESC. All settings are factory spec as stated in the instruction manual.

Main Competition
Yokomo MR-4 TC Pro Worlds, HPI RS4 Pro 2, Associated TC3 Team, Team Losi Street Weapon IWC, Kyosho TF-4 Type R

THE LAST WORD
When Tamiya set out to create a "world beater", they weren't kidding! The TA04-Pro performs, handles, and responds better out of the box than many other race chassis I've driven. Countless hours of research and development paid off. We've got a well-balanced, fast, and easy-to-work-on, competitive machine!

Conclusion

Let's get ready to rumble! The TA04-Pro didn't rely on anodized ball ends, "revolutionary" drive train designs, or pro driver endorsements. There are no unique materials in the bulkheads, no "superstrongaium" tie rods, and no "3 by 2 by 1" really wack battery placement. In all honesty, the Tamiya TA04-Pro looks about as exciting as a cup of java. You want colorful shock towers? Buy another car. You want Belt/gear/pulley/liquid driven chassis? Look elsewhere. That is not the car that Tamiya had in mind with the TA04-Pro.

What they did envision is a chassis that can take on the world's best competitive chassis, and in my eyes they have succeeded. The plain black molded bulkheads, FRP chassis, and the two-belt design serve one purpose – full-on competition. The TA04-Pro chassis was not designed to look flashy; it was designed to work, and trust me, it does! If not for my small problem with no way to mount saddle packs, the TA04-Pro would get a perfect score from me. There's nary anything wrong with the TA04-Pro. Tamiya decided that it was time to take on the world, and with this chassis I'd be willing to put money on it (so much that once the saddle pack option is available, I will race this car). All those other domestics and imports, look out, because you might just be surprised by what takes the lead at the local parking lot.



Tamiya TGR

by Richard Dee

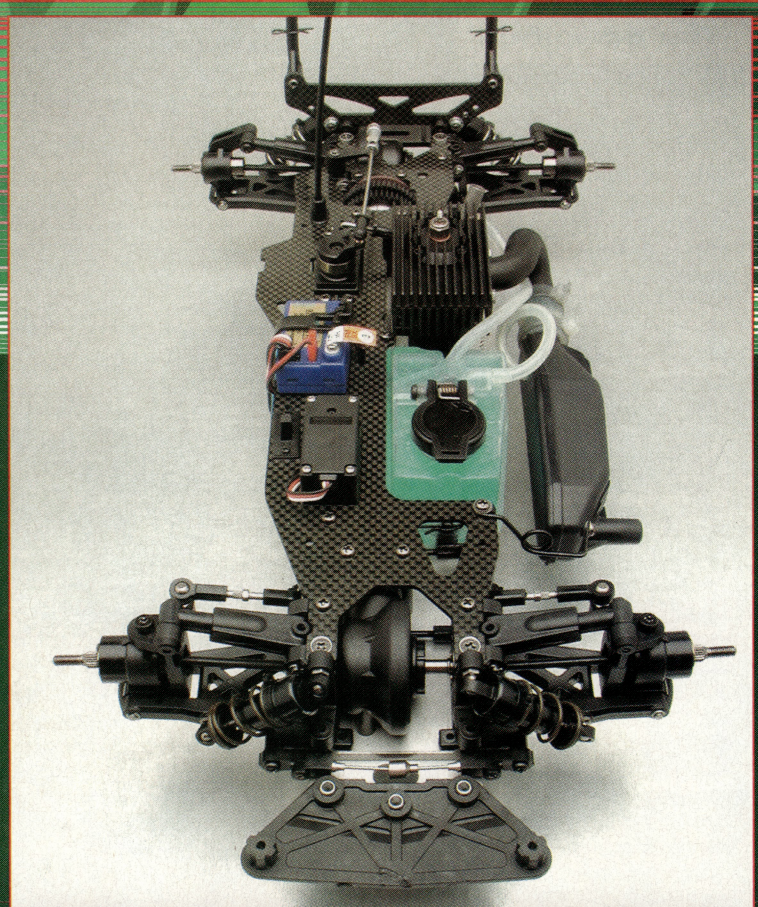
I guess you could call the TGR an adult toy.

THIS IS NOT A TOY is what Tamiya has printed on the side of the TGR box. The TGR is a huge leap forward from the entry level; fun-for-all-ages kits that Tamiya has produced through the years. The TGR is a 1/8-scale car sized to compete with super-sized offerings from companies like HPI and Kyosho. But, at first glance it looks more like it's ready to compete with super high performance offerings from Mugen, Picco, and Serpent. From its obvious size down to its trademark high-performance 1/8-scale sway-bars, the TGR is unlike any Tamiya you've ever seen.

Hits:
- Tamiya instructions.
- Strong engine.
- Two-speed transmission.
- Handles great.

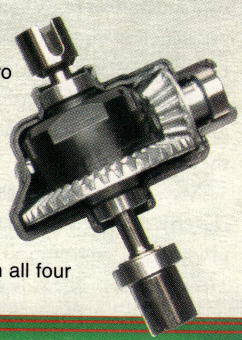
Misses:
- Some maintenance requires disassembling most of the car.
- Would like more braking action.

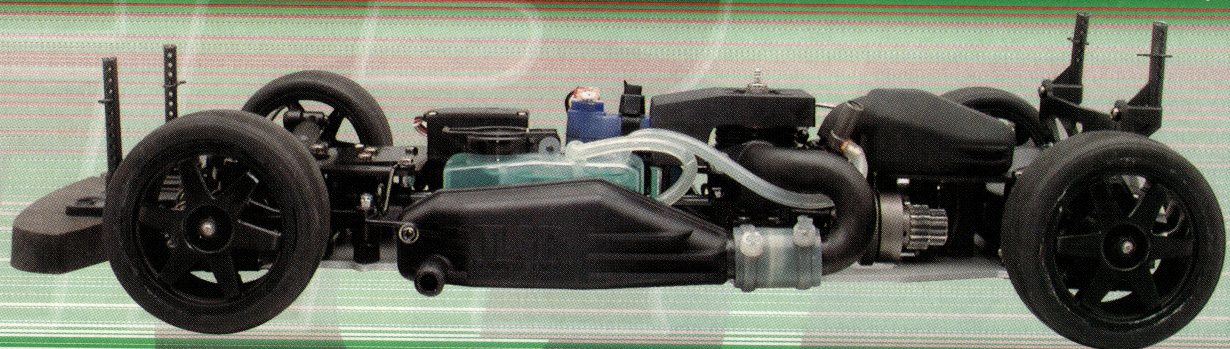
Instructions	4
Parts Quality/Fit	4
Durability	4
Tunability	3
Overall Performance	4
Value	3



Drive Train

TGR engineers opted for the efficient shaft-drive 4WD system. This system is not new, however its potential is just now being realized by some of the more recently-released kits. The shaft will not wear out, stretch, and will not be damaged by some of the debris produced by nitro cars. The drive shaft is attached to a close ratio two-speed transmission. The transmission assembly also houses the brake system – a fiber disk with metal pads. Bevel gears flank both ends of the long shaft that runs down the center of the car. The shaft's gears turn two, large, beveled gear differentials. The diffs use standard dog bones to turn all four wheels.





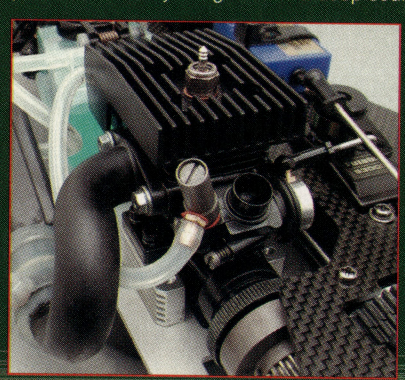


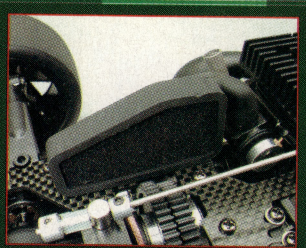
Chassis

A double-deck type chassis is the concept of choice for the TGR. The lower chassis is a 2.5mm, Duralumin plate and is reinforced with a carbon upper deck on which all the electronic components are mounted. The Tamiya nitro engine, 100cc fuel tank supported by rubber O-rings, battery, and throttle servo are installed in the center of the chassis for better weight distribution and balance.

Engine

The TGR includes a very worthy Tamiya FS-15RB engine that delivers plenty of top-end speed and torque. Thanks to the low-profile head the engine has a laydown look. The manifold and molded pipe fit snugly and provide the Tamiya engine with a deep sound and a responsive feel. The TGR comes with a very nice, beefy engine mount that uses fins for ventilation. For induction, the Tamiya FS-15RB uses a slide carburetor with a uniquely designed air filter. The air filter consists of a rubber housing with a foam filter. However, the shape of the air filter is very different; it's designed lengthwise with a flat surface area instead of the traditional round surface area. In addition, air filter oil is included to provide enhanced filtration. This technology is popular with full-size cars that have K & N-type replacement filters.





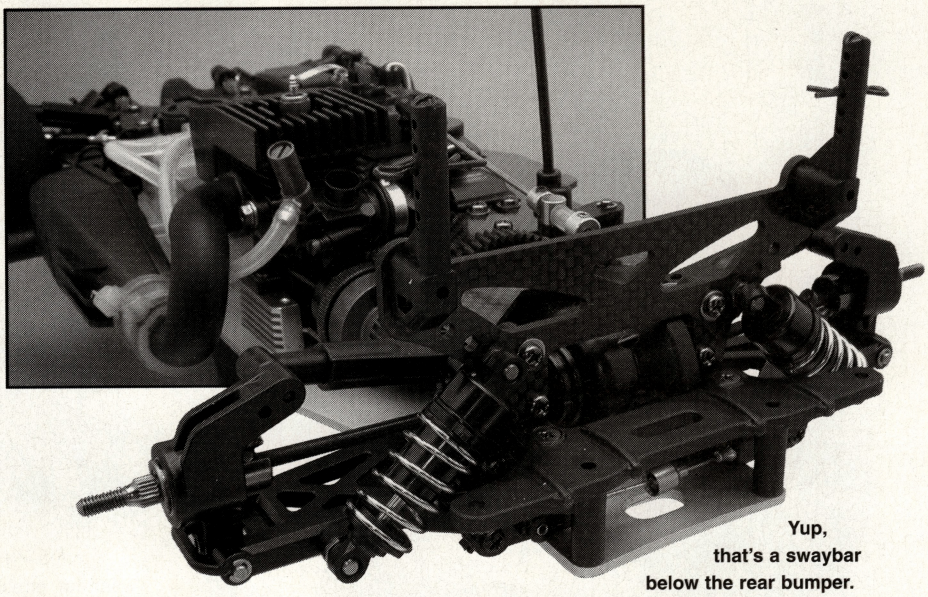
Andy was thinking ahead to Christmas when he laid this article out.

Other Features

Steering • The TGR's steering setup is reasonably basic. Two bell cracks rotate the front steering spindles. Toe-in and toe-out are completely adjustable thanks to steel turnbuckles. A traditional Tamiya spring servo saver isolates the steering servo's gear train from the rigors of racing.

Suspension • On all four corners, the TGR features independent suspensions with threaded upper links so that camber can be easily adjusted. Oil-filled shocks are mounted on low-profile shock towers, which angle the shocks almost in a lay-down position. The TGR also comes with two shock towers. Which shock tower you use depends on which body you opt to use. I used the Acura NSX body so I installed the larger tower because I need its height in order for the body mounts to reach the body.

My favorite part of the suspension is the cleverly designed swaybar. The TGR uses a pivot-type design found on some popular 1/8-scale cars. The way this swaybar works is very simple. The stabilizer is comprised of two parts: a rod with a cup and a rod with a stud come together between the left and right side arms. As one side of the suspension compresses, the joint between the two rods in the center transfers the force to the other side of the car. This results in the other arm compressing as well just as you would see with a standard swaybar.



Yup, that's a swaybar below the rear bumper.

Tires, Wheels, and Body • Fortunately, our test car came with an NSX body. But the production TGR is a competition car, and doesn't come with a body. This is too bad because Tamiya bodies are known for detail, durability, and great performance.

Firm tires with firm molded inserts came wit the kit. They are perfect for wide open tracks like Crystal Park in Compton, CA, but required a little suspension tuning for smaller, more technical tracks. These tires are wrapped around four black 6-spoke wheels.

Testing

Test Sites • To test the TGR I headed out to two tracks for completely different conditions. Crystal Park is the popular facility in Compton, CA for wide open, large-scale racing. Massies Hobbies, an average-size, parking-lot track in Temple City, CA, offers a lot of tuning scenarios for any car. Unlike at Crystal Park, at Massies it took me a long time to tune the TGR due to the track conditions. The track was dusty in the earlier part, but was hooked up towards the end of the day. Once the track was conditioned, I was able to pull fast laps as if I had the car dialed a long time before.

Acceleration • Once I ran about three tanks at idle to break in the engine, I was ready to pull full throttle. The Tamiya engine along with the slid carb action delivered plenty of bottom-end power. Acceleration was smooth and quick. This says a lot about the balance of the car because although I had some wheelspin, The TGR tracked straight and did not wander off to one side every time I nailed the gas.

Top Speed • I had no complaints regarding top speed. As soon as the car topped off in second gear, the TGR reached speeds that would make an unsuspecting bystander wet their pants. This car is fast, considering that a.15 engine is powering this 1/8-scale, a chore typically reserved for .21 size engines. On average-sized tracks, top speed in second gear may not be reached, but top speed in first gear is very respectable, too. You can lock the transmission in first gear by just tightening the shift screw.

Building Tips

Initially, building the TGR was typically easy. However make sure that each step is done correctly and securely because maintenance requires disassembling many connected sections.

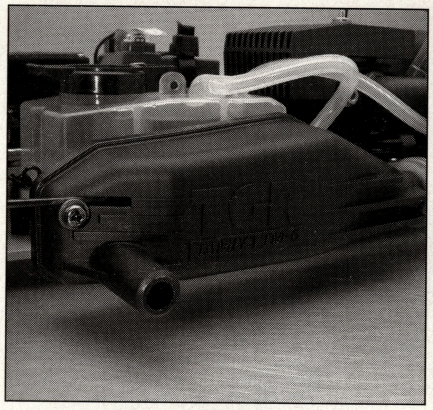
1. Step 1: Make sure to use the heavier anti-wear grease for the differentials. Tamiya provides special grease for this section, which takes the place of the traditional ceramic grease used elsewhere in the car.

2. Step 4: Before screwing the 47-tooth gear (second gear) to the 2-speed hub, apply a small amount of thread-lock to the hub only. Tamiya probably doesn't include thread-lock here because it may damage the plastic gear. Make sure to apply the thread-lock to the hub only.

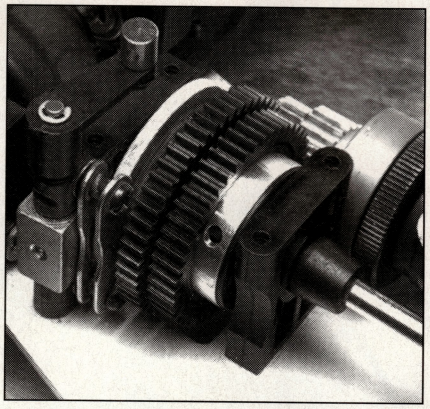
3. Steps 10 and 15: Before proceeding to Step 10, skip to Step 15 and prep the arms first. After finishing the arms, use the hinge pins and attach the arms to the front bulkhead. This proves to be a better procedure because it can get tricky trying attache the inner e-clips once the gearbox assembly is attached.

4. Step 37: When securing the nylon band or zip ties, leave a little material when cutting the excess just in case you need to pull the band or tie tighter as the joint tube wears in.

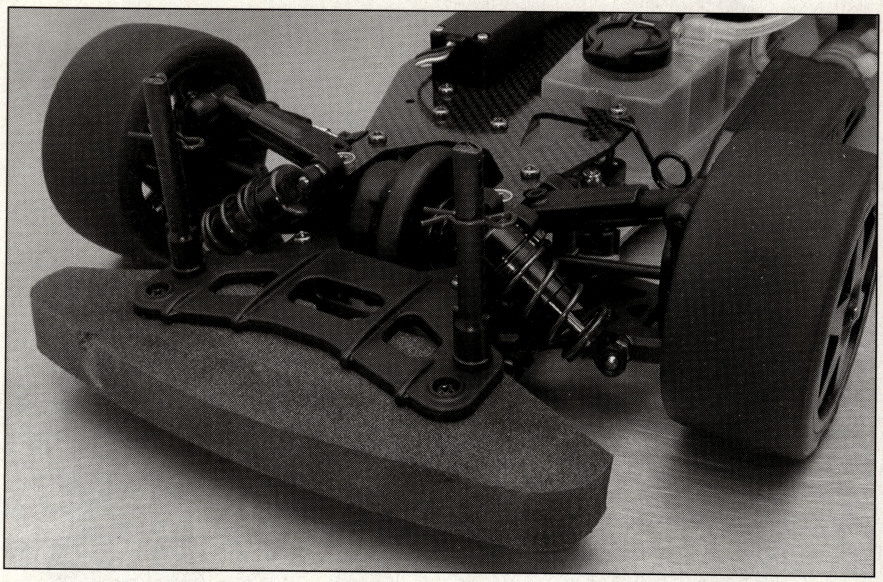
This is one of the nicest pieces of machinery we've come across.



Despite its box-like shape, the pipe that comes stock with the TGR honestly feels like a traditional tuned pipe.

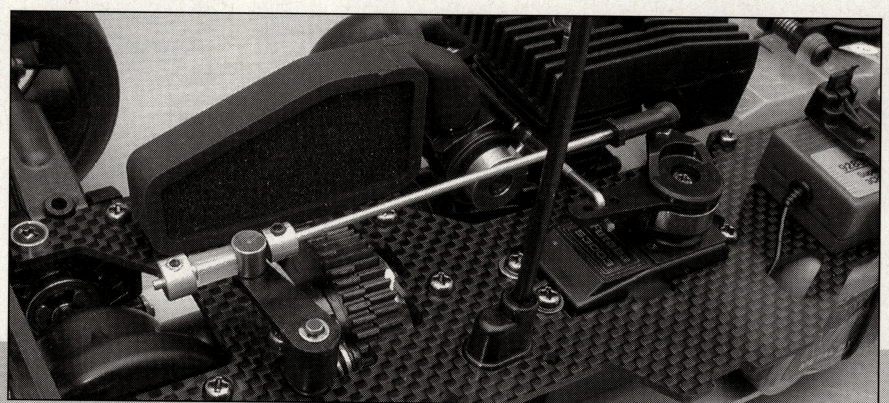


Isn't that a thing of beauty? Who doesn't get excited at the mear sight of a two-speed transmission?



Above: Given this car's high-speed capabilities a large foam front bumper is a must.

Below: The throttle linkage is plainly laid out for use with the engine's slide carb.



The Specifics

Part #: 44030
MSRP: $700
Estimated Street Price: Not Yet Available
Manufactured in Japan.

Vehicle Type
Nitro-powered 1/8 scale touring car.
Mid-mounted .15 engine 4WD.

Chassis Type
Type: Double Deck
Material: 2.5mm-thick Duralumin Lower Deck with Carbon upper deck.

Transmission Type
Type: Dual Bevel gear differentials with propeller shaft.
Drive Shaft: Dog bones
Diff: Bevel Gear
Bearing: Included

Suspension Type
Type: Independent, molded lower arms, adjustable upper control links, molded shock towers
Damping: Coil-over, oil-filled shocks, molded pistons, molded shock bodies, steel shafts.

Wheels and Tires
One-piece 6-spoke wheels with tires with molded inserts.

Other Items you need
2-channel radio system with 2 servos, body, starting box, glow starter, fuel, receiver battery, CA glue, and paint.

Our test gear
Airtronics CX2P Radio, Futaba servos, Trinity Nitro Metal Hydride 1100mAh reciever pack, Blue Thunder 20% fuel.

Main Competition
HPI Super Nitro, Kyosho Super Ten

Braking • The braking on the TGR could be better. During both days of racing, I had issues with slowing down the car. The problem was that the brake cam did not cover the brake pad enough to be able to apply pressure on the brake disk. What actually happens is that the edge of the brake cam over rotates and loses contact with the brake pad. I had two options to resolve this problem. One possible solution was to add another brake disk because there seems to be enough room on the brake rotor hub. Or, the temporary job that was quick and effective was to clip a hood pin on the step screw that held the pad, reducing the gap the pad floated on.

High-Speed Handling • This characteristic took a little time to get used to. While cruising at top speed, I tried to make a tight right turn. Initially, the car had a lot of push, however this is where the swaybar action kicked in. The deal is this. When approaching a sweeping turn, let off the gas just so that weight gets transfers from the rear wheels to the front. As soon as this happens, give the car some gas and the rear end will squat and turn the car in the direction you want to go. This is cool stuff!

In 1/8-scale the name of the game is

Continued on page 77

Tamiya knows about you and the curb. That's why they added the big bumper.



Kyosho Ultima RB

by Mike Henry

We first laid our eyes on the RB in Finland at last year's Worlds.

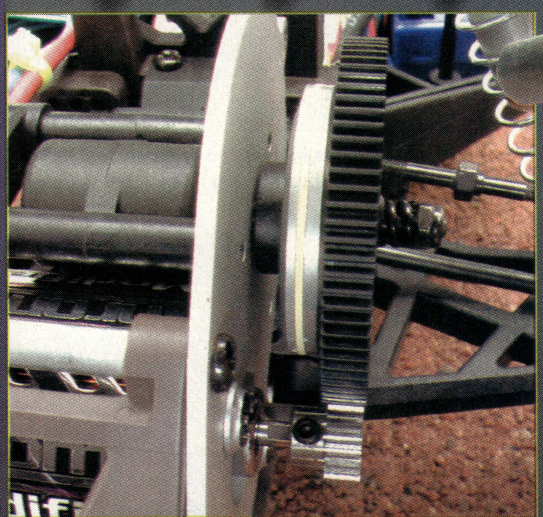
If a company really wants to make an impression in the world of off-road R/C racing, they really need to have a 2WD buggy. A 2WD buggy exemplifies off-road racing in its simplest form – six cells, an electric motor, two wheels and tires in the rear to deliver the power and two more up front to steer the buggy. Perhaps because of these restrictions, designing a buggy that is both fast and easy to drive might be an engineer's worst nightmare.

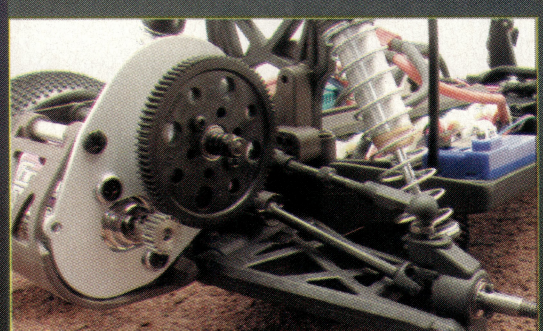
Kyosho re-entered the fray of off-road racing earlier this year when they introduced the Ultima ST (stadium truck). It quickly proved itself a capable performer. We knew a buggy wouldn't be too far behind the truck. A few months ago Ultima RB's (racing buggy) began showing up in the hands of some of the fastest drivers on the west coast. I know what you're thinking; it looks a lot other buggies on the market. But hey, if design ideas work, use them. Kyosho looks to have incorporated proven design ideas and some new ideas of their own.

Hits:
- Smooth, bullet-proof drive train.
- Twin-cap shocks can be built one of two ways.
- Kit tires that don't suck.
- Adapts well to tuning.

Misses:
- Needs more steering.
- No shock oil, turnbuckle wrench, or setup tips.

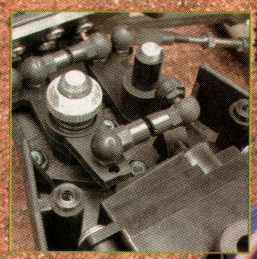
Instructions	3
Parts Quality/Fit	4
Durability	4
Tunability	4
Overall Performance	3
Value	4

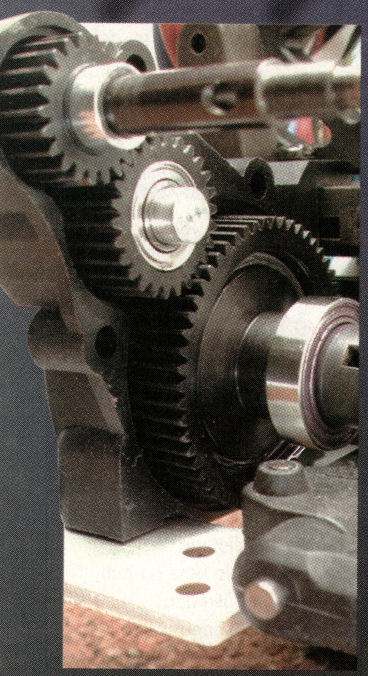




Steering

Most, if not all, of the parts that steer the RB are carryover pieces from the ST. The RB uses a dual bellcrank and adjustable drag link setup. The entire assembly rotates on plastic bushings, but the result is almost free of slop. The plastic top plate fits snug, but allows the steering to move without binding. The buggy features 30-degree caster blocks and an extra hole on each knuckle, to change the steering geometry. A simple, easily-adjustable servo saver is also included.





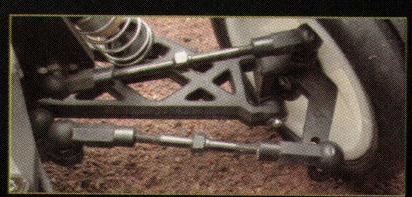
Drive Train

Kyosho's Triad Pro Transmission is another carryover piece from the Ultima ST line. The internal 2.50:1 ratio is a little high (or low depending on how you look at it) for a 2WD buggy, but an 82-tooth spur gear puts the final drive ratio closer to ideal for a buggy that typically likes a lower ratio. The transmission is silky-smooth, but the top shaft and metal outdrives are very heavy. An adjustable ball diff and non-rebuildable universal drive shafts are included. All rotating parts spin with the aid of bearings. An adjustable slipper clutch finishes off the drive train. The motor/transmission assembly are set way back on the RB.

Suspension

The RB's suspension is standard fare for 2WD buggies. The fiberglass front shock tower is rigid, but not brittle. It offers two shock mounting holes and three camber link choices. The rear shock tower feels a lot stronger than the prone-to-break tower on the ST. The rear tower features three shock mounting holes. The rear bulkhead attaches the rear tower that comes off the chassis. There are six camber link holes on either side of the bulkhead. The shocks are Kyosho's exclusive Twin Cap Pro-Shocks. They can be built as bottom-loading, kind or like a Losi shock or pressure units depending on track conditions. The suspension arms are molded plastic, but only the rear arms offer two shock mounting locations. The RB features three degrees of toe-in and two degrees of kick-up in the rear suspension mounts. The rear hubs are the same units found on the ST, and offer a few different adjustments not found on Brand Y buggies. Steel turnbuckles complete the RB's suspension.





No Photoshop was used on the opening photograph.

More Features

Chassis • The buggy uses a molded, plastic tub-style chassis. All of the holes on the underside of the chassis are countersunk. There are four separate compartments for the batteries, ESC, receiver, and servo. The back half of the car is attached to the tub via a metal plate. The same sturdy plastic motor cover/bumper used on the ST is utilized on the RB. The front section of the chassis is made of a softer, more pliable material than on the truck. A small plastic bumper up front helps to protect the most vulnerable part of the buggy, the front suspension. The hinged battery strap and transponder mount are nice touches. Two battery pads are included, although you only need one. (More on that later.)

Wheels, Tires, and Body • The Ultima RB comes with very raceable (woo hoo!) Pro-Line wheels and M2 compound tires. Up front, Pro-Line's wide 4-rib tires are mounted on wide rims, and low-profile Holeshots wrap around feather-light wheels in the rear. The Lexan body is unique, and features a cool concave nose section. A large wing mounts to the rear shock tower.

Ultima RB Testing

Acceleration • With so much of the buggy's weight biased toward the rear, acceleration is swift and stable. Pull the trigger and watch the competition disappear in your wake. Well, maybe it's not that dramatic, but this is one of the RB's strong areas. To put this buggy through a more severe test, I strapped in a Orion Chrome 13x2 modified. The results were the same, but more wheelspin was evident. Slashing from corner to corner was drama-free. I was able to run tighter lines leading to the larger jumps, knowing the RB would just hunker down and go.

Top Speed • Once I had the slightly-shorter gearing figured out, the RB was just as fast as the other 2WD buggies I was racing. The transmission is super smooth, and once you get the portly pieces of rotating mass turning, terminal velocity is only a few seconds away. Top speed doesn't really require a whole lot of skill, so it boils down to gearing and motor. I didn't get "motored" by any of the other buggies, and actually pulled, a few of them on the top end.

Jumping • The RB was stable and easy to drive over almost all of the jumps it encountered. The front end did feel a little light. Local fast-guy/Volvo-guru Richard Lake even told me that it looked light in the front end, and that I should add some weight. I had already added 1/2 ounces and the battery was all the way forward. Don't get me wrong; the car was never a handful, but it lacked the balanced feel of other 2WD buggies I've driven. The track featured a tricky bump in the middle of a sweeping turn. I had to attack the bump with the front wheels pointed straight, or else the back end of the buggy would suddenly jump out as soon as the rear wheels were airborne.

Braking • As previously mentioned, the outdrives and topshaft are a little heavy on the RB. I actually had to use the brakes where I normally wouldn't. Most stock racers use the motor's magnets to help slow down a vehicle once off throttle since the motor will have a tendency to slow you down. It did take some getting used to, but a quick tap of the brakes at the right time slowed the buggy down without throwing it off line. The AE silver front springs are softer than the kit springs, but still stiff enough to prevent noticeable nosedive under hard braking.

Building Tips

The Ultima RB can be assembled in an afternoon. It builds quickly and does not require any handfitting. The RB uses a lot of self-tapping Phillips head screws; make sure you have a quality No. 2 Phillips screwdriver. The following should help beginner and novice kit builders.

Step 2
The rear bulkhead does not fit easily over the chassis. To attach the bulkhead without tweaking anything, start one of the screws, then begin screwing in the second fastener. Alternate between the two after every few turns.

Step 4
Compress the diff spring with a pair of needle-nose pliers before you assemble the diff. The will keep the unit consistent from your first run to your hundreth run, and allow it to break in properly.

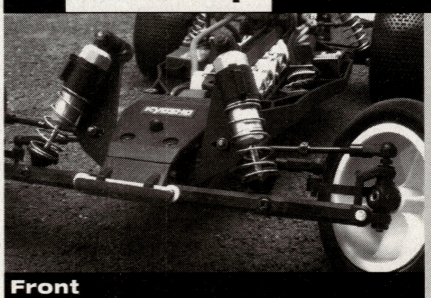
Step 7
Use thread-lock when fastening the long machine screws into the aluminum shaft.

Step 14
Apply some thread-lock to the small setscrews that hold the front axles in place.

Step 18
Make sure you trim all excess flashing from the plastic bushings on which the bell cranks rotate. Check the steering for binding once the top plate is attached.

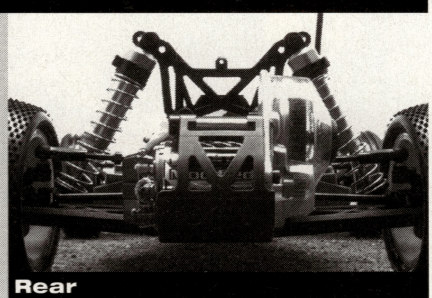
Step 31
The kit includes two battery spacers, but only one will fit. It is a very tight fit using one spacer. I can't imagine how you could cram the second foam in place.

Our Setup



Front

- Front shocks: 25 weight Trinity shock oil, Associated B3 silver front springs, 2C pistons.
- Front camber link: middle hole on shock tower.
- 1/2 ounce of lead weight on front bulk head.
- Battery: all the way forward.



Rear

- Rear shocks: 30 weight Losi shock oil, kit silver springs, 2B pistons.
- Rear camber link: inside hole on hub, inside-lower hole on bulkhead.
- Rear hubs: rearward (spacer in front of hub).

Setup • There are no setup tips (or shock oil) included in the kit. While I was at the ROAR Off Road Nats in Dalton, Georgia, I talked to the Team Kyosho factory drivers to get the skinny on a good starting point. I came up with a setup for Hobbytown's Monsoon-hammered, bumpy track using info Greg Degani and Chad Bradley provided me with.

A Kyosho driver, an Associated driver, and a Losi driver walk into a bar...

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Gear Cover (Slipper clutch only) for Assoc. B2, B3, & T3 $5.95
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Rear Bumper / Motor Protector for Assoc. B2, B3, & T3 $3.95
#80472 - Black, #80475 - Blue, #80477 - Yellow

Mini Bumper / Skid Plate for Assoc. B2, B3, & T3 $3.95
#80512 - Black, #80515 - Blue, #80517 - Yellow

Adjustable Width Body Mounts for Assoc. 10T, GT, & T2 $6.95
#80542 - Black, #80545 - Blue, #80547 - Yellow

#80932 Zero Degree Rear Mounts for Assoc. GT $5.95

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Quick Adjust Spring Clips for Losi & Traxxas Shocks $5.95
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Long Shank Rod Ends, 4-40, 12 pieces $4.95
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Traxxas Rustler ESC Mount $3.95
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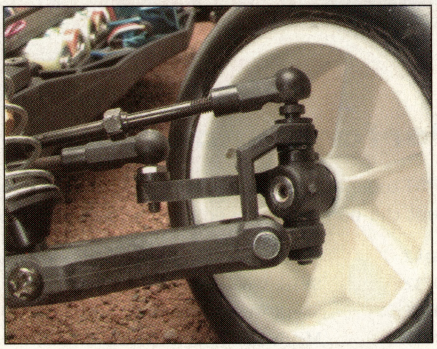
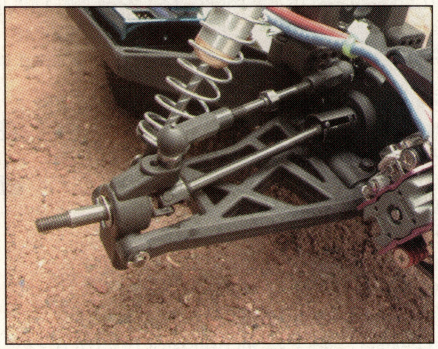
Low-Speed Turns • This has to be the RB's Achilles' heel. Even with the setup changes I made to the car, it was still pushing in slower corners. I tried altering my turn-in points as a crutch. This did help, but it also let a few other racers pass me in key areas. Most racers would rather start out with too much steering and dial some out. The RB is just the opposite. I'm sure if I continued to add more weight to the front of the car, it would kill most of the push. But, that would really throw off the balance of the car.

High-Speed Turns • The RB did have a slight push in the faster corners, but nothing a little extra-aggressive driving couldn't fix. With so much rear traction, I was able to literally throw the buggy into fast turns. However, as soon as all of that weight behind the rear wheels began to swing around, the car wanted to spin out. This also happened very quickly, so I would give the steering a touch of dirt-track-style input to anticipate the moment. As long as I did this smoothly, the car would make it though the corner without any twitchiness.

Damage Control • The Ultima RB survived two full days of testing without any breakage. The underside of the chassis did sustain a few scrapes and scratches, but this is to be expected under racing conditions. The 82-tooth spur gear did suffer a few nicks and chips on the outer edge. The plastic Kyosho uses for spur gears is very soft. Either get in the habit of checking the gear after every run, or replace it with a stronger cog. The RB uses the same type of rear suspension mounts as the ST. The strength of these mounts is suspect. Trinity does offer aluminum mounts for the RB, but I really doubt the mounts will be as susceptible to damage on the buggy as they are on the truck.

Trackside Tuning • Wrenching on the RB at the track requires no more effort than other buggies. As long as you have a high-quality No.2 Phillips screwdriver, you'll feel right at home. Then entire back-half of the buggy can be removed by unfastening six screws. Changing shock oil, springs or camber link mounting is also quick and easy. Kyosho does not include a wrench for adjusting the





Above: The Kingpin ball stud extends the upper camber link mount as far towards the wheel as possible.
Below: As you'd expect on a race buggy, universal drive shafts are standard on the RB.



turnbuckles, and they are not a common AE/Losi size. Twisting turnbuckles with a pair of pliers is, well, just so hack. A small 7/32" open ended wrench from Craftsman will do the trick. If you really hate Phillips head screws, you can replace many of them with conventional 4/40 Allen head fasteners to ease your wrist.

Maintenance • Again, keeping the RB running smoothly is pretty straight forward. Make sure the diff isn't gritty, regularly change your shock oil, make sure the suspension isn't binding, etc. In addition to regular maintenance, you need to keep an eye on the bottom of the chassis. Make sure the screw heads don't get too chewed up. Phillips-head screws are not nearly as forgiving as standard Allen-head screws. Team Associated sells sheets of protective tape that is very effective at saving screw heads.

The Specifics

Item Info
Part #: KYOC0120
Estimated Street Price: $225-$240
Manufactured in Japan

VEHICLE TYPE
2WD electric off-road buggy
Scale: 1/10
Chassis Type: Molded tub with center running battery tray.
Material: Molded composite

TRANSMISSION
Type: 3-gear reduction
Reduction Ratio: 2.5:1
Differential: Adjustable Ball
Drive Shafts: Universal
Bearings: Included

SUSPENSION
Type: 4W independent lower A=arm with adjustable camber link
Damping: Coil-over oil-filled shocks.

WHEELS AND TIRES
Wheels: One-Piece white molded dish
Tires (F/R): Pro-Line M2 4-Rib, Pro-Line Holeshot.

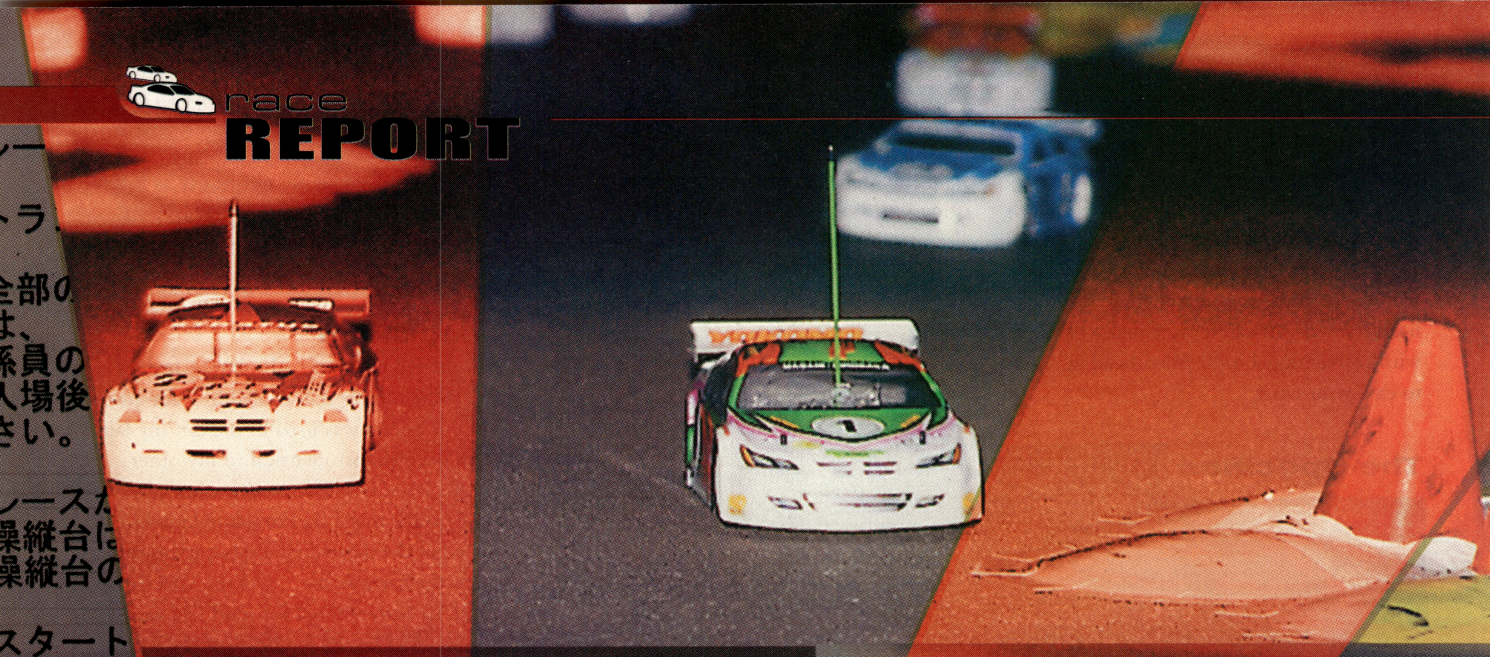
ITEMS YOU NEED
2-channel radio with 1 steering servo, ESC, Motor, 6-cell battery pack, battery charger, paint, CA.

MAIN COMPETITION
Team Losi Triple-X, Team Associated RC10B3.

Conclusion

Can the RB compete? Absolutely. It does take some tuning skill to dial in some steering, but once I was used to the car, my lap times were almost identical to my other buggy's lap times. There were a few places on the track that I had to white-knuckle the car to get the desired effect, but the bottom line is the car was fast. I feel the Ultima RB would be better suited for modified racing than stock. The car is a little on the heavy side, but this isn't a huge concern for modified racers. The car's success might hinge more on availability of replacement parts. I can't say I've ever walked into a hobby store and have been overwhelmed by countless Kyosho parts but that varies by area. If you have decent tuning skills and you want to be different, the Ultima RB just might be perfect for you.







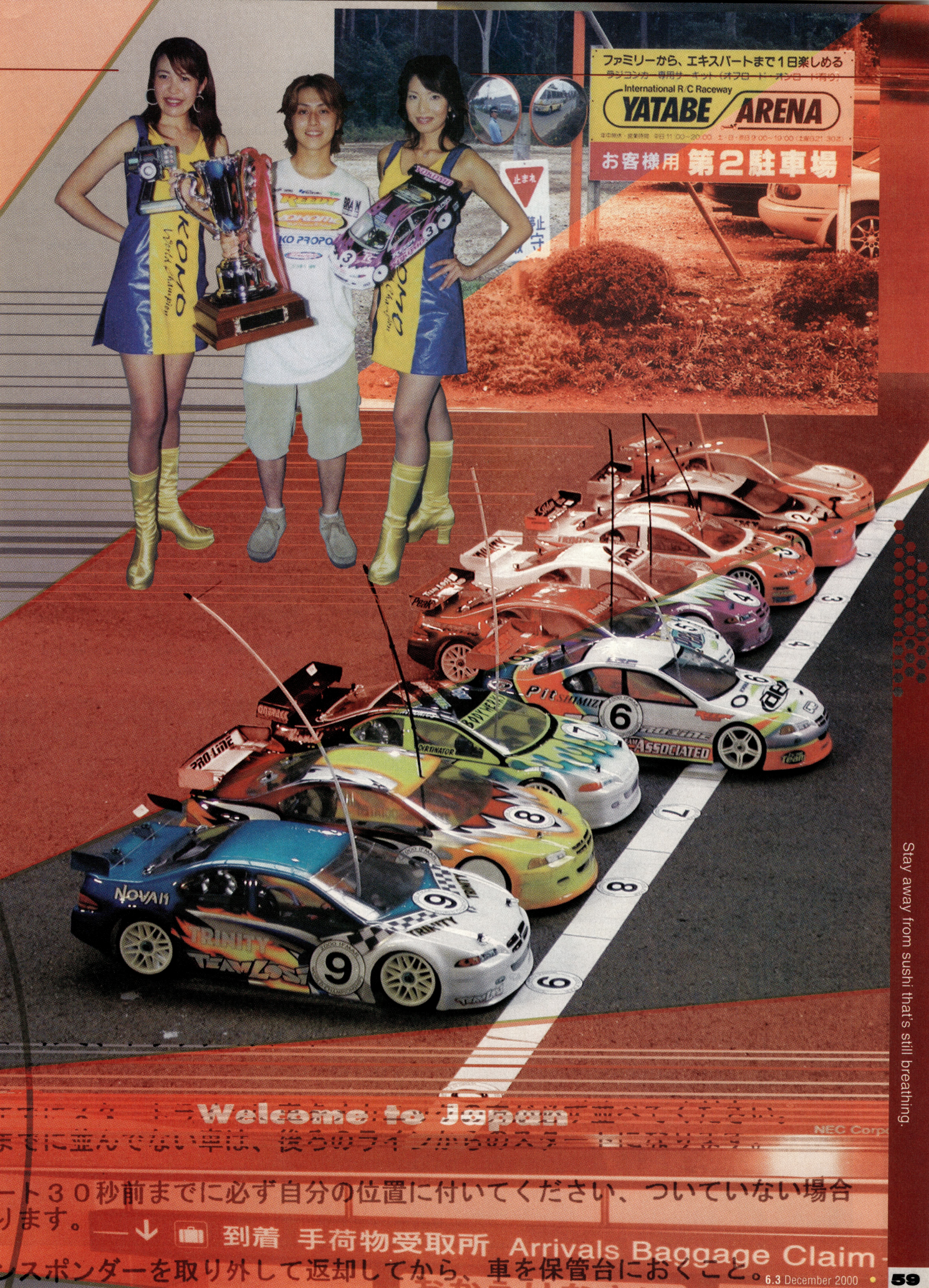
• 2000 • IFMAR Electric • On-road WORLD CHAMPIONSHIPS

by Mike Velez

As a result of my three years of covering World Championships, I've found that there's a special recipe that ensures a good race. First, you need a unique location that will get all the out-of-towners talking. Stir in the best drivers in the world; they always help. Add a track. In all honesty any track will do, but when you've got a world-class facility that knows how to put on a good race, you're in luck. Sprinkle the stands with a crowd of on-lookers; it's nice to hear cheers and jeers at every turn during a hotly contested race. And the last, throw in a liberal dash of controversy - something to make everybody question things. A race would be no fun without controversy.

Well guess what? The 2000 IFMAR On-Road Electric 1/10-, 1/12-scale and Touring Car World Championship had a generous helping of all of the above.

When going to Japan, exchange your cash for Yen before you get there.



Stay away from sushi that's still breathing.

The Journey

Yatabe Arena in Tskuba Japan was the perfect location for the biggest electric event of the year. After talking to a few friends about going to Yatabe Arena, in all honesty I wasn't really looking to forward to making the trek. Japan in late summer can get pretty humid. The journey itself wasn't much of a problem. I took a flight out of Los Angeles Monday afternoon and arrived in Tokyo Tuesday afternoon. (No, it's not a 24-hour flight. From LAX, it's a 10-hour flight, but Japan is sixteen hours ahead of us here in So Cal. Grab a calculator to do the math.) Once I touched down in Japan, I hooked up with Darren Westmen from Orion and the entire Associated crew. We grabbed a bus and bamm! An hour and a half later we were in Tskuba, the host city located about 50 miles north/northeast of Tokyo. Tskuba is known as a technology city thanks to a local university. The surrounding area is very rural. Rice paddies lined the roads between the airport and host city. But, the Japanese countryside was very picturesque and beautiful. The high-power line standards painted in red and white made me imagine that any moment Godzilla would be coming over the horizon.

Japan

Unfortunately, I never got to see Tokyo or much else of the country so my opinion of Japan is based simply on portion of Japan. I wasn't nearly as intimidated by Japan as I thought I would be. The airport looked just like any other international hub. In customs, I noticed right away that imported porn is illegal in Japan. Yeah, it's true. So after spending three hours in a police interrogation room (just kidding), I sailed through customs. Suckers. It's strange. For some unknown reason there will be a sign with tons of Japanese characters then all of a sudden the word "Star" or "Happy" is spelled out in English. American culture has taken hold in Japan. The global symbol of capitalism, McDonald's®, can be found on every corner. I think that's one of the requirements for a Worlds host track to host. American drivers have to eat, right?

On the streets, they drive on the wrong side of the road. The range of automobiles rolling around was quite amazing. Most of the cars on the road were small, generic-looking compact cars that looked more like golf carts with doors. Wrecking in one of these things cannot be good. But every once and a while, a vehicle would stand out. I saw a number of cars that were worth drooling over since they aren't imported into the States. On the top of the list is the Nissan Skyline GT-R. This car is a beast: AWD, big brakes, and 400 or so HP. What more could you want? During the whole week I came across one Chevy full-sized Silverado and a pimped out, lowered Impala. These two cars stuck out like sore thumbs around the much smaller cars.

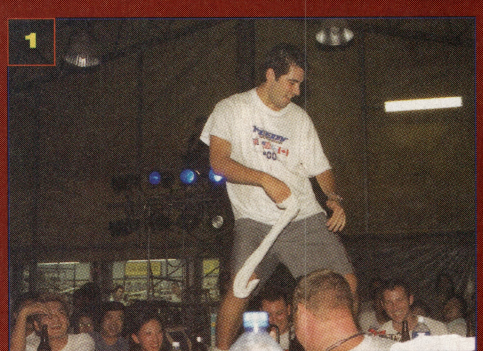
The Format

This year's format was pretty basic. Both 1/10- and 1/12-scale classes had one complete day of controlled practice while Touring Car had a day and a half of controlled practice. In controlled practice, drivers are on the clock so that they could see their times. Qualifying for each class consisted of six rounds for each driver. In each round, the drivers were ranked from the fastest to slowest with more points being given to the faster drivers. After all six rounds, the points from each driver's best four rounds were totaled. Then the mains were arranged from the highest point totals at the top to the lowest at the bottom.

1/10-Scale • There was not a whole lot of interest in this class, as evidenced by the

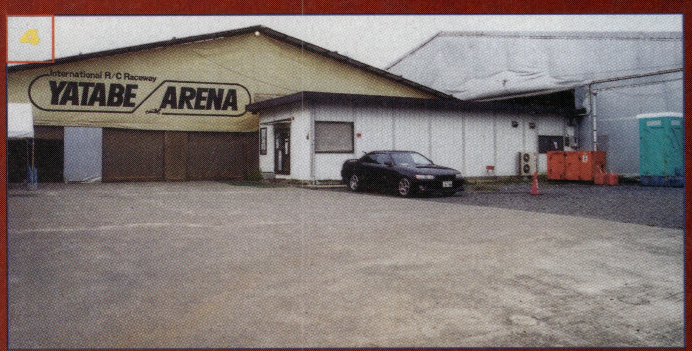
Around The Track

1. Two weeks and no women who spoke English meant things got a little ugly by the time the race was over. Kirin Mini-Kegs as far as the eye could see didn't help matters. 2.&3. On the way to school a group of children were ambushed by Godzilla. 4. What Yatabe looks like with no one there. 5. Usually when it rains the temperature cools down. Not here. 6. John dared us to snatch the battery off the scale before he could, but there were no takers. 7. We'd like to keep as many advertisers as we



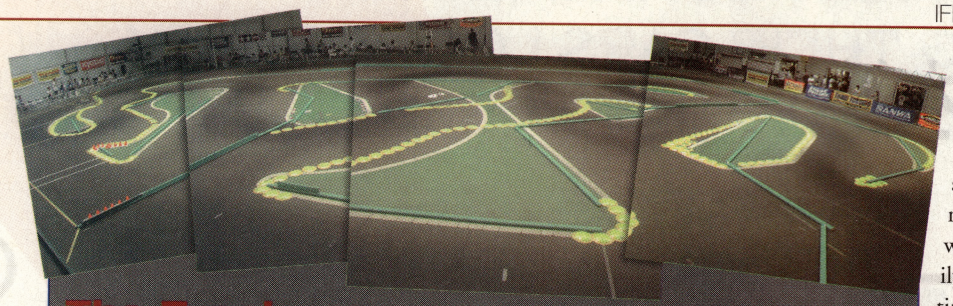








He pulled a sock out of his pocket.



The Track

Yokomo's Yatabe Arena was the perfect host for this year's On-Road Electric World Championships. Yatabe last hosted a Worlds event back in 1995 – the Off-Road Worlds. Since then, Yatabe has changed quite a bit. A typhoon knocked out the old, covered, on-road track. The larger, on-road asphalt track that used to be exposed to the elements is now covered; this was the track used for this year's competition. The course was changed between the 1/12-scale race and the Touring Car (TC) event. Although there were plenty of narrow points on the TC track, there were also plenty of passing lanes. The touring car track had two chicane sections. If the drivers lined up correctly, they could punch straight through these sections without turning the wheel. There were also plenty of tight turns and a large left-hand sweeping turn that led onto a long straightaway.

There was absolutely no ventilation inside the track enclosure. This led to temperatures between 90 to 100 degrees Fahrenheit with about 95% humidity around the track. It was kind of like being in a sauna for a week straight. My pores were definitely cleansed by the time I was ready to go home.

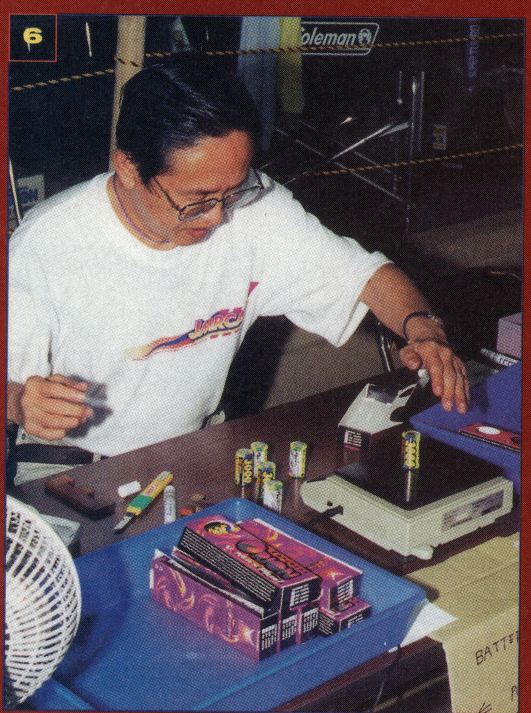
The pit area was on top of the off-road track. The track had been leveled off and covered with tarps. There was plenty of pit space during the 1/10- and 1/12-scale days, but pit space became sparse during Touring Car. There was plenty of power thanks to ground lines and a huge diesel generator outside.

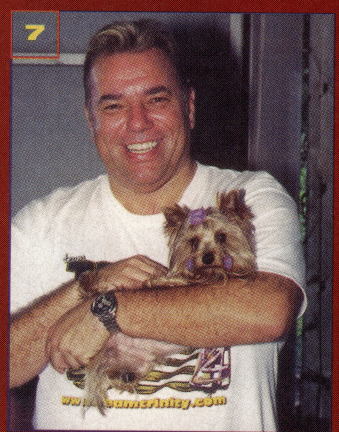
mere 63 drivers who raced in this class. Most of these drivers were Japanese. Most of the American drivers choose not to even show up until just before the Touring Car races. In Pro-10, it was all Masami Hirosaka who won every round of qualifying and easily secured the TQ position. When it was time for the mains, Masami ended up walking away with wins in the first two legs of the A-Main, which secured the overall win for him. Therefore, he didn't race in the third main. Daisuke Yoshioka won the third leg. Coupled with a second place finish in the first leg, Yoshioka took second place overall. Hideo Kitazawa used a second place finish in the third leg backed up with two thirds to edge out Barry Baker in points and take the third position overall.

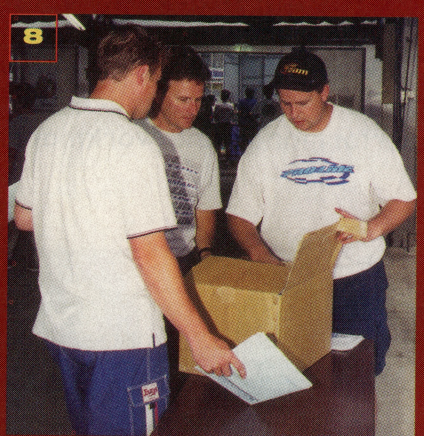


We like the Yokomo girls. Where are the Losi and Associated girls, huh?

can so we'll save comment on this one. 8. "I'm not going to eat it. I don't even know what it is." "Touch it." 9. After the second A-Main the cops came for Mark Pavidis. Suddenly, they found something in his bag. 10. Kentucky Fried Sushi.











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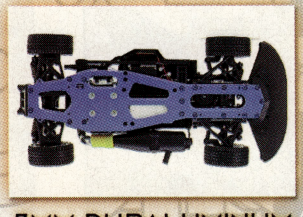
KEY FEATURES



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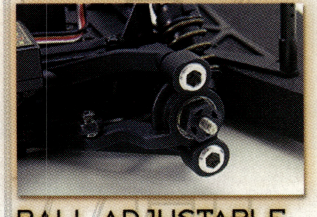
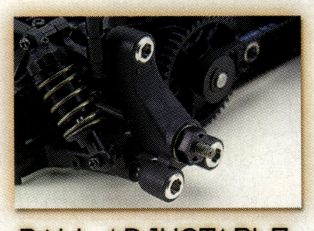
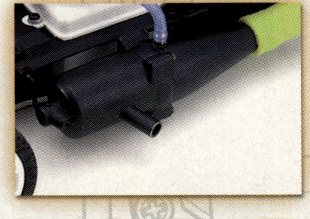


BALL ADJUSTABLE FRONT SUSPENSION



BALL ADJUSTABLE, REAR SUSPENSION



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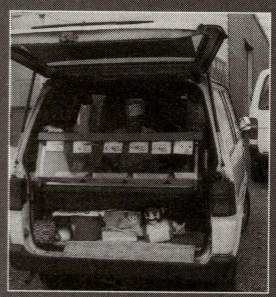
Behind The Scenes

All the info a backstage pass could offer.

Trujillo almost kills Losi Team

One night, Losi Team Manager, Richard Trujillo, decided to make a right hand turn into oncoming traffic. The glaring lights of the speeding semi coming toward them caused many of the team members in the van to reportedly "scream like little sissy women." Richard calmly made a U-turn and acted as if he intended to wet his pants.


"Towel please...Oh and a diaper."

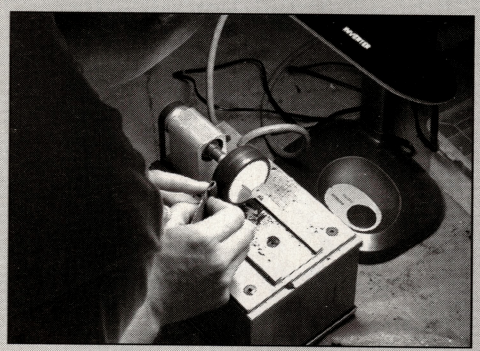


Chicken Ball?

One of the favorite treats to eat at the track was Chicken Balls, from Chicken Ball Man. Actually many racers reported that the chicken balls didn't taste like chicken at all. That's weird. Chicken Ball Man was reported as saying, "Anything I put on stick with teriyaki they buy. Business good!" This reporter stayed clear of chicken balls, pork livers, and chicken skins. The inch-thick layer of grease that lined the inside of the Toyota van gave me the notion that Chicken Ball Man hadn't passed a health inspection in at least a few months.

Scuff'em

Before each Main, many of the Associated team drivers were running their TC tires on a tire truer and just running a thin piece of sand paper down the center of the tire.



Eight is Enough

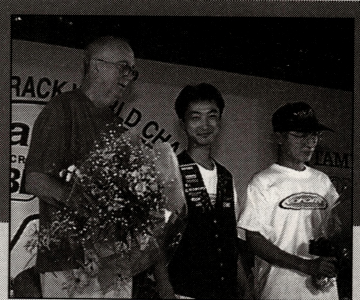
Most drivers ran 8-turn modified motors during the Touring Car events. Some drivers had reportedly tested with 6- and 7-turn motors, but found the 8-turn motors to work best.

Need More Power

Before the start of the Touring Car practice A-Main a thunder storm knocked out power to the track. Luckily, a generator powered the facility until things went back on line.

Masami Retiring?

During the race there was the rumor floating around that Masami might be retiring after the event. Although his speech at the awards banquet was very heartfelt and thankful to his father and Mike Reedy, the word retirement was never mentioned.



Vegas Baby, Vegas.

During the open IFMAR meeting, a few manufacturers voiced their opinion on having IFMAR contract with a casino and host events at one location for a set amount of years so that a casino or hotel would be receptive to hosting World Championships of multiple scales year after year. The move would put the events at a more accessible location and would do away with the headache IFMAR is sometimes presented with when it comes to finding a host for a particular event. The Americans at the meeting were all in favor of this type of thing happening, although the Europeans present didn't seem too enthusiastic. We'll see what type of discussion comes from this idea.

You Make The Call.

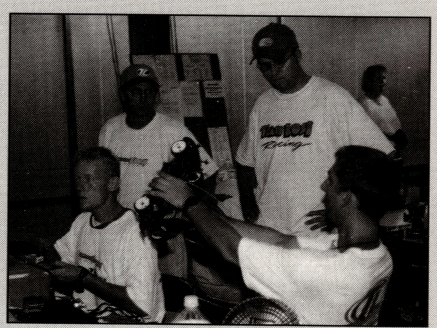
We're the only magazine to have all the questionable incidents caught on tape. Look at the video for youself at ***www.xtremerc.com***

Pro-10 Notes:

- All of the A-Main drivers used the Protoform Peugeot 905 high downforce body.
- The hot setup in 1/10-Scale was Jaco aqua rear tires and Jaco purple front tires, an 8-turn motor, and Sanyo 3000 cells charged at 5 amps.
- This was the last Pro-10 championship. IFMAR has decided to not run the race in 2002 due to lack of interest.

1/12-Scale • On the first day of Pro-12, a typhoon made landfall and ended up flooding the track in some areas. The rain brought cooler weather, which was a relief. After a few hours, the track was dry again and practice could begin. After qualifying, once again it was Hirosaka in the TQ spot. Although this time his dominance wasn't as secure. Towards the end of qualifying both David Spashett and Josh Cyrul were running very close to Hirosaka's pace.

Pro-12 A-Main • During the first A-Main, Hirosaka clipped a dot while going into the first chicane section and was sent to the back of the pack after tumbling off of the track. After that it was David Spashett in the lead. It took almost eight minutes, but



"If you hold your car up with your arms straight for twenty minutes you'll get the hole shot."



David Spashett was the first racer to leave the Big Brother portion of the track.

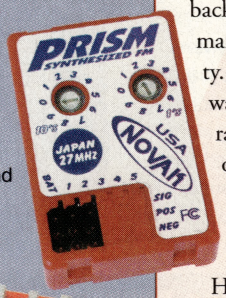
As soon as I got home, I asked my wife to make me some Chicken Balls.

New In The Pits

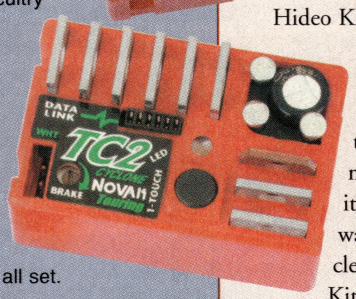
We spied a few new items in the pits.

Novak

Bob Novak himself showed us two new items they were working on. The first was the new Prism synthesized receiver. The new receiver requires no crystals. Two rotary switches allow the user to dial in the specific frequency. In addition of the frequency synthesizer, the Prism will use the proven XXL receiver circuitryl. The new receiver will be available in the U.S. in both 27 and 75 MHz. No word yet on the retail, but expect it to be more than your typical receiver.

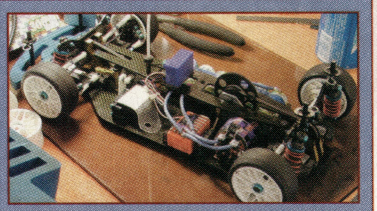


The other new item was the TC2 ESC. The TC2 featured some circuitry improvements over the original Cyclone TC. The most noticeable changes were cosmetic and functional. Gone is the typical switch harness. Instead a large, black push button sits on top of the ESC and replaces the switch. This is the same button that's used for programming the ESC. Also, isn't it annoying when you accidentally cut or crimp your ESC receiver wire? You usually need to send the entire ESC back to the manufacturer. Well Novak's tired of fixing your dumb mistakes. They've come up with a input for your receiver wire. Simply plug the double-ended wire into the TC2 and your receiver and you're all set. Novak will offer the receiver-to-ESC jumper in a variety of lengths so that you can customize it to your specific use. (Look for a standard Cyclone to fearure these revisions soon as well.) During practice drivers reported marked improvement in speed and run time with the new ESC, but for some unknown reason the prototypes would shut off occasionally. Not wanting to chance it, most Novak drivers stuck with their original Cyclone TCs during testing. Novak will surely have the problem solved before the new ESC goes on sale.



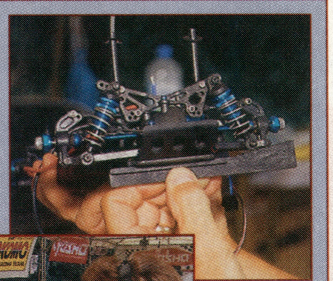
Team Losi

Team Losi checked in with their yet-to-be-named car code named: The Secret Weapon. The car features a unique single belt drive line. Check out the Inside Line for the whole skinny on Losi's new TC.



Team Associated

Team Associated used new rear suspension arms and chassis. The new suspension arms feature the same geometry as before, but use setscrews so that the rear arm droop (aka the down travel of the suspension arms) could be changed without getting into spacing the shocks. The new chassis simply featured small platforms on which these setscrews in the arms could rest. In order to quickly measure and set droop on the TC3 and other cars, Team Associated came up with this simple droop gauge. Simply remove the wheel, rest the flat part of the gauge on the bottom of the chassis, and read the measurement.





LRP



Billy Easton, Mark Pavidis, and Craig Dresher all used LRP's new Quantum Competition ESC to make the Main. The new Quantum is very, very small. The design idea is to scale down the performance of the IPC V7.1 into a small package. There are five different preset setups that the user can program into the ESC without the need for additional equipment. The different setups elevate the need for a torque limiter. which the Quantum doesn't have.

by the end of the race Hirosaka was closing in on Spashett. Coming on to the short back straight Spashett rear ended a back marker. This gave Hirosaka an opportunity. The last three laps of the race Hirosaka was on Spashett's tail. By the end of the race, the distance between the two was only a fraction of a second. Spashett held on to the win with Hirosaka coming in close second.

At the start of the second A-Main Hideo Kitazawa took out Spashett going into the second left-hand turn. I always try to be objective, and after reviewing the video tape I took of the incident at slow motion on a 36" clear television, it's hard to say that the move wasn't a take-out. Spashett had the clear lead going into the turn. Kitazawa went so hard and so fast into the inside of that turn there would have been no way for him to make that turn even if he didn't use Spashett's car as a berm. The take-out left Hirosaka in the lead and Spashett starting from the last position. Somehow Kitazawa got the second spot after the infamous collision. From there, Spashett battled back and ended up checking in right behind Hirosaka. But by this time, it was too late. Hirosaka was able to conserve battery power and left Spashett with no options. Spashett finished in second behind Hirosaka.

In the third main, everyone had a pretty clean start. Well everyone but Kitazawa. The fourth qualifier, Andrew Moore "accidentally" punted Kitazawa off the track. From there it was Hirosaka stretching a lead. Spashett tried to catch up but just couldn't; he found a dot and launched his car way off the racing line. Before the race was over however Daisuke Yoshioka worked back to second and finished just a few feet behind Hirosaka, who finished in first and took the overall victory.

The remainder of the day was marred by the controversy of the second race. Both Cyrul and Spashett ducked out and boycotted the final awards photo in protest over the lack of penalty given to Kitazawa for the take out in the second race.

Touring Car

On Thursday, drivers checked in and picked up their controlled tires (see tire sidebar). Both the Team Losi and Team Associated teams waited until Wednesday to make their track debut. Having more

Who knew Cliff Lett could be product model as well as racer/engineer?

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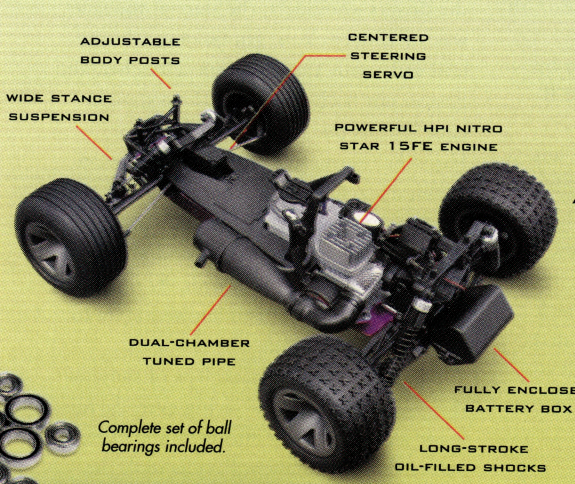

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FEATURES

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Ye Olde Roach Motel



In one week, 39 days of *Survivor* flashed in front of my eyes. The most popular hotel for many of the racers coming from the States was the Sky Hotel. When I walked through the door I should have known things were going to be bad. First off, they lost my reservation. At the front desk, there was a list of all of the guests and their room numbers. I was given a room key. When I opened the door to the room, it was evident that it was somebody else's room. Later on I was given a room of my own. The room was more like a closet. In the room I found two small beds, a nightstand with integrated radio and fan control (it said AC but AC is usually cold), a 12- or 13-inch TV with a pay box on the side, and a hot plate. What more do you need? I thought the bathroom in an airplane was small. Boy, was I wrong. The bathroom was kind of like a motor-home bathroom. The shower and sink used the same faucet. (I guess my room doesn't sound that bad now that I'm writing this, but wait. It gets worse.) As usual, it's the details that make the difference. The main light in the room hangs from the center of the ceiling and has that kind of East German interrogation room feel. The ceiling and walls around the door to the room sported staples to keep things in place – that's the true sign of workmanship in carpentry. One of the bedspreads had a unique, unidentifiable, stain-design pattern. On the walls you could see the bug splat outlines. Thankfully somebody had taken the time to remove the bugs from the walls. Just before I went to bed, a little cockroach came over to tuck me in. The following morning I packed my bags and was out of there. I ended up at the Dia-Ichi hotel across town. Forty dollars more a night has never been better spent. It turned out that a number of my fellow hotel mates at the Dia-Ichi were losers in the *Sky Hotel Survivor* game.



A few racers got excited when I said I found a roach in my room.

time to rest at home before the touring car race was looked at as an advantage over the drivers who had been subjected to the uncomfortable conditions of the track for the week prior. The track design was changed radically for the touring car drivers. This eliminated any advantage that might possibly be enjoyed by the drivers who had just raced Pro-10 and Pro-12. Early in the practice the Associated guys ran well and looked consistent. Many of the Japanese Yokomo drivers were immediately fast from the first round of practice. Team Losi debuted their latest developmental prototype Street Weapon replacement (see Inside Line). The Losi drivers had built their cars only one week prior to this race. Once this prototype was on the track, it was easy to see that it was by far the most stealth-like car with the quietest drive out there.

TC Qualifying • When qualifying rolled around, it was evident that home-track favorite, Masami Hirosaka looked beatable. After five rounds of qualifying Hirosaka and Mark Pavidis were mathematically tied. They were both in the final qualifying round together. Whoever would win the last qualifying race would win the TQ. The last race came down to the last turn. Hirosaka edged out Pavidis by just 0.03 seconds. Both drivers punched the throttle to kamikaze it to the finish line. There was a three-way points tie between Mike Blackstock, Jukka Steenari, and David Jun. The tie-breaker came down to who had the highest placement in a round. The winner of that contest was Blackstock. This meant the Losi prototype driven by Steenari and the Tamiya 414X driven by Jun would be sitting at the top of the B-main.

After qualifying, it looked as if it was anyone's race. The Associated cars looked to have the mechanical advantage. They were better suited to the point-and-shoot style of the track. The TC3 could be driven hard into any corner on the track and accelerated just as hard without shaking loose. The Yokomo car's were also very fast, but didn't seem like they could be driven as aggressively.

TC Mains

A1 • What would a world championship be without more controversy? At the start of the first leg of the A-Main, Atsushi Hara hit the rear end of Pavidis' second-qualified car causing him to launch off the track. Not more than fifteen feet later, Hara drove straight into the rear end of Billy Easton's car. The first hit was questionable, but the second could be considered intentional by some. After the first few laps, Hirosaka was in the lead with Hara in second and Craig Drescher in third. There was a good battle between Dresher and Shinnosuke Adachi for third. This lasted for about a minute during the middle of the race. With two minutes left in the race, Pavidis was back into the fourth spot. The order wouldn't change from there on out. Hirosaka took the win, followed by Hara in second, Drescher in third, and Pavidis in fourth. There was some controversy regarding Drescher's finish. Craig's car passed the finish line after launching about three feet in the air off some bumper cones. After some discussion, the finish did count.

A2 • Before the start of the second leg of the A-Main, IFMAR referee, Dallas Mathisen, summoned all of the drivers to the drivers' stand and gave them the warning that if two of the three IFMAR officials felt a take-out was intentional, the offending driver's entire team would be disqualified, and not team as in sponsorship team, but as in country. This would have a great impact with five drivers hailing from Japan, three from the U.S., and two from Great Britain. I had taken great interest in this conversation since I was one of the three IFMAR officials to whom Dallas was referring.

With that additional pressure on all of the drivers' shoulders, the start of the race was amazingly clean. Hirosaka was in the lead early with Pavidis, Hara, Drescher, and Easton not far behind. For three straight laps, Pavidis put tons of pressure on Hirosaka. Turn after turn, Pavidis was on his bumper. Just when it looked like Pavidis had the opportunity to pass, Hirosaka would cleanly close the door and keep Pavidis in his rear view mirror. At one point Pavidis clipped a dot and allowed Hara to almost overtake him.

Finally, after countless laps of some of the greatest touring car racing ever, Pavidis made a move. Going into the large sweeper before the straightaway, Pavidis took the inside and motored past Hirosaka. On the following lap, Hirosaka T-boned Pavidis on



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TAMIYA

Touring Car (ISTC)

Finish	Qualified	Name	Car/Chassis	Motor/Wind	Battery
1	3	Atsushi Hara	Yokomo MR4 TC Pro	Reedy 8x2	Yokomo Sanyo
2	2	Mark Pavidis	Associated TC3	Reedy 8x2	Reedy Sanyo
3	1	Masami Hirosaka	Yokomo MR4 TC Pro	Reedy 8x2	Reedy Sanyo
4	9	Craig Drescher	Associated TC3	Reedy 8x3	Reedy Sanyo
5	4	Daisuku Yoshioka	HPI RS4 Pro 2	Orion 8x2	Orion Sanyo
6	5	Billy Easton	Associated TC3	Reedy 8x2	Reedy Sanyo
7	6	Hideo Kitaqawa	Yokomo MR4 TC Pro	Reedy 8x2	Yokomo Sanyo
8	7	Shinnosuke Adachi	Yokomo MR4 TC Pro	Reedy 8x2	Yokomo Sanyo
9	8	Andrew Moore	Yokomo MR4 TC Pro	Trinity 8x4	Trinity Sanyo
10	10	Mike Blackstock	Associated TC3	Trinity 8x2	Trinity Sanyo

Pro-12

Finish	Qualified	Name	Car/Chassis	Motor/Wind	Battery
1	1	Masami Hirosaka	Asc/Yok 12L3	Reedy 10x2	Yokomo Sanyo
2	2	David Spashett	Trinity SwitchBlade 12	Trinity 10x4	Trinity Sanyo
3	7	Daisuke Yoshioam	HPI RS12G	Orion 11x2	Orion Sanyo
4	4	Hideo Kitegawa	Asc/Yok 12L3	Reedy 9x3	Yokomo Sanyo
5	10	Masayuki Murai	HPI RS12G	Orion 11x2	Orion Sanyo
6	6	Josh Cyrul	Trinity SwitchBlade 12	Trinity 10x5	Trinity Sanyo
7	3	Andrew Moore	Trinity SwitchBlade 12	Trinity 10x4	Trinity Sanyo
8	8	Markus Mobers	Corally SP12G3	Corally 9x2	Corally Sanyo
9	5	Takuya Ito	Trinity SwitchBlade 12	Trinity 10x2	Trinity Sanyo
10	9	Yutaka Takizawa	Kawada M300	Kawada 10x5	Echo Sanyo

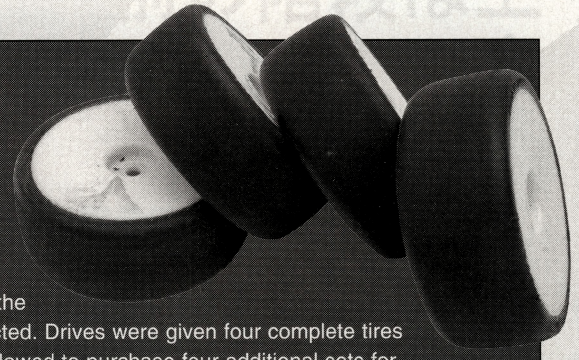
Pro-10

Finish	Qualified	Name	Car/Chassis	Motor/Wind	Battery
1	1	Masami Hirosaka	Yokomo YRX2000	Reedy 8x3	Yokomo Sanyo
2	2	Daisuke Yoshioka	HPI RS10G	Orion 9x3	Orion Sanyo
3	3	Hideo Kitazawa	Yokomo YRX2000	Reedy 8x3	Yokomo Sanyo
4	4	Barry Baker	Yokomo YRX2000	Trinity 8x5	Trinity Panasonic
5	5	Atsushi Hara	Yokomo YRX2000	Reedy 8x3	Yokomo Sanyo
10	6	Takuya Ito	Trinity Switchblade 10	Trinity 8x4	Trinity Sanyo
6	7	Chris Tosolini	Yokomo YRX2000	Reedy 8x2	SMC Sanyo
9	8	Jon Orr	Trinity Switchblade 10	Trinity 8x4	Trinity Panasonic
7	9	Mike Blackstock	Trinity Switchblade 10	Trinity 8x4	Trinity Sanyo
8	10	Masayuki Murai	HPI RS10G	Orion 8x3	Orion Sanyo

the same turn where Pavidis had just passed him. Hirosaka did wait a second for Pavidis, but then hit him just before the straightaway. The second hit didn't look intentional, but with the tension in the air thick enough to cut the crowd (not just the Americans) erupted with "boos" aimed at Hirosaka. The entire incident allowed Hara to take over the lead. Shortly after the boos calmed down, Hirosaka was issued a stop-and-go penalty. Because Hirosaka missed the first entrance to the penalty area he had to go the long way. So what could have been a penalty of just a few seconds turned into, in essence, a life sentence in racing time.

After the smoke had cleared Hara was still in the lead with Easton in second, Andy Moore in third, Drescher in fourth, and Pavidis in fifth; all of the top five were just a few seconds apart from each other. Later on the same lap, Easton clipped a dot and lost control. This put the order at Hara, Moore, and Pavidis with about a minute to go in the race. Thirty seconds later Pavidis and Moore bumped doors; no penalties were assessed. Pavidis got the upper hand and moved into second. Now with less than a minute to go, Pavidis was moving in on Hara. Pavidis appeared to have more ponies. On the absolute last turn

Spec Tires



This year's Touring Car Championship used handout tires as a way to control costs for drivers and level the playing field. Yokomo belted slicks with a "W" molded into the side to designate the tires as being for the World Championship were selected. Drives were given four complete tires sets with their entry and were allowed to purchase four additional sets for practice. Drivers could then select their best four tire sets for six rounds of qualifying. For drivers that made the A-main, three additional sets of tires were handed out. Other main drivers could purchase up to two additional sets for their main. Once drivers mounted their tires to their wheels, each set had to be registered with an official. The registered tires were marked with a sticker and paint. To head off any allegations of a conspiracy, Masami received his marked tires directly from IFMAR officials.

Overall, the handout tire idea worked out well. The alternative would have been everybody coming to the race with four or five different tire compounds looking for the right one. This would have been a huge expense to drivers and would have given locals a huge advantage. The only downside to the handout tires was the behind-the-scenes rumblings that some drivers had plenty of time before the race to test the tires under the specific conditions of Yatabe Arena. At the On-Road Worlds again in two years, tires, along with their choice of two different insert compounds, will be handed out to drivers. A new rule was added that the same manufacturer cannot supply the tires two years in a row.



The tire recycling bin was always full.

Spec tires worked well, but where does it end?

ESC	Radio	Servo	Gearing	Body
GM V12 WE	KO Mars	KO 2173	78/21	Andy's Stratus
LRP Quantum	Airtronics M8	Airtronics 94425	100/30	Protoform Stratus
GM V12WE	KO Vantage	KO 2173	78/20	Andy's Stratus
LRP Quantum	KO Vantage	Airtronics 94425	100/30	Protoform Stratus
LRP Quantum	Airtronics M8	Sanwa ERC-VR	29/122	HPI Stratus
LRP Quantum	Airtronics M8	Airtronics 94425	31/104	Protoform Stratus
GM V12 WE	Futaba 3PJS	Futaba 9450	78/21	Andy's Sratus
GM V12 WE	Airtronics M8	KO 2173	78/21	Andy's Sratus
LRP Quantum	KO Vantage	KO 2173	78/22	Andy's Stratus
Novak Cyclone TC	JR R-1	JR Racing 3121	100/30	Protoform Stratus

ESC	Radio	Servo	Tires (F/R)	Body
GM V12WE	KO Vantage	KO 947FET	TRC Purple/ Jaco Aqua	Andy's Mercedes
LRP Quantum	Ko Vantage	KO 947FET	TRC Purple/ TRC Grey	Andy's Mercedes
LRP Quantum	Airtronics M8	Sanwa 141 HR	TRC Purple/ Jaco Aqua	Andy's Mercedes
GM V12WE	Futaba 123F	Futaba 9602	TRC Purple/ Jaco Aqua	Andy's Mercedes
LRP Quantum	KO EX1 Mars	KO 947FET	TRC Purple/ Jaco Aqua	Andy's Mercedes
Novak Cyclone	KO EX1 Mars	KO 947FET	TRC Purple/ TRC Grey	Protoform Nissan
LRP Quantum	KO Vantage	KO 947FET	TRC Purple/ TRC Grey	Andy's Mercedes
LRP Quantum	Airtronics M8	Sanwa 141 HR	Corrally Silver/ Corrally Grn	Protoform Nissan
Nosram Dominator	Airtronics M8	Futaba 9602	TRC Purple/ TRC Blue	Andy's Mercedes
Mtronics Prototype	Airtronics M8	JR Racing 3121	TRC Purple/ Jaco Aqua	Andys' Mercedes

ESC	Radio	Servo	Tires (F/R)	Body
GM V12WE	KO Vantage	KO2173	TRCMag/ Jaco Pink	Protoform Peugeot
LRP Quantum	Airtronics M8	Sanwa EGR VR	HPI J/ Jaco Aqua	Profoform Peugoet
GM V12WE	Futaba 3PJS	Fut 9402	TRCMag/ Jaco Pink	Protoform Peugeot
Novak Cyclone TC	Airtronics M8	Airtronics 94357	TRC Mag/ Jaco Pink	Protoform Peugeot
GM V12WE	KO EX1 Mars	KO 2173	TRC Mag/ Jaco Pink	Protoform Peugeot
Nosram Dominator	Airtronics M8	Sanwa EGR VR	TRC Purple/ TRC Blue	Protoform Peugeot
GM V12WE	Airtronics M8	Airtronics 94357	Jaco Pink/ Jaco Pink	Protoform Peugeot
GMV12WE	KO EX1 Mars	KO 2001	TRC Purple/ TRC Pink	Protoform Peugeot
Novak Cyclone	JR Racing R1	JR Racing 8425	TRC Purple/ TRC Pink	Protoform Peugeot
LRP Quantum	KO EX10	KO 2144	HPI J/ Jaco Aqua	Protoform Peugeot

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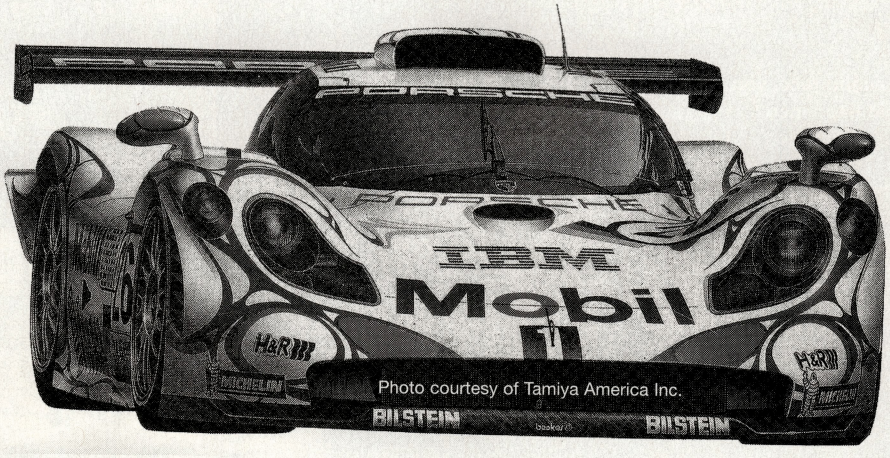

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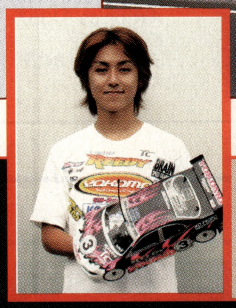
Dining In Japan

Those of you who know me or have seen me, know that I'm no lightweight. Despite my um, err, stocky physique, I'm a very picky eater. When I went to Finland last year for the Off-Road Worlds, I ended up losing about seven pounds thanks to living on chicken sandwiches at the Golden Arches. In Japan, I decided to be a little more adventurous. And I'm glad I was. Up until then my only experience with Japanese food had been a regurgitation of some sushi and Benihana. I was a little disappointed when the cook at McDonalds didn't come over to the counter and hold my hamburger patty on his spatula. Benihana's style of cooking the food in front of you is more of an American tradition. My first authentic dining experience in Japan was with Bob Novak of Novak Electronics, Todd Mattson of Pro-Line, and Mark Pavidis of Team Associated. After taking our shoes off at the door, we sat down on the floor at our table. As we were walking through the restaurant, the chef was shouting to the hostess/waitress, "Americans, Americans" in a strong Japanese accent. At this point in time I wasn't sure if his shouting was a good thing or a bad thing. When the waitress came to take our order, we quickly found out that English wasn't her second or even third language. She pointed to a menu written exclusively in Japanese. That was not good. Then in an act of genius, Mark started slowly saying, "Shrimp," "Pork," "Combo." "Yes, Combo" she replied. We were saved. A few minutes later, we were greeted by a deep fried pork chop, large shrimp, rice, and beers. Way to go, Mark. Dinner was excellent. What do you know. I've been eating and loving Japanese food for quite some time now.





5 minutes with **Atsushi Hara**



Just The Facts:
Age: 20
Years Racing: 10
Favorite Class: Off-Road Buggy

Leading into this weekend were you confident, or not sure of how well you would do? I was planning to run all three scales, but I decided not to run Pro-12 so that I could be more rested for touring car. That helped.

Obviously it was the right decision. Did that have a lot to do with your performance?
It was a big advantage for me.

After qualifying, how did you feel? You were strong throughout the weekend, but seeing some of the other drivers had to have you a bit worried.
After qualifying I knew that the Associated cars were fast. In qualifying, I felt just as fast as the Associated cars when I was running on brand new tires. I knew in the Main I would have brand new tires, so I felt I could keep up with anyone on the track.

What happened in the first few turns of the first A-Main race? After the first round I really felt bad about running into Mark [Pavidis] and Billy [Easton].

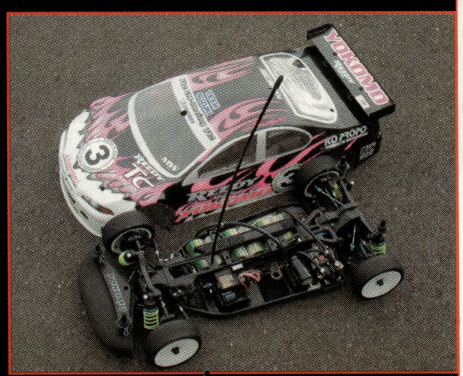
Was it intentional?
No.

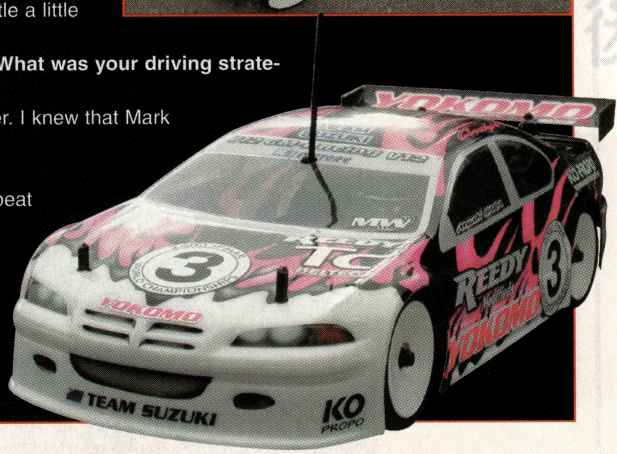
At the end of the second race, you lost traction at the end of the straightaway and let Pavidis slip by. What happened?
I knew my tires were very heated and I got a little nervous and let off of the throttle a little too soon.

At the end of the third race you and Masami [Hirosaka] both slowed down. What was your driving strategy at this point?
During the last couple laps of the race, I relaxed my pace a bit to conserve power. I knew that Mark would be strong at the end. It worked.

What's the rivalry between you and Masami like?
Before running for Yokomo, I ran for Kyosho. Back then I always just wanted to beat that guy. When we became teammates, things changed a little. I must treat him with more respect on the track since he is my teammate. In close races, I must be very careful. I always want to have a clean race, but with Masami as a teammate I'm even more conscious of having to have a clean race. But when it comes down to racing, I always want to beat him.

Thanks to Robert Itoh of Yokomo for interpreting.





Atsushi's English is actually pretty good.

of the race, Hara lost rear traction and spun his car out. Pavidis took a hold of the opportunity and snuck by to take the win by just a few feet. The crowd erupted with applause. It was one of the best race endings I've ever seen. With Hirosaka winning the first race, Pavidis winning the second, and Hara finishing in second twice the tension was fierce going into the third leg.

A3 • The front of the pack got away clean when the buzzer sounded. Hirosaka led for the first four minutes of the race. Through three of those four minutes, Pavidis was never more than a few feet away from Hirosaka. Turn for turn, the two champions drove flawlessly. But, it wasn't three and a half minutes into the race when Pavidis got loose after contacting Hirosaka. Then on the following turn, Pavidis clipped a board and fell behind Hara who took over second place behind Hirosaka. On the next lap, the same board that found Pavidis found Masami. This allowed Hara to take over the lead, with Hirosaka in third and Pavidis in second. A few laps later, Pavidis clipped the same board again after sticking to Hara like glue. With Pavidis stuck on the board, Hirosaka took back second place. Soon after, the final buzzer sounded. All three cars came onto the straightaway around the same time, yet Hara had a sizable lead. At the front of the straightaway it was apparent that Hirosaka's car had dumped; Pavidis blew by and had Hara in his sights. But, even a full throttle punch through the last set of turns wasn't enough for Pavidis. Hara had already crossed the line and with that final win, securing the overall victory.

Conclusion

Well this year's race had everything it takes to make a great world championship. Masami Hirosaka dominated the 1/10-scale class. Thanks to some controversy and great racing, the 1/12-scale A-main was great to watch. And never before have we witnessed some of the great racing displayed in the Touring Car A-Main. Despite the hot temperatures and high humidity, I think everyone that made the journey had a good time. However, it would have been nice to have a day off between classes to see a little bit of Japan. The awards presentation was very cool (see captions). During the touring car A-Main, the arena was filled to capacity with on-lookers and reportedly sales in the pro shop were brisk; all good signs of the health of our industry. Congratulations to Masami Hirosaka and Atsushi Hara on their victories. Congratulations to the Yatabe Arena staff on putting on a great event. Thanks to all the racers who made the journey. Hope to see you in two years, possibly in South Africa.

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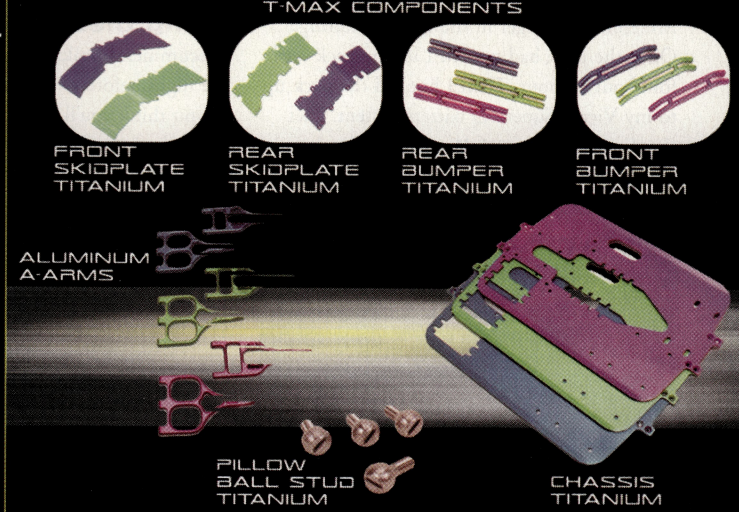

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Trinity NitroMetal Hydride



Every year battery technology goes further and further when it comes to electric R/C cars. When I started racing battery cells were rated at 1200 mAh for a standard Sub-C cell. Today those same sized are rated at 3000mAh thanks to Nickel Metal Hydride technology. Today the small AE-sized receiver packs used to power the radio systems in gas cars has reached 1100mAh with Trinity's new line of receiver packs. Although Trinity is not the first company to introduce Ni-MH receiver packs. Their new line raises the rung on run time and price. But aside from the data, how do these batteries perform?

Vital Info:
Trinity Products
36 Meridian Road
Edison, NJ 08820
732-635-1600
tech support 1-877-380-0040
www.teamtrinity.com

RATING



Hits:
- Long run time.
- Great Voltage.
- Lots of configurations available.
- No maintenance required.
- Good price

Misses:
- None

The Last Word
If you need a receiver pack for your nitro car and don't want to worry about batter maintenance try one of these packs. You'll be glad you did.

The Specifics:
Part #'s: RC5300-RC5304
Retail Price:$39.99
ESP: $39.99
Manufactured in Taiwan

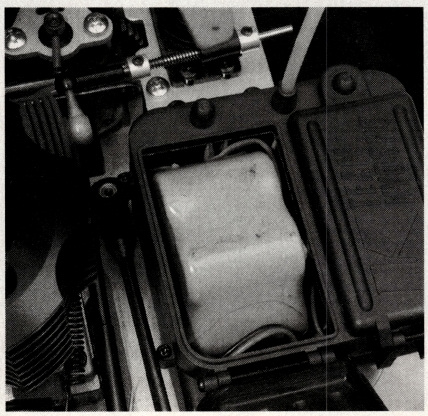
What They Are

Trinity's Nitro Metal Hydride packs come in a variety of five different sizes to fit in just about any gas car on the market. The packs are made up in a five cell configuration to provide 6V of power for the receiver and two high-power servos. The cells themselves are exactly the same size as other Ni-MH and Ni-Cad AE sized cells. Each pack comes with a standard Futaba style servo plug. Each pack is double wrapped in blue shrink wrap. The entire line has a suggested retail price of $39.99 which is about 10- to 15% less than other lower rated Ni-MH receiver packs. The Nitro Metal Hydride packs do weight about a half ounce more than other packs we weighed. This could be do to the extra layer of shrink wrap.

Testing

My first test was a pretty simple bench test. I charged the 5-cell pack with my Novak Millennium charger in the Ni-MH setting. Once the pack had peaked I let the pack settle for about an hour. Then I hooked the pack up to my Victor Super-IQ battery system. I set the discharge rate to 1.1amps with the default voltage cutoff. The 5-cell pack provided just a hair over an hour's worth of run time. Exactly in line with the time we should have read given the 1100mAh rating.

My next test was an actual field test I placed the 5-cell hump pack into my Kyosho MP7.5 that was being tested for this issue and only charged the battery once without ever bumping up the pack with a little extra charge. In order to install the pack to my Lynx 3D radio system harness I did have to cut the plug on the battery to get the plug to fit into the harness. Once this was done the battery pack fit in the buggy nicely. Through at least an hour and a half of running the servos appeared to be just as quick as they were when I first flicked the switch. After I was done with the buggy I discharged the pack and got another eight minutes of running at 1.1amp discharge. Although I did discharge these packs a few times completely to get some data, Nickel Metal Hydride cells like to be stored at a 30% to 50% charge.



The five cell hump design fit inside my MP7.5 easily. The five cell straight pack design will fit most on-road 1/8-scale cars.

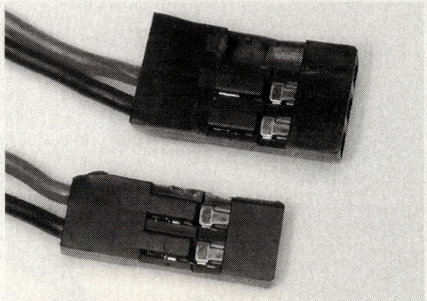
Using these Batteries

I recommend peaking these packs in your car the night before you want to race or, whenever you think you'll be running your car. These packs don't need to be discharged like Ni-Cads since these packs don't acquire a memory. You can charge these packs with a simple overnight trickle charger designed for Ni-Cads. The charge rate is so low on those overnight chargers you will not damage these cells at that charge rate.

Conclusion

I'm racking my brain to find fault with these new batteries and I can't. They work great. They last long enough for ever the longest runs. The voltage output is strong. The double shrink wrap makes the pack more durable. The wide number of cell configurations makes mounting them in just about any car very easy. The cord is long enough to route around any chassis. And the price is less than other Ni-MH packs on the market. The only fault I could pick at would be having to cut the plug to get it to fit into my radio's harness. If I had been using a different harness this might not have been the case.

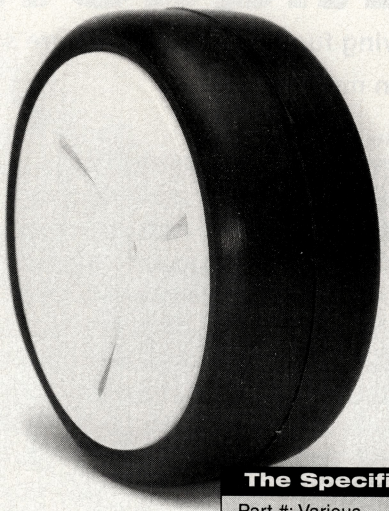
An X-Acto knife was all I needed to fix my plug dilemma.



Hey Tyra, what's the secret?

TakeOff CS Series Touring Car Tires

TakeOff is a brand better known in Japan than here in the States. But, that doesn't take away from the fact that Take Off makes some great products. One of their newest products is the new CS Series of touring car tires. The new series comes out of the package with molded inserts and a nice low price. But how do they perform? Let's find out.



Vital Info:
Made by Take Off
Imported by
Schumacher
813-889-9691
813-889-9593 fax
www.racing-cars.com

Hits:
- Great price.
- Four different available compounds.
- Comes with high-quality molded inserts.
- Even with the softest compound wear was good after five runs.



Misses:
- Hard to find at most hobby shops.
- Only come with medium inserts.

The Last Word
Great price, great tires. Worked great throughout our testing.

The Specifics:
Part #: Various
MSRP: $14.99,
ESP: $14.99
Manufactured in Japan

What It's For

The new CS Tire Series is designed for any standard width touring car wheel. The tires are molded in aggressive compounds so these tires are geared more towards the racer than the occasional street driver.

What it's got

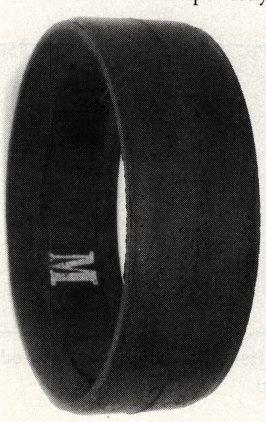
Out of the package the CS tires come with medium density molded foam inserts. The inserts have the standard tapered edges to fit the inside of the tire perfectly. The tires themselves have a very low profile and feature internal belts. There are four different compounds all in a slick tread design. The four different compounds are intended for different track temperatures. The tires designed for lower temperatures are slightly softer than the tires for higher temperatures. All in all the entire range of tires are on the soft side and definitely intended for racing.

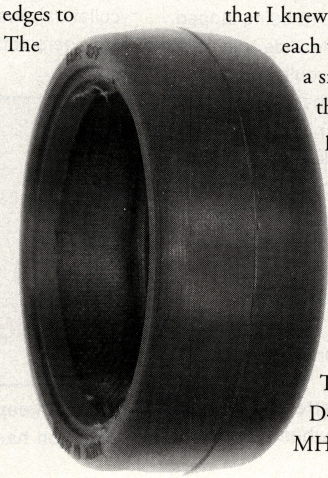
Availability

Take Off tires, along with other Take Off items, are imported in the states by Schumacher. These tires are available from Schumacher and hobby shops selling Schumacher and Take Off products. The CS tires are sold in pairs and come with inserts all for a suggested retail of $14.99. Considering you get the inserts is a very good price.

Testing

To test the tires I mounted all four sets of tires to standard 24mm wheels I had from Pro-Line, Echo, and RPM. All of the tires fit all of the wheels nicely. After all the tires were mounted I marked the inside of each wheel so that I knew which compound was on each wheel. My testing ground a smooth asphalt parking lot that had recently been paved. I brought my blower and cleaned off the track surface completely. Once the area was cleaned I set up some cones to make a little make shift race track. My test car was an Associated TC3 with a 12 turn Trinity D4 motor and Sanyo Ni-MH 3000 battery packs. My first time out was with the high temperature tires, CS-37. FYI the track temperature was 105° F on a slightly overcast day. After one pack with the new tires I figured they were sufficiently broken in and I began to take notes. The first set of tires worked very well. The car had a neutral feel all around with a slight push on a high speed turn. The tires did make a chirping noise on most of the tight turns. To get the other side of the coin the next set I mounted was the low temperature CS-22's. After the tires were broken in I didn't notice much difference in performance from the CS-37's. Both compounds worked very well. On the high speed turn the car seemed to be more aggressive. Overall the tires handled very well all around the unprepared surface.





In the end

Take Off's got a very nice tire on their hands. With the inserts included they are a very good value. Although I didn't see much of a difference between compounds it might be worth it for someone to try out a few sets at their local track. You might find the perfect tire. Just don't tell your buddies. The tires fit all the wheels we tested nicely. I can highly recommend giving these tires a chance. If you're used to a real aggressive soft compound try the CS-22's or CS-27's. You'll be very happy with these tires.

Race Track Etiquette

Having fun and being polite are sure ways to earn merit badges.

by Mike Henry



Most of *Xtreme's* How-to articles focus on getting your car (or truck) around the track faster and cleaner. A subject often overlooked by racers and enthusiasts is your attitude while you're racing. For some people, winning isn't everything; it's the only thing. Most of us racers have regular jobs or go to school, and can't be as absolutely dedicated to winning as others. So for us the emphasis should be on learning and having fun. The following might not be the most exciting How-to article you've ever read, but it just might be the most useful. So put down your wrenches and camber gauges, and take a few minutes to remind yourself why you started racing in the first place.

Unpacking

When you arrive at the track, the first thing you probably do is look for a good spot to pit. Most tracks provide adequate tables and outlets, but sometimes all of the good spots are taken. If you politely ask a fellow racer if you can share their table, nine out of ten times the answer will be sure. Racers have a tendency to spread their equipment all over the place, and it can usually be condensed to clear some space.

Most tracks also use a frequency board to allow racers to practice without interfering with someone else's radio gear. Don't be a "clip hog." Only use the frequency clip if you're going to be actually running your car. When you do have a clip, try to remember someone else might be waiting to use it. Nitro racers can literally run forever, so please be considerate to others.



The Drivers' Stand

More disputes arise on the drivers' stand than in any other area of the track. First, don't push and shove while you're trying to get that one good spot on the stand. In most cases, there is plenty of room for everyone. You might not get that spot on the "50-yard line," but don't let it ruin your race before it even starts. Once the tone sounds, make an effort to run a clean race. Do not yell at the marshals. It's not their fault that you crashed. While you're waiting to be marshaled, resist the temptation to get on the throttle. Once you're back on all fours, continue on your way. Believe it or not, some racers even thank the marshal!

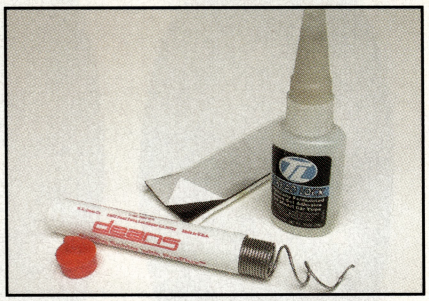
- Most race directors are aware of the leader's position on the track. They will advise lapped traffic to pull over, and it's your job to let the leader by. Don't get nervous and freak out. You'll know if you're being lapped, and it's not hard to go a little wide to let the leaders by. (The next time you're at a national event, watch how the pros handle being lapped.) Once the leader(s) is/are safely ahead of you, don't nail the throttle and try to catch them. I can't tell you how many times I've seen this, and the lapped driver usually overshoots a turn and piles into the leader.
- Once the race is over, pull your car off the track and get ready to marshal. Do not take your 8th place victory lap.

Remember, it's always better to be the Boy Scout than the jerk when it comes to racing.

- If while you're racing you do happen to cause an accident, you might want to approach the person you "hacked" after the race. Apologize and explain that it wasn't intentional. You'll feel better, and you'd be surprised how cool this makes you look in other racers' eyes.

Borrowing and Lending

- Solder, CA, etc...There are certain items of which you're going to use and run out. You might have to wait an extra week or two to buy the latest trick part, but you need to have the essentials. On the other hand, it can be a good thing to lend your tools or a small item, such as a pinion, to someone who really needs it. Even seasoned veterans borrow things from time to time. If you're really concerned that someone might forget to return an item, ask for something in return for collateral. I've seen racers lend almost total strangers sets of tires, and even motors on



Always keep items you know you'll need often on hand.

Joking around with your friends is fun. Be careful that there are no kids ...

1/10 SCALE

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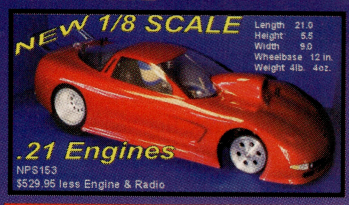





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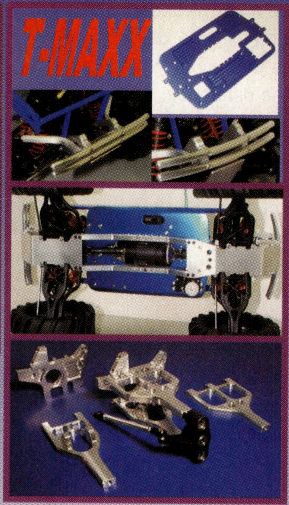







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HOT HOT HOT

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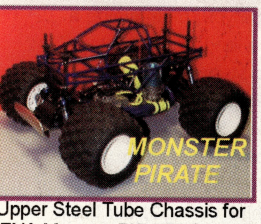
S301	Stampede Skid Plate/Bumper	$29.95
S223	Stampede Wheele Bars	$39.95
F151	1/8 Scale Top Fuel (for21)	$559.95
S152	1/8 Scale Pro Stock (for21)	$529.95
X103	Traxxas NitroRustler Chassis	$39.95
F210	SS(steel)Brake w/Fibre Pads	$ 9.95

CNC Aluminum Upgrades Silver or Blue

TRM320	Front Skid Plate	$21.95
TRM321	Rear Skid Plate	$19.95
TRM320SD	3.2mm Frt Skid	$24.50
TRM321SD	3.2mm Rear Skid	$24.50
TRM322	Front Bumper pr	$18.95
TRM323	Rear Bumper pr.	$18.95
TRM324	Front Bumper Supports pr.	$24.95
TRM325	Rear Bumper Supports pr.	$24.95
TRM102	Rear Sway Bar. (Requires TRM325)	$39.95
TRM305	Front Sway Bar. (Requires TRM324)	$39.95
TRM326	Lower Braces pr.	$54.95
TRM327	Throttle Servo Mount pr.	$18.50
TRM328	Steering/Shift Servo Mt pr.	$18.50
TRM329	Steering Drag Link	$ 9.95
TRM331	Rear Bulkhead pr	$79.50
TRM332	Upper Control Arms pr w/pivot lock	$44.50
TRM333	Lower Control Arms pr w/pivot lock	$49.50
TRM334	Center Skid Plate	$15.00
TRM336	Frt or Rear Shock Tower	$38.00
TRM910	Roll Bar W/Brace	$39.50
TRM103	4.7mm Chassis	$64.50
TRM107	3.2mm Ex. Main Chassis	$59.90
TRM321EX	Rear Skid	$26.50
TRM123	Engine Mount for Rear Exhaust .15 or .21	Pull Start$35.00
AGT301	Hi-Torque Ripple Pipe Powder Coat Blue	$29.95
AGT301W	Pipe Wire Blue	$ 5.00
TRM241	Header Blue	$19.95



1/10 SCALE UPGRADES

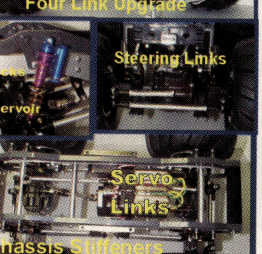


Upper Steel Tube Chassis for
FNA Monster PIRATE $169.95



Upper Steel Tube Chassis for
SA1 $169.95 Chassis only





Steel Tube Chassis Only $239.95

HPI Nitro MT & Nitro Rush Upgrades CALL



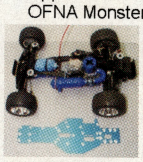
AGT103 Bi-Level Chassis $79.50
AGT106 for 21 Engine $109.50



AGT101 Rear Brace $21.95
AGT102 Front Brace Tubes $ 7.95



Upper Steel Tube Chassis for
OFNA Monster Blazer $169.95



Nitro Rustler and Stampede CNC Aluminum Upgrades

TRX103	3.2mm Alum.Chassis Plate (Rustler Only)	$39.95
TRS330	Front Bulkhead (Blue)	$34.00
TRS331	Rear Bulkhead (Blue)	$24.00
TRS332	Front Control Arms pr. (Blue)	$34.00
TRS333	Rear Control Arms	pr. $34.00
TRS402	Rear Arm Mounts	pr. $23.50
TRS403	Front C Shaped Hubs	pr. $24.00
TRS404	Rear Hub	pr. $24.00
TRS430	Front Shock Tower	pr. $23.50
TRS431	Rear Shock Tower	pr. $23.50

1/4 SCALE

Kits Starting at $995.00
Including Gasoline Engine

ROAD



DRAG



TRUCK & OFF-ROAD



www.NEMScaleCars.com

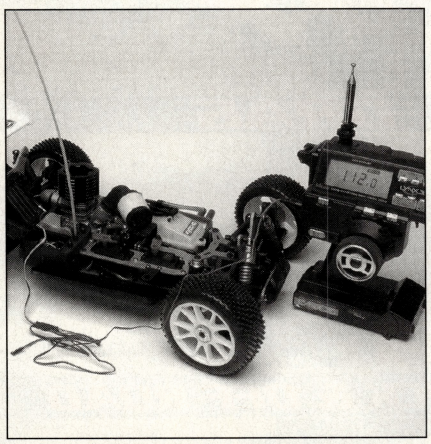
unless new racers keep coming out to the track. But, you knew there was a but, be diligent and be sure to get your stuff back right away. If you find that the same guy is constantly borrowing tell him NO. Suggest to him that he really needs to purchase whatever it is he's borrowing.

• The one thing new racers need that you can give them is help. If you see a downtrodden novice walking around asking for help, don't hesitate to offer. Knowledge that you might take for granted could be the difference between him making the next round, and going home disappointed. That doesn't mean you need to patrol the pits offering advice to everyone you see! Sometimes an opportunity to help comes out of nowhere. A few months ago at my home track, I was wrenching on my own car during a novice off-road race. Somehow, a buggy jumped over a barrier and into the pit area, making a snapping sound as it hit the ground. A few racers ran over to the car, snapped a ball-cup back in place, and set the car back on the track. This isn't an act that is going to win the Nobel Peace Prize, but it did make a difference to the novice driver. It showed him that others were willing to help him out.

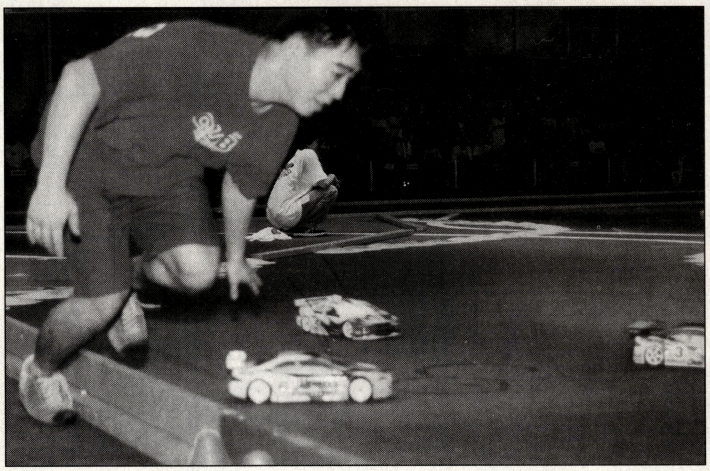
• Unless you want to be completely ostracized from your local track, never ever turn your radio on in the pits without clearing it with the racer director or the frequency board. If you need to make radio adjustments, take your car and transmitter over to the track or near the track and grab the frequency clip.

Marshaling

While an entire article could be written about marshaling, I'll try to be brief. Helping out after your race is not an option. There's nothing worse than watching 10 drivers battle it out, then hearing the race director pleading for turn marshals. Once again, watch the pros after a race. You won't see Matt Francis or Mark Pavidis running back to their pit, shirking their responsibility.



Radios like the Airtronics M8, Futaba 3PJS and this Hitec Lynx 3D feature DSC cables that allow you to make radio adjustments without transmitting a glitch.



Look both ways before you cross the track. When marshalling a car, the last thing you want to do is cause another wreck.

• Marshaling is not a difficult task, if you're paying attention. Do not watch the race; watch your area. Talk to fellow marshals before the race to make sure all areas are being watched. I've seen really good marshals and really horrible marshals. The difference was their attitudes. Try to be as efficient as possible.

• Once a car is stuck, quickly pick it up, and set it back down on the racing line. Do not throw the car down. You might think you're doing them a favor, but you probably aren't. Watch for oncoming traffic, and don't set a car down right as a freight train of cars is running through your corner.

• Not every marshal has Bruce Jenner speed and agility, but you have to make an effort. Try to get the crash as soon as you can without hurting yourself or stepping on another car. We've all seen marshals who move with the urgency of a 100-year-old land tortoise. When I'm marshaling, I'm usually still a little pumped from my own race, so effort comes naturally.

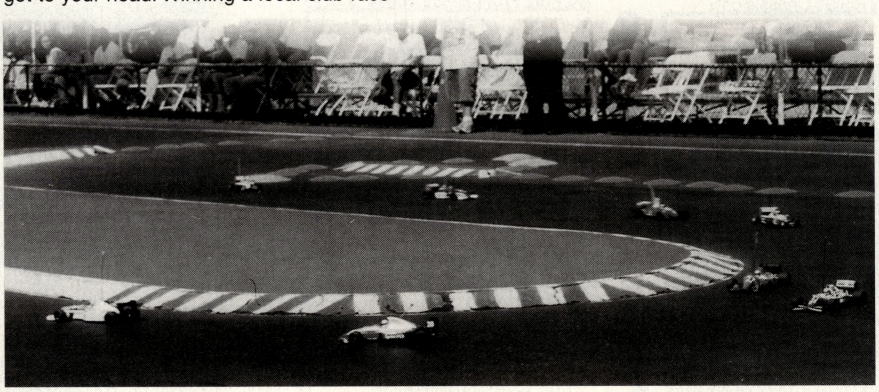
Winning and Losing

There's nothing more satisfying than an A-Main victory, or is there? More than once, I've had way more fun battling with someone for third or fourth place, versus taking home first place by half a lap. You're probably not going to get much better if your only concern is lapped traffic. That being said, it is OK to enjoy your hard-fought victory. Just don't let it get to your head. Winning a local club race and taking home ten whole race bucks is sweet, but you don't have to parade around the pits making an ass of yourself. Keep things in perspective, and don't forget to marshal the next race.

It's a lot easier to be a good winner than a good loser. Do not lose your cool. If you're just too upset to talk to anyone else, don't. You might say something really stupid that you'll regret when you cool down. Try to focus on how you can improve. And whatever you do, do not throw your car! I have seen this happen, and it's hard to respect a person who does something so ignorant.

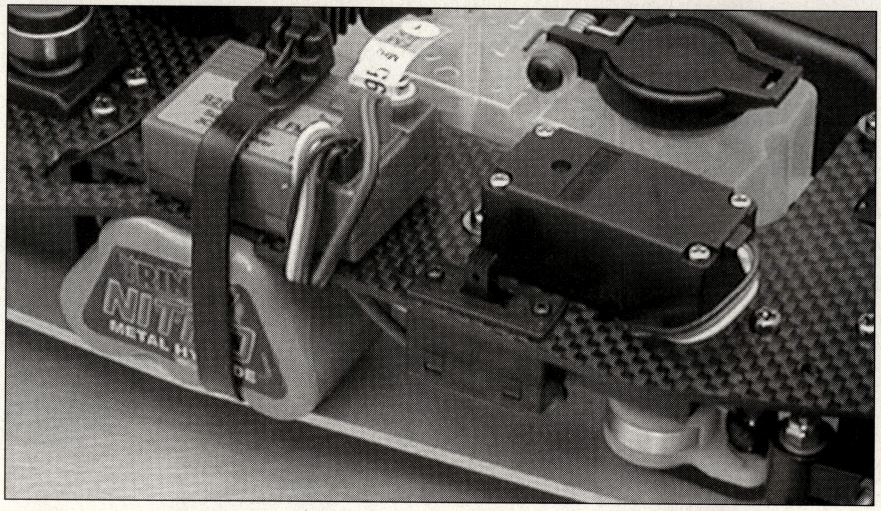
In Closing

Being a good racer means a lot more than having nice equipment and going fast. At risk of going Stuart Smally on you, maintaining a positive attitude will go a long way in racing and in life. If you get too stressed out or you start taking racing to seriously, you will burn out quickly. We've all been novices at one time or another. By helping newcomers, we are insuring the future of R/C racing. Even though we'd all like to think racing is our livelihood, we all have lives off the track that are far more important. Who knows? Maybe you can apply your success and positive attitude to other areas of your life. "Because you're smart enough, you're good enough, and dog-gone-it, people like you!"



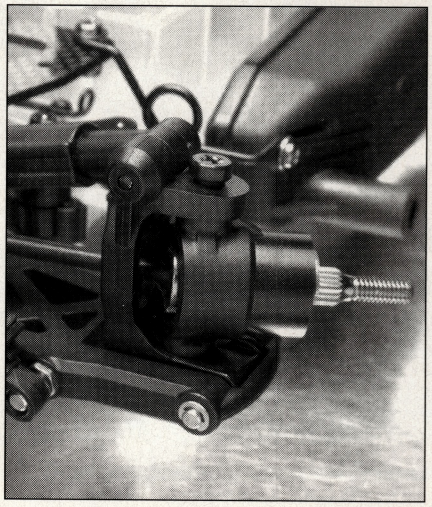
...when you tell that joke about the ball driver and the soft rear end.

continued from page 51

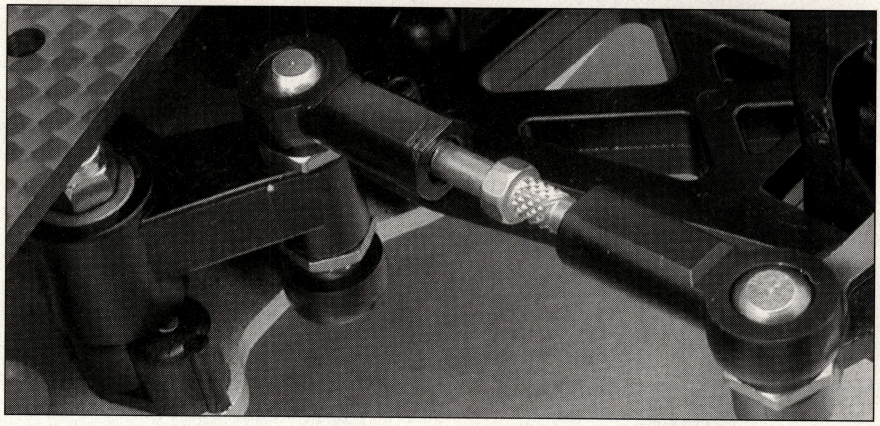


Above: A standard 5-cell hump pack receiver battery fits nicely under the top deck.

Below: Thanks to large steel turnbuckles adjusting toe is easy.



Above: The TGR uses a long arm suspension design. Below: No pins here to lose.





high speed. There's plenty of low end, but the TGR was more fun wide open with sweeping turns. Although Crystal Park is wide open, there are technical sections to consider. To improve steering, I set the front wheels with 1 degree of negative camber.

Low-Speed Handling • The TGR acts like a smaller car in terms of agility. At low speeds, steering is plentiful. In addition, exiting a tight corner was controlled thanks to the combination of the four-wheel drive and the effectiveness of the sway bar. One thing that I did notice was that the rear wheels broke loose a little too soon when the gas was applied. What I did to correct this was to move the rear top shock location to the middle hole to give it a more square feel. This improved cornering much more so I tried adjusting the shock to the outer hole. After about half a tank, I return the shock location back to the middle because the outer location was too square. The TGR was pushing entering tight corners and was not responsive.

As far as engine behavior at low speeds, the Tamiya engine was very tame and responsive. Locking the transmission in first gear is something to consider for short tracks because you will appreciate the smooth power curve of the FS-15RB Engine.

Rough Track Handling • At both tracks, there were some rough sections of the track. I didn't really notice the suspension getting upset. The shock setup absorbed everything pretty well.

Overall Drivability/Stability • The TGR is a competitive chassis right out of the box. I did make some adjustments to suit my driving style, but the car would have been fine if I had left it alone. I didn't have any driving issues. In fact, the TGR was aggressive while at the same time under control. Major kudos to the designers at Tamiya for the overall design!

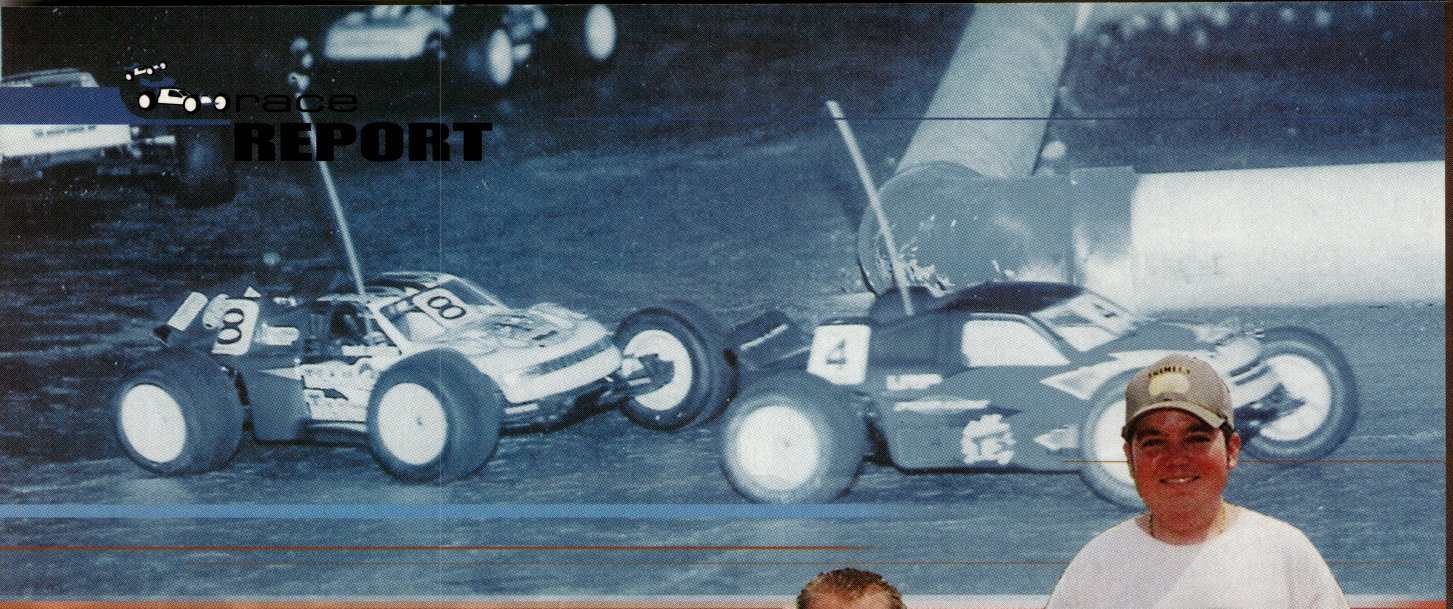
Damage Control

I didn't break anything, but I did work on the car considerably. The first issue that I encountered was a screw that held the second gear to the 2-speed hub had come loose. (Refer to building tips for using thread-lock.) Just to get to the transmission, I had to take off the top deck and pretty much disassemble the whole rear end. It wasn't hard, but it was time consuming.

The second issue concerned the brakes. After about four tanks the brakes were fine, but after about eight tanks, the brakes were non existent. I had to figure a way to apply more pad to the brakes. (Refer to Braking section.)

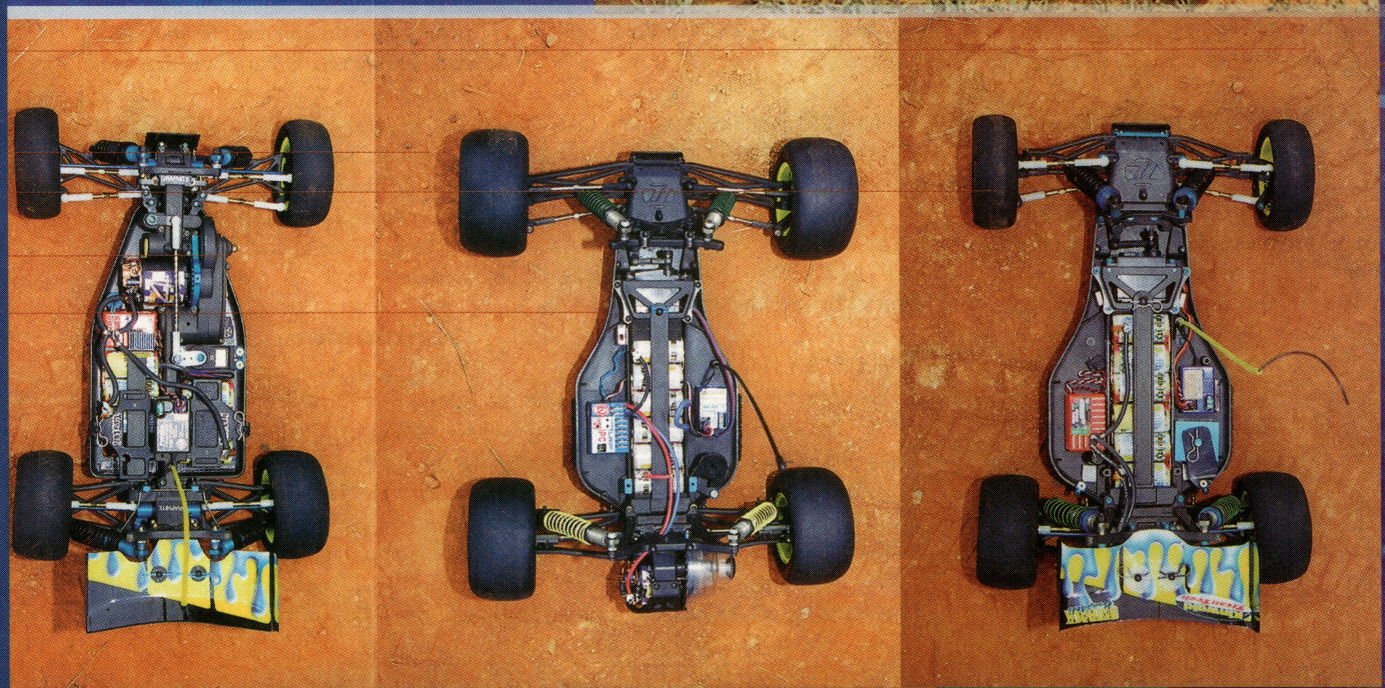
Conclusion

Although the TGR is made to compete with super-size offerings from HPI and Kyosho, its performance more closely rivals cars from the likes of Serpent, Picco, and Mugen. The TGR sets new design standards when compared to other super-sized cars.Tamiya did a great job in designing a solid and very worthy chassis to compete with the established chassis in the market.





Francis & Kinwald Take It Home!



Who knew you could have so much fun on dirt?



2000 ROAR Modified Off-Road Nats

by Mike Henry

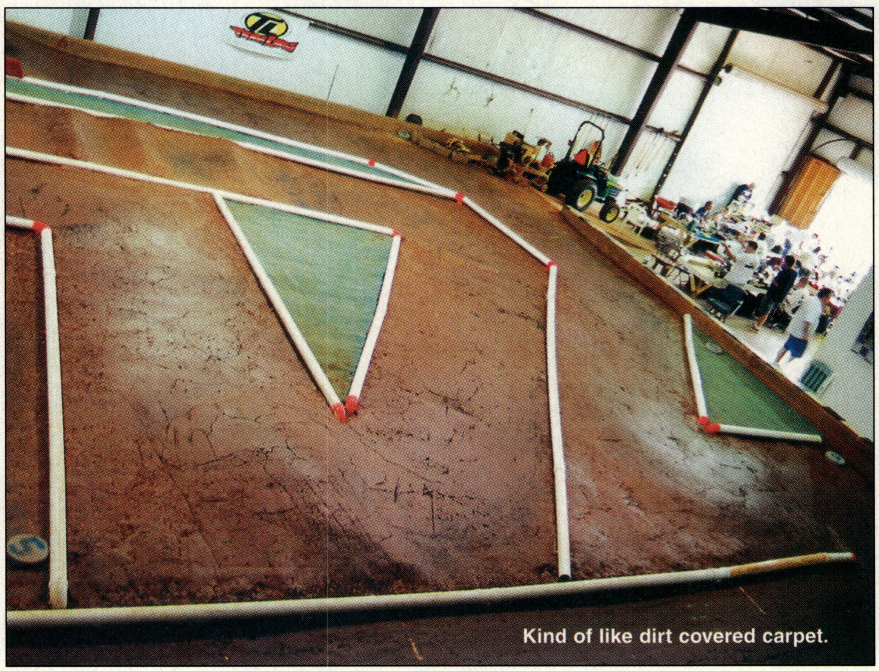
Life is full of subtle ironies. Take for example the 2000 ROAR Off-Road Nats in Dalton, GA. Dalton, the carpet capital of the United States, is perhaps the least likely setting for one of the year's biggest off-road races. (Perhaps the city council should put in a bid for the Carpet Nats.) Also consider that the track at Dalton was made not of dirt, but Georgia clay. There are a few off-road tracks in the US that use clay as a racing surface, but for most off roaders, it is a strange sight to behold. MnM in Corona, CA – a clay track – is also considered by many to be Team Losi's home track. Losi does a lot of testing and R&D at MnM, so will this give them an upper hand when it comes to racing in Dalton? We'll have to wait to find out. After quick tour of the pits at Dalton, it was obvious that Team Associated was going to put up fight. Veteran racers like Mark Pavidis, Scott Hughes, and Billy Easton were present, and none of them are strangers to running on clay tracks. Team Kyosho also made the trip to Georgia. Greg Degani and Chad Bradley brought their Ultima trucks and buggies, hoping to foil the Losi and AE factory camps. Follow along as *Xtreme* takes you inside the 2K ROAR Off-Road Nats.

Anybody got a fan?

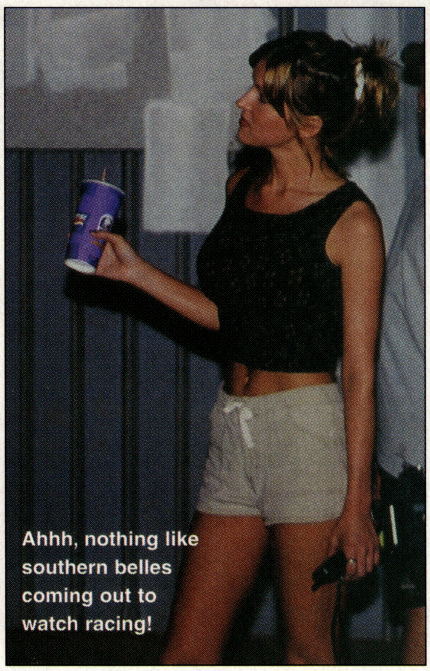
The Track

The indoor track at Dalton Raceway featured a little bit of everything, from tight 180-degree hairpins, to steep jumps, and even a paristyle corner/jump. The track also had a very long straight that led into perhaps the fastest sweeper ever featured at a national event. (Can you say traction roll?) The actual surface was hard packed, concrete-like Georgia clay. Under the fluorescent lights, the track looked shiny and slick, but it was actually hooked-up beyond belief. The 2WD buggy and truck racers were doing everything in their power to keep the front ends of their vehicles on the ground. The two most common methods were to add about an ounce of weight to the front bulkhead and/or to motor down. The 4WD buggies – all Losi XX-4s – were stuck to the track all weekend. Most of them were actually three-wheeling around the turns, picking their inside rear tires off the ground!

As one might expect, the weather in Georgia in August is, well, sultry. Luckily, the sweltering heat that enveloped the area did break on Saturday. But, the change was far from ideal as the racers still cooked inside the large tin building. Dalton Raceway featured the tallest drivers' stand I've ever seen. Standing about 30 feet high, it did provide a panoramic view of the entire circuit. The overall effect of the shiny track, the indoor lighting, and the epic drivers' stand was kind of spooky.



Kind of like dirt covered carpet.



Ahhh, nothing like southern belles coming out to watch racing!



The aftermath of several days of sanding rubber off of tires.

Tires

Racing on packed clay requires special tires. Since ROAR rules prohibit the manufacture of slick tires for off-road, racers must remove the tread from standard off-road tires, until they are slick. This is most easily accomplished using a belt sander. But it is a tedious, time-consuming task, even when you have the best Black and Decker™ has to offer. Team Losi's Matt Francis chose his hotel room at the Country Hearth for slicking his tires. Francis told me, "Losi Taper Pins are the tire of choice, because of the profile and shape of the carcass. We use silver compound Tapers (not tapirs) on our XX-4s, XXX-Ts (front and rear), and for the rears on our XXXs. We're also using the firm blue Trinity foams. Standard foams are too soft for running on clay tracks."

Who better to ask about Pro-Line tires than AE's Scott Hughes. Scott reported, "We're running M2 compound Holeshots on the front and rear of our trucks. We also use the Holeshots for the rears on our 2WD buggies, and Pro-Line 4-Ribs on the front." You might think it ends there, but according to Scott, "When the tires get too worn out, they actually give too much grip, and you start traction-rolling everywhere." There's a lot more to running slicks on an off-road track than busting out the belt sander.

Racers were also using many different chemicals to soften their tires. Kerosene and diesel fuel seemed to be the favored dressing, but as one Losi wrencher said, "If you can put it on a tire, we've tried it." Unfortunately, one rather ill side-effect of using the stuff on your tires, is that it eats the foams inside. Those with unlimited funds or factory backing tossed their tires after two or three runs. **WARNING:** *Xtreme R/C Cars* does not suggest using flammable materials on your tires. We're simply reporting the facts from the race.

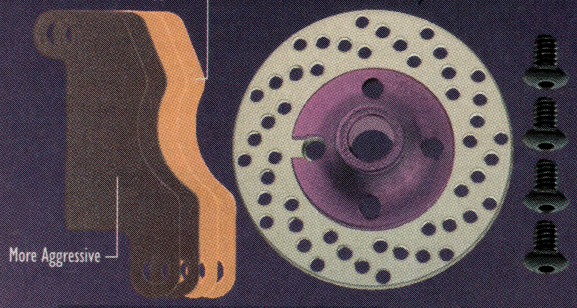
Batteries

One of the benefits of having factory backing is access to the best batteries available. Most of the A-Main racers at Dalton were running the latest SP batch of Sanyo 2400MAh NiCad cells. The first batch of 2400s was less than impressive. They did offer longer run-times than 2000MAh cells, but they were down on voltage. Sanyo has managed to extract on average 30mV more per cell with the RC2400 SPs. Some of the better cells boast voltage output of 1.17V at 20A discharge rates. While you may not have the budget to buy the same Trinity/Orion/Reedy cells the pros use, more affordable matched packs of the new RC2400s should be hitting hobby store shelves by the time you read this.

Unfortunately, this race had no trophy girls.

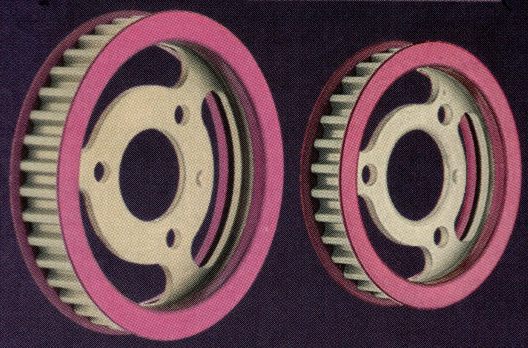
PERFORMANCE

HPI RS4 Nitro Aluminum Brake Kit



New, variable braking system. Lightweight aluminum. RRP 1575

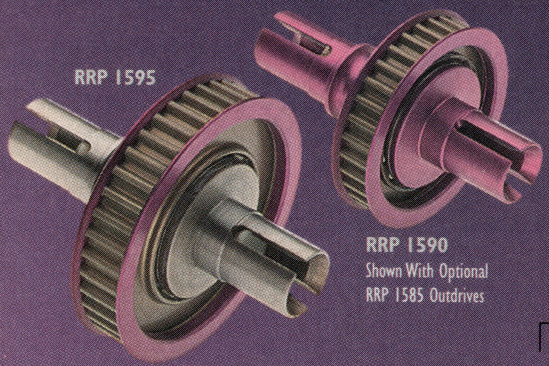
HPI RS4 Front One Way Diff Pulleys



Precision machined, hard anodized aluminum one way diff pulleys.
RRP 1540 fits HPI Nitro sedans. RRP 1529 fits HPI electric sedans.

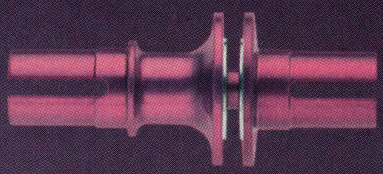
Performance from Precision

HPI RS4 Complete Ball Diff Units



Hardened steel outdrives, ground and polished thrust washers, 2 5x8mm ball bearings, and aluminum pulley.
RRP 1590 for RS4 Electric, and RRP 1595 for RS4 Nitro

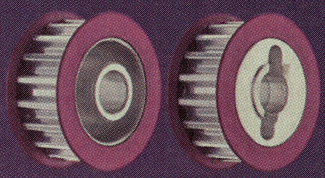
HPI RS4 / Pro / Pro2 / Nitro Lite Aluminum Outdrives



Purple anodized and 40% lighter than stock ball diff outdrives.
RRP 1585

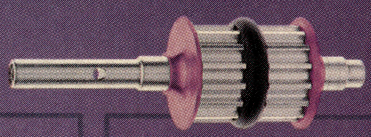
ENGINEERED

HPI RS4 Nitro Small Drive Pulleys



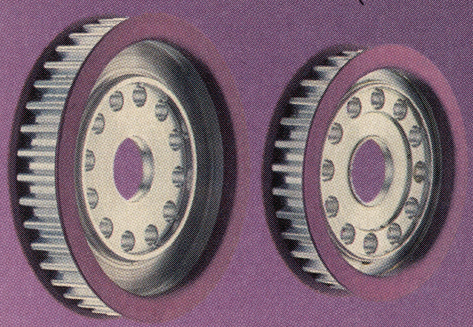
Drive pulleys sold in pairs. RRP 1538

HPI RS4 Top Shaft Pulley



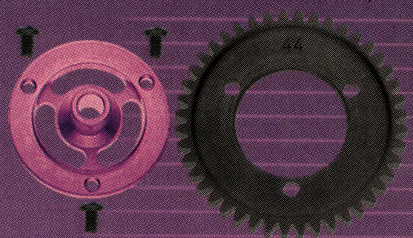
HPI RS4 Top Shaft Pulley: One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on.
RRP 1527

HPI RS4 Diff Pulleys



Precision machined, hard anodized aluminum diff pulleys. RRP 1539 fits HPI Nitro sedans. RRP 1528 fits HPI electric sedans.

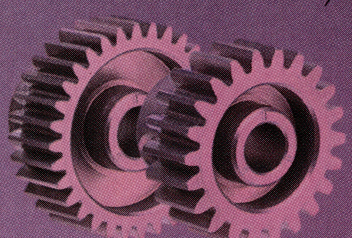
HPI RS4 Nitro Lightened Gear Adapter



This lightened gear adapter includes a machined nylon spur that is tougher than the stock gear and will last longer.
RRP 1535

An HPI RS4 Nitro 32 Pitch Conversion Kit is availble. RRP 1536

HPI SuperLite Purple Aluminum Sedan Pinions



They're lightened, hard coated and precision cut.
Available in 48P in 16T thru 28T, and 64P in 24T thru 38T.
RRP 30XX (48P) and RRP 31XX (64P). Only $5.25

All performance accessories shown here were produced with precision CNC equipment. They're hard anodized where necessary, and color accents are added to help improve the looks of your machine. We spare no expense on the quality of the raw materials we use so that we can offer you only the finest in high performance drive train components. All RRP products are manufactured here in the USA.

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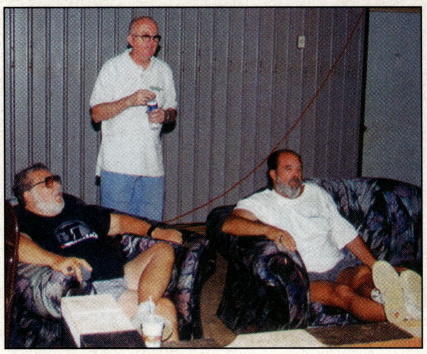
Mains Format

A triple A Main format was used for all of the A-mains. For each class, points were tabulated at the end of each round, and the racer with the most points after all three mains was crowned the winner. If a racer could manage to win both rounds one and two, he would mathematically clinch the title and have the option of sitting out the last round. Team Losi/Orion personality Jimmy Babcock shmoozed his way into announcing most of the A-mains.

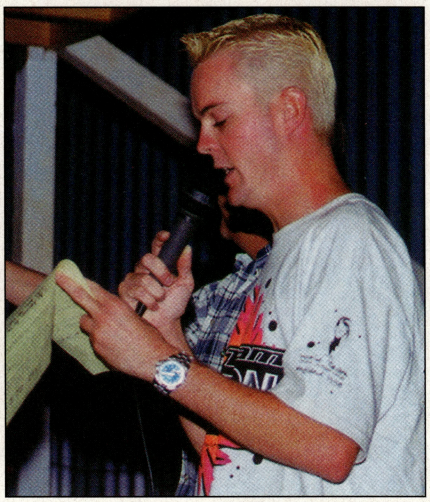
Modified Truck

A1 • TQ holder Matt Francis took advantage of his place on the starting grid, jumping out to an early lead. AE's Mark Pavidis jumped from fifth to first in one short lap, but his lead was short-lived. Brian Kinwald and Matt Francis battled it out for the remainder of the race. The two XXX-T's got together on the last lap, and Francis overtook Kinwald despite Francis' courteous driving. (He waited for Brian after the incident.) Francis held off Kinwald, but by less than one second.

A2 • Kinwald worked his way up to the lead spot by the end of the first lap, with Matt Francis and Pavidis in tow. As the race hit the halfway point, Kinwald was still leading, with Francis and Jason Ruona in second and third. Francis' XXX-T matched Kinwald's lap for lap, but small mistakes kept francis mid-pack. Kinwald held on for



The VIP "lounge."



"It's a, nice day for a, white wedding..."



Modified Truck

F	Driver	Truck	Tires (F/R)	Motor	ESC	Battery
1	Matt Francis (TQ)	Triple-XT	Losi/Losi	Trinity 11x2	LRP V7.1	Trinity
2	Brian Kinwald	Triple-XT	Losi/Losi	Trinity 10x2	Novak Cyclone	Trinity
3	Brian Dunbar	Triple-XT	Losi/Losi	Fantom 11x2	GM V12	Fantom
4	Travis Amezcua	Triple-XT	Losi/Losi	Orion 11x2	Novak Cyclone	Orion
5	Jason Ruona	Triple-XT	Losi/Losi	Trinity 11x2	Novak Cyclone	Trinity
6	Jimmy Jacobson	RC10T3	Losi/Losi	Orion 10x2	Novak Cyclone	Orion
7	Andy Smolnik	RC10T3	Pro-Line/Pro-Line	Reedy 10x2	LRP V7.1	Reedy
8	Mark Pavidis	RC10T3	Pro-Line/Pro-Line	Reedy 10x4	LRP V7.1	Reedy
9	Gene Hickerson	Triple-XT	Losi/Losi	Peak 10x3	Tekin G10	Peak
10	J.R. Mitch	RC10T3	Pro-Line/Pro-Line	Reedy 10x2	LRP V7.1	Reedy



4WD Modified Buggy

4WD Modified

F	Driver	Car	Tires (F/R)	Motor	ESC	Battery
1	Brian Kinwald	XX-4 WE	Losi/Losi	Trinity 8x2	Novak Cyclone	Trinity
2	Matt Francis(TQ)	XX-4 WE	Losi/Losi	Trinity 10x2	LRP V7.1	Trinity
3	Scott Brown	XX-4 WE	Losi/Losi	Trinity 10x2	Novak Cyclone	Trinity
4	Rob Schaffer	XX-4 WE	Losi/Losi	Peak 9x2	Tekin G-10	Peak
5	Jimmy Jacobson	XX-4 WE	Losi/Losi	Orion 10x2	Novak Cyclone	Orion
6	Jason Corl	XX-4 WE	Losi/Losi	Trinity 9x2	LRP V7.1	Trinity
7	Mark Francis	XX-4 WE	Losi/Losi	Orion 10x2	Novak Cyclone	Orion
8	Dave Montgomery	XX-4 WE	Losi/Losi	GM 10x3	GM V12	GM
9	Adam Drake	XX-4 WE	Losi/Losi	Trinity 8x2	Novak Cyclone	Trinity
10	Brian Dunbar	XX-4 WE	Losi/Losi	Fantom 9x2	GM V12	Fantom



2WD Modified Buggy

2WD Modified

F	Driver	Car	Tires (F/R)	Motor	ESC	Battery
1	Brian Kinwald (TQ)	Triple-X	Losi/Losi	Trinity 11x2	Novak Cyclone	Trinity
2	David Montgomery	Triple-X	Losi/Losi	GM 11x1	GM V12	GM
3	Brian Dunbar	Triple-X	Losi/Losi	Fantom 12x2	GM V12	Fantom
4	Matt Francis	Triple-X	Losi/Losi	Trinity 12x2	LRP V7.1	Trinity
5	Mark Francis	Triple-X	Losi/Losi	Orion 12x5	Novak Cyclone	Orion
6	Todd Hodge	Triple-X	Losi/Losi	Trinity 12x2	Novak Cyclone	Trinity
7	Mark Pavidis	RC10B3	Pro-Line/Pro-Line	Reedy 11x4	LRP V7.1	Reedy
8	Scott Brown	Triple-X	Losi/Losi	Trinity 12x2	Novak Cyclone	Trini
9	Rob Schaffer	Triple-X	Losi/Losi	Peak 12x2	Tekin G-10	Peak
10	Jason Ruona	Triple-X	Losi/Losi	Trinity 12x3	Novak Cyclone	Trinity

Brian's still the Dirtinator.

1/8 SCALE
4WD GAS POWERED
RACING BUGGY

MBX-4RR

NEW

● Dimension ●

Length	: 480mm	Tread(F/R)	: 266/266mm
Width	: 307mm	Gear Ratio	: 10.95:1
Height	: 182mm	Drive	: Shaft Drive 4WD
Wheel Base	: 326mm	Weight	: 3390g

● Features ●

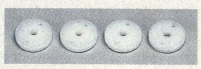
●3 Differential Shaft Drive 4WD ●4 Bevel Gears ●Steel Conical Gear ●Steel Spur Gear ●Differential Case (Nylon) ●Separate Al.Suspension Mount ●F/R Lower Arm ●Front Universal Joint ●F/R Anti-Roll Bar ●F/R Tension Rod ●Double Disk Brake ●F/R Damper w/Dust Rubber ●F/R Damper Spring ●A70-75(T6) F/R Damper Stay ●Al.Engine Mount ●A70-75(T6) 1/8 Inch Chassis ●3-pcs Clutch & Flywheel ●Fuel Tank w/Filter ●Fuel Tank Guard ●Fuel Filter Holder ●Fuel Pipe Holder ●Air Filter ●Box type Receiver Case ●Stone Guard ●Battery Holder for 6V5N-600mAh Receiver Battery ●Adjustable Wing Stay ●Nylon Wing ●Light-weight Spoke Wheel ●Ball-raced

OPTION

MBX-4RR OPTIONAL PARTS



C0184
Rear Anti-Roll Bar ϕ 2.8mm



C0579
Damper Piston ϕ 1.3mm



C0568
Damper Cap

C0569
Damper Bush

C0570
Steel Damper Mount

NEW

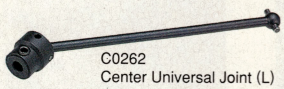
UNIVERSAL JOINT for MBX-4RR



C0260
F/R Universal Joint Set



C0261
Center Universal Joint (S)



C0262
Center Universal Joint (L)



1/10 SCALE
GAS POWERED 4WD TOURING CAR

NITRO MTX-2

CHASSIS / CHASSIS With MT12 ENGINE KIT

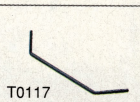
MTX-2 OPTIONAL PARTS



T0702 Al. Engine Mount



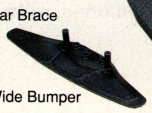
T0116 Anti-Roll Bar Link Parts



T0117
Rear Anti-Roll Bar ϕ 2.0



T0120 Al. Rear Brace



T0405
Front Wide Bumper

T0121 Al. Wheel Hub

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the win, building some suspense for the third and final A Main.

A3 • The top five positions freight trained around the track for a few very clean laps of racing. Matt Francis led Brian Dunbar and Kinwald with Pavidis making a strong showing for the Associated camp. At the halfway point, Francis' biggest obstacle looked to be lapped traffic, as he held a three second lead on Kinwald and Dunbar. Francis navigated his way through the back markers on his way to the A3 Main victory, and the 2000 ROAR title.

Modified 4WD

A1 • Brian Kinwald led after a first-turn pileup that sucked in TQ holder Matt Francis. Washington native Scott Brown looked fast, holding down the second spot. One minute into the race, Brown put his Losi XX-4 into the lead as Kinwald bobbled, with Jason Corl taking the second spot. Corl led one lap, then voted himself off the island, allowing Brown to retake the lead for good. Kinwald limped his XX-4 (sans one shock) to a strong second-place finish, with Jimmy Jacobson nailing third.

A2 • Matt Francis hoped to make things interesting, jumping out to a huge lead after two laps. "Nobody wanted second place," said Jimmy Babcock, as Kinwald, Brown and Rob Shaffer swapped positions. At the two minute mark, it was Francis, Shaffer and Corl holding down the top three spots. Kinwald worked his way up to second place just as time expired, but Francis was already on his victory lap, and to be the only one to go 12 laps.

A3 • After the leaders sorted themselves out, it was Francis and Kinwald battling for the lead, with Brown holding down third. At this point, it was anyone's race, and the ROAR title was up for grabs. All of the leaders were running blistering, low 21-second lap times, and Francis continued to lead. Kinwald ran off a 20.9 second lap and passed Francis as he rolled his XX-4 on its lid. Francis never regained the lead, and Kinwald took the A3 win and the ROAR title.

Modified 2WD

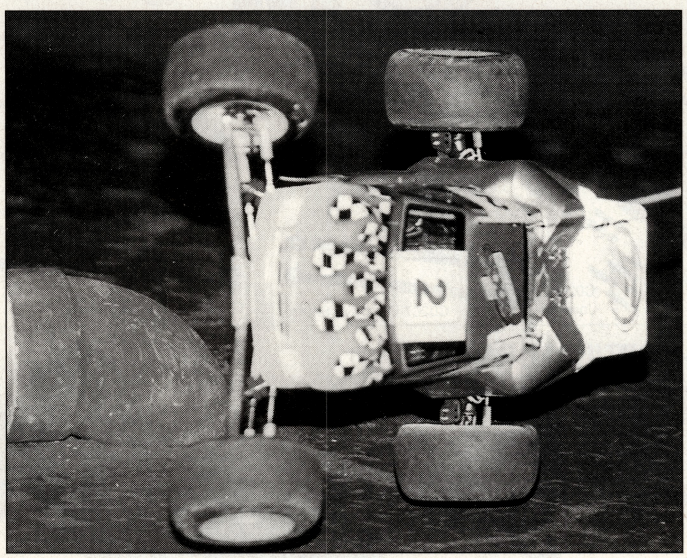
A1 • Brian Kinwald put his Trinity-powered XXX into the early lead, with Dave Montgomery and Todd (Todge) Hodge securing second and third respectively. Most of the four-minute race was fairly uneventful, as most of the positions on the track remained spread out. Mark Pavidis clicked off some very fast lap times with the lone AE entry, but a few bad breaks kept him out of contention. Kinwald led from flag to flag, followed by Montgomery. Todge drove all the way from tenth position to grab third.

A2 • Kinwald dropped three spots to fourth on the first lap, letting Matt Francis lead the pack. He bobbled and his brother, Mark Francis, took over the top spot. The Brothers Francis ran one and two until they took each other out, allowing Kinwald to jump from fourth to first in one corner. Kinwald held off Montgomery to take the A2 win, and the ROAR National title.

A3 • Kinwald sat out the third main, letting the other nine drivers battle for second through tenth. Matt Francis passed his brother early in the race, and secured the top spot, followed by Brian Dunbar and Pavidis. Matt Francis stuffed it in a pipe at the halfway point, letting Dunbar motor by. Dunbar never looked back, and the Brothers Francis ran second and third for the remainder of the A3.

Conclusion

The 2000 ROAR Off Road Nationals did not disappoint. The best drivers in the country converged on the small town of Dalton, GA and put on a great show for the fans. Team Losi put an exclamation point on their racing year, dominating all three categories. The overall tone of the weekend was tense, due to the clay racing surface and the changes it necessitated. Most of the racers I surveyed agreed that while the racing was good, "It just wasn't off-road racing." But there weren't any on- or off-track controversies, and the only casualty of the weekend was a rental minivan that was subjected to one of the team's (who shall remain anonymous) unsavory jumping. Keith and the crew at Dalton Raceway did a fantastic job of running the cars through tech and maintaining a timely schedule. On this weekend in mid August, off road racing was just good clean fun.



In spite of the sticky track and tire conditions, rollovers are still unavoidable.



"No, sloppy joes are on Wednesday. Today's chicken stars and tater tots."

ROAR President T.Rex Baldwin was on hand all weekend long.

File Edit Mailbox Message Transfer Special Window Help 4:14 PM

Hard Drive

Race Secrets

COOL RACER, FRIDAY, GOT SPEED?

GOT SPEED?

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

YO JOEY,

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

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

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

Later,
Cool Racer



Trash

deans

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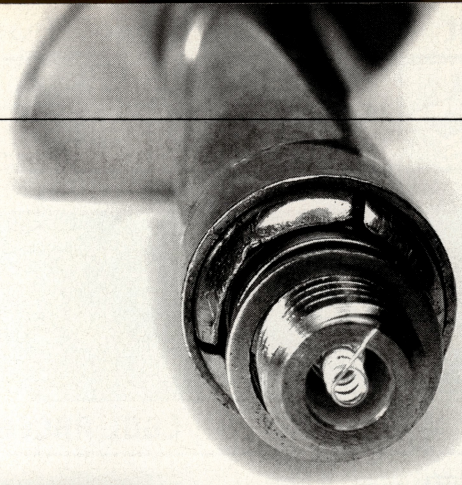
All About Glow Plugs



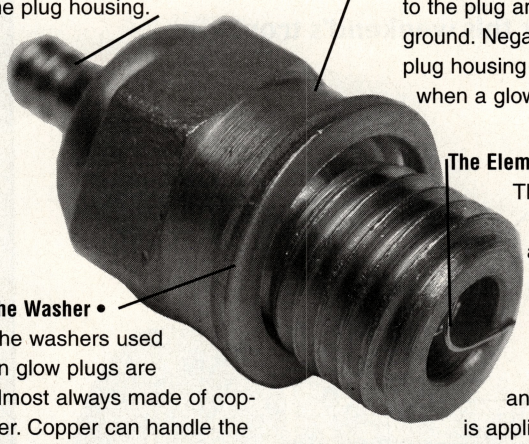
by Mike Velez and Regan LeBlanc

The Principle Behind Glow Plugs

A glow plug is necessary for a 2-stroke or 4-stroke R/C car engine to run and start. When voltage is applied to a glow plug, a thin metal wire called an element is heated up (kind of like how the wires in a toaster work). The heated element is what ignites the air/fuel mixture and causes the engine to run. Aside from just getting an engine to run, different types of plugs can greatly affect how an engine performs. Most R/C car plugs will get you running depending on what type of fuel you're using. But for those looking for maximum performance, it's important to grasp the concepts and theories behind how glow plugs work. Keep this article handy for future track reference.

The Probe • This is a simple conduit between the element and the glow plug ignitor. The probe is isolated and doesn't come into direct contact with the plug housing.

The Housing • This is the main body of the plug. It is the part of the plug that is screwed into the engine head. When you attache a glow plug ignitor to the glow plug voltage is applied to the plug and the housing is the electrical ground. Negative voltage is applied to the plug housing and essentially the entire engine when a glow plug ignitor is installed.



The Element • This element is the thin wire that is connected to the plug housing and the center probe. Since there is electrical insulation between the plug housing and the center probe, the element is the only connection between the housing and the center probe. When voltage is applied a positive charge is applied to the probe, a negative charge is applied to the housing. Essentially, the power from the glow plug ignitor dead-shorts causing the element to glow red hot. The heat from the element is enough to ignite the fuel initially. Once the engine has begun firing, the ignitor can be removed. The compression and ignition of the air/fuel mixture is enough to keep the plug lit while the engine is running. This is achieved thanks to a reaction between platinum in the element wire and alcohol, the fuel, which heats the platinum while igniting the alcohol. Different element thicknesses and coil types will change the temperature the element main-tains once the engine is lit.

The Washer • The washers used on glow plugs are almost always made of copper. Copper can handle the heat of the engine and is soft enough to conform a bit to mate the plug and the engine together so that there are no leaks between the plug and the engine. Beware: washer thickness does vary depending on the manufacturer. When replacing a plug, always replace the washer as well.

Hot or Cold

Plugs are rated on a scale from cold to hot. A hot plug will ignite fuel sooner than a colder plug will. Using a hotter plug advances the ignition point; using a colder plug retards the ignition point. The secret is to find the perfect ignition point for the given conditions that will yield the greatest performance from the engine. There are certain truths to glow plugs that are almost always universal. A smaller engine, like a .12 size engine, runs better with a hotter plug. A larger engine, like a .21, runs better with colder plugs. The same can be said for the nitro content of the fuel you're using. Fuels that contain more nitro run best with a colder plug, whereas higher nitro content fuel prefers hot plugs.

What makes a plug burn hot or cold? The simplest answer to that question is the thickness of the element wire, the composition of the wire, and the length. Thinner wire will burn hotter because it has less surface area to dissipate heat as opposed to a thicker element wire. For this reason hotter plugs with thinner element wires are more susceptible to damage. Colder plugs are a little more bulletproof with their thicker wires.

Where do you start when determining which plug to use?

First start with your engine's recommended plug. Typically, I like to use a McCoy MC-59 or MC-9. The MC-9 is a cold plug; the MC-59 is a hot plug. Although they're not exactly the same temperature as a McCoy plug, an O.S A-5 plug would be close to an MC-9 and an O.S. 1 would be close to an MC 59. On a .21 size engine, I like to use the colder MC-9 or O.S. A-5. On a .12, I'd start with a hotter MC-59 or O.S. 1. A medium plug like a MC-8 or O.S. 8 will get things started for you in either size engine, but if you're looking for maximum performance, you'll probably gravitate towards my earlier suggestions.

Now when should you deviate from my previous suggestions? Well, if it's very hot outside and your engine is running very hot, try going with a colder plug. If the exhaust sounds like it's loading up and you've already leaned* down the engine to a comfortable range, try running a hotter plug. A hotter plug will cause the engine to ignite a little sooner and burn more fuel.

Experiment. Try different plugs and write down their effects on performance. Find the plug that works best for you. Then, try a plug hotter and a plug colder to see what direction you can take engine performance. When experimenting with different plugs be sure not to change anything else like fuel brand or nitro content. Also be aware of the length of the plug. If you're installing a longer plug you may have to add an additional washer between the plug and the engine head.

If the power goes out you can use a glow plug and ignitor to shed some light.

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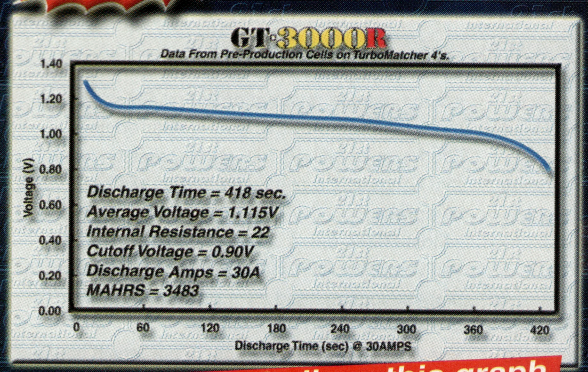

You may not believe this graph. But it is the actual data!



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Unit: 1 pair with special molded inserts (CS-M : medium) .

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Unit:1 pair

CS-MH	CS-M	CS-MS
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When should you change a plug.

After breaking in an engine, always replace the stock plug. During break in, all of the metal bits that are being worn away are being drawn to the element of your glow plug. After break-in, the original plug will still work, but not as well as a fresh, clean plug.

If you're racing, it's wise to install a new plug before an hour-long main. During racing situations I've had flame outs and if it wasn't the clutch hanging up it was probably the plug going bad. Replacing the plug will often solve this problem.

Compression, Friend and Foe.

If you ever come across a glow plug that looks as if the coils of the element have been smashed into the plug, your engine has too much compression. When faced with this dilemma, add a head shim or two between the crankcase and the cooling head. Grenading plugs like this can actually be a simple way of determining maximum compression if you're trying to get that last bit of horsepower from your engine. Remove head shims one at a time until you destroy the glow plug. Once the plug implodes, re-install one shim. If you see that element is pulled out toward the piston slightly that's actually a good thing. It means your tuned pipe is working.

Keep it clean

Of course you should always use a fuel filter between your fuel tank and your engine if your tank doesn't already use a built-in filter. But even with a filter you might be doing damage to your engine unknowingly. For example, at sanctioned races you must put some filler pieces into the stock Associated tank to take up some space and make the fuel capacity legal. When doing this, racers will sometimes place pieces that might be dyed black or some other color. As that pigment wears off the part in the tank, the coloring compound will attach itself to the plug element and detract from engine performance.

Never Ever

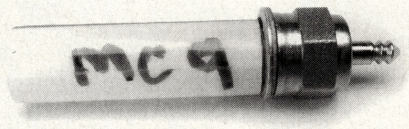
One of the worst things you can do to a car engine is use a plug with an idle bar. An idle bar is metal bar that runs over the bottom of a plug. The idea is to retard the engine a little so that it runs smoother at idle and can run rich* without stalling. These plugs were originally intended for airplane engines. Airplane engines don't turn the high RPM that car engines do. At high RPM, idle bar plugs can cause the engine to stall or at least really hurt engine performance.

Don't leave your glow ignitor on your engine for too long. Only leave the ignitor on for five or ten seconds after the engine comes to life. Some guys will leave their ignitor on the engine while they test rev the engine. This only does damage to the plug. If your engine doesn't stay lit when you remove the ignitor, something is wrong. An engine stalling once the glow ignitor is removed is a sign of a possible compression issue or fuel problem. Leaving the ignitor on too long will only cause the engine to burn more fuel than it should and over heat the element.

Storing

Keep new plugs in their original packaging. If you ever open the package, cut a small piece of a drinking straw and insert it over the plug threads. (This is the way McCoy plugs come in the package.) On the straw, write down what type of plug it is. This also comes in handy if you're going to keep a variety of plugs for tuning. It's crucial that you know which plugs do and don't perform. If a plug is replaced and it's determined that the plug was the cause of the problem, throw the bad plug away immediately.

Also keep plugs isolated from the rest of your tool box, like in their own small plastic bag or small container. You always want to make sure that the plug element and the inside of the plug are free from contaminants.



Other Plug Notes

- Don't use too much after run oil. Don't use more than ten drops of fluid in your engine. Too much oil will get into a compression issue that can hurt the plug since the oil will not compress.
- Most RTR's use a .12 or .15 size engine. If you've got an RTR that doesn't have the biggest cooling head try a medium plug like an MC-8 or O.S. A-3 or O.S. 8.
- The washers are made of copper which is much softer than the aluminum of the head or the steel of the plug. When a plug is tightened for the first time the washer sizes itself slightly to the plug and head.
- In a pinch if all you can get your hands on is a long plug (labeled as a long plug) but your engine takes a short plug, double up and use two shims between the plug and the engine this will work until you can get your hands on a properly sized plug.

Wrap Up

The glow plug of an engine is just as important as any other piece on a nitro vehicle. Without a working glow plug, you can't go. Hopefully now you have a good understanding on the how, what, and why of glow plugs.

Read before you tune

After you've got your fuel mixture set to where you like it, fine tune the mixture by reading your glow plug. This method will help you find that last bit of horsepower. This trick was taught to me by the nitro master himself, Ron Paris. Inspecting your glow plug after a few minutes of running can be a useful tuning aid when determining if your engine is too rich, too lean, or just right.

After running your engine for a few minutes remove the plug and take a good look at the element. A magnifying glass is very useful during inspection. Look for the following:

- If the plug is shiny, the engine is running on the rich side. You're not doing any damage to your engine, but you could lean the top end a bit to produce more power.
- If the plug is white or distorted, the engine is running too lean. You're burning up your engine and the glow plug. Richen the motor slightly.
- If the plug has a hazy-gray tint, the engine is set just right. Don't touch a thing.

Ron's got some really good glow plug information on his web site. Check it out at www.parisracing.com

Novice Glossary

After run oil: A blended oil once inside an engine is used to keep all of the internal engine components free from corrosion, after run oil is applied after engine use.

Break-In: The break-in process seats all of an engine's different internal pieces so that the engine runs smoothly for many, many more tanks of fuel. The break-in period is typically the first three to six tanks of fuel through a new engine.

Compression: The pressure that's built up inside an engine when the piston is on the up-stroke.

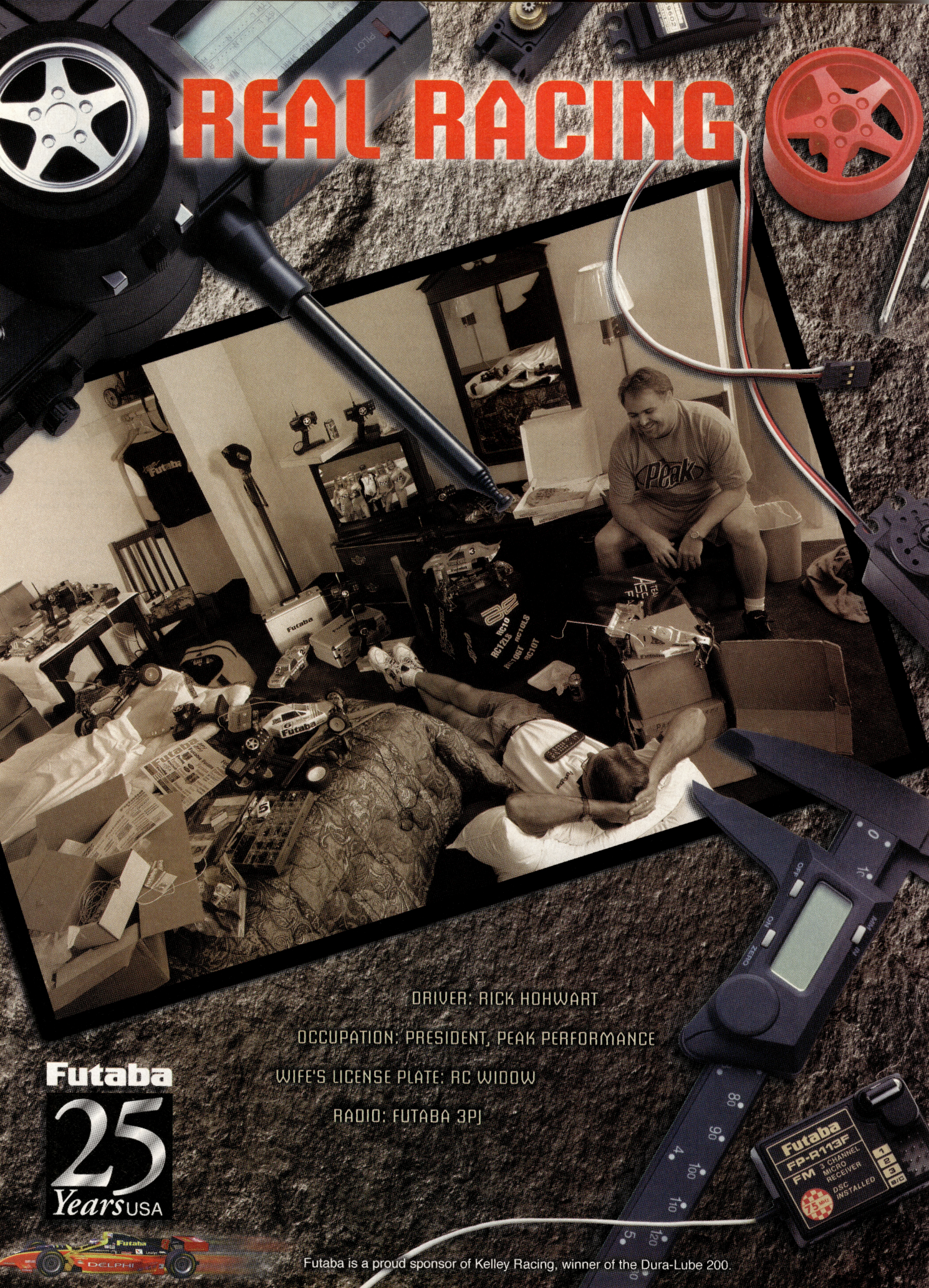
Glow ignitor: The battery-operated unit placed onto a glow plug to initially ignite an engine by causing the glow plug's element to glow bright red.

Lean: A term used to describe when the ratio of fuel to air is too low. This usually causes the engine to run at excessively high temperatures and may cause vital engine components.

Rich: A term used to describe when the ratio of fuel to air is too high. Although an engine that is too rich will not damaged any components, performance is greatly sacrificed.

RPM: Revolutions Per Minute.

Don't buy cheap plugs. You'll just end up spending more on aspirin.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Reviewed: Associated RC10GT, Yokomo YR-4 M2. How-to: Add Body Detail, Tighten Suspension. 10 Keys To Big Race Success. ROAR On-Road Nationals. T3 Pics.

3.3 October '97
Reviewed: Novak Pit Wizard, M.troniks Prodigi, Schumacher CAT SE, Tamiya TL01 Skyline. How-to: Use Swaybars to Tune Your Ride. Features: Motor Mysteries Revealed, They Call So Cal Home, A Close-Up Look At David Jun's Winning TA03. Also, B3 Pics, Worlds Results.

3.4 Nov-Dec '97
Reviewed: Associated T3, Trinity Switch Blade 12. How-to: Tune with Down and Up Travel, Mount Rubber Tires, Hop-up and Tune the HPI Nitro RS4. Features: All About Discharge Trays, '97 Off-Road Worlds Coverage.

3.5 January '98
50 New products for '98, Reviewed: Losi Street Weapon, Associated RC10L2. Inside Look at Kinwald's XX, Learn About Airbrushes. How-to: Rebuild Shocks, Tweak Touring Cars. NORRCA Off-Road Nats Results

3.6 Feb-Mar '98
Ultimate Touring Car Tire Guide, Reviewed: Associated B3, HPI Nitro Mini, Tamiya Nissan R390, Kyosho Lotus GT1. How-to: Reduce Your Cars Weight, Pack Light. Race Calendar

3.7 April '98
Reviewed: Losi XX 'CR' Kinwald Edition, Tech Voggerd T-10, Mugen Prime 12, Kyosho Super Sport 10 Learn How-to: Break-in gas engines, Turnmarshall, Convert your B2 to B3. Carpet Oval Nats coverage. Midnight 2 tested.

3.9 June-July '98
Reviewed: HPI Mini RS4, Losi XXT 'CR' Graphite Plus, Tamiya M-02L Porsches', Tekin G-10 Learn How-to: Use Caster, 24 Radio Glitch Fixes Features: '98 Winter Champs Coverage, Allen Driver Buyers' Guide. Evaluations: Xipp Power Jig, GM Discharge Box, Traxxas Free Wheel.

4.2 Sept-Oct '98
Reviewed: Associated L3 Oval, FSR Bullet Pro, TT VSpec. How-to: Cut 4WD tires, Stock Comm Cutting, Better Batteries. Features: MaxTec's Aftershock, ROAR On-Road Nats.

4.3 November '98
Tested: Schumacher Nitro 21 Xtreme, Tech Racing Voggered GT, JR Racing R-1 Radio, Tenth Tech. Streetwise Rally. How-to: Prep Stock Motors, Clean Tires. Features: ROAR Modified & Stock National Coverage.

4.4 December '98
Tested: HPI Nitro RS4 Racer, Kyosho Quad Rider ATV, Tamiya M-03 Rover Mini. Learn How-To: Start your own club, 10 Moto-tool R/C Uses. IFMAR On-Road Worlds Reports. Hook-Up: T3 & Street Weapon Guide to Pinion Gears. X-rattings: Team Cobra Probe 4000, Hitec CG-330 Charger, PSE Hood Tool

4.5 January '99
Tested: Losi NXT GP, Kawada SV-10, HPI RS4 Mini Pro, Tamiya SVT Lightning, GM GMVIS Commander. Learn How-To: Read Dyno Sheets, Build Your First Car. Tamiya TCS Nationals Coverage. What's New for '99

4.6 Feb-Mar '99
Tested: FSR Nitro Bullet V12, HPI RS4 Rally, Fox Team Losi R/C Racer. Learn How-To: 11 Tips to Better Decals, Use Camber to its Fullest Hook-UP: Associated B3 and Tamiya TA-03F Pro. First Takes: HPI Super Nitro RS4, Traxxas Nitro 4Tec, Tamiya Nitro TG-10, Losi IWC Street Weapon.

4.7 April '99
Tested: Yokomo YR4 M2 Pro, Traxxas Nitro 4-TEC, HPI Super Nitro RS4, Schumacher SST '99 Pro, Novak Millenium. Learn How-To: Choose and Use Nitro Fuel, Repair Broken Servos. Hook Up: Losi Double-XT. X-Ratings: Trinity Paradox, Take-Off Sedan Tires, INDI 16X2 Nitro, Parma Faskolor Paint. First Takes: Kyosho TF3-R Spider '99, Duratrax Maximum ST, HPI RS4 Pro 2.

4.9 June '99
Tested: Tamiya Wild Dagger, Kyosho '99 Spider, Kyosho MP-6 Int., Tamiya TA03R TRF, Lynx 3D Radio. Learn How-To: Mounting Electronics, Get a job in R/C, Anodize Titanium. Silver State Challenge race coverage. Losi Double-X and HPI RS4 RTR Hook-Ups .And More!

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Tested: Losi Triple-X, Traxxas Nitro 4-Tec Pro, Tamiya McLaren MP4/13. How-To: Charge Ni-MH, Hook-up your HPI RS4 Pro2. Race Coverage: ROAR Off-Road gas and Modified electric Nationals, Reedy Touring Car Champs. Feature: R/C and the Internet, Drag racing basics.

5.3 December '99
Tested: Kyosho F-150 Landmax, Traxxas Stampede, New Era Drag. How-To: Sedan Tuning, Using Multi-stage foam. Features: ROAR On-Road Nationals, Tire Glue Buyers' Guide.

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Tested: Associated TC3, HPI Nitro RS4 2, Kyosho MP-6 Sports, Tamiya Wild Willy 2, Tecnago 1/5-scale. How-To: Balance wheels, do everything better, Practice like a pro. Features: New for Y2K, Hook-Up Yokomo MR4 TC.

5.5 February '00
Tested:Thunder Tiger EB-4, Tamiya M-04L, Traxxas T-MAXX, Schumacher SST Rally, INDI 16X2 Pro V2.5, Motor Saver Filters. Features: Budget AM Radio Buyers Guide, Histor of Xtreme, Losi Triple-X Hook-Up, The Science of R/C, U.S. Indoor Champs. How-To: Get your Nitro Race Ready, Buy Ssed on the web.

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6.2 October/November '00
Tested:Yokomo GT-4, HPI Nitro Rush, Associated Factory Team T-3, Atlas YM-34, T-Maxx Hop-ups from HELL!, How To: Take Care of Your Airbrush, Adjust Your Ride Height, Race Coverage: Off Road Gas Nats.



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Tamiya Nationals

TCS

Aliso Viejo, California

The country's top Tamiya drivers made it to sunny Southern California for the most recent TCS Nationals. Drivers from as far away as New York, New Jersey, Wisconsin and Delaware made the trek and weren't disappointed. The race took place over a two-day period on September 9th and 10th. The Nationals was open to anyone who had competed in a TCS Regional event in the last year and placed in the top ten at one of those regional races. A last chance qualifier was held on the Friday before the race.

Tamiya put on a great show for everyone which included a Media Race (our driver, Elliot, along with the other R/C mags, got crushed by some guy from Motor Trend. What's up with that?), product demonstrations, Boy Scouts selling food, and plenty of great racing. The four classes that were run were F-1, GT-2, GT-1, and M-Chassis. The winners in each class were awarded with an expenses paid trip to Japan to compete in the 2000 Tamiya World Championship in November.

Winners:

F-1

1st	David Beale
2nd	Marty Hageman
3rd	Chen-Hwa Chen (TQ)

GT-1

1st	Rodney Clemente
2nd	Peter Robinson
3rd	Kevin Michelick

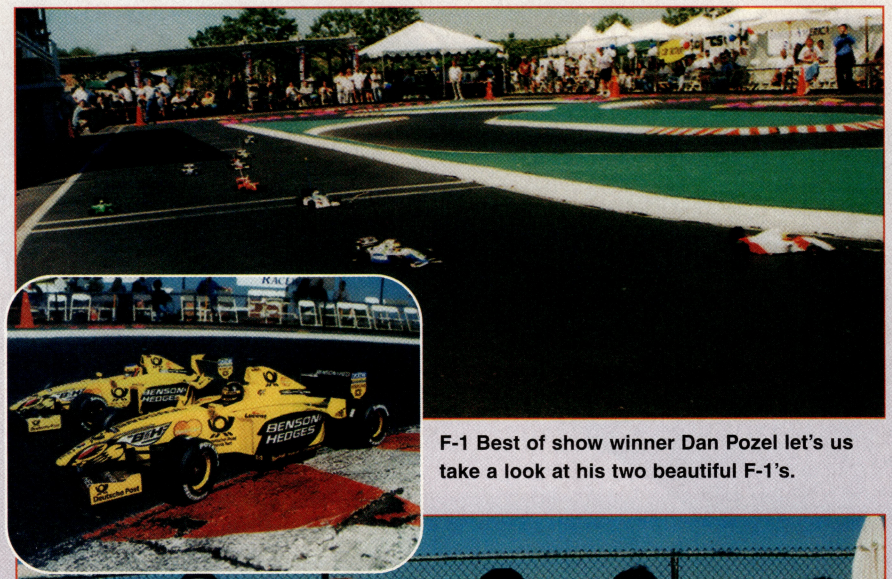
GT-2

1st	Benny Chou (TQ)
2nd	Matt Pozel
3rd	Lee Passehi

M-Chassis

1st	Miguel Macias
2nd	Jeff Olmstead
3rd	Chou-Hang Iun (TQ)

Congratulations to all the racers who made the trip and good luck to the winners representing the United States in Japan.



F-1 Best of show winner Dan Pozel let's us take a look at his two beautiful F-1's.

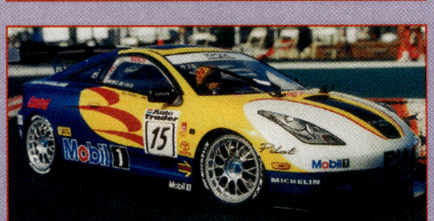




GT-2 Best of show winner Ian Aquino shows off his winning Celica.







Advice to the winners: Don't stay at the Sky Hotel and try the Chicken balls.

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Four buttons and clear instructions are all you need to use or adjust any of the 3PDF's wide range of programmable features, from digital trims and ATV on steering and throttle to servo reversing, 2-channel exponential, 3-model memory and the function-selectable 3rd channel. Every adjustment is made with digital accuracy—and confirmed in black and white on a big, easy-to-read, 2-line LCD.

But the 3PDF is easy to use in other ways, too. There's the transmitter battery alarm that helps you monitor power level just by listening. Two ways to tailor throttle ATL to your driving style. There's a battery box for the receiver, a built-in recharging jack for optional transmitter NiCd use— and a padded hand grip that makes it all easy to hold as you race to the top.

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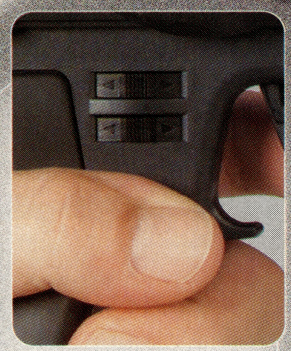
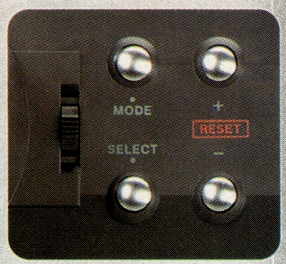


Digital thumb switches enable you to vary steering rate and throttle ATL as you drive, to meet changing conditions. Changes are confirmed with sound cues, so your eyes can stay on the action.



3rd channel convenience and choice! Select ON/OFF or proportional operation with the switch; program for starter activation, fuel mixture adjustment or shifting gears with the buttons.



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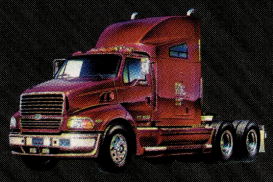
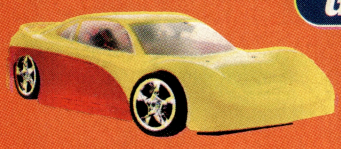


GREAT GIFT COMBOS



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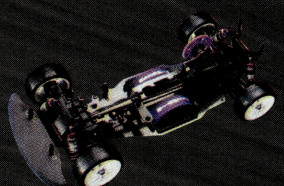

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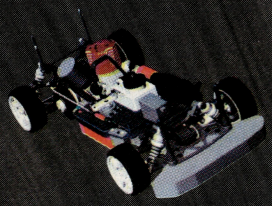

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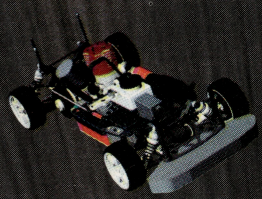

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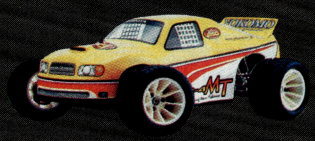



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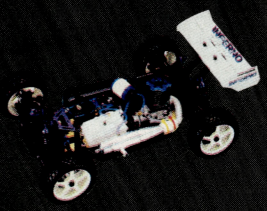

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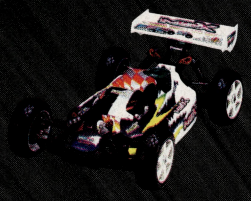

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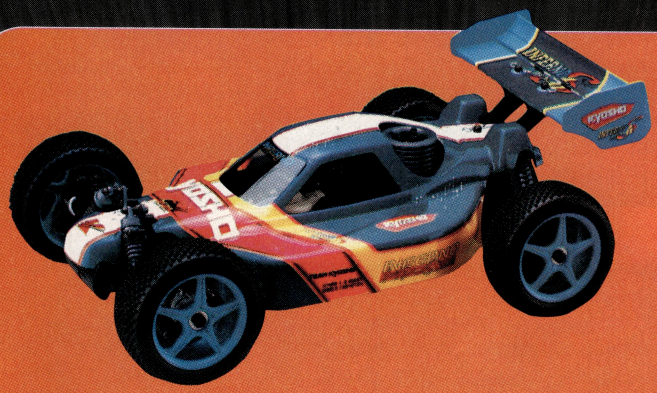

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Dear Regan:

Doesn't putting a throttle return spring on a carb take away some of the servo's torque when applying the brakes? I have a Duratrax Axis with the Hitec radio in it. I'm thinking of upgrading the throttle servo because 42oz. of torque just don't seem enough. What do you think about a 77oz. ball bearing servo?
Greg
Via the Internet
Yes, you need at least 77oz torque to use in an 1/8-scale. Forty-two oz. is pathetic; I use more in my electric buggy! You don't want a very strong return spring - only enough strength to close the carb in a power-off situation. Losi makes a nice return spring kit that might work. You can also use a rubber band wrapped around the carb.
Regan

My Dragster is the Centerfold

I just read your latest issue (Aug. 2k) and I think you think like most of us - Cars, Girls, more Cars and more Girls! Maybe a centerfold is in order here. I spend a great deal of time out in the garage tweaking my cars and could use some provocative wall paper! I was also wondering are any of you out there that are into drag racing? I'm putting the finishing touches on my Bolink Nitro Rail, and have been breaking in the .12 O.S. Engine. It is soooo cool. Why don't we hear more about this type of brute force motor sport, and how to max out small blocks for top speed as in Top-Fuel Drags? Just wanted to know.
David
We actually just got our hands on a Bolink nitro rail. As soon as we have some time to play without, we'll give you all the dirt.

S.M.S. - Save My Servo

What is a servo saver for? I'd really like to know since I broke my servo after a bad crash, and now my servo doesn't work.. How can I NOT break my servo? What care does it need?
Carlos Capurro
Just as the name implies, a servo saver saves servos. A servo saver, no matter what type of design it employs, is designed to absorb shock from the steering tires and wheels so that shock or force doesn't damage the gears inside the servo. Some cars have some type of servo-saving device built into the steering linkage. Sometimes if these bell-crank savers are over tightened they will not work. The other type of servo saver is one that attaches to the servo in place of a horn. These will typically work for anything. Kimbrough is the most popular servo saver maker. To install a servo saver all you need to do is replace your stock servo horn with the correct fitting servo saver. If your car's stock servo horn has a ball end screwed into it, simply remove the ball end and replace it in the new servo saver.

The Truth is Out There

I was cruising around on the Internet the other day and I happened onto a web site, which apparently is the supplier for Alien racing products. Anyway, I saw a conversion kit to enable a rear-exhaust .15 or .21-sized engine to be put into an HPI Nitro RS4. Well I am a confessed speed freak, and I own an HPI Nitro RS4 racer and am in the market for a new engine. This website made me wonder about putting a .21ci engine in my car and setting new land speed records. The disclaimer said that installing such an engine puts a "tremendous" strain on the drive train.

My question is is the conversion kit actually worth it? I mean putting a .21ci engine in a 1/10-scale car seems pretty damn cool if you ask me. Second, if it is actually worth it, how much and what kind of "tremendous" strain does a .21 put on the drive train? Will I be breaking parts every time I go out for a drive?

If you could help me out with this little dilemma, it would be much appreciated before I go out and drop 250 bones on of those really cool .21ci engines.
Jason B.
Hey Jason, it's okay to be a speed freak. As for slapping on a .21 to your RS-4, it obviously can be done, but I think you'd be better served by picking up a high-performance .12. First off, just as the manufacturer's warning states, you will put a tremendous strain on the drive train. The RS4 was designed for use with a .12. A .21 produces a lot more torque and could definitely damage the drive train by either eating gears and pulleys and/or stretching belts. A high performance .12 like an HPI Nitro Star Pro 12, a Mugen REX .12 rear exhaust, Picco .12, or O.S. .12 CV-R. Any of these engines coupled with a tuned pipe and 2-speed transmission will be plenty fast. Also remember, no matter what engine you're running at the speeds we're talking about, if you hit a curb, foot, or any foreign object, the result will be bad. Hope this helps. Good luck.

I Want My 15 Minutes

What are the chances of getting a picture of my car in your Racers Rides? Where would I send the picture?
Thanks for helping.
Chris Marshal
via the internet
Your chances are pretty good. Send the pictures and a brief description of the vehicle and its equipment to; Xtrastuff, C/O *Xtreme R/C Cars*, 14175 Telephone Ave., Suite O, Chino, CA 91710.

We Want the Beef

There's nothing wrong with Elliot liking big women. Who wants a rail? I like big girls, too. Here's a web address Elliot will love. It's www.thickn...*(Editor's note: Okay, we'll pass your link onto Elliot, but we've got to draw the line at putting it in print. You guys need to seek some help before it's too late.)*
Bill O.
Via the internet

They're Coming to Take Us Away

I just got done reading my first issue of *Xtreme R/C*. After reading some select excerpts, here's my appraisal: You guys are sick, demented, perverted, and immature. How do you get away with putting some of that stuff in? I love the magazine. Keep up the great work.
Rob Carswell
Thanks for the kind words. And to think, we've actually toned it down a bit.

Got Good Gas?

I just recently bought an RC10GT and it runs great. My friend told me to use Traxxas fuel because its the best for lubrication, but when I went to my local hobby shop they said that it's not a good fuel. I'm not worried about power right now. I just want to have fun with the truck and make it last as long as it can. Is Traxxas a good fuel or should I switch to something else? Please help.
B. Kuszewski
Traxxas Top Fuel is just fine. We use it on

most of our RTR reviews. It does contain more lubrication than most other fuels and since horsepower isn't your number one priority it should be fine.

Warning! Xtreme Causes Shoplifting

I've been working at a hobby shop for about three years now. I love your magazine and have been subscribing since you added the chicks. At the same time, the guy that owns the hobby shop I work at decided to stop carrying *Xtreme* because he didn't think it was okay for kids. Seeing as how he's in the shop maybe one day a week at most I told him he was crazy. *Xtreme* was by far our best selling magazine and maybe purchased by one kid under 13 a month – the same kid that I've caught shoplifting and then had his mother come in and cuss me out for calling the police on him. I'm sure it was something he read in *Xtreme* that lead him to shoplifting and not his bch of a mother who had only enough class to cuss me out for doing the right thing in front of her own kid. Well, keep up the good work. I'd like to see more chicks; you guys have been wussing out lately. Don't worry, the grocery store in our shopping center sells *Xtreme* so I send everybody next door.**

P.S. For fear of losing my poor-paying job, please don't use my real name. Use Oliver, or John or something like that.

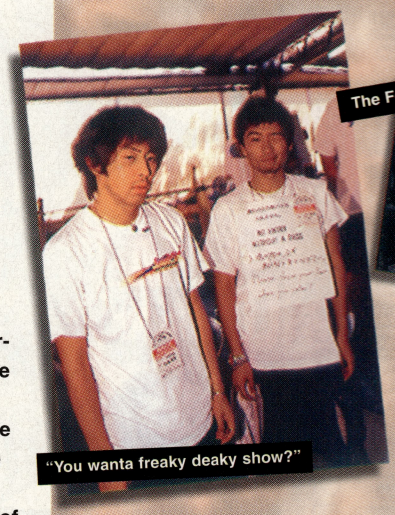
Okay, Oliver. Wink, Wink! You should ask the supermarket for a commission. We've got this whole new approach to putting ladies in the magazine. I think you'll like it. Stay tuned.

ESPN Xtreme

I just had to drop you a quick email. *Xtreme* has made it to the big time. I was watching the X-Games on The Deuce (ESPN 2) and they were interviewing a motorcycle rider. I think it was Travis Pastrana, but I'm not sure. And a guy in the background was wearing an *Xtreme R/C Cars* shirt. You should call ESPN and see if they'll send you a copy of the tape.

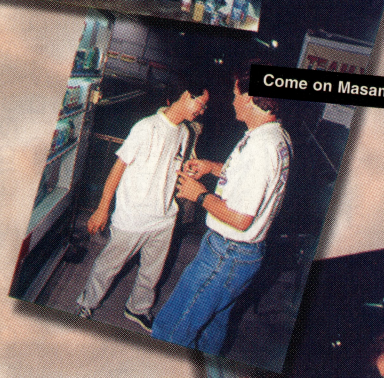
Thanks for pointing that out. I doubt they boys at ESPN will have the time to cut some tape for us. They're busy editing tape of Billiards, Poker, Marbles, and Spelling Bee. You know, the real important "Sports".

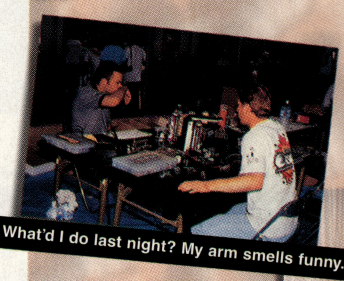
Since we had so much film to waste on our trip to Japan, we just had to put in some more pictures of the antics around the track.


"You wanta freaky deaky show?"


The Fonz in Japan, Aaaayyyy!

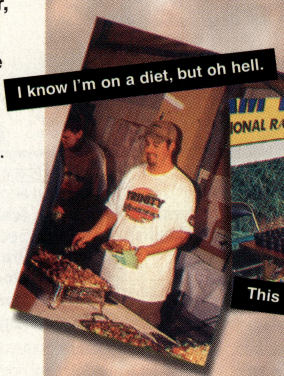

"I think I'm turning Japanese..."


Come on Masami, do the dance.


What'd I do last night? My arm smells funny.

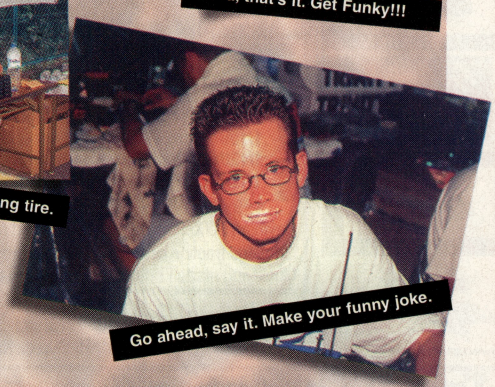

An evening at the Sky Bar.


Ya, that's it. Get Funky!!!

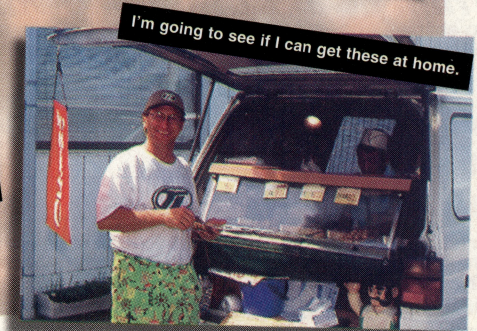

I know I'm on a diet, but oh hell.



This has got to be the winning tire.


Go ahead, say it. Make your funny joke.


Come on dad, I'll scratch your back if you fix my car.


I'm going to see if I can get these at home.

Send us your replacement caption for Scott's picture. xtremerc@xtremerc.com

K & M Presents The 4th Annual 2000

TURKEY SHOOT

SUNDAY NOV. 19th

TRACK OPENS: 10 AM • SIGN-UPS CLOSE AT 1:00 PM • RACE STARTS: 1:00 PM

ENTRY FEE: $ 20 Only

Second Class $15

24 deg. Motors in all Novice & Stock Classes

Classes: Novice, Intermediate, Stock, X-Stock, modified, Gas Truck



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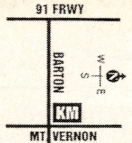
K&M

Xtreme R/C Cars

COMPART COMPETITION GRAPHICS

Enough Racing Team



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K&M

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For More Information Call:

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TRINITY/Car Action Snowbird Nationals

January 17th - 21st, 2001

At the Beautiful Ramada Resort - Orlando, Florida

On International Drive - A million things to see and do while in Orlando

The 7th Annual

Orlando Florida

Trinity Trinity-Online | RADIO CONTROL car action

Mike Boylan's 7th annual Snowbird Nationals

You are invited to come and race this Premier Event. See all the nation's hottest drivers and companies!

Indoor Carpet Racing | **Oval & On-Road Classes**

CLASSES

On-Road Race Classes

- Touring Stock (handout stocks - T2 bodies - rubber tires - 4 mins)
- Touring Sportsman Mod (19 turn Chameleons - T2 bodies - rubber tires - 4 mins)
- Touring Pro Modified (open mod - T2 bodies - foam or rubber tires - 4 mins)
- 1/10th Pan GTP Stock (handout stocks - GTP bodies - 6cell - 4 mins)
- 1/12th GTP Modified (open mod - GTP bodies -4cell - 6 mins)
- 1/12th GTP Stock (handout stocks - GTP bodies - 4cell - 6mins)
- Legends (basic legend rules - legend bodies - 4cell - 4 mins)

Oval Race Classes

- 1/10th 4cell Stock (handout stocks - 4 mins)
- 1/10th 6cell Stock (handout stocks - 4 mins)
- 1/10th Sportsman Mod (19 turn Chameleons - 4cell - 4 mins)
- 1/10th Pro Modified (open mod - 4cell - 4 mins)
- 1/12th Stock (handout stocks - 4cell - 5mins)
- 1/12th Modified (open mod - 4cell - 5mins)
- Sprint Legends (basic legend rules - sprint bodies - 4cell - 4 mins)

Anything 3000 mah and under allowed (except legends) | For more info: http://web.tampabay.rr.com/university | Final decisions made by race director

Odorless traction compound only on tires | Email us for questions: RCThunder@aol.com or scarecrow@ij.net | We follow simple basic rules

Qualifying starts Friday for on-road and oval | We are offering organized racing for all classes on the computer for oval Wed Night and on-road on Thurs Night

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Trinity/Car Action Snowbird Nationals Entry Form

No entries accepted before Dec 1st. Entries must be postmarked no earlier than Dec 1st. Details on inside pits will be on the website and at the track. Be prepared to pit in your rooms.

Name _____ **E-mail** _____

Address _____ **St** ____ **Zip** _____ **Phone** _____

Class #1 _____ **Freq #1** _____ **#2** _____ **#3** _____

Class #2 _____ **Freq #1** _____ **#2** _____ **#3** _____

Price: Stock classes $55.00 (includes motor) Mod classes $50.00 Legends $30.00

If racing a second class subtract $10.00 - no membership required - extra motors at the race

Checks payable to: Thunder

Mail entries to: Thunder 1834 Nebraska Ave Palm Harbor, FL 34683

HOTEL

Hotel Information

Ramada Resort

7400 International Dr. Orlando, Fl 32819

407-996-7400

Ask for Snowbird Nationals Rate

Make reservations early!!!

The race is at the Ramada Resort

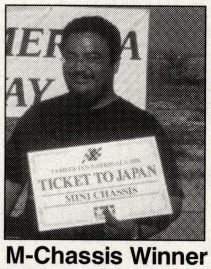
TCS
TAMIYA
Championship Series

And The Winners Are...

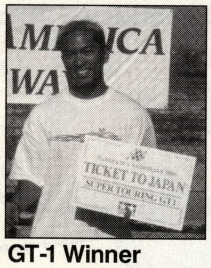
Tamiya America, Inc. would like to congratulate the class winners at the fifth annual TCS National Finals:



F-1 Winner
David Beale



M-Chassis Winner
Miguel Macias



GT-1 Winner
Rodney Clemente



GT-2 Winner
Benny Chou



TCS National Finals winners

The winners in the F-1, GT-2, GT-1, and M-Chassis classes have each won expense paid trips to Japan to compete in the 2000 Tamiya World Championship from November 18-19. Tamiya would like to thank the many competitors that came from across the country to compete in the TCS National Finals, and we would also like to thank everyone that participated in TCS events around the country this past year.

F-1

1st	David Beale
2nd	Marty Hageman
3rd	Chen-Hwa Chen
Best of Show	Dan Pozel
Top Qualifier	Chen-Hwa Chen

GT-2

1st	Benny Chou
2nd	Matt Pozel
3rd	Lee Passehl
Best of Show	Ian Aquino
Top Qualifier	Benny Chow

GT-1

1st	Rodney Clemente
2nd	Peter Robinson
3rd	Kevin Michellick
Best of Show	Brad Palmer
Top Qualifier	Derek Hung

M-Chassis

1st	Miguel Macias
2nd	Jeff Olmstead
3rd	Chou-Hang Iun
Best of Show	Dan Munoz
Top Qualifier	Chou-Hang Iun

B-Main Winners

F-1	Ray Meek
GT-2	Dude Pozel
GT-1	Sean Wu
M-Chassis	Larry Olmstead

C-Main Winners

F-1	Kurstin Hardy
GT2	Charles Aggenbach

Visit Our Website at www.tamiya.com

Mail in attached form to: Tamiya America, Inc., Attn: Customer Service, 2 Orion, Aliso Viejo CA 92656 or Phone: (800) TAMIYA-A or Fax: (949) 362-6852 Hurry! ***Registration for Race #76 closes November15, 2000.***

Next Qualifier

☐ **TCS Race #76**
November 19, 2000
Tamiya Headquarters
Aliso Viejo, CA

Name_____ Age _____

Address_____

City_____ State _____ Zip _____

Phone #( )_____

Frequency (1)_____ (2)_____ (3)_____

(Minimum of 2 frequencies required)

Circle Class(es): (you can compete in a maximum of 2 classes)



Super Touring GT1 | Touring GT2 | Formula-1 | Mini | TL01 Spec Exhibition | Le Mans Exhibition

8 ROAR NATIONALS...

'2000 EURO-CHAMPION
JUKIKA STEENARI
IFMAR WORLD CHAMPION
1999-2000



WORLDS XX 4 EDITION
IFMAR WORLD CHAMPION

'2000 ROAR NATIONALS
•MODIFIED•(10 of 10)
1st BRIAN KINWALD
•STOCK•(8 of 10)
1st CHRIS BRIDGEWATER(TQ)

'2000 ROAR NATIONALS
•MODIFIED•(9 of 10)
1st BRIAN KINWALD(TQ)
•STOCK•(6 of 10)
1st Chris Bridgewater(TQ)
•JUNIORS•(9 of 10)
1st Shaun Dunlap



'2000 EURO-CHAMPION
HUBERT HONIGAL

XXX

Team Losi, Inc.

WORLDS

X4

RLD CHAMPION

...8 WINS, 8 TQ'S

Team Losi cars & trucks win EVERY '2000 ROAR Off-Road Electric National.

Thank you racers!

'2000 ROAR NATIONALS

•MODIFIED•(7 of 10)
1st MATT FRANCIS(TQ)

•STOCK•(7 of 10)
1st CHRIS BRIDGEWATER(TQ)

•MASTERS•(9 of 10)
1st STEVE BENTON



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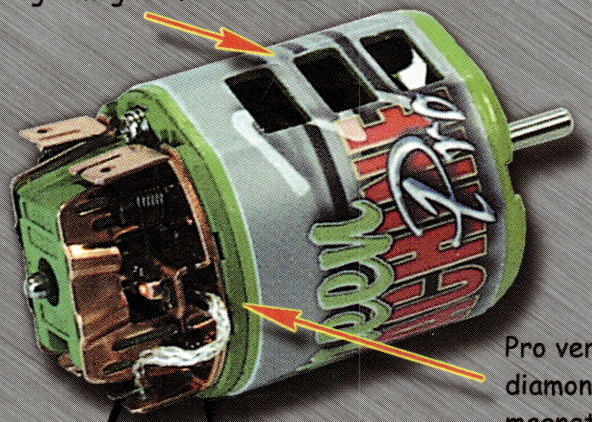

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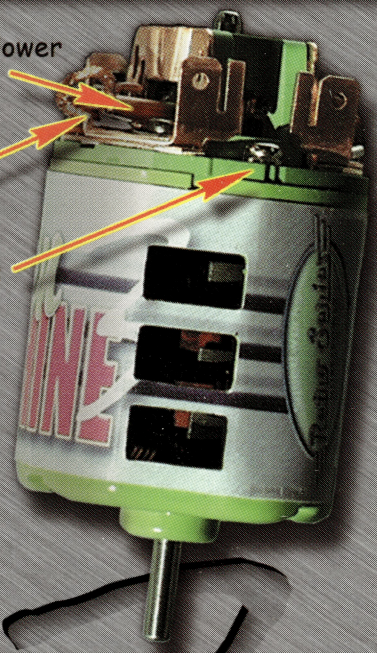
3 surface mounted capacitors no capacitors to solder



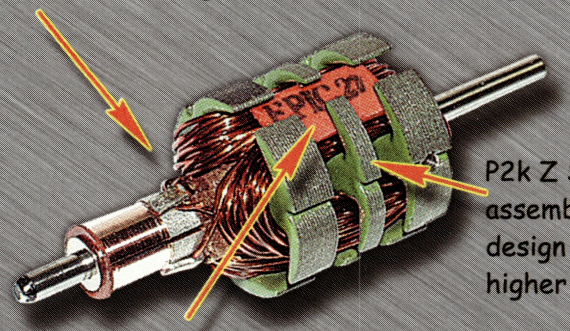
Pro version includes 4499 brushes, diamond trued commutator, zapped magnets and dyno tuning

Green MACHINE-3™

Completely rebuildable

Standard Version, 9426
Pro Version, 9427

27 turn, 22 awg wire, 24° locked timing



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Use the P2k on tight tracks where high punch is needed

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