

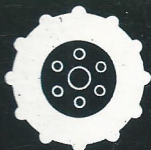
June, 1989

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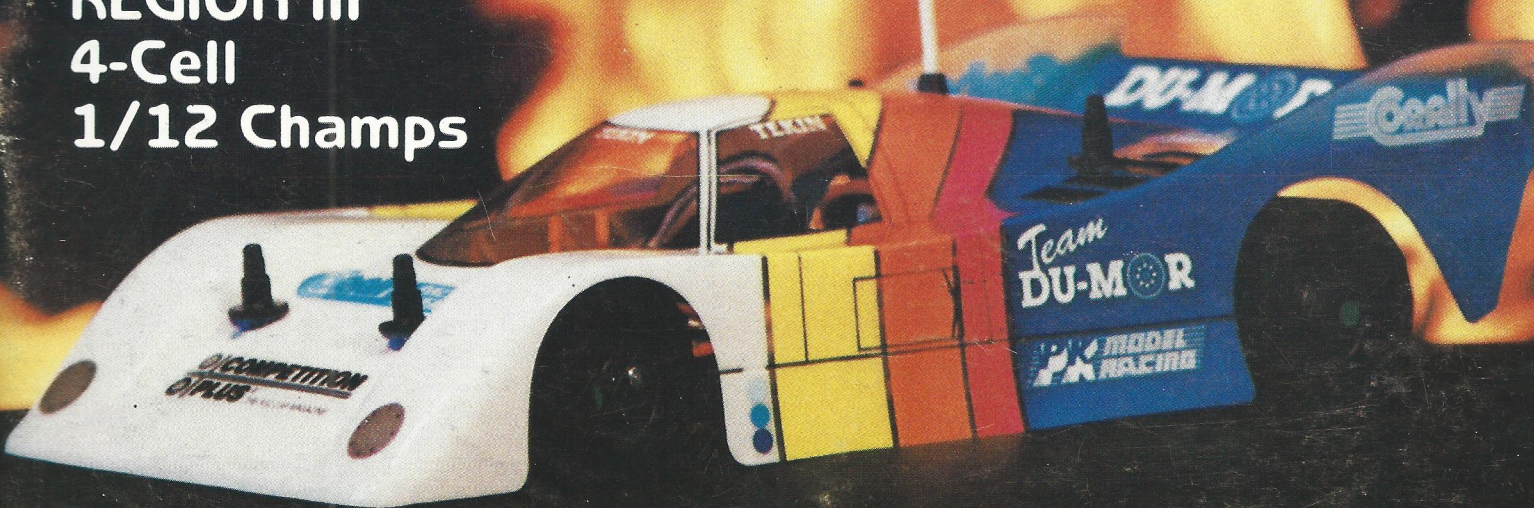
THE R/C CAR MAGAZINE

The Sizzling
CORALLY

**VICTOR'S HI-IQ
CHARGER - Part I**

Inside Story:
**MOTOR
BRUSHES**

**REGION III
4-Cell
1/12 Champs**



NEWS FLASH!

Chris Krug of Orlando, FL shatters existing drag racing record. Chris Krug's Astro-05 powered dragster completed the 132' course in 2.1 seconds setting a new speed record of 65 MPH.



Adjustable timing.

Modular case design incorporates machined alloy end and brush caps for precision alignment and maximum heat dissipation.

10 Cobalt magnets installed in a steel cylinder provide exceptional field strength, unaffected by temperatures that will destroy wet magnets.

Armature supported by two Class 5 precision ball bearings.

Standard, 1/8" diameter, stainless steel shaft.

Beat me.

This motor was born to be abused.

So go ahead. Rev it to the max. Slam on the brakes. Reverse. Over and over, charge after charge.

The Turbo 05 keeps churning out the smoothest, most efficient power you can imagine.

AstroFlight's tradition of record-setting electric powerplants for everything from aircraft to solar race cars makes the difference.

You can torture the Turbo 05 because it's the toughest motor you can bolt into your RC car or truck.

Dynamically balanced to increase rpm and reduce wear and vibration.

High temperature insulated, 19 gauge wire. Wave wound, 6 turns.



The 7 bar commutator is welded at 2000 degrees, then lathe-trued to .01% concentricity.

Skewed laminations eliminate cogging oscillation and power loss.

Everything about the Turbo 05, from the 7-slot, silicon steel, skewed armature to the samarium cobalt, rare earth magnets, makes it a unique and extremely reliable unit.

Go ahead and burn some rubber. Tow a trailer through the mud. Kick up some dirt on the half mile oval.

The Turbo 05 mounts right into just about every 1:10 and 1:12 scale kit made. Complete with Tamiya-type connector and 4-40 mounting bolts, it's a direct replacement for standard 540/05 class motors.

We know our Turbo 05 is tough. Each motor must pass a series of five critical tests, including a two hour break-in, 500 volt short check and dynamometer analysis.

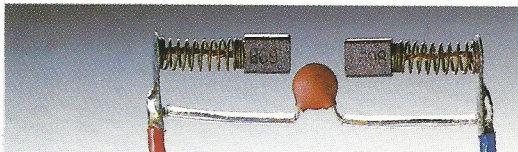
If a motor demonstrates as much as a 3% variation in any test, we reject it.

The only test left for the Turbo 05 is yours.

We'll make it easy for you.

All the technology and performance of the Turbo 05 is yours for just \$80.00 (suggested retail), the same price established for competition, modified class motors.

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Oversized, high-current motor brushes are factory run and seated. Special, high-temperature coil springs and shunt wires minimize power loss.

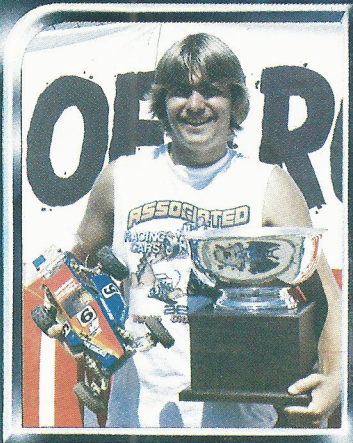
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Please write or call (213) 821-6242 for free Turbo 05 technical literature package.

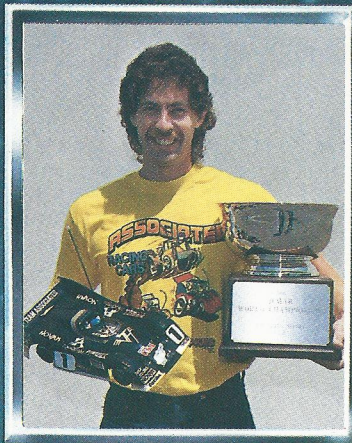
World Champions

TEAM ASSOCIATED

JAY HALSEY
1/10 OFF ROAD



TONY NEISINGER
1/12 ELECTRIC



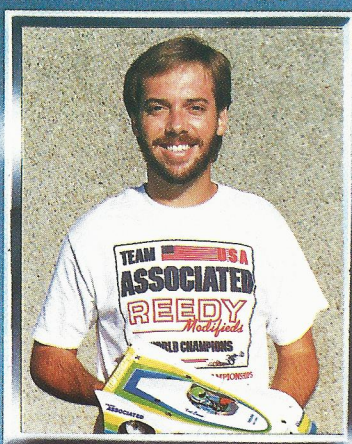
RE-PETE FUSCO
1/8 GAS



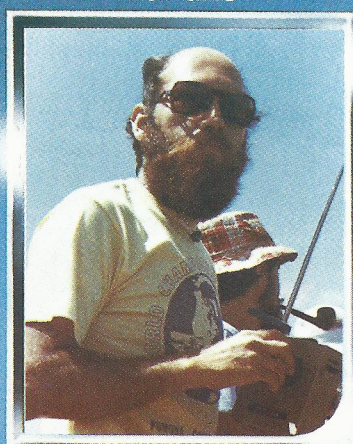
TONY NEISINGER
1/12 ELECTRIC



KENT CLAUSEN
1/12 ELECTRIC



BUTCH KROELLS
1/8 GAS



6 WORLD CHAMPIONSHIPS

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Team ASSOCIATED has won 6 WORLD CHAMPIONSHIPS. No other car manufacturer has won more than 2. To win a World Championship, it takes an exceptional driver, an exceptional mechanic, and an exceptional car. If you'd like to drive like a World Champion, drive an Associated race car, just like the World Champions do!!

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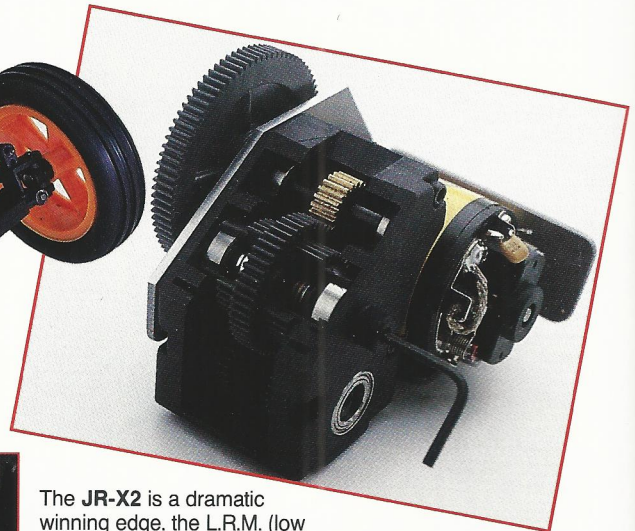
WHY JR-X2?

The JR-X2 is the product of my many years of R/C car racing experience. It incorporates the many little things that helped me win 4 World Championships and numerous major titles around the world. The highly tested and developed design will help you be successful against the toughest competition.

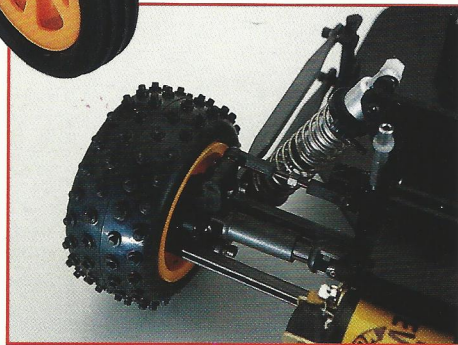
GIL LOSI JR.

JR-X2 FEATURES:

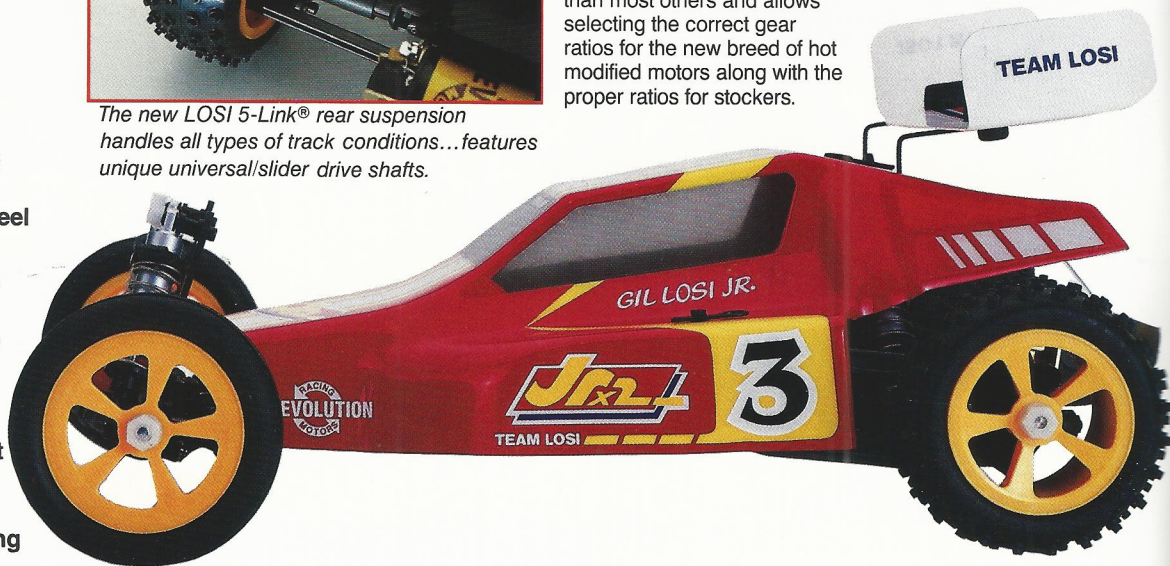
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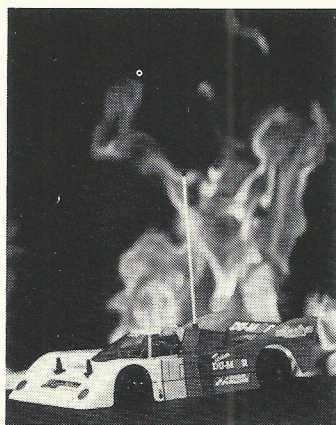
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ABOUT THE COVER

Cover photo of the Sizzling Corally SPII. This car is made in Holland and is being imported by Du-Mor R.C. Ltd. of New Jersey.

Finish The Lap Your On .

PAY RACING

Although they are the largest, the 1/4 scale cars remain the newest and least known class among the divisions we race. These beasts are around 30 pounds and are powered by a 22.5cc gas engine. They are run almost exclusively on oval tracks, of dirt or asphalt surfaces. Another interesting thing about this class is it has the highest ratio of prize money races per event.

To many, including myself, money racing has been, and continues to be, an insidious thought. For others, money racing is an idea that is long overdue. Advocates of money racing say it will bring our sport into the big time. You'll get companies like Budweiser, Marlboro and Pepsi to sponsor events and give big money prizes to the winners. From there the television media will begin to show races on a regular basis. This will then raise the public's awareness and they will buy cars. More cars sold, more racers and our sport grows. This sounds like a great idea!

In my opinion, this is a bit optimistic. Before the big sponsors pay the purse for the winners, where do you think the money for prizes is going to come from. I can point to another sport I am actively involved in that competes for money almost exclusively, for an answer to where the money for prizes will come from.

On the West Coast, just like on the East Coast, salt water fishing tournaments are very popular. We regularly compete for prizes topping \$10,000, \$25,000, and on occasion even \$100,000! Sure there are big companies sponsoring these events, but do you want to know where the bulk of the prize money comes from. The ENTRY FEES. The minimum price tag to enter one of these tournaments is \$600. And I've seen entries top over \$5,000. It isn't hard to see where this could be the same in R/C racing, which brings me back to 1/4 scale.

This class has the potential of growing into something big. It is a little expensive starting off, but once you get into the class upkeep is no more than a competitive 1/10 off-roader, and definitely cheaper than 1/8 scale. That is if you forget about the entry fee. The last quarter scale race I attended had an entry fee of \$30. This was for a one day event! We ran a qualifier, one heat race of 25 laps and one main event. Sure there was \$1,000 in prize money split among the classes, but almost everyone at the track knew who was going to pick it up at the end of the day. I'm sure you know at any event who the top guys are, and who is likely to win a race on any given day. Because it is so easy to figure out, do you think racers are going to be willing to lay down big entry fees knowing that they have little, if any, chance to win at all. Remember this \$30 entry fee was for a \$1,000 purse. If we believe, as the pro money racers believe, that we will get TV coverage, it will take more than a \$1,000 purse. Are you ready to cough up the \$500 entry fee it will take to bring up a \$25,000 purse? I know I'm not! What's your opinion!



MAILBOX

RIGHT ON!

Pete:

I have been trying to tell people this very same thing for the last six or seven years. I have gotten mostly a negative response especially from the larger manufacturers. Some of the people in the R/C industry who wield a lot of power are unmovable on what they consider their right to an unlimited race team. I wish you the best of luck with this idea of 3-5 team members per class, and I will continue to push it myself but I think it's an uphill battle with no top in sight.

Chuck Kimbrough

ARCHIE TEAMS UP WITH HOBIBCO

Archie Comic Publications has announced an exciting new agreement with Hobbico, Inc., for a unique new product promotion. Featured will be the new magazine, *Archie's R/C Racers*, and R/C equipment manufactured by Kyosho and exclusively distributed by Hobbico.

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"This is an unprecedented tie-in," said Steve Herman, vice president, merchandising, Archie Comics. "We are not aware of any product placement of the nature ever being designed for a community magazine."

The magazine tells the story of Archie and his pals competing in a cross-country R/C car, plane, boat and motorcycle race to establish Riverdale's R/C champion. The characters choose up teams and, for their summer vacation, pilot the vehicles across the US from their full-sized chase cars. Thus, their summer vacation becomes an exciting R/C festival.

"We are delighted to have an opportunity to work with the Archie family of characters," says Chris Slater, Hobbico's director of corporate merchandising. "Their broad appeal will help us reach youngsters trying this hobby for the first time. Through the promotion, we also hope to expand our audience beyond the dedicated hobbyists most typically associated with R/C racing."

Archie's R/C Racers magazine will be available in June in comic book shops and newsstands around the country. Hobbico will distribute additional copies of the magazine to hobby shops nationwide.

MOTOR CONTROVERSY

Dear Peter:

I think that my company, Astro Flight, can contribute to the advance of R/C car racing. We have been in business 20 years this January so we must be doing a few things right. As I understand the present ROAR rules once a manufacturer gets his motor approved, then he can experiment with different windings and other modifications to adapt his motor for different kinds of racing events. The problem seems in getting the first motor approved.

The logic of the present ROAR rules is a bit confusing to me. I am an ENGINEER and not a LAWYER. I understand volts, amps, torque and RPM. I know that I can design an electric motor many different ways but in the last analysis all motors are simply transmission devices that Convert Electrical Power (volts x amps) into Mechanical Power (torque x RPM.) All the power in a R/C car comes from the Battery Not The Motor. If you put ten motors in a RC10 you would not get ten times the power. If fact, you would get practically no power since ten motors would discharge the 1200 mahr nicad battery in four minutes without ever putting the wheels on the ground!

The present ROAR motor rules were invented by people who were burned on slot cars and have what I would like to call Slot Car Paranoia. They remember the crash and are desperately trying to protect themselves from another such crash. They foolishly think they can con-

struct a watertight legal barrier to withhold the natural progression of market forces and technology. This tactic is bound to fail in the long run. And the higher the dam and the more water trapped behind it, the more damaging the flood when the dam finally breaks.

Unlimited Power Source: The slots are connected to 100 volt house current. For all practical purposes this is an unlimited power source. The efficiency of the slot motor was secondary. What counts is how many volts and amps you can draw before your motor melts. The guy with the most volts and amps has the advantage **because he had the most power to play with.**

Engine Displacement: If the glow engine is not constrained in its supply of fuel, the engine that sucks the most fuel will produce the most power. Rather than constrain the source of power (The Fuel Supply), most engine races constrain the **displacement of the engine.** The engine designer gets around this constraint by increasing RPM and using a tuned pipe or a supercharger to ram more fuel into his engine. The guy with the most fire and smoke probably has the most power.

The Nicad Battery, A Limited Power and Energy Source: All (electric) R/C cars, boats, and planes use the nicad battery as the source of energy. The nicads we use are the Sanyo 1200 SCR and the Sanyo 1700 SCE. The actual capacity of most SCR cells is closer to 1350 mahr than to 1200 mahr. The SCR cell is capable of delivering about 65 amps before the terminal voltage drops much below 1 volt per cell. If you try to pull 90 amps the voltage will drop drastically and the cell will get **Very, Very Hot!** The Sanyo 1700 SCE can only deliver 20 to 25 amps before the same thing happens. Based on these observations we can calculate the maximum power that a six pack of such cells will deliver.

A six Sanyo 1200 SCR battery can deliver 6 volts at 65 amps or 390 watts for about 45 seconds. Our F3E airplane motors operate at this amp level. Our Astro 60 FAI Cobalt motor can survive 65 amps. The FAI-60 runs on four seven cell packs (28 cells). It gets mighty hot but it does not melt. In order to safely commutate 65 amps, I designed the motor with four brushes instead of the usual two brushes, and I used a 22 bar commutator that is over 1 inch in diameter. Our .05 size motors use a seven bar commutator that is 0.44 inches in diameter. They can safely handle about 40 amps for about 1 1/2 minutes without melting. For airplane pylon racing our FAI 05 is usually set up for 35 to 40 amps. Our Turbo 05 motor can also handle 40 amps without melting. I think that this is the main reason that this motor has been so very successful in Drag Racing and in Truck Pulls. The Turbo-05

survives long enough to let the racer fine tune his car.

ROAR 1/10 Off-Road Racing: The races last 4 minutes. If the driver uses SCR cells he can expect about 18 amps average current draw. If he uses SCE cells he can get maybe 22 amps. But observing these races I would estimate that the throttle is wide open about half the time. The peak current is probably in the order of 30 amps. We have designed the Turbo-05 off-road motor to run best between 15 and 30 amps. The Turbo-05 works great in four minute dirt racing. Our customers report that their motors are still winning with original brushes after over 100 races. They may not be quite as fast as other manufacturers for the first five or six races but after that they start winning and they keep winning. The Turbo-05 is just getting broken in while the other competitive motors are ready for re-work. The hot shot drivers who are factory sponsored and who run only one or two races without pulling their motors don't think much of our Astro Turbo-05 motor. But, the rank and file who don't have the bucks to buy thirty motors for one speed week love it. They can buy it and forget it.

ROAR 1/10 Oval Racing: This race may be four minutes long but the throttle is wide open most of the time. The needed power band is narrower perhaps 15 to 22 amps. We may need a slightly different winding for this event. But to get a good design we need to be able to race the motor.

Drag Racing: We have an experimental five turn winding for the Turbo-05 for Drag Racing. And we have a FAI-05 Drag Racing Motor for 10 and 12 cells. Chris Krug used one of our 05 motors to shatter the U.S. drag racing record by clocking 65 mph at Orlando, Florida.

Truck Pulling: The national truck pulling association has approved our Astro Motors for their truck pulls. Mike Cole has pulled 400 lbs. in the twelve cell class with our Astro-15 and 66 lbs. in the seven cell class with our twelve turn winding Turbo-05.

Best Value in the USA: We are trying to make the best motor that we know how to make within the ROAR 80 dollar price limit. What's wrong with that? We are trying to give the racing community the best possible value for their hard earned dollars. What's wrong with that? We make our motors right here in our own factory in Marina del Rey, California, USA. Now what in the world is wrong with that?

Sincerely,

BOB BOUCHER
President, Astro Flight, Inc.

Mickey Thompson Off-Road Grand Prix No. 2

By Rick Houle

The excitement began in Anaheim and the momentum traveled south to the Jack Murphy Stadium in beautiful San Diego for race No. 2 of the Mickey Thompson Grand Prix sponsored by Associated. Under clear, sunny skies punctuated periodically by cool ocean breezes and the aroma of Nitro-burning, full-sized Off-Road machines, the event couldn't have been more inspiring.

At the crack of dawn Saturday morning, February 25th, a full compliment of early-bird racers were already fully involved in open practice on the R/C track as both R/C Off-Roaders and their full-size counterparts began pouring into the parking lot to set up their pit areas.

The R/C course in the parking lot was an exact duplicate in 1/10 scale of the full-size track built inside the Stadium. In fact, the dirt used on the R/C track was the same stuff used by the big boys, and though it was perfect for them, it was a bit rocky and rough for the smaller R/C cars. The roughness of the track made it a great equalizer that didn't favor any one particular type of car.

From the starting grid the cars shot down an 80 ft. straight over two easy jumps and into turn one; a U-turn that headed back toward the drivers' stand and over triple jumps. Turn two was a right hander leading into a 30 ft. stretch of moguls; another right onto a short straight with a

"Killer Canyon" jump with an immediate right turn leading into the "Stutter Bumps". These Stutter Bumps were one of the worst hazards of all, as they were located in a left-hand U-turn at the far end of the track that was difficult to see from the drivers' stand. Turn six was a left hand sweeper into another long straight with a single low jump where racers could really let the ponies run loose! At the end of this stretch was a left turn under the AMB Scoring Bridge continuing down a short straight directly in front of the drivers' stand with a double jump. Racers getting on their lids in this section found it quicker to simply jump off the stand to turn over their own car rather than wait for the turn-

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7 p.m. - FRIDAY - 1/10 Off-Road Car & Truck Point Series - Stock Class

12 noon - SATURDAY - 1/12 & 1/10 On-Road Car & Truck - Stock & Open Class

12 Noon - SUNDAY - 1/10 Off-Road Car & Truck - Novice, Stock & Open Class

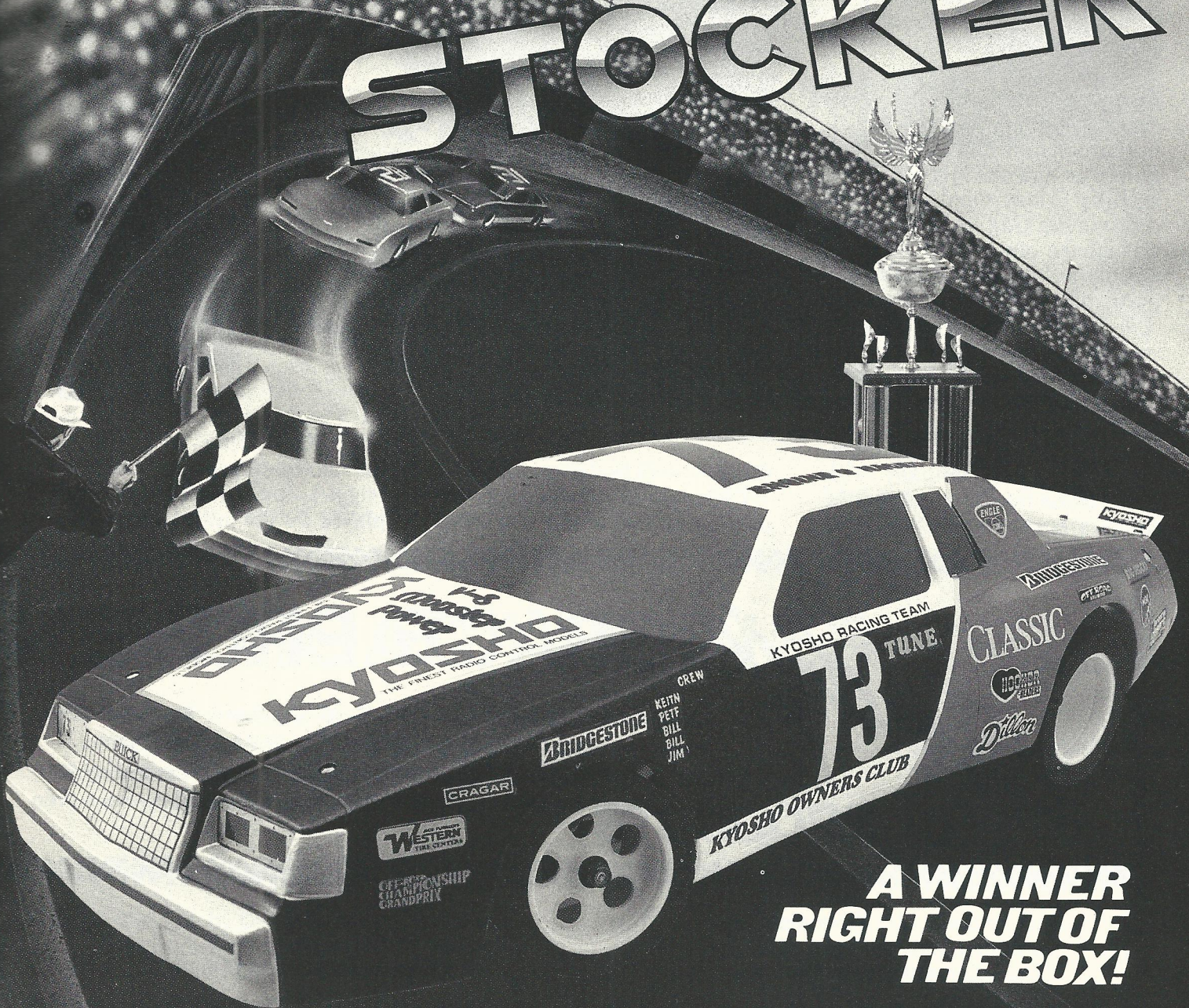
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metal spoiler are also included. The Stocker's straight-forward design gets you to track fast — ready to race! Just mount your radio gear, give the authentic scale stock car body a souped-up paint job, and take it on the run. To economically bring Daytona action to your own driveway, visit your favorite hobby dealer. With the new Kyosho Buick Stocker, all the style and excitement are in the box.

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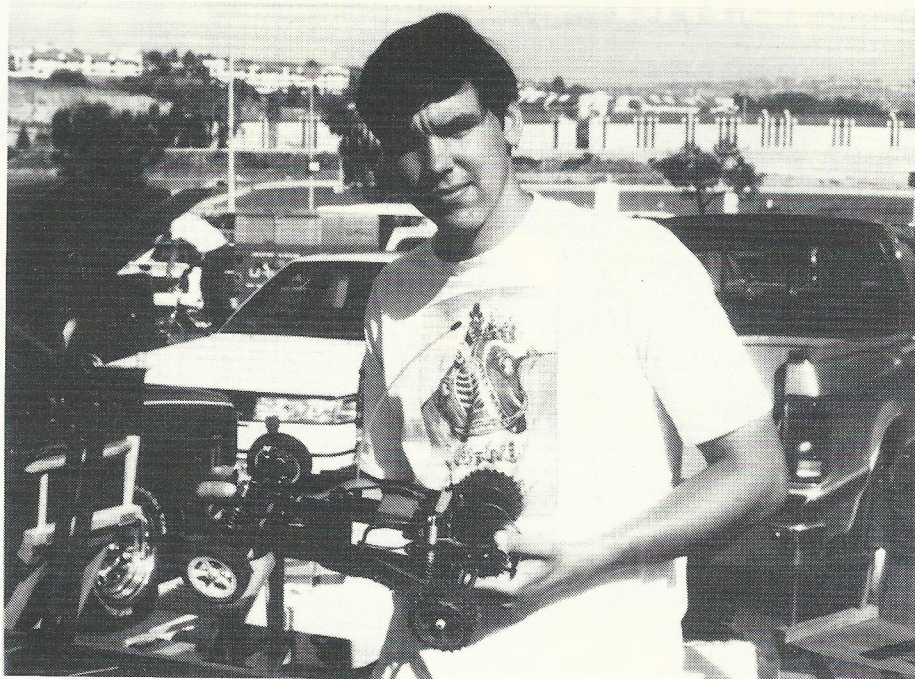
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marshals.

Though there were a few complaints about the roughness of the track that morning, by day's end both promoters and racers alike agreed that this was one of the most fun tracks they've ever encountered.

NORRCA's Prez. J.R. Sitman, swung a deal with the local Travel Lodge to accommodate all the participants of this event with rooms at half the normal price, and the Friday night before the race the parking lot at the hotel was maxed out with the familiar rigs of the "regulars", who loyally participate in NORRCA events.

A whole section of Stadium seating was offered to the event's participants at discounted prices and after the R/C races, the die-hard competitors who just couldn't get enough found themselves in good company with other fellow racers watching the full-size crazies doing the same



Newcomer Mark McGee was TQ in the Novice Class.

thing... only in slow motion!

Concours was called up for judging at 8:30 and about 15 of

the sharpest looking Off-Road buggies and trucks were displayed for the judges. Roger Tib-

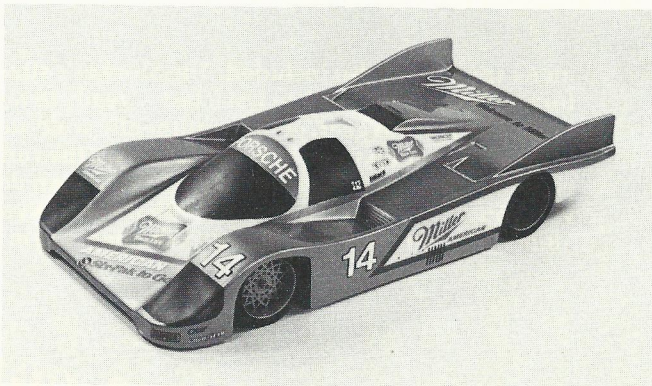
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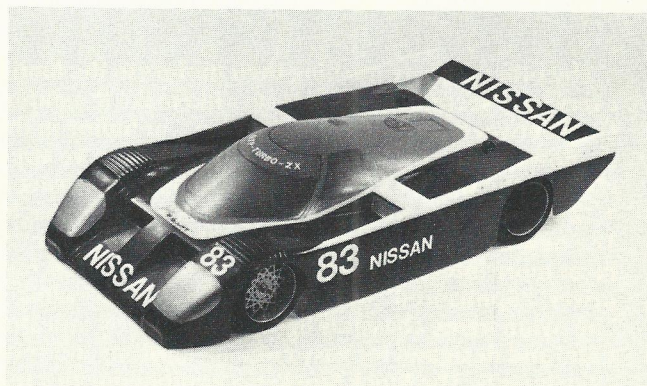
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3140 - Porsche 962 GTP

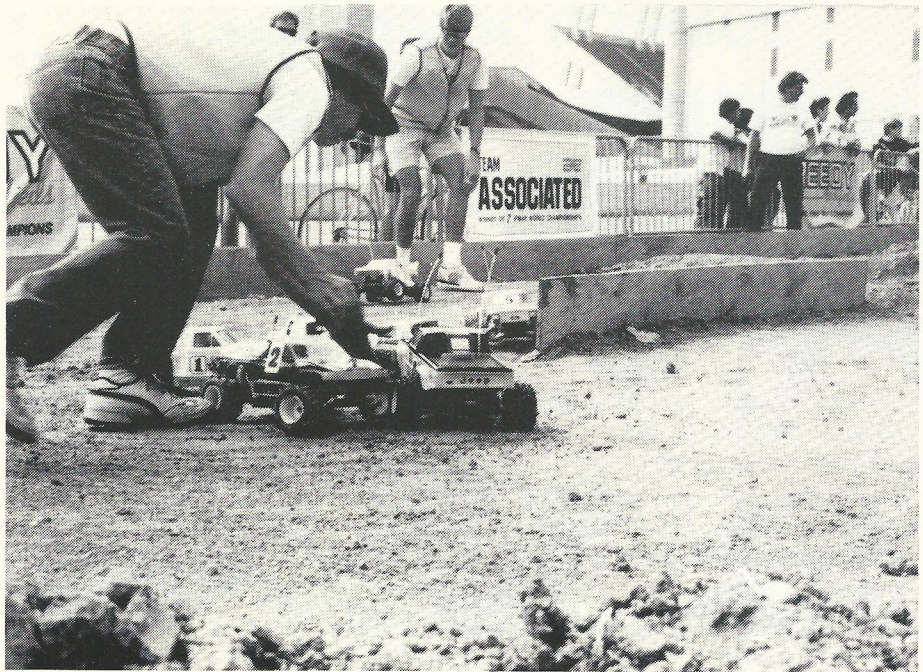


3145 - Nissan GTP

bets has been on a winning streak with his famous "Bubble Gum" paint job on his JR-X2 and easily won first place. David Bush took second and Randy Burns took third.

The first round of qualifying kicked off at 10:30 a.m. with Mr. Sun shining brightly on the event. A total of 18 heats went two rounds of qualifying and finished up by 1:45 p.m.

Kris Moore ruled the day in both 2-Wheel Stock and 2-Wheel Open by earning the T.Q. hat pins in both classes and capped it off with a first place finish in the 2WS A-Main as well as second in the 2WO A-Main! A newcomer to this class; Chris Allec of Team A & L earned T.Q. in the Open Monster Trucks, while young Ryan Reed took the hat pin in the Super Stock Truck class. John Keck was the fastest in the Stock Truck Class. Associated's Jay Halsey posted fastest



Turn marshal nightmare at turn one. Note the rough terrain!

time in 4-Wheel Open and Team A & L's Dominic Sellers did the same in 4-Wheel Stock.

In the Novice class, Mark McGee posted the T.Q. run. No qualifying lap times were avail-

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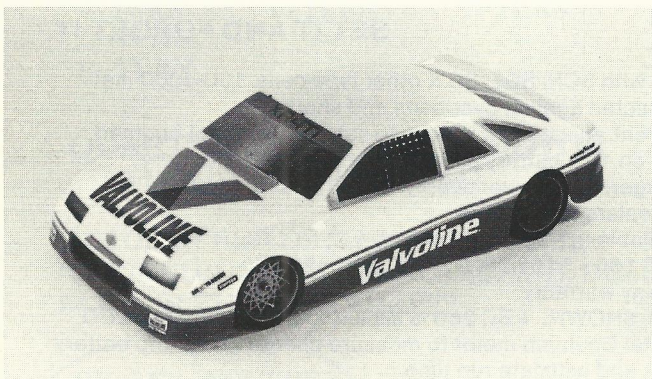
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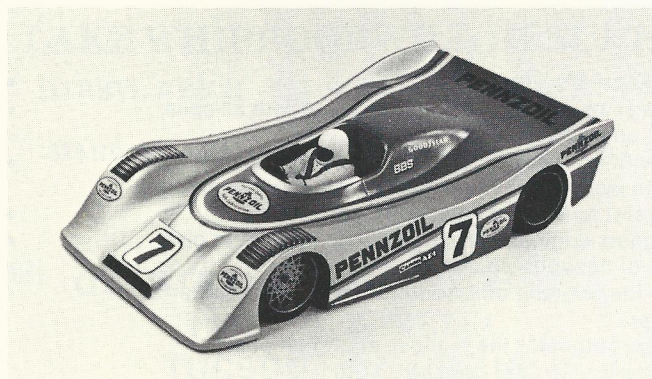
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- Designed, engineered and made in the USA to give years of dependable use.
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- Protected against overloads and shorts.
- Current adjust knob is easy to set, but won't get bumped.
- Use on 12 v battery or most 12 v automobile battery chargers or a power supply.
- At dealers everywhere.
- Available in a variety of colors.
- #BC 100 - \$102.00 BC 870 - \$88.00
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- #BC 250 - \$189.99



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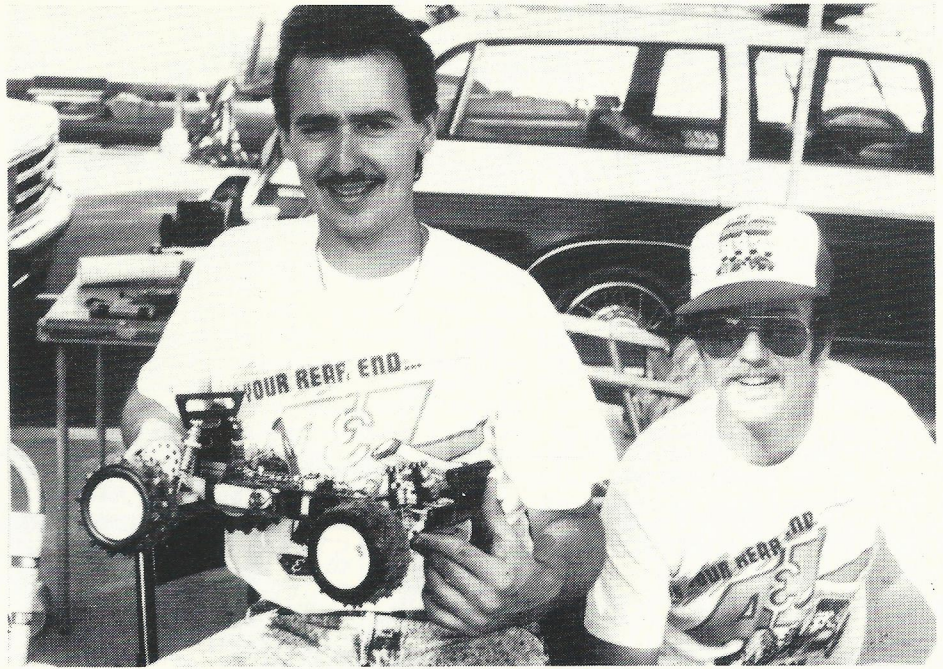
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able for this report.

In a departure from the norm, J.R. Sitman decided to use the bump-up system and this meant that the mains would be run in reverse order allowing a slower qualifier the opportunity to move up into a higher main.

The Open Truck class, with the second largest number of entries, was up first at 2:30 p.m. Ray Holmes placed first in the C-Main event with John Gudvangen, Sr. of JG MFG. fame and, Dino Mowreader right behind in that order and each only a split second apart! In the B-Main, it was Adam Warnke first, Jack Johnson (Team Losi) second and Tem Raskin in third.

In the Open Truck A-Main event, Twister's Brandy Dreifus took the lead with John Hammer Smith and Gary Guest; both running for JG MFG., in second and third. Smith and Guest traded positions back and forth a few times until Guest dropped back briefly as Andy Bartacca and Gil



Monster Truck debut . . . Chris Allec (left) competed in the Open Monster Truck Class for the first time and TQ'ed. Seen here with teammate Craig Lair.

Losi, Sr. both made a brief appearance in the third spot. Enjoying a comfortable lead, Brandy eased back on the throttle and cruised as Smith settled

into the runner-up spot. At the wire it was Brandy first, Smith second and, Guest back in third.

The next group up was the 2-Wheel Open class; the largest

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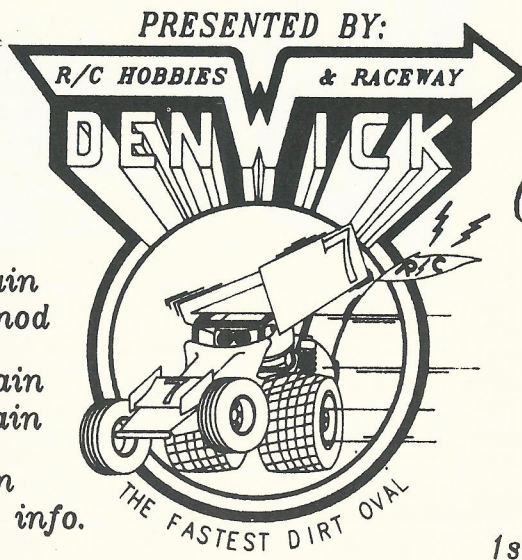
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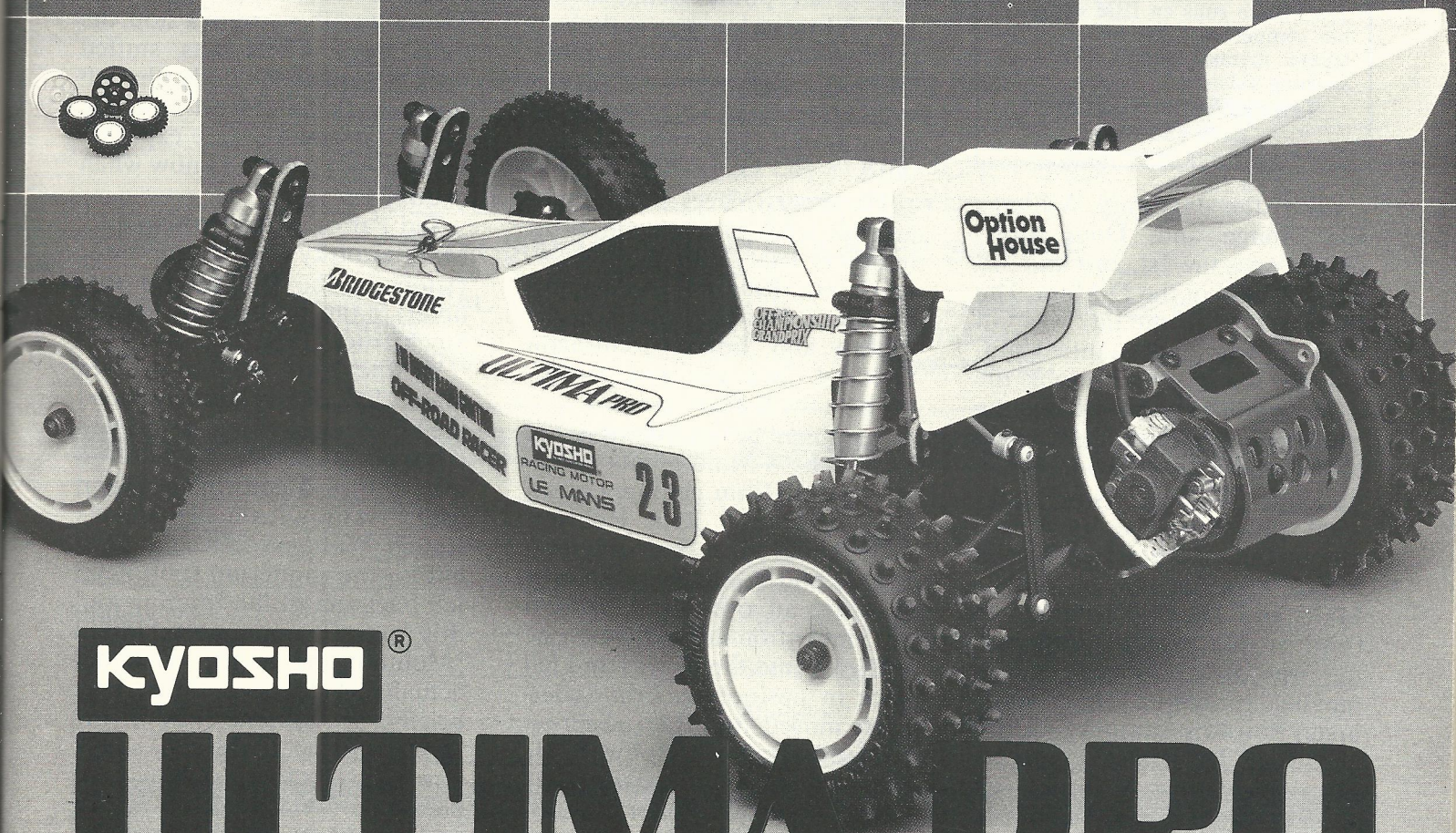
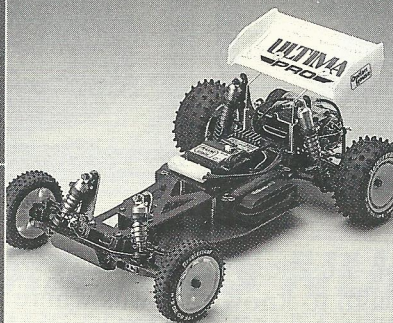
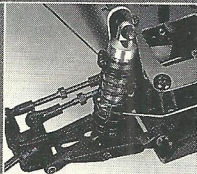
Adding to the ball differential, front and rear stabilizers, special shock stays, adjustable tie rods, and ball bearing set already included with the World Champion Turbo Ultima, Kyosho has fully primed the Ultima Pro for victory with universal swing shafts, Gold Shocks, and a durable, lightweight graphite chassis. In total, the included hop-ups are valued at \$400.00 retail! To make most other 2WD buggies race-ready, you may have to spend this much in addition to the cost of the car. Ultima Pro comes already outfitted for the track.

The new Ultima Pro more than lives up to the Ultima name. Every feature has been designed to bring home the gold. The special, lightweight, slotted graphite chassis allows you to set up the buggy any way you want. Kyosho's famous

independent double wishbone suspension plus four Kyosho Gold shocks keep your Pro moving toward the winner's circle.

You can adjust camber and caster quickly with the included adjustable tie rods. The sealed gearbox with ball bearing differential smoothly transfers power to the rear wheels. Kyosho has also added new low-profile mini spike front tires and fluorescent yellow wheels. The refined design gives incredible traction and lets you speed through sharp dirt corners with confidence.

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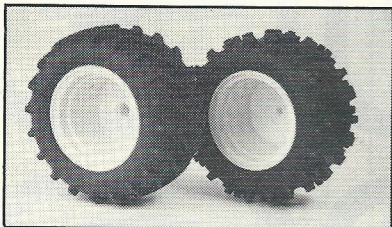
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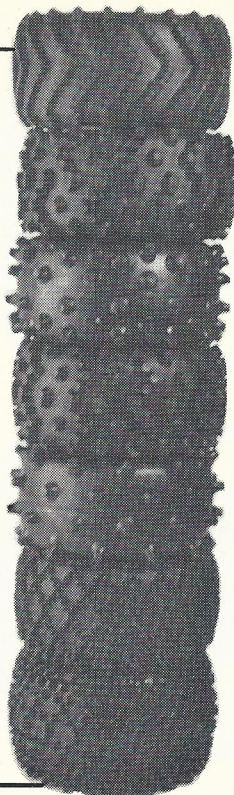
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At the wire it was Moore first, Eric Beier second and Cline in third.

The mains conveniently finished up with enough time to get all the trophies awarded to their respective recipients and then it was off to the Stadium to watch all the big boys go after each other's throats!

STOCK TRUCK A MAIN

- 1st - John Keck
- 2nd - Clifford Stroemer
- 3rd - Rick Dunlap
- 4th - Jeff Martin/DNS
- 5th - Rod Smith/DNS
- 6th - Paul Williams/DNS

SUPER STOCK A MAIN

- 1st - Gary Kortz
- 2nd - David Miller
- 3rd - Robert Williams
- 4th - Jessie Watson
- 5th - Phred Gebauer
- 6th - Ryan Reed
- 7th - Gary Sellers
- 8th - John Keck
- 9th - Jennifer Kortz
- 10th - Ted Parrot/DNS

2WD STOCK A MAIN

- 1st - Kris Moore
- 2nd - Eric Beier
- 3rd - Troy CLine
- 4th - Mark Beier
- 5th - Jim Halsey
- 6th - Craig Lair
- 7th - Rick Wood
- 8th - Jessie Watson
- 9th - Barry Baker
- 10th - Geoff Meudt

OPEN MONSTER TRUCK

- 1st - Brandy Dreifus
- 2nd - John Hammer Smith
- 3rd - Gary Guest
- 4th - Gary Kortz
- 5th - Gil Losi, Sr.
- 6th - Andy Bartucca
- 7th - Mark Grotzky
- 8th - Frank Warnke
- 9th - Chris Allec
- 10th - Adam Warnke

2WD OPEN A MAIN

- 1st - Gil Losi, Jr.
- 2nd - Kris Moore
- 3rd - Rick Hohwart
- 4th - Eric Beier
- 5th - Jack Johnson
- 6th - Cleve Mason
- 7th - Ed Knoles, Jr.
- 8th - Chris McElroy
- 9th - Tem Raskin
- 10th - Nichelle Rivera

4WD OPEN A MAIN

- 1st - Erik Soderquist
- 2nd - Tem Raskin
- 3rd - Rick Hohwart
- 4th - Jay Halsey
- 5th - Ruben Falcon
- 6th - Ron Rossetti
- 7th - Nichelle Rivera
- 8th - Geoff Meudt
- 9th - Jay Katz
- 10th - Derek Furtani

NOVICE A MAIN

- 1st - Phil Cota
- 2nd - William Walker
- 3rd - Chris Cota
- 4th - Mark McGee
- 5th - Andy Harrington
- 6th - Rusty Nichols

the smoke cleared it was Kortz with the win, Miller in second and Williams in third.

Stock Truck T.Q., John Keck took the holeshot at the start of the A-Main event! Paul Williams took over the lead in the second half of the race, but lost it on the last lap to allow Keck to claim victory with Clifford Stroemer in second and Rick Dunlap in third.

In the 4-Wheel Stock Main event, T.Q. Dominic Sellers took the early lead with Team Hammer's Paul Williams and Eddie McKay in hot pursuit! McKay edged past Williams and caught up to Sellers. Sellers rolled and McKay was past him in a flash! Sellers stubbornly chewed up McKay's tailpipes in an effort to re-gain the lead, while Williams hung back like a vulture waiting for one of them to glitch. Sellers made an awesome inside move on McKay in the back straight to take over the lead. McKay then spun out and Williams took over the runner-up spot. McKay wanted revenge and the leaders all declared war on each other for a massive battle down to the wire! At the finish it was Sellers first,

Williams second and McKay in third.

The Novice classes are always a spectator's delight as these relatively inexperienced drivers do a lot of crashing and banging with each other. Phil Cota grabbed the early lead and didn't want to give it up! William Walker maintained the runner-up spot while Chris Cota and class T.Q., Mark McGee battled it out for third. At the finish, it was Phil Cota 1st, Walker 2nd, and Chris Cota in 3rd.

In the 2-Wheel Stock, C-Main, David Bush, Roger Tibbets and Jeff Martin finished 1st, 2nd, and 3rd. In the B-Main, Jim Halsey took the win followed by Chris Raceles (2nd) and Mark Fox (3rd).

At the start of the A-Main event, TQ Kris Moore took the lead while the rest of the pack piled up in the first turn! Troy Cline made it out of the mess first followed by Barry Baker and Eric Beier. The Beier brothers, Eric and Mark battled briefly with each other for the third spot until Eric found himself in the runner-up spot behind the leader as Cline dropped back to third.

1989 ROAR Region I 1/12 4-Cell Championships

Article and Photos By Mark J. Whipple

The Northeast Coast is well known for its big block dirt oval modified racing, thus causing radio control car clubs to paint up open wheel modified bodies like their favorite big block star and run in circles lap after lap. It seems that horsepower is usually the final factor in winning radio control oval races. C.N.Y.R.C.A.R. decided to break the area's tradition and built a demanding road course track for the ROAR Region One 1/12 Championships. Driver ability was the key factor in this race and Mike Ebert proved that in both the Modified and Stock classes.

Over a hundred entrants crowded the pits of GP Racing in Rome, New York. Competitors came from as far away as Virginia to compete in the two day contest held on the weekend of February 18. With dozens of drivers filling the pits, elbow room was a bit cramped on the tables, but thanks to the excellent preparation of the race organizers, the entire event ran virtually without a hitch.

Qualifying started Saturday morning with the modified class. The challenging 30' x 70' carpet course met the enthusiastic approval of the drivers and the racing was exciting and fast paced. Delays between heats were minimal, and the track layout included small "islands" for corner marshals, so the action was not interrupted. Each driver ran four eight-minute qualifying rounds, allowing plenty of opportunity to get the cars dialed in and geared correctly.

In the first round, Frank Calandra, the local favorite, had the top position. He maintained the TQ throughout the entire round of Modified. In the second round with a run of 42 laps at 8:10.86, Calandra set the pace for

TQ position thus giving him the pole position in the main. Ebert, Gene Kochiuba, Frank DePace, and Bruce Aristeo were just seconds behind to round off the top five qualifiers.

In the main Ebert, driving an Associated 12L, won the race and beat the TQ run by .48 seconds. DePace - Corally and Calandra - Corally, battled for second and third respectively. They were just under 2/3 of a lap down from the leader.

The B Main was run after the A because their race was interrupted by a faulty circuit breaker which shut off the computer. My apologies to all of those in that race. The top three qualifiers in the B Main were David Chester, Tom Lane and Jon Orr. Chester held on the number one position throughout the race and won with a 40 lap run. Dominick Incantalupo finished second and Lane third.

Following the A Main trophy awards, judging for best paint

took place. The cars were not judged for scale reproduction, but rather for overall appearance and quality of finish. David Monetti's airbrushed car with a hand painted Road Runner took home the trophy, and the competition concluded for the day.

Stock class competition was scheduled for Sunday. In order to eliminate the controversy that has recently surrounded stock class racing, the race organizers handed out identical motors to all entrants. More motors were available in case drivers felt they had saddled with a dud. Even young, amateur drivers felt they could compete successfully. The top three drivers had their motors unwound by race officials immediately after the last race. This policy proved successful.

Sunday brought a new day of racing and some new faces to the A Main. Ebert had the TQ position throughout each round. He improved his time in the second qualifier with 41 laps at 8:03.46.

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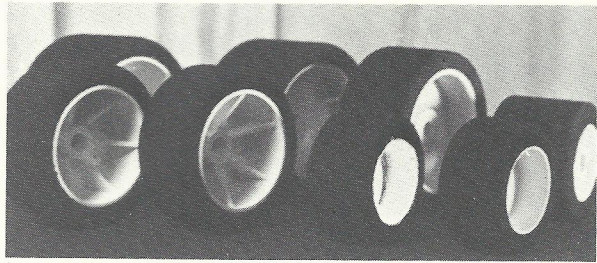
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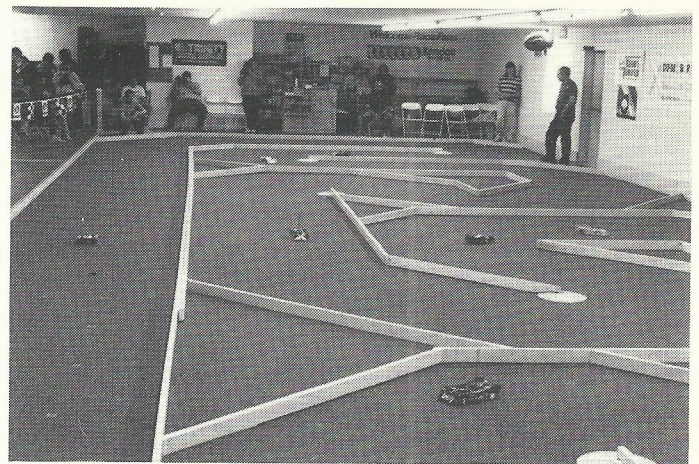
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41 laps was not touched by anyone else during the day except by Ebert again in the Main. Frank Calandra held on to second position during each qualifier and Steve Maslin stayed in third. Everett Pietras, who has been driving road course for only five months qualified fourth for the A. He did a superb job at racing over the weekend. Placing in the A Main finals was Ebert, Calandra, and David Chester for first, second and third.

Michael Palmer was top in the B Main and swept the field with a two lap lead over second and third contenders, Andy Diaz and Bruce Throne.

Several manufacturers contributed prizes to show their support of the sport. A special thanks to Associated, Delta, Futaba, Navcom, Inc., Pactra, Paragon, Trinity and Twister Motors. Your support is greatly appreciated.

Overall, the races ran smooth. Congratulations to each person who competed in this event. In general, both the pit area and the drivers' stand was surrounded by an atmosphere of sportsmanship and companionship. That's what this sport is all about. The Region One 1/12 Championships brought people together to compete and have fun. The weekend was a success because both was accomplished.



Overall layout of the road course.

STOCK MAINS

A MAIN

- 1st - Michael Ebert/TQ
- 2nd - Frank Calandra
- 3rd - David Chester
- 4th - Steven Maslin
- 5th - Jon Orr
- 6th - Tony Goddard
- 7th - Everett Pietras
- 8th - Robert S. Kuss, Jr.
- 9th - Gavin Creado
- 10th - Greg Phillee

B MAIN

- 1st - Michael Palmer
- 2nd - Andy Diaz
- 3rd - Bruce Throne
- 4th - Willy Decker
- 5th - Ian Faasstt
- 6th - Mark Calandra
- 7th - Mark Melone
- 8th - John Jacobsen
- 9th - Todd Podkowska
- 10th - Brian Wynn

C MAIN

- 1st - George Ruff
- 2nd - Bob Larkin
- 3rd - Greg Klugh
- 4th - Chuck Wright
- 5th - Eric Pietras
- 6th - Mike Cherenzia
- 7th - David Monette
- 8th - Louis Carrozza

D MAIN

- 1st - Bob Sheets
- 2nd - Tom McCoy
- 3rd - Pat Manzi
- 4th - Williams Little
- 5th - Michael Griffin
- 6th - Matt DiLiberto
- 7th - David Santanino
- 8th - Jason Lee

E MAIN

- 1st - Richard Baker
- 2nd - Carl T. Daniel
- 3rd - Justin Heitz
- 4th - Eric Schreiber
- 5th - Frank Calandra, Sr.
- 6th - Chris Wyer
- 7th - Chris Tadman
- 8th - Rick Kesler

F MAIN

- 1st - Joe Mackey
- 2nd - Victor Zabicki
- 3rd - Paul Barbuzza
- 4th - Jay Benton
- 5th - Bob Melone
- 6th - Thomas Provost
- 7th - David Merchant
- 8th - William Little, Sr.

MODIFIED MAINS

A MAIN

- 1st - Michael Ebert
- 2nd - Frank DePace
- 3rd - Frank Calandra/TQ
- 4th - Tom Adams
- 5th - Rick Icker
- 6th - Joe Scarborough, Jr.
- 7th - Gene Kociuba
- 8th - Bill Davis
- 9th - Bruce Aristeo
- 10th - Steve Maslin

B MAIN

- 1st - David Chester
- 2nd - Dominick Incantalupo
- 3rd - Thomas Lane
- 4th - Mark Gillen
- 5th - Tony Goddard
- 6th - Jon Orr
- 7th - Greg Klugh
- 8th - Gavin Creado
- 9th - Rick Niepp
- 10th - Greg Phillee

C MAIN

- 1st - Gary Yellin
- 2nd - John Incantalupo
- 3rd - Robert S. Kuss, Jr.
- 4th - Todd Farnham
- 5th - Everett Pietras
- 6th - Scott Herold
- 7th - Ian Faasstt

D MAIN

- 1st - Brian Wynn
- 2nd - John C. Brown
- 3rd - Bruce Throne
- 4th - Michael Palmer
- 5th - John Jacobsen
- 6th - George ruff
- 7th - Mark Melone

E MAIN

- 1st - Andy Diqaz
- 2nd - Mark Calandra
- 3rd - Louis Carrozza
- 4th - Doug Kelejian
- 5th - Bruce Campbell
- 6th - Larry LaBounty
- 7th - Andy Leskovicz
- 8th - Frank Calandra, Sr.

F MAIN

- 1st - Troy Gillette
- 2nd - Jason Lee
- 3rd - Williams Little, Sr.
- 4th - Chris Tadman
- 5th - Victor Zabicki
- 6th - Jay Benton
- 7th - David Merchant
- 8th - William Little

Chris Doseck Wins the Region in Avon Lake!

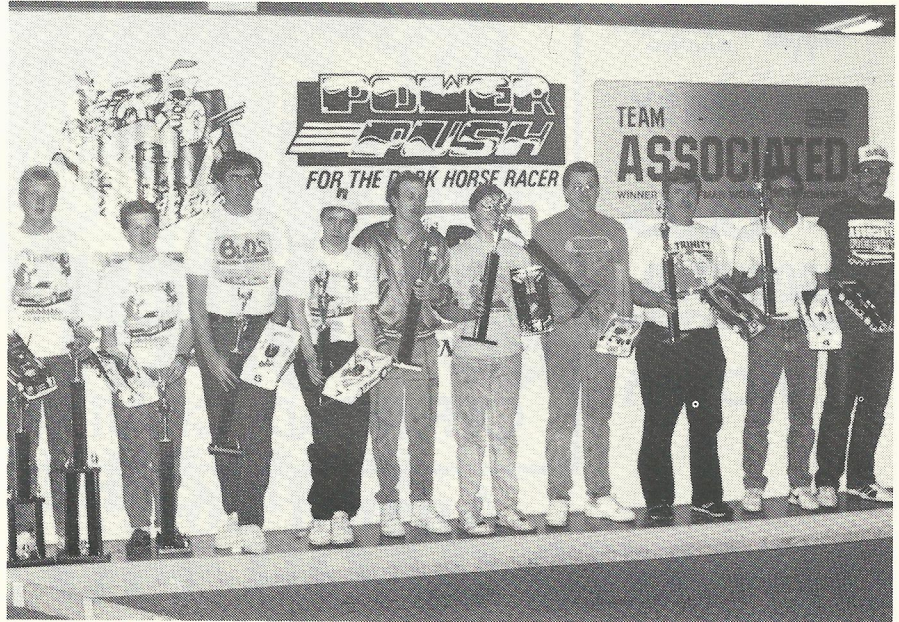
Linda Carrubba - Photos By Dan McCool

The concours winners of the ROAR Region 3 Four-Cell 1/12 Championships were thrilled with the beautiful trophies. First place was won by Neal Everhart, who painted his own body. Second place went to Chuck Lonergan, who thanks Jim Benson for the terrific paint job. The "Carl Christy Car" painted by Frank Pupello (driven by the great Carl Christy) was judged to be the third place winner. Carl thanks Frank for the beautiful black and blue body. Alcar thanks all drivers who entered this concours (best looking paint job, no documentation required) and the judges — Bud Bartos, John Thawley, Steve DiFranco and Dwight Smith. Now that we know the important stuff, let's get on with the race!

Approximately 140 racers from around Region 3 converged on Avon Lake, Ohio's first and only indoor raceway, Alcar International R/C Raceway on Friday. Beginning at 11:00 a.m., drivers registered and received their awesome Trinity stock motor. Then, using Ted McCarthy's Tee-Time procedure, they practiced for the big event.

Ted's Tee-Time system is fantastic! All drivers knew when they were scheduled to practice without waiting in long lines. Practice ended at 11:00 p.m. promptly. The last group to practice looked like a preview of an A Main. Drivers in that practice were Chris Doseck, Terry Rott, Mike Ryan, Paul Martin, Joe Lawrence, Dwight Smith, Mike Seubert, Ted McCarthy, Chuck (Endless) Sommers, Aaron Treppa and John Thawley (how did he get in there?).

The drivers were able to practice for an hour Saturday morning, then the track was shut down for the 8:00 a.m. drivers' meeting.



A Modified, L. to R.: Chris Doseck, Mike Seubert, Bud Bartos, Joe Lawrence, Andy Dobson, Mike Blackstock, Bob Schoenau, Dave Pulfer, Ron Ferguson and Carl Christy.

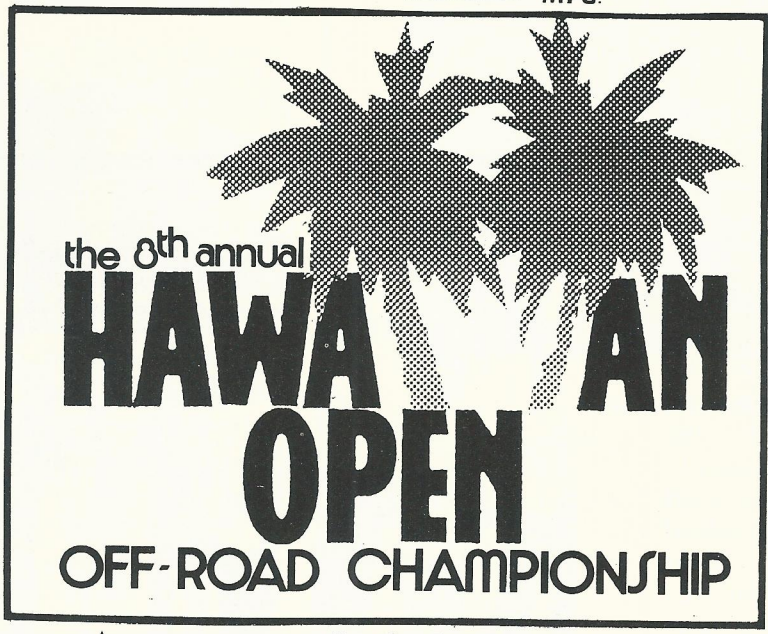
Chuck Mackin began the meeting by introducing all the Alcar officials who would be handling the race. All rules and regulations were discussed and the first heat of the Trinity stock class was ready to race at 8:30.

Stock heat J was the first to qualify for the 1989 ROAR Region 3 race. Top laps recorded for that heat were 28 laps in 8:13.61. Don Holub announced that Tom Manson was the stock TQ to that time with his 28 laps. Tom was only able to hold onto the TQ position for that one heat, as Bill Henn became the new TQ in the very next heat with 32 laps in 8:02.66. Bill's 32 laps remained the top until the Heat E drivers completed their first round. Ryan Moore became the new TQ with 33 laps in 8:11.28. Ryan's 33 laps only held up two more heats, as Mike Walpole took the TQ spot with 34 laps in 8:11.63 during the C heat. Mike's 34 laps were unbeatable until the A qualifier, when Dwight Smith and Joe

Fitzpatrick fought for top honor and both made 35 laps. Dwight was just a little faster than Joe and became first round TQ with 35 laps in 8:12.75. To show how competitive this race was, Joe had 35 laps in 8:13.84 for the second spot on the qualifying list.

Immediately following the A Stock first qualifier, Modified G drivers took the stand. Mark Theis was the first modified driver to TQ with 32 laps in 8:19.12. Unfortunately for Mark, this only held up until the next heat, when Howard Kemery overtook the TQ spot with 33 laps in 8:12.95. Aaron Treppa decided that he wanted a shot at the TQ spot, so he took over in the E heat with 33 laps in 8:05.02. The D heat drivers decided that 33 laps weren't fast enough for the TQ position, and four drivers bettered Aaron's time. The new top qualifier for the modified class was Dave Pulfer with 35 laps in 8:08.11. Dave's son decided to

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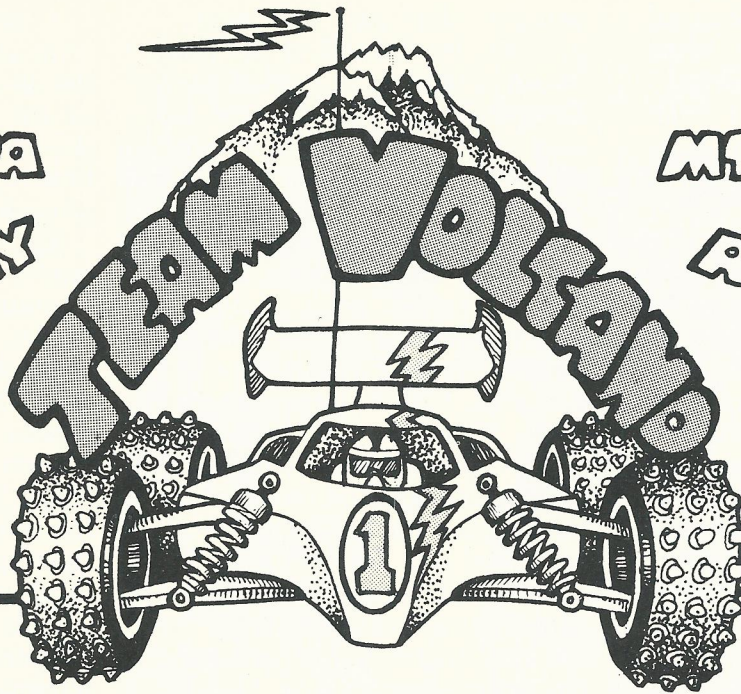
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Checks Payable to: Dan's R/C Racing
Mail to: Mt. Shasta R/C Racers
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CITY _____ STATE _____ ZIP _____ ROAR # _____

CLASS 1) _____ Frequency _____ 1st _____ 2nd _____ 3rd _____

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T-Shirt Size (S, M, L, XL) _____

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Available at Track**

give "Good Old Dad" a little pressure and finished right behind him with 34 laps in 8:10.11. Mike is soon going to be a "problem" for Dave!!! Dave's good luck appeared to be back, as he held on to the TQ until the first B qualifier when Ron Ferguson bumped him out of the spot with 37 laps in 8:09.00. Ron remained TQ of the first round of qualifying. No one in the A was able to better his time.

Round 2 of qualifying saw drivers trying to beat the TQ's of the previous heat. Many drivers improved their first times, but few were able to catch the leaders. By the end of Round 2 of qualifying the stock TQ remained Dwight Smith, but Chris Doseck had replaced Ron Ferguson as TQ in the modified class with 37 laps in 8:06.15.

During the H stock heat of the third qualifier, a representative of Wimpy motors selected a name from the driver's list and presented him with a Wimpy T-

shirt. Matt Dahm was thrilled to win the shirt and will wear it proudly. By the end of the final round of qualifying for Saturday, Dwight Smith hung on to the TQ spot in stock with his first round effort. Joe Fitzpatrick was still the second qualifier with the same laps and time as the first round. By the end of the day the top five on the stock qualifying list (in order) were: Dwight Smith, Joe Fitzpatrick, Jim Keserich, Chuck Lonergan and Dean Smith. The modified drivers pulled out their heavy duty equipment and literally flew around the track. Chris Doseck remained TQ for the modified class with 37 laps in 8:02.51. After three rounds of qualifying, the top five in the A modified class (in order) were Chris Doseck, Mike Seubert, Carl Christy, Andy Dobson and Ron Ferguson.

Sunday's action began at 8:30 a.m. with the fourth and final round of qualifying. The stock

class saw no improvement in the TQ results, but many drivers were able to work their way up the qualifying list to get closer to, or into, the A Main. Modified drivers knew they had to do their best to beat "The Dude", Chris Doseck.

The B Trinity Stock Class was ready to roll. John Thawley announced each driver and began the race. The first car through the timing tower was driven by Randy Midkiff, followed closely by Mark Sweeny, Paul Brower and Dave Gardiner. Mark Sweeny took the lead on the second lap with Paul Brower right behind and Bill Worrel in third place with Race Director Chuck Mackin in fourth. After 2 minutes of racing, Mark Sweeny retained the lead with Brower, Worrel and Mackin trying to overtake him and each other. Unfortunately for Mark, he tangled with several drivers a few times and Chuck Mackin was able to avoid the carnage at



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about the 4 minute mark and take the lead with Bill Worrel in second and Paul Brower in the third spot. Chuck was able to keep well ahead of the pack until the very last lap. Chuck started to slow and Bill Worrel poured on the steam. John Thawley called "TIME" with both Chuck and Bill in the infield. The race was on. Pandemonium reigned with everyone cheering for either Bill or Chuck. As the two cars passed under the bridge to end their run, everyone was silent — waiting to see who the computer said won the contest. Closer than a photo finish, the computer showed Chuck Mackin to be the winner by 0.01 seconds. Bill Worrel had to settle for second and Paul Brower hung on for the third position. Very nice racing, gentlemen! Chuck Mackin had gone 34 laps in 8:11.47. Bill Worrel's laps and times were 34 laps in 8:11.46. Paul Brower's third place results were 33 laps in 8:07.50. That race turned out to be the



A view of the track just as the A Modified drivers finished racing.

most exciting of the entire weekend.

The Modified B was next to be run. Paul Martin jumped into the early lead with Steve Radecky

and Terry Rott right behind. Unfortunately for all concerned, there were quite a bit of accidents on the track and by the halfway mark, the order was Phil Zim-

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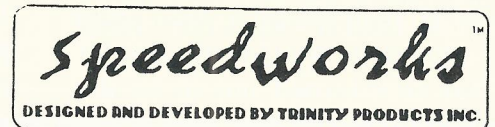
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Must have 2 frequencies

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- 4WD Stock
- 2WD Modified
- 4WD Modified
- 2WD Sprint Stock
- 2WD Outlaw Sprint

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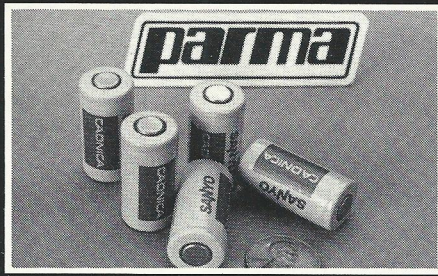
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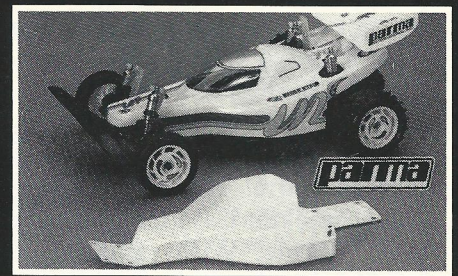


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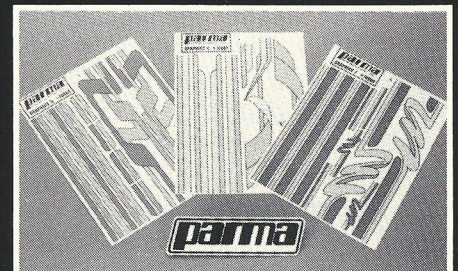
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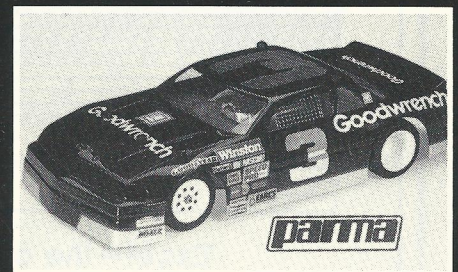
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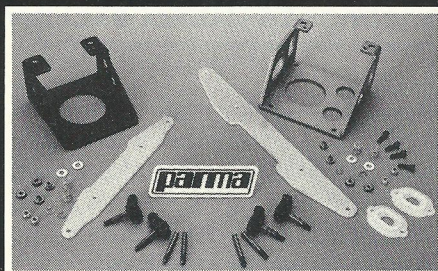
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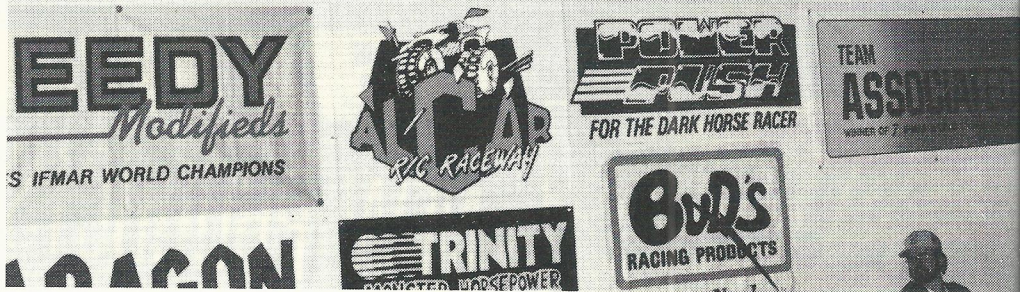
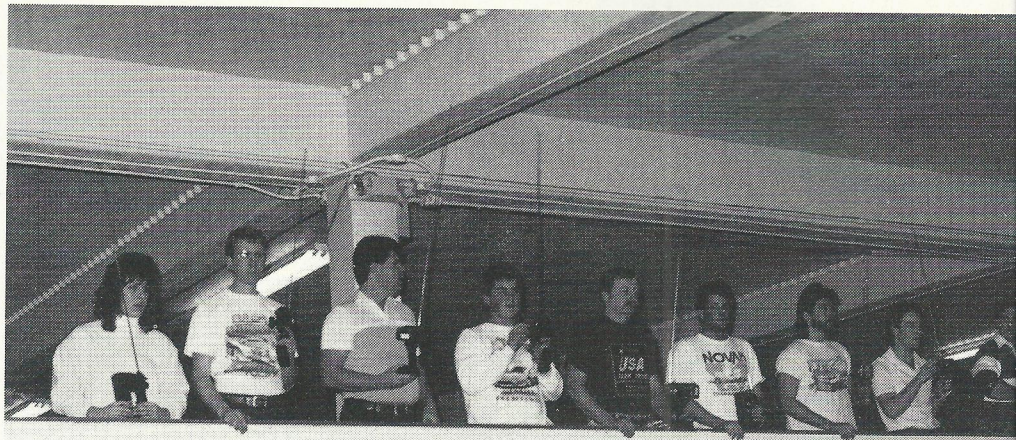
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merman in the lead, Steve Radecky close behind and a battle between Chad Coppock and Chuck Sommers for third. With a little less than 1-½ minutes to go, Bernie Piatt high a board and had to retire. He really had a tough weekend. Better luck next time, Bernie. With one minute left in this heat, Phil Zimmerman hit a board and Radecky went around him to take the lead. Once in the lead, Steve drove like he was trying to get away from a mad girlfriend. No one could catch him. It took until the 30 second mark for anyone to claim and hold third place, Steve Radecky was the winner with 36 laps, Phil Zimmerman was in second with 36 laps and Chad's third place results were 35 laps.


We were now ready for the A Trinity Stock Main. Local favorite Dwight Smith took the early lead with Jim Keserich and Ralph Duncan following right behind. Steve Verona and Chuck Lonergan were keeping right behind the leaders and trying to overtake them. Less than two minutes into the race, Dwight



A Stock Main: Carrie Gerber, Chuck Lonergan, Mike Walpole, Joe Fitzpatrick, Ralphie Duncan, Steve Verona, Jim Keserich, Dean Smith and Dwight Smith.

Smith hit a board very hard and must have damaged his car or motor. He was noticeably slower from that point on. Ralph Duncan was in second place by the 2-

½ minute mark and closing on Dwight quickly. Ralph hit a wall, Lonergan zoomed into second and tried to pass Dwight. Dwight shut the door on Chuck, but then



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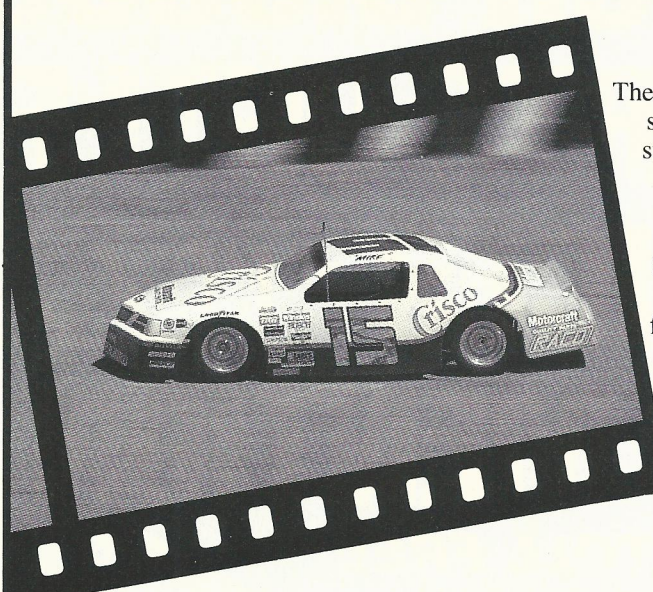
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hit another wall, which further harmed his car. Lonergan took the lead at the 4 minute mark and really stretched it out. By the 6-minute mark, Chuck Lonergan, Dwight Smith and Steve Verona were the men to catch. With one minute to go in the race, Steve Verona passed Dwight for second place and started closing in on Chuck. Chuck Lonergan was able to stay far enough ahead of Steve that by the time the race ended, Chuck was the new ROAR Region 3 Four-cell 1/12 Trinity Stock Champion with 35 laps. Steve Verona's second place score was 34 laps and Dwight Smith settled for third with 34 laps (and a hurting car). It was a very close, exciting race. All drivers are to be congratulated.

The track was cleared, John Thawley announced each driver and the ROAR Region 3 Four-cell 1/12 scale A Modified Main began. Chris Doseck was first under the bridge, closely followed by Mike Seubert and Bud Bartos. The three of them looked like a freight train going through the infield. Mike Seubert ran into some lumber and Bud jumped into second place in the first couple of laps. Bud then hit a dot which threw him into a board, and Mike Seubert took advantage of the mishap taking over second place. Bud was far enough back at that time that he wound up in a race for third with Carl Christy and Joe Lawrence. With 2-1/2 minutes down, Carl passed Bud for third spot, so the order at that time was Chris Doseck, in first; Mike Seubert, in second; and Carl Christy in third. All racing should go that neatly! If all drivers would just remember to race in their qualifying order, the lap counters would sure be happy. Bartos launched himself over a board at half time, just to keep things interesting. Evidently that incident gave Bud the incentive to try to catch Carl Christy and the race was on for third. Christy was tapped and wound up in the "penalty box". Bud passed him


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and took third spot. The "tap" must have weakened Carl's car, because he was not able to handle it as well as he had been the entire weekend. Two laps later, Carl was back in the "penalty box" and then into a board. Unfortunately for Carl, that put an end to the weekend of racing for him. The race still had one minute to go, Doseck was still in the lead with Seubert still on his tail, Bud Bartos was running strong in third and Joe Lawrence

was still in fourth place and trying to catch Buddy. By the eight minute mark, no one was able to move up in racing position, and the race ended with the new ROAR Region 3 Four-cell 1/12 scale Champion being Chris Doseck, Mike Seubert finished second and Bud Bartos finished third. Very nice racing with very close competition in Region 3, as shown by all the mains.

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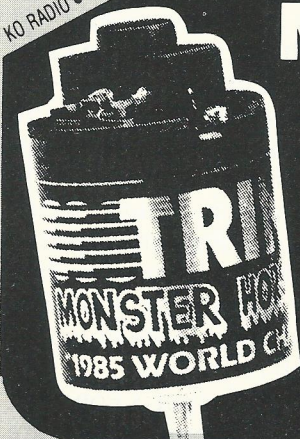
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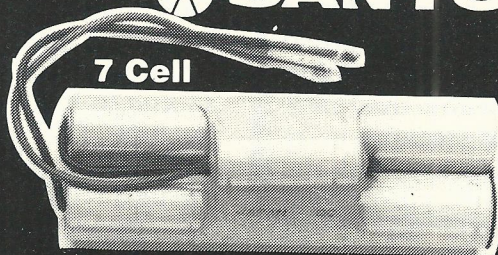


6 CELL



SANYO

7 Cell



SUB C

now part of R/C history. All drivers appeared to be having a very good time, even when cars, etc. were giving them trouble. The facility was just the perfect place to host the event. Alcar's building contains a hobby shop, snack bar, pitting area with lock-ups and the 1/12 scale carpeted track, as well as a dirt track (which obviously was not used this weekend!). Thanks to all the people who volunteered to help run the race. Without you, the race could not have been run so smoothly and efficiently. Alcar has the BEST team of workers around. Alcar and Chuck Mackin wish to thank all who helped for their time and effort. We thank all entrants and are glad everyone enjoyed the race. Hope to see everyone back at Alcar International R/C Raceway soon!

A Modified

- 1st - Chris Doseck
TQ Eagle GT/Trinity
- 2nd - Mike Seubert
TQ Eagle/Trinity
- 3rd - Bud Bartos
TQ Eagle/Cam
- 4th - Joe Lawrence
Assoc. 12L/Trinity
- 5th - Andy Dobson
Parma/Parma
- 6th - Mike Blackstock
TRC/Twister
- 7th - Bob Schoenau
TRC/Twister
- 8th - Dave Pulfer
TQ/Trinity
- 9th - Ron Ferguson
Assoc. 12L/Wimpy
- 10th - Carl Christy
Assoc./Reedy

B Modified

- 1st - Steve Radecky
- 2nd - Phil Zimmerman
- 3rd - Chad Coppock

C Modified

- 1st - Chris Butcher
- 2nd - Bill Schoenau
- 3rd - Mike Mitzel

D Modified

- 1st - David Lane
- 2nd - Jeff O'Malley
- 3rd - Marty Waldhelm

E Modified

- 1st - Mike Lafaso
- 2nd - Gary Okicki

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3rd - Ted McCarthy

F Modified

- 1st - Jeff Veverka
- 2nd - Ron Nelson, Jr.
- 3rd - Paul Marziani

A Stock

- 1st - Chuck Lonergan
TQ Eagle
- 2nd - Steven Verona
Associated 12L
- 3rd - Dwight Smith
Associated 12L
- 4th - Ralph Duncan
Associated
- 5th - Dean Smith
Pro 12
- 6th - Joe Fitzpatrick
Associated 12L
- 7th - Mike Walpole
TRC Pro 12
- 8th - Carri Gerber
Associated 12L
- 9th - Matt Dahm
TRC
- 10th - Jim Keserich
Parma

B Stock

- 1st - Chuck Mackin
- 2nd - Bill Worrel
- 3rd - Paul Brower

C Stock

- 1st - Rick Knapp
- 2nd - Rick Rottach
- 3rd - Matt Mackin

D Stock

- 1st - Marty DiFilippo

2nd - Joe Hutton

3rd - Ralph Middaugh

E Stock

- 1st - Mike Overbay
- 2nd - Fred Kendra
- 3rd - Dan McCool

F Stock

- 1st - Steve Sexton
- 2nd - Richard A. Zbin
- 3rd - Brian Shafranek

G Stock

- 1st - Tom Manson
- 2nd - Dan Lazor
- 3rd - John Schweitzer

H Stock

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- 3rd - Vicky Carrubba

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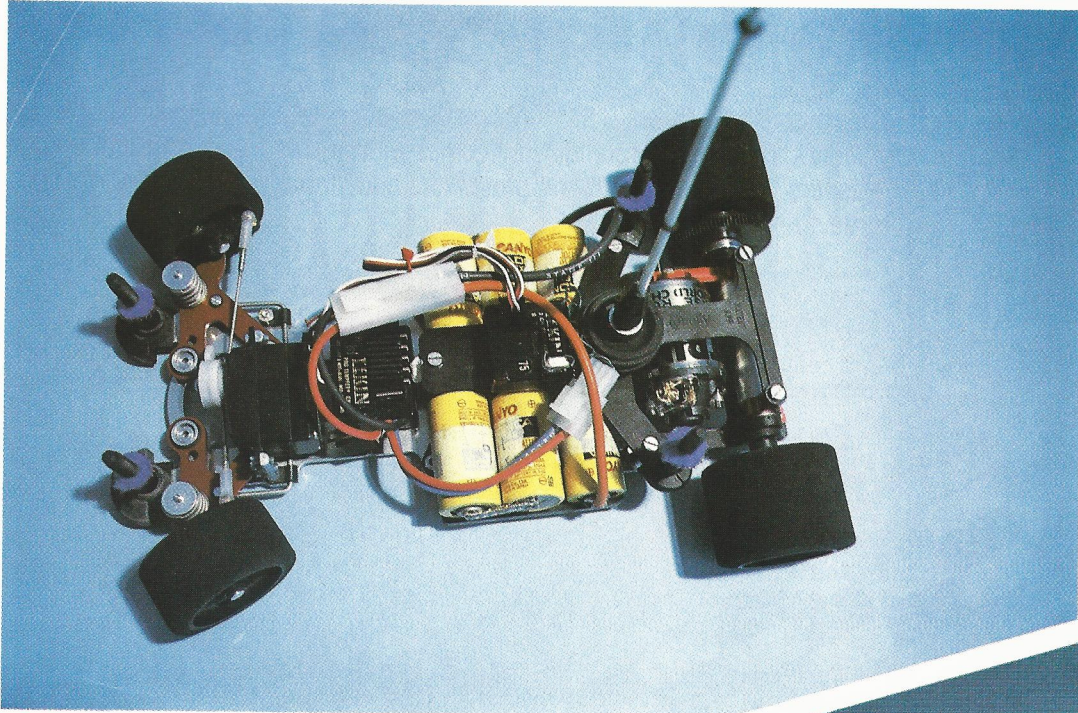
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The Sizzling

Corally SPII

By Jeff Palmer

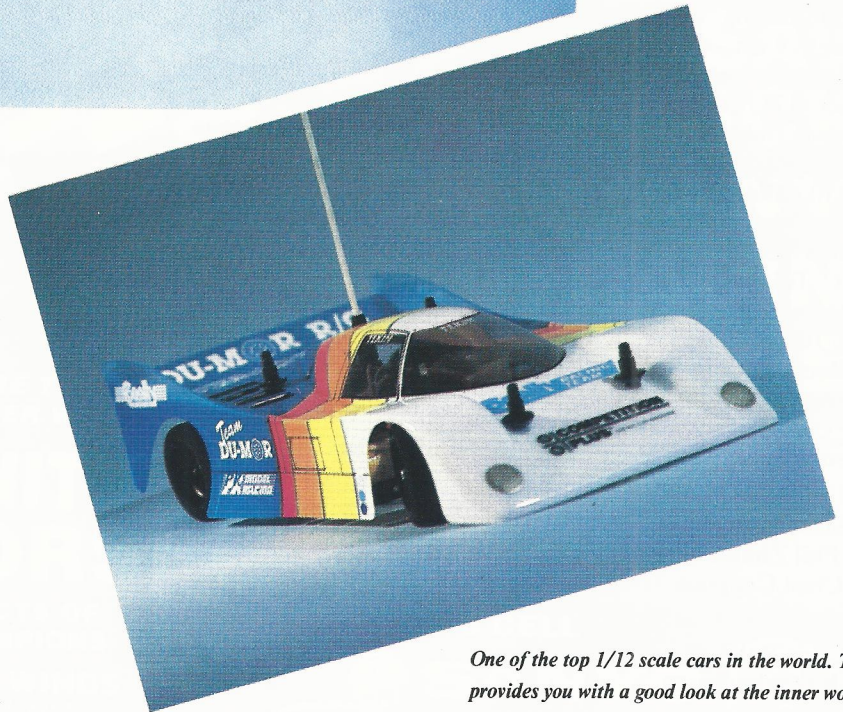


Have you ever dreamed of a car kit that would assemble itself and be truly ready to race? A kit which doesn't require costly after market products or extensive modification? Try the new Corally SPII. It's a well designed kit that's easy to build. It's a unique combination of titanium, aluminum, graphite and carbon filled plastic who assemblies are held together by "O" rings. That's right, "O" rings; they keep the

wheels on the axles, lock the front steering blocks on the king pins, and tie the front "A" arms to the chassis. Have I got your attention yet? You can change a tire or the diff in 10 seconds. Now, am I getting your attention!? The SPII has all this and MORE!!

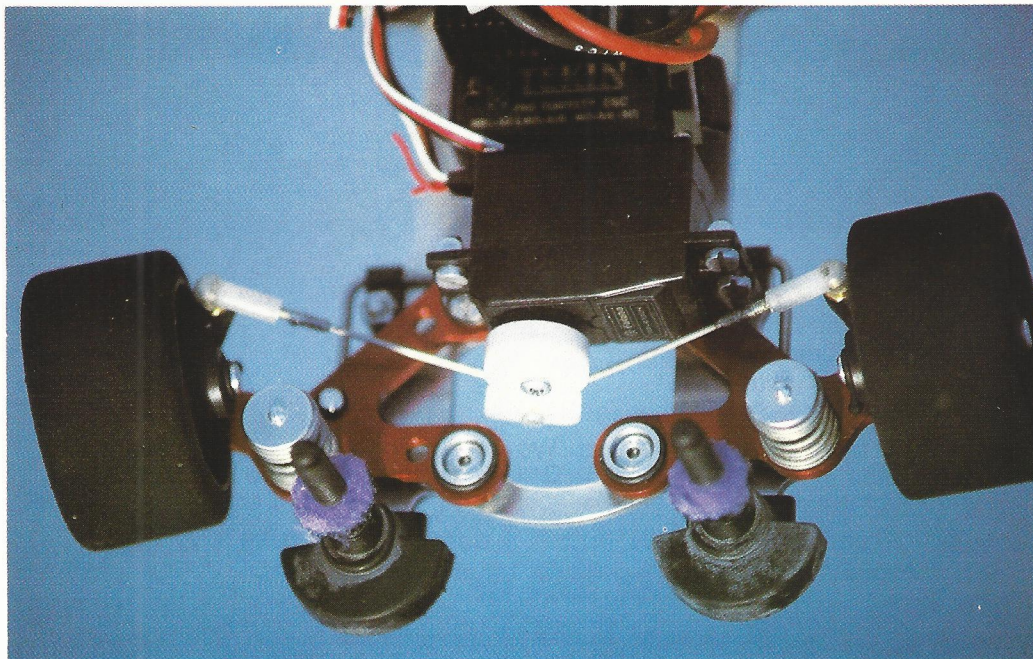
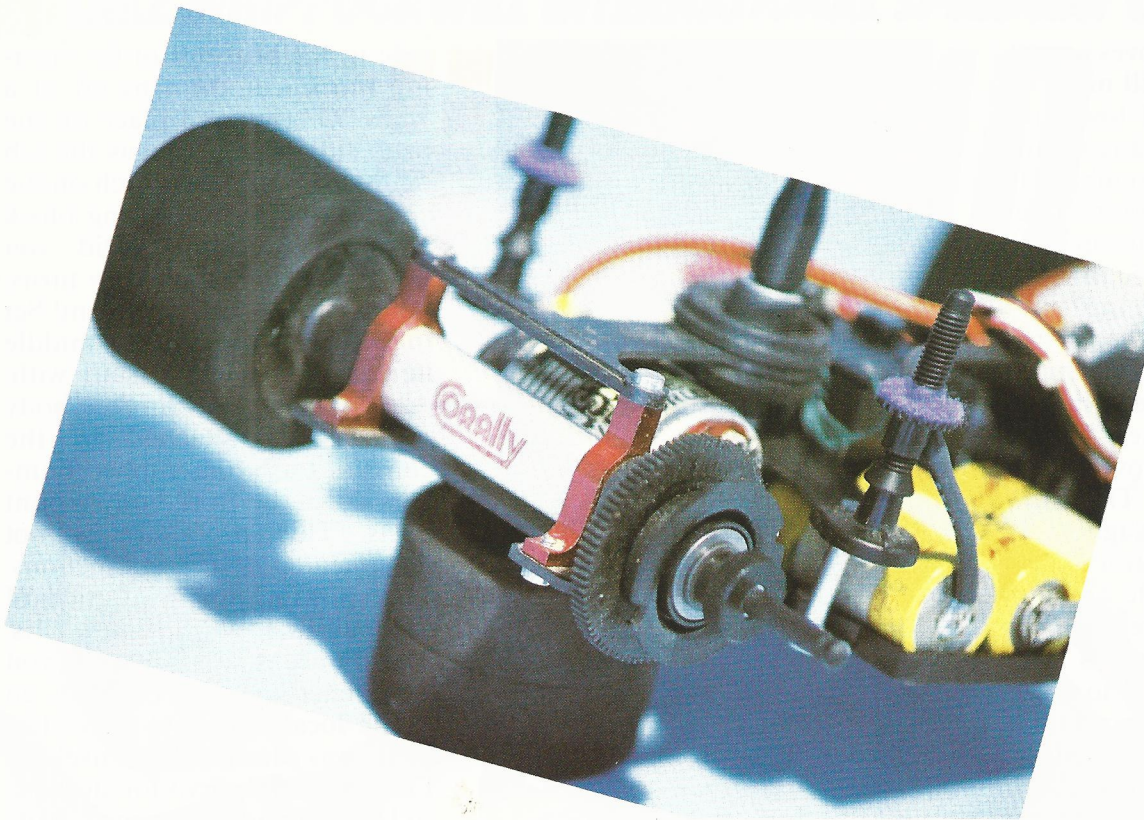
The Corally SPII is a 1/12 scale on-road racer that comes standard with front and rear axle height adjustment, front sway bar, springs a 10th scale car would be proud of (not skimpy ball point pen springs normally found in 1/12 scale kits), and 14 ball bearings. To build this well engineered kit requires only two tools: 1) a screw driver and 2) a pair of scissors. Keep the files, pliers, and hobby knives in the pit box, they're not needed. Let's get started.

When you open the box and pull out the instructions, you'll notice that they are clear and well illustrated. The left hand column of the instructions contains the legend for



One of the top 1/12 scale cars in the world. This shot provides you with a good look at the inner workings.

the assembly, giving a complete inventory of parts and in many cases, illustrations of the parts. The main body of the instructions contains the assembled illustration along with the written description of the step. Each part in the main body of the instructions is boldly labeled. A minor criticism of the instructions is, the left hand column picture of a part and the main illustration of the same part don't always agree, but in all cases, the column on the left had the



Above: The right rear wheel covers the diff adjusting nut. Below: Titanium A arms on a titanium chassis.

correct illustration of the part being used. Also, since the instructions were first written, some changes have been made to the kit; i.e. the instructions don't distinguish between the two "O" ring types, those with tabs and those without. Overall, the instructions are clear and easy to follow. To correspond with the well organized instructions, the parts are organized into ziplock bags. Each bag contains all the parts necessary to complete a step; for instance, the complete diff assembly including axle, gears, bearings and wheels are all in one bag.

As you riffle through the various assembly bags, the one part that grabs your attention is the machined titanium chassis. Take it out and note the recessed screw head slots and the smoothness of the metal; no screw heads or sharp corners are going to catch on the carpet and slow you down. At the bottom of the box you'll find the stem of "O" rings used to hold the car together. These "O" rings have tabs. **DO NOT CUT**

THE TABS OFF!!

A couple of things you will need to assemble this kit are a tube of Loctite "Threadlock" to secure many of the screws in place and Paragon "Ultralon". Paragon's "Ultralon" was chosen for the lubricant because of its use of Teflon as the lubricant. It dries to a powder to help prevent any dirt built up in the bearings. The "Ultralon", if it's used on the bearings, needs to be thinned. Use lacquer thinner to thin the "Ultralon"; a 50/50 ratio of "Ultralon" to lacquer thinner should be sufficient.

To start the construction, step #1 requires the attaching of the front "A" arm joint-balls and posts. Use "Threadlock" on the screws used to secure all 5 of the joints in place. **PAY CLOSE ATTENTION** to the alignment instructions. Step #3 is the first occasion where the "O" rings are in the bag; use the 2mm "O" rings from the assembly bag to secure the damper posts. In step #4, the joint-rings are mounted with pins. You don't need pliers, just push the pins in with the screw driver blade. Next, place the front shock bladder installed in the "A" arm in step #2, on the damper post. When the bladder is halfway on the post, add 2-3 drops of silicon shock oil (syrup) inside the bladder and slide the rest of the way on. As

the front "A" arm moves over the bumps, the silicon will move between the upper and lower portions of the bladder; a real shock absorber. Now assemble the sway bar and the springs. Use a little "Threadlock" on top of the nuts used in step #5, to secure the sway bar in place. In step #7, notice the shape of the "T-bar". Place the diff cut out of the "T-bar" on the correct side (right). In the instructions for step #10, two 5mm nuts are shown being tightened together. These two nuts are not in the kit, ignore this portion of the instructions as it is unnecessary. Only the 5mm nut used to mount the rear damper post to the "radio tray" is in the kit. Use "Threadlock" to secure the 5mm nut to the rear damper post. In step #12, the assembly of the rear damper is critical. The two 5mm "O" rings will be found in the parts bag, not on the "O" ring stem. The thick silicone shock oil (syrup) should cover the upper damper washer. More



Use the left rear wheel to hold the axle for assembly.

may need to be added later when setting up the car for the track. Step #13 is the assembly of the steering blocks; after placing the

axle in the bearings of the steering block, cut the tabs off of a 3mm "O" ring and place on the back side of the axle, as the tab on this "O" ring will catch on the springs or on the steering block arm when turning. Did you notice that the whole axle turns, not just the wheel? Different! Set the steering blocks at the middle height adjustment to start with. Also in step #13, the body mounts are attached to the chassis. Push the rubber bumpers down the front body mount posts. This procedure is not documented in the instructions. In step #14, the ball portion of the ball-link needs 2mm nuts. These were not in my kit. If you experience the same problem, go to the local hardware store. The SPlI was designed to use the Futaba 132SH servo for steering, so I used it and as designed, it fits perfectly. You will need to purchase a Kimbrough servo saver, which does not come with the kit — part #14. Use

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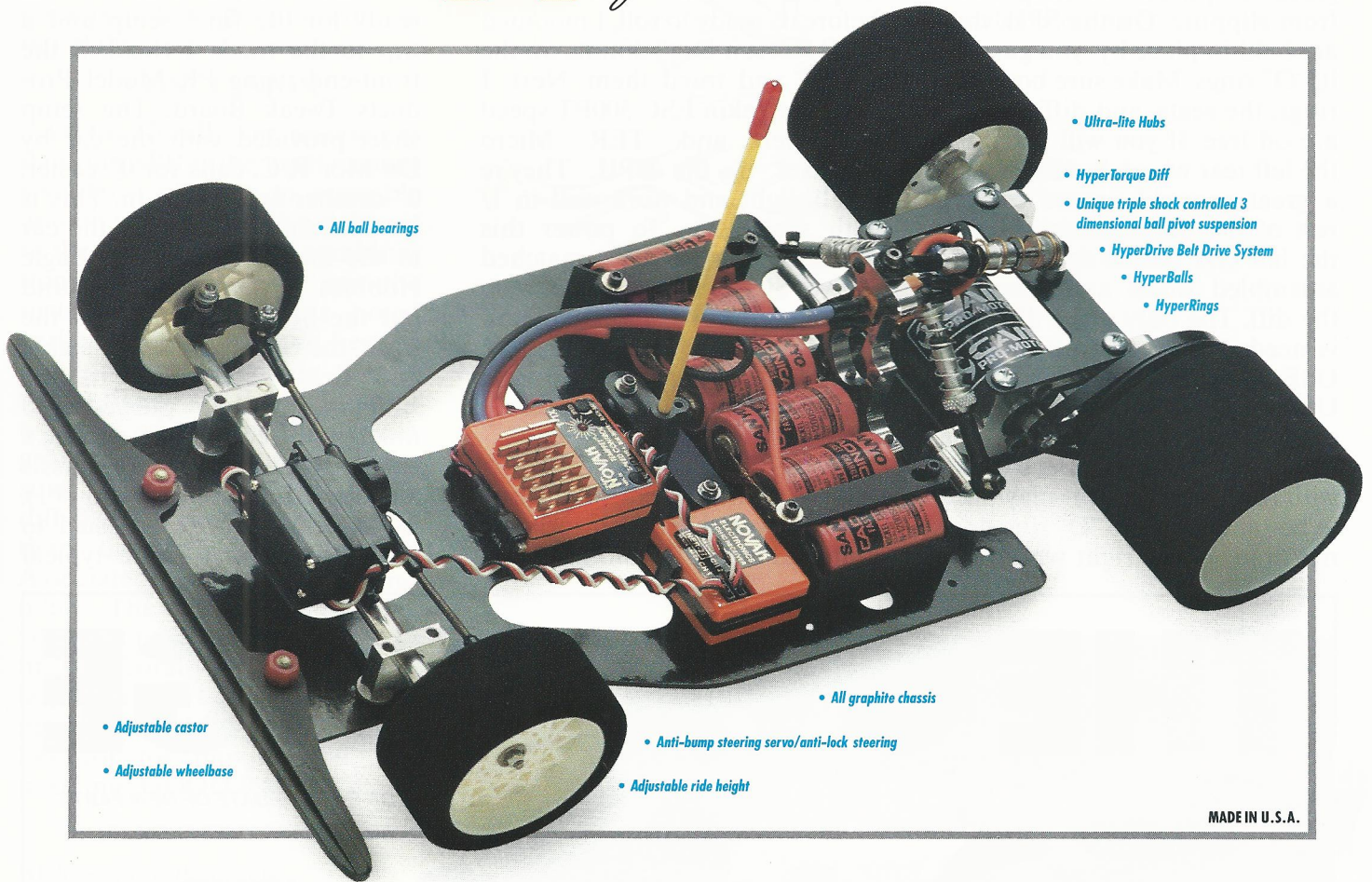
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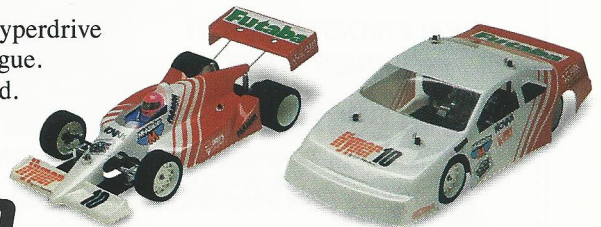
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"Ultralon" on the ball-link joints. The diff assembly, step #15, is an intriguing work of art. Start this step by cleaning all the parts for the diff including the aluminum plate on the graphite axle with motor cleaner; such as, Paragon's Motor Spray or Motor Bath. Traditionally, the diff rings are glued or pinned to keep them from slipping. On the SPII, they are held in place by, you guessed it, "O" rings. Make sure both "O" rings, the seats, and diff washers are oil free. If you will assemble the left rear wheel, it will serve as a great assembly stand for the rest of the diff assembly. Insert the left end of the axle into the assembled wheel and assemble the diff. The only place diff lube is needed is on the diff balls — **USE A VERY SMALL AMOUNT ON EACH BALL.** The only potential problem in the whole diff assembly is at the end with the driver plate. It may need to be sanded. If the "O" ring does not hold on the right wheel cor-

rectly, lightly sand the diff nut side of the driver plate until the wheel and "O" ring fit correctly. Use the "B" height adjustment to start with.

At this point the kit is complete but there are no tires on the wheels and no body on the car. The car needs a motor, a receiver, a speed controller and batteries before its ready to roll. I mounted TRC "Green Dot" donuts on the wheels and trued them. Next, I placed a Tekin ESC 300PT speed controller and TER Micro Receiver in the SPII. They're small, light and work well in 1/12th scale cars. To power this machine, computer matched Sanyo SCE's from Parma were hooked up to a Trinity motor. Finally, a Lotec body from BBR Scale Racing was painted and placed on the chassis. Now it's ready to run.

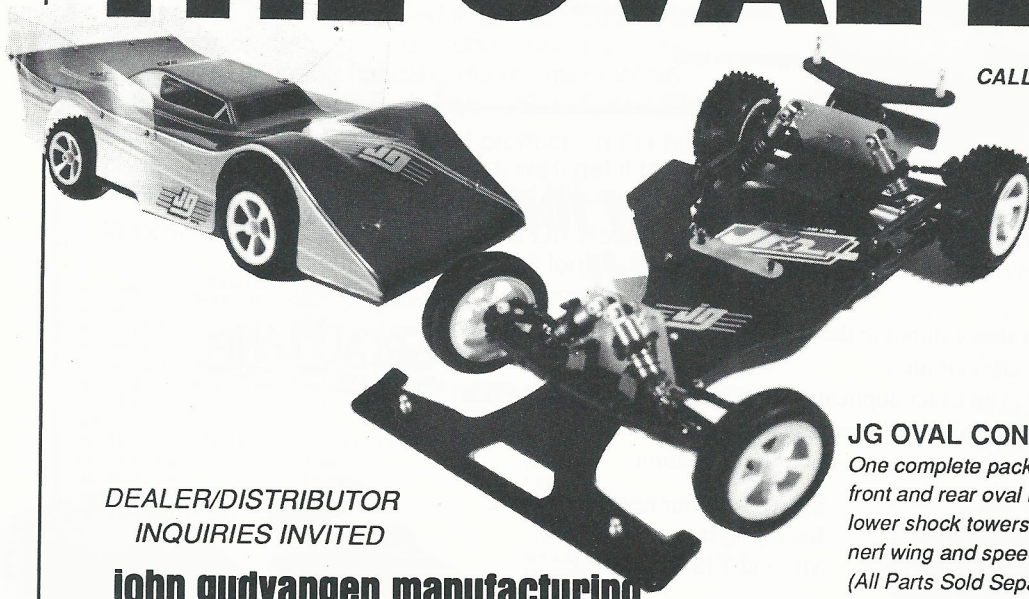
ROAD TESTING

As with all new cars, adjusting the diff was the first priority. It bothered me, at first, to keep tak-

ing off the right rear wheel to adjust the thumb nut, but the "O" ring retainer made it easy and the procedure became less of a problem. This diff is a work of art. In "no time" I had it taking off like a shot, with no pulling to one side or the other.

Next, I added a Bud TOJ stabilizer wing and now I was ready for the final setup and a trip to the track. I tweaked the front-end using PK Model Products Tweak Board. The setup sheet provided with the car by Du-Mor R/C, calls for 0° caster, 0° camber and 0° toe in. This is an unusual setup. I took the car to the local carpet track, Eagle Hobbies in Dallas, Texas, and put the SPII to the test. At the track, the Corally was very stable and held good lines in the straightaway but pushed too much in the corners. By adding a small spacer between the chassis and the T-bar (see Drawing #1), the steering can be adjusted to your driving style. The typical

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setup is to place the spacer in the first hole behind the T-bar/antenna mount; this is the one I use. If this isn't enough steering, move the spacer to the second hole or third. I also coated the front tires with Paragon's "Ground Effect". These two adjustments cured the push problem and allowed me to hold tight in the corners and straight lines coming out of the corners.

CONCLUSION

Of the Corally kits released to date, the SPII is the most responsive. Its a pleasure to assemble and it's very competitive right out of the box; an unusual combination. I would like to see the instructions updated as noted earlier in the article and here in the U.S., the kit needs tires. I would like to see the addition of a "caster" adjustment. If American gears are used in the car, make sure to change the diff ball; the diff balls in the kit are smaller than the diff balls used by Associated, Trinity, Parma and others. The converse is also true, you can't use American diff balls in the Corally spur; their too large. Thanks Corally for showing us some class and thank you Du-Mor for importing it. 'Til next time, GOOD RACING!!

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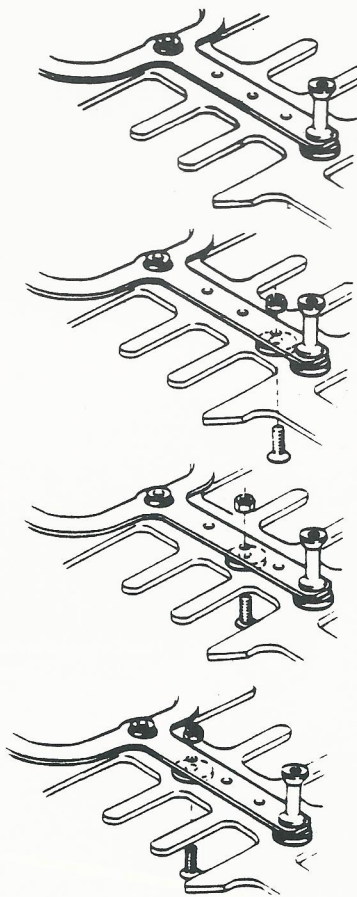
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(609) 829-1338

TRC
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Albemarle, N.C. 28001
(704) 982-0507

CP

(See Page 42 for Car Specifications)



Drawing #1: Corally's steering adjustment - simply move the spacer location on T-bar and try it.

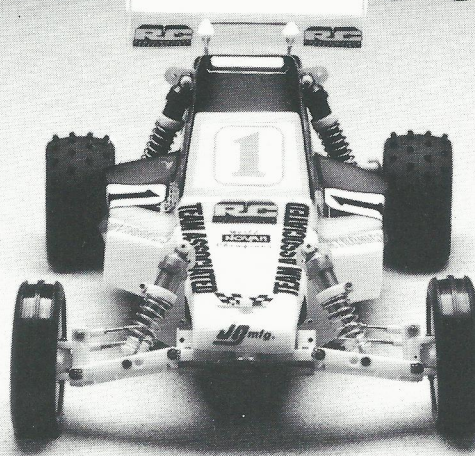
Pushes when cornering

4 cell - slight push
6 cell - standard setup
excellent steering

4 cell - standard setup
excellent steering
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snaps through corners

The car's on a rail -
requires nerves of steel
and quick reflexes

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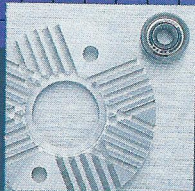
...On The Cutting Edge
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- #0001 The Buggy Master, 20 Turns, 30,000 RPM
- #0002 427 4WD, 16 Turns, 36,000 RPM
- #0003 350 2WD, 18 Turns, 34,000 RPM
- #0004 Dirt Oval Stock, 2WD or 4WD
- #0005 Super Speedway Stock, On-Road
- #0012 The Road Beast, 20 Turns, 30,000 RPM



#4028, #4032 Lite
and #4033 Heavy
Replacement Springs.

Tomorrows Technology

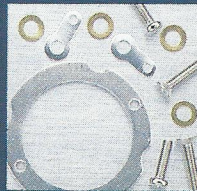


#4043 Motor Spacer,
#4031 Motor Bearing.

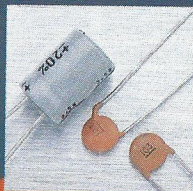
#0011 Sport Pack,
6 Cell Sanyo KR-1300SC



#4044 Motor Rebuild Kit.



#4011 Capacitor Kit.



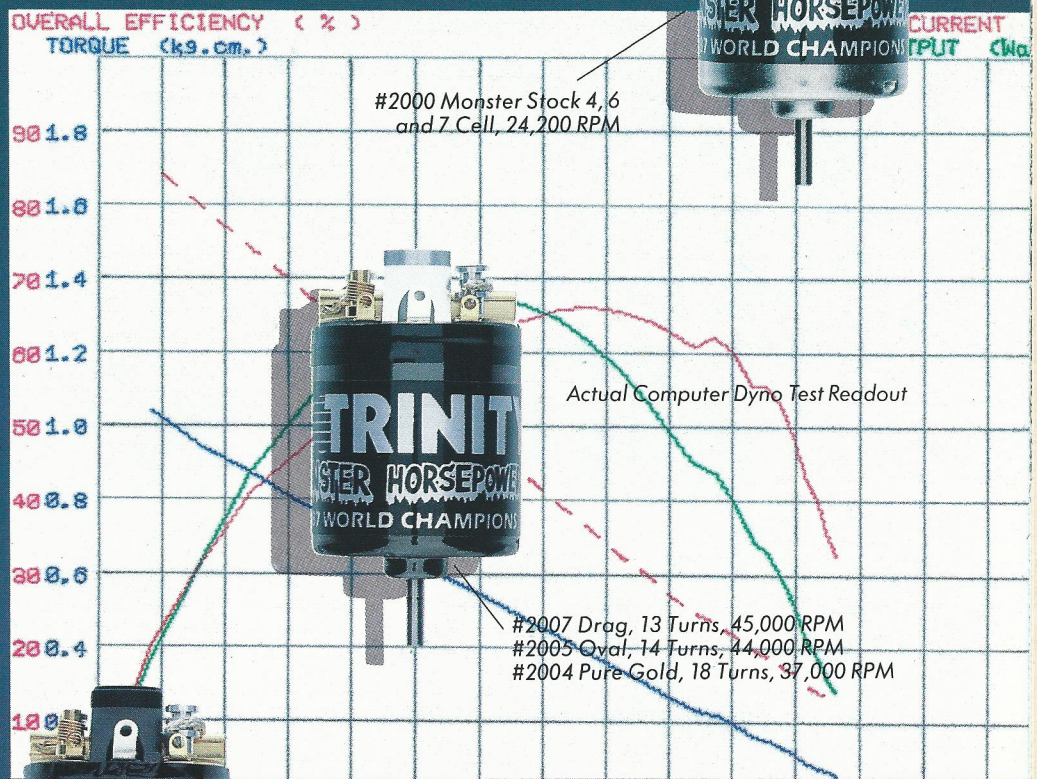
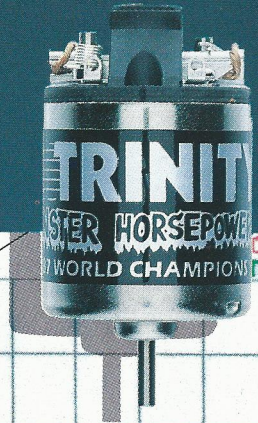
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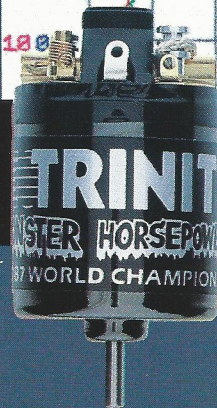
#5050 SCR 6 Cell Racing Pack
#5051 SCE 6 Cell Racing Pack



#5043 Matched SCE 4 Cell Set
#5044 Matched SCE 6 Cell Set
#5045 Matched SCE 7 Cell Set



TODAY



#4005 Brushes/Springs,
#4006 Cut Brushes,
#4007 Timed Brushes and
#4035 Off Road Brushes.

- #1012 Big Daddy, 10 Turns, 49,500 RPM
- #2014 Top Fuel, 11 Turns, 47,000 RPM
- #2015 Godzilla, 12 Turns, 46,200 RPM
- #2002 Sprint, 15 Turns, 41,000 RPM
- #1010 4 Cell Single, 15 Turns, 40,000 RPM
- #2008 Whippoorwill, 16 Turns, 39,500 RPM
- #1004 4 Cell Double, 16 Turns, 39,200 RPM
- #2011 Joel Johnson, 17 Turns, 39,000 RPM
- #1005 4 Cell Triple, 17 Turns, 38,000 RPM
- #1006 4 Cell Quad, 18 Turns, 36,000 RPM
- #2003 Enduro, 19 Turns, 35,000 RPM
- #1011 6 Cell Single, 19 Turns, 32,000 RPM
- #1007 6 Cell Double, 20 Turns, 29,000 RPM
- #1008 6 Cell Triple, 21 Turns, 28,000 RPM
- #1009 6 Cell Quad, 22 Turns, 27,000 RPM

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CAR KIT SPECIFICATIONS

KIT:

Manufacturer Corally
 Model SPII
 Type On-Road
 Scale 1/12

CHASSIS & BODY:

Chassis Type Pan
 Material Titanium/graphite
 Body not included
 Material N/A

ELECTRICS:

Motor not included
 Receiver not included
 Speed Controller not included

WHEELS:

Front Corally
 Rear Corally

GENERAL:

Weight (completed/6 cell) ... 33.26oz
 Wheelbase 7.75 in
 Track (front/rear) 5.3/5.3 in
 Length 14 in
 Width 6.75 in
 Height 3.25 in
 Bearings/bushings bearings

SUSPENSION:

Front Coil-over dampner
 Rear T-bar dampner

DRIVE TRAIN:

Type Direct drive/ball
 Ratio 4:1
 Gears (pinion/spur) 20/80

TIRES:

Front not included
 Rear not included

OPTIONS

WHEELS:

Front Stock
 Rear Stock

ELECTRICS:

Motor Trinity
 Receiver Tekin TER
 Speed Controller Tekin 300PT
 Batteries Parma SCE

TIRES:

Front TRC Green Dot
 Rear TRC Green Dot

CHASSIS & BODY:

Chassis Stock
 Material Stock
 Body BBR Racing - Lotec
 Material Lexan

COMMENTS:

Chose Tekin receiver and ESC for its small size and light weight. BBR's Lotec body for its aerodynamics and TRC tires for their grip.

ROAD TEST

HANDLING:

Acceleration Excellent
 Cornering Excellent
 Rating Excellent

COMMENTS:

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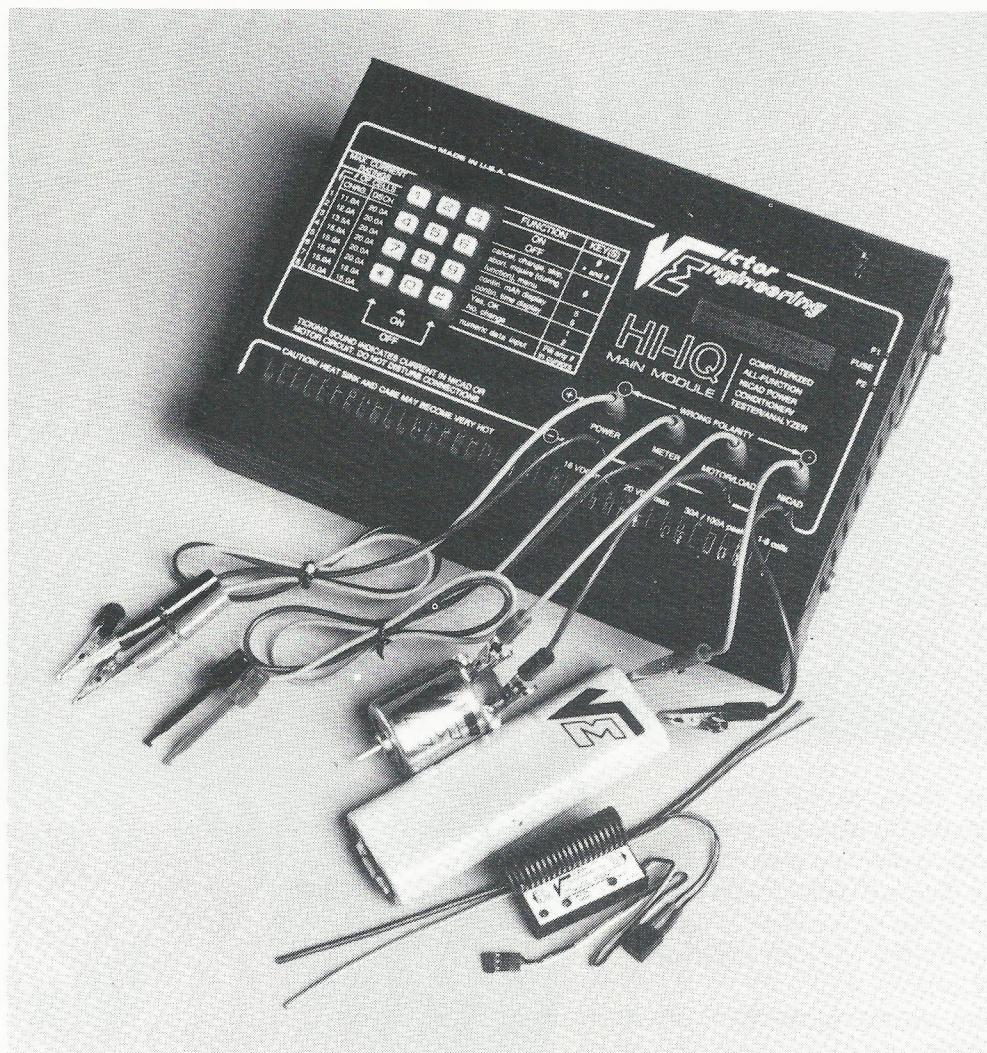
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The Age of Computer Controlled Chargers Has Arrived

Part 3: Victor Engineering's "HI-IQ"

By Jeff Palmer

Every once in awhile you encounter something that is so different yet so obvious and logical that you wonder why someone had not built it before. For some time now chargers, dischargers and digital voltmeters have been the way of life at the track, but only recently have these functions been tied together in one unit. More recently, tachometer, motor checkers, torque measuring devices and dynamometer have made their way into pit areas. Victor Engineering has taken note of the expansion of electronics in R/C racing and has made available the most complete battery and motor checker available today — "HI-IQ". This unit has all of the standard features of a sophisticated charger plus added features for motor checking and future expansion. The list of options to be made available for HI-IQ reads like an R/C racer's wish list; dynamometer, tachometer, motor break-in software, thermal (temperature) charging, PC interface, speed control efficiency test, stop watch, and lap counter/timer just to name a few. This unit is so comprehensive in its function and design that it cannot be considered simply a charger or motor checker. NO, it must be considered as a new class of electronic hardware for



R/C racing — a SYSTEM.

The HI-IQ's physical dimensions are 11" x 7" x 2.5" and weighs 48 ounces (3 pounds). It has a 12 button keypad, 4 sets of plug-in jacks, a display and several LED indicators. The 12 button keypad consists of 10 numeric keys and two special function keys — "*" and "#". The 4 sets of plug-in jacks are used for "power", "meter", "motor/load" and "NiCd". Two of the LED's indicate blown fuses, if that problem should occur. The display consists of 2 rows of 16 characters per row and is used to prompt the user for input information or to provide results of a completed function.

Let's power up HI-IQ by attaching the "power" jacks via jumper connectors to a 12 volt power source like a car battery. DO NOT use a car battery charger or an unfiltered power supply to run HI-IQ, as it may render unpredictable results. Additional filtering can be provided to a car battery charger by a Radio Shack 4700mfd electrolytic capacitor rated at 35 volts — Radio Shack part no. 272-1022. Be sure to observe the polarity of the filter when hooking it up. If you are not knowledgeable of electronics please get help from an electronics pro-

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essional. Once the power is connected, press "O" on the keypad to turn it on. Now the fun begins. The first displays will be a short greeting followed by a brief reminder that pressing "O" on the keypad will cancel whatever function is currently being performed and return to the "MAIN MENU". The third display of the power on process is the "Main Menu". During the power up

**HI CHAMP!
I'M HI-IQ**

process, the Zilog Z-8 microprocessor used in HI-IQ, performs a series of self tests and calibrations. These tests are repeated every .1 seconds in an effort to eliminate problems like thermal drift. The overall result is improved reliability and greater accuracy.

Charge/Disch=1
Spec. Functions=2

(Main Menu)

CHARGING SECTION

For this article, I'll only be reviewing the functions which can be accessed from option "1" of the "MAIN MENU". This selection will allow the charging, discharging, and grading of cells or packs. Pressing "1" on the "Main Menu" prompt will return the "Function Selection" display.

Charge=1 Disch=2
Cycle=3

(Function Selection)

A selection of "1" will take you through the charging prompts, while "2" will start the discharge prompts and a "3" will cycle the cell or pack which will be covered in the next article. For our first example let's assume a 6 cell racing pack needs to be peak

Charge=1 Disch=2
Cycle=3

(Function Selection)

Peaked=1 Timed=2
Trickle=3

(Charge Selection)

C or D Cell=1
AA or Other=2

(Cell Type Selection)

charged at 4.8 amps. To do this, simply take all the defaults by replying "1" to the first five screens displayed above. Once the charging has started, the sixth screen gives vital statistics on the current state of the charging process. The top row tells the function being performed and the charge rate. The second row gives the time in HH:MM:SS (H-hours, M-minutes, S-seconds) and the charge voltage. Once the charging is complete, the following three screens are alternately

Peaked at 11.77V
Off Charge 8.67V

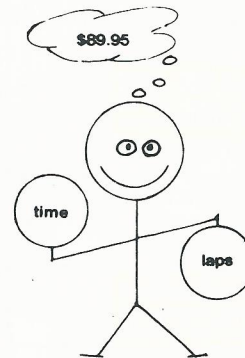
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- Total laps of each car
- Number of lead laps of each car
- Length of race
- Finishing position for all cars



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Chrg Time 34m05s
Accepted 1707mAh

Trickl Chrg @ .09A
00:59:29 8.77V

(Peak Charge Results Displays)

displayed, providing critical information about the charge process. The first screen provides information on peak voltage reached and the current voltage reading of the pack/cell. The second display shows the time required to charge and the milliamp hour charge provided. The last display provides information on the automatic trickle charging being done. As in the earlier example, the first row of the display shows the function being performed and the charge rate. The second row provides the elapse time this function has been performed and continuously updates the voltage reading.

For our second example let's suppose, a 7 cell SCR racing pack is to be time charged at 10 amps for 10 minutes. When "2" is entered as the "Charge Selection", a "Time Specification" screen will appear in the charge setup sequence. Reply to this with prompt the desired amount of time to be spent charging at the specified rate. Next, provide

hr: min
Entr 0:00 - 9-59
(Time Specification)

Numbr of cells=
Enter 1 to 8 Max
(Number of Cells Specification)

Chrg Rate= .A
Entr 00.1 - 15.0
(Charge Rate Specification)

the number of cells in the pack being charged. Enter "2" to the "Number of Cells" prompt and then "7" to the "Number of Cells Specification" prompt. The last option to enter is the charge rate desired. In this example 10 amps were selected. To do this, enter "2" to the "Charge Rate" prompt and then "10" to the "Charger Rate Specification" prompt. Upon completion of the timed charge, the following three displays will be shown alternately.

Time up @ 10m00s
Off charge 8.67V

Chrg time 10m00s
Accepted 1707mAh

Trickl chrg @ .09A
00:59:29 8.77V
(Timed Charge Results Displays)
The only remaining charge

option left to discuss is trickle charging. Entering a "3" to the "Charge Selection" prompt will cause a default charge rate of .3 amps to be set. The only way to change the charge rate is to change the "Cell Type Selection". The default cell types of "C" and "D" can be changed to "AA". This selection sets a charge rate of 1 amp to allow the peak charging of transmitter packs.

When the charging cycle is complete, HI-IQ switches to trickle charging. By pressing "O" the following prompt will appear:

Menu=0 Trickel=1
Re-Peak=2
(End of Charge)

This display allows the racer to go on to something else, continue trickle charging or re-peak the pack. If "O" was pressed during the charging cycle, the "Charge Abort" display is shown. This display will stop the charging cycle only if "O" is pressed again,

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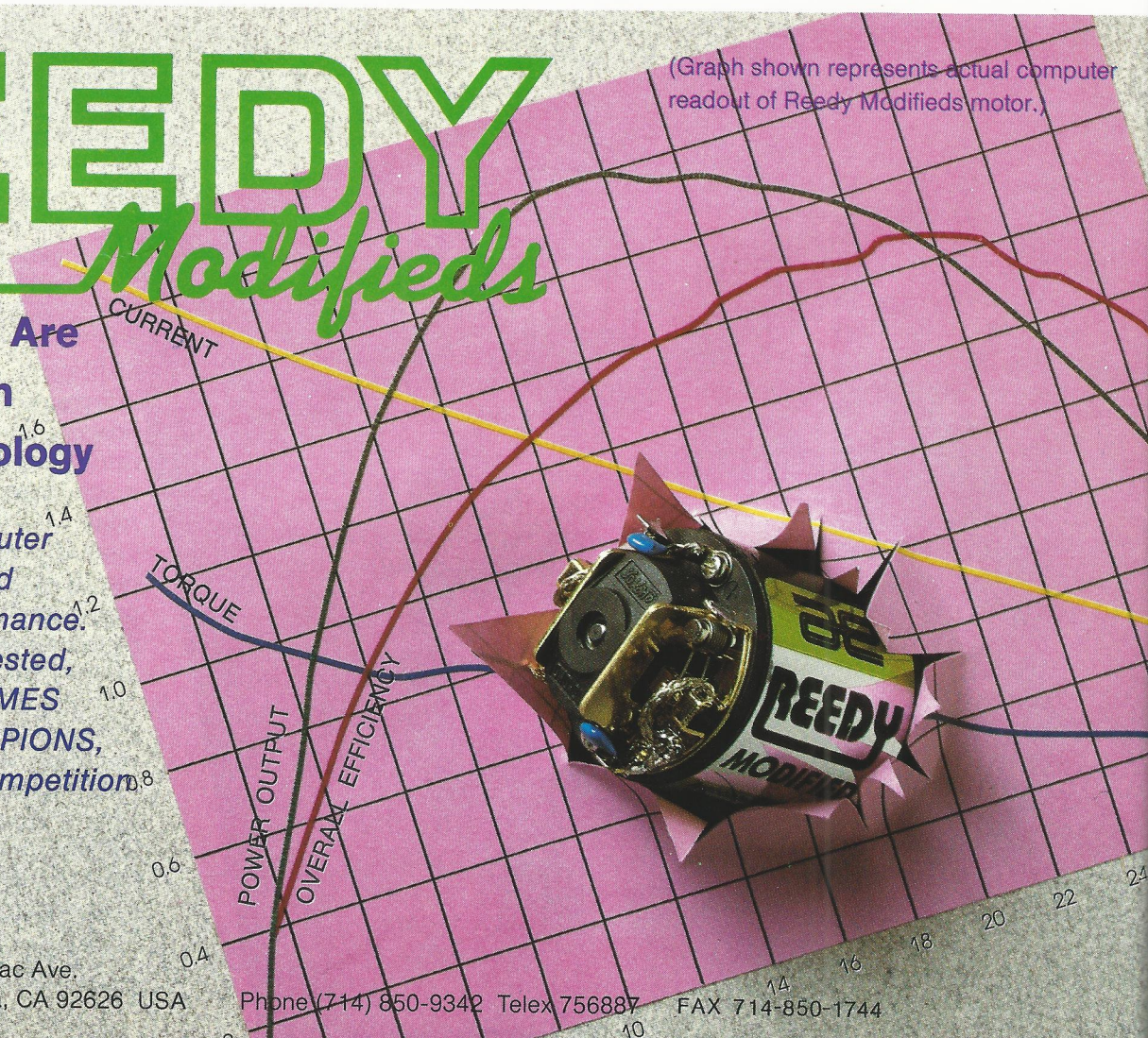


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(Graph shown represents actual computer readout of Reedy Modifieds motor.)



however, it should be noted that

Charging @ 10.01A
Abort=0 Continu=1

(Charge Abort)

the charging cycle continues until "O" is hit.

DISCHARGING SECTION

The second major choice of the "Function Selection" prompt is discharge. This function is used to evaluate and grade cells or packs. By pressing "2" when on the "Function Selection" display, the discharge prompts will be entered. To begin the examination of the discharge function, let's start with the default choices again; a 6 cell pack will be discharged at 10 amps to 5.7 volts

Charge=1 Disch=2
Cycle=3

(Function Selection)

Voltage cutoff=1
Timed=2

(Discharge Cutoff Selection)

C or D cells=1
AA or other=2

(Cell Type Selection)

Numbr of cells=6
OK=1 Change=2

(Number of Cells)

Dsch Ctoff @ 5.70V
OK=1 Change=2

(Discharge Cutoff Voltage)

Disch rate=10.0A
OK=1 Change=2

(Discharge Rate)

Dschrging @ 9.98A
00:05:51 6.54V

(Discharging Active)

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(.95 volts per cell). To do this, enter "1" to each of the discharge prompts until the "Discharging Active" display appears. The first row of the "Discharging Active" display is the discharge rate and the second row is the time spent discharging along with the current voltage reading. When "1" is replied to the "Discharge Cutoff Selection" a second set of displays was activated, the "Cutoff Voltage Accuracy" displays. These displays are used to determine if the digital voltmeter (DVM) portion of HI-IQ is needed to monitor the NiCd voltage. A reply of "1" will require the DVM to be used for greater accuracy; connect the 2 meter leads from HI-IQ to the battery being charged. A "2" reply will bypass the DVM usage and will cause HI-IQ to take internal voltage readings. If the DVM lead were not previously connected, the "Connect DVM" displays will be activated, needing a "1" reply to continue pro-

cessing. If the DVM leads are

Cutoff voltage
Accuracy required?

Yes=1
No=2
(Cutoff Voltage Accuracy)

Connect meter dir
Ect to nicad bat

Then Press
Key 1
(Connect DVM)

hooked up prior to starting the discharge prompt sequence, the "Cutoff Voltage Accuracy" prompts will be bypassed. Smart! When discharging has completed, the following two displays will alternate being displayed,

providing the user with the discharge process results. The first

Dsch ended @ 5.70V
Presently 8.40V

Dsch Time 08m14s
Supplied 1368mAh
(Discharging Results Displays)

display reminds the user of the cutoff voltage used and the current voltage reading of the pack. The second display reports the amount of time it took to discharge the pack (first row) and the amount of milliamp hour capacity provided by the battery pack (second row).

Now its time to look at some variations of the discharge function. If a 7 cell pack needs to be discharged at 15 amps for 5 minutes, a "2" reply will need to be entered at the "Discharge Cutoff Selection" and the "Time

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NESC T4 Spd control
NESC T1 Spd control
NESC T1X Spd control
2 Channel receivers
Mini Servos

COMPOSITE

Predator Lynx
Predator 1/10th
RC 10 chassis & noses

BOLINK

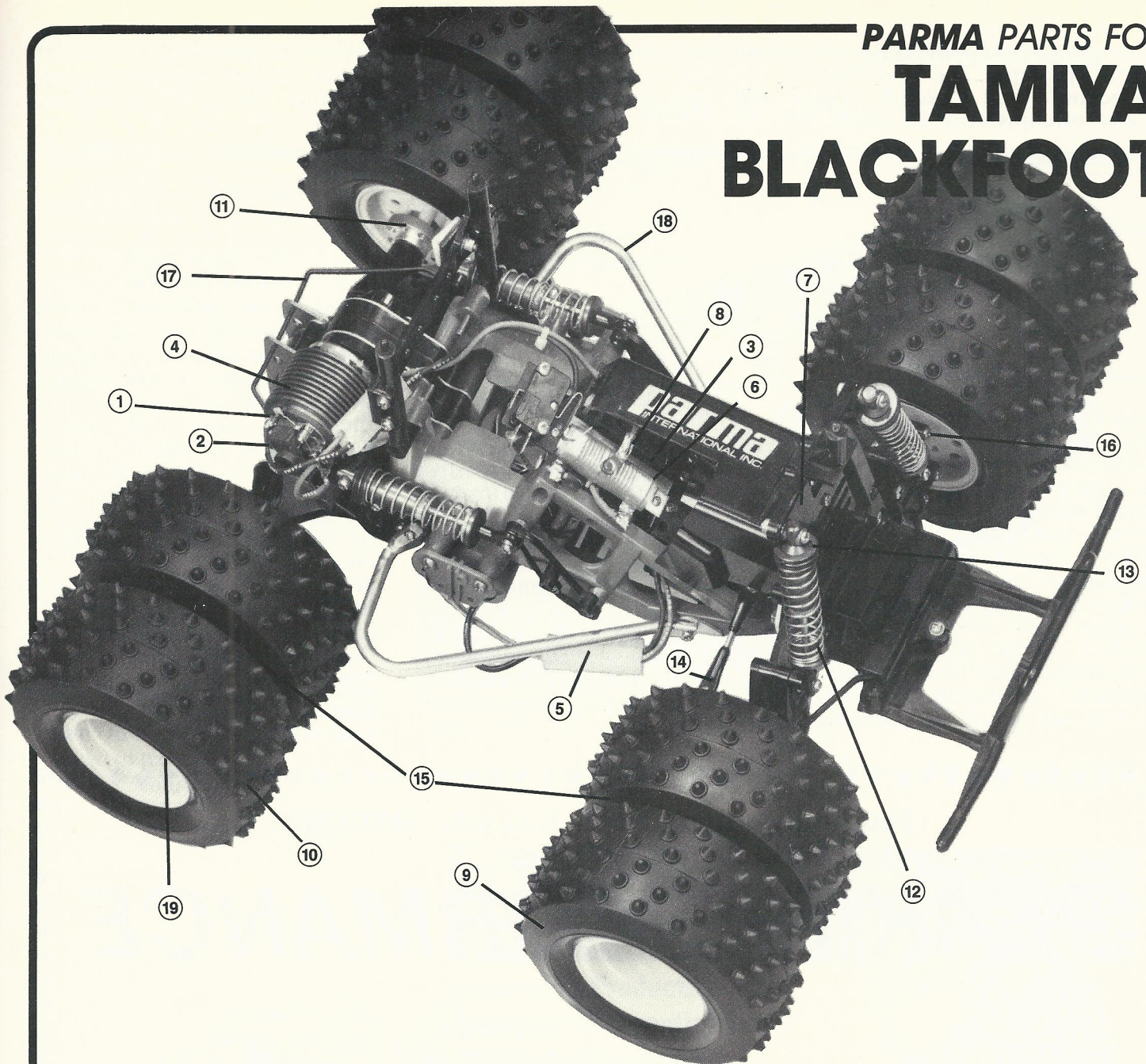
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②	4050	Silicone hook-up wire	\$ 2.50	⑫	12622	Parma short shocks	Pr/\$20.00
③	8055	Servo tape	\$ 2.60	⑬	12639	Coil over adjusters for Parma shocks	Pr/\$ 6.50
④	11026	215° wrap-around heat sink	\$ 7.50	⑭	12827	Heavy duty rod end kit	\$ 6.50
⑤	11500	Heavy duty Tamiya/Kyosho connector set	\$ 2.10	⑮	12847	Dual wheel adaptors	Pr/\$10.00
⑥	11518	Assembled speed controller w/reverse	\$24.00	⑯	12848	Blackfoot steering blocks	Pr/\$ 7.00
⑦	11810	Universal servo saver	\$ 5.00	⑰	13229	Rear adjustable anti-roll bar	\$11.50
⑧	11850	Servo with Futaba "G" plugs	\$20.00	⑱	13276	Aluminum side nerf bars	Pr/\$22.50
⑨	12040	Monster Truck front tires & wheels	Pr/\$25.75		13626	Chrome plated "knock-off" nut	4/\$ 3.60
⑩	12041	Monster Truck rear tires & wheels	Pr/\$25.75				

OTHER PARMA PARTS NOT SHOWN

8038	"Super Gripper" hood pins	6/\$ 1.50	11801	Vertical whip antenna with mount	\$ 2.50
8039	Quick clip bent hood pins	4/\$ 1.50	11802	Horizontal whip antenna with mount	\$ 2.25
8047	3" tie wraps	12/\$ 1.75	12042	V-spiked tires for Blackfoot	Pr/\$18.00
10244	Ford F 150 Truck, clear body	\$19.00	12043	Front wheels for Blackfoot	Pr/\$ 8.00
11010	Dust covers for off-road motors	\$ 1.75	12044	Rear wheels for Blackfoot	Pr/\$ 8.00
11011	"Cool Filter" dust cover	\$ 2.75	12602	"Big Bore" shocks	Pr/\$15.00
11501	Pre-wired Tamiya/Kyosho connector set	\$ 3.00	12609	"Big Bore" shock springs	Pr/\$ 3.00
11515	Resistor speed controller without reverse	\$15.00	13001	Rear suspension arm bushings	\$12.00



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Limit" prompts. The "Cell Type Selection" and "Number of Cells" prompts work the same as

the charge rate; a "2" entered at the "Discharge Rate" prompt

Abort" display. Discharging will continue until "O" is entered again.

Enter time limit
__min.:__sec.

(Time Limit)

Dsch Ctoff @ ___V
Entr 0.00 - 9.99

(Discharge Cutoff
Voltage Specification)

Dschrging @ 10.01A
Abort=0 Contnu=1

(Discharge Abort)
CONCLUSION

OK=1 Change=2
05min.:00sec.

(Time Limit Validation)

Disch Rate=___A
Entr 00.1 - 20.0

(Discharge Rate
Specification)

During the processing of any function, HI-IQ will emit a ticking sound to indicate its working. HI-IQ requires a well filtered power supply as noted earlier in the article. And finally, HI-IQ will lead you through each function, providing the appropriate prompt when it's needed. I hope it's apparent from this first article on HI-IQ, it's the most versatile charger/discharger units available today but it does more, MUCH MORE. Next time we'll look at some of its other features. 'Til then, GOOD RACING!!

they did in the Charging Section. The number entered in response to the "Number of Cells" prompt is used to calculate the default cutoff voltage; i.e., (7 cells) x .95 = 6.65 volts. As with all other default values, discharge cutoff voltage can be altered; enter "2" to the "Discharge Cutoff Voltage" prompt and enter the new desired voltage setting in the "Discharge Cutoff Voltage Specification". Changing the discharge rate is just like resetting

will get the "Discharge Rate Specification" display. A discharge rate from 0.1 to 20.0 amps can be specified. Once all of the changes have been entered, reply "1" and let'r rip. The device makes developing discharge curves easy.

One of the more important things not discussed is, how to stop the discharging process. Just like in the charging section, press "O" to bring up the "Discharge

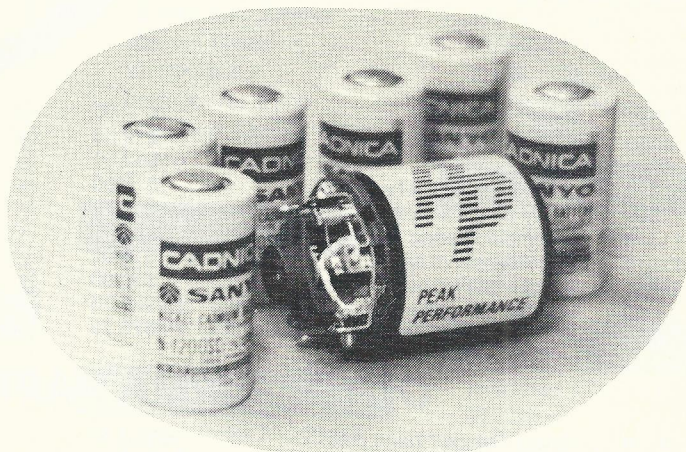
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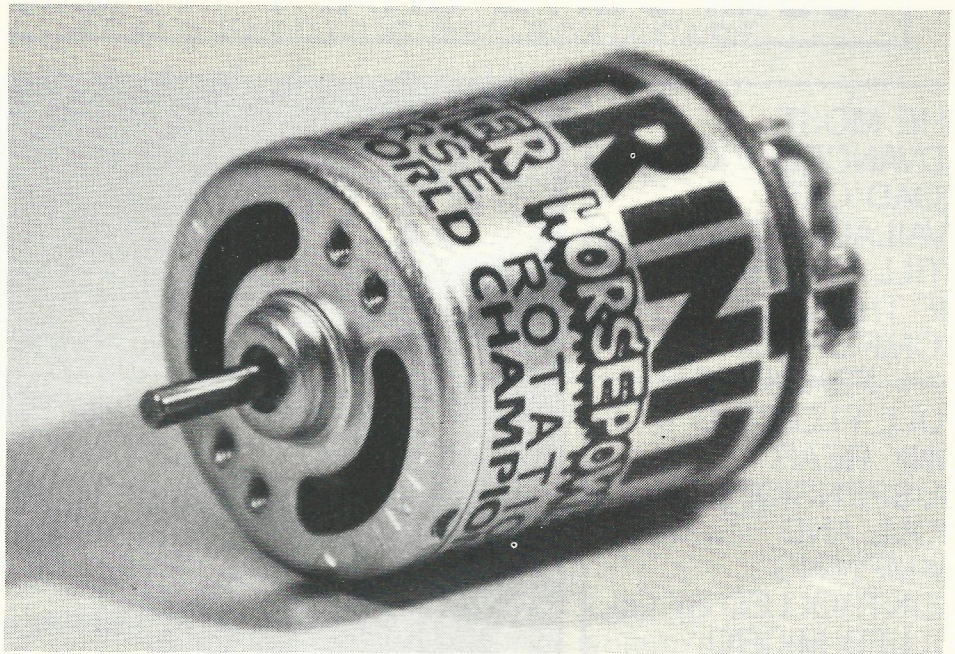
The Motor Brush Story

By Ernie Proveti

With so many choices of cars, motors, batteries, bodies, etc., why should the choice of motor brushes be any different? Does anyone really know the true answer? Which brush is the best? Electric motor building for my way of thinking is similar to the plight of any doctor or auto mechanic in today's society: We have a true idea or plan which works for us, but we are really not 100 percent sure of the end result. Like so many professions in today's world, ours is one ruled by "trial and error". All I can hope to do in this article is present some useful information and try to limit your choices down to maybe three or four instead of ten or fifteen.

For demonstration purposes I will use the newly released Trinity #2020 Reverse Rotation Monster Horsepower Stock Motor. Reverse rotation? Yeah, you read right! This stock motor turns the other way which allows you to use the very popular Hyperdrive System and for the first time, you can use a pair of stock motors in your monster trucks like the MRC ClodBuster and Kyosho Double Dare. In these trucks, one motor spins in the forward rotation and the other spins in the reverse rotation. This stock motor will have the same characteristics of the standard Trinity Monster Stock Twister 802, 804, Team Losi Superstock, etc. Now for the brushes!

The first thing you should know about the brushes are the installation applications. There are three types of motor brushes on the market. One is the old standard type Japanese brush with copper shunts and eyelets at the end of the shunt for easy installation. Then there are the new American made motor brushes released by both Assoc-



#2020 Reverse Rotation Stock Motor

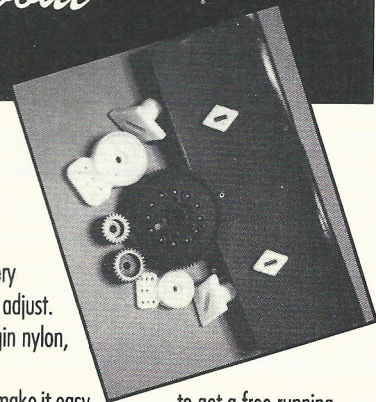
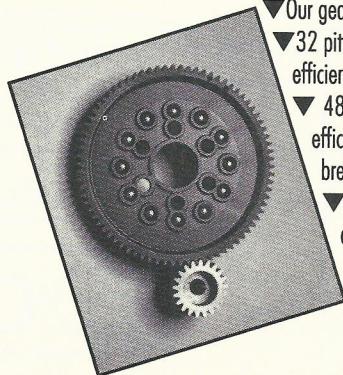
iated and Trinity. They both have two compounds: one hard and

one soft. They are easily identifiable by the silver shunt wire. The

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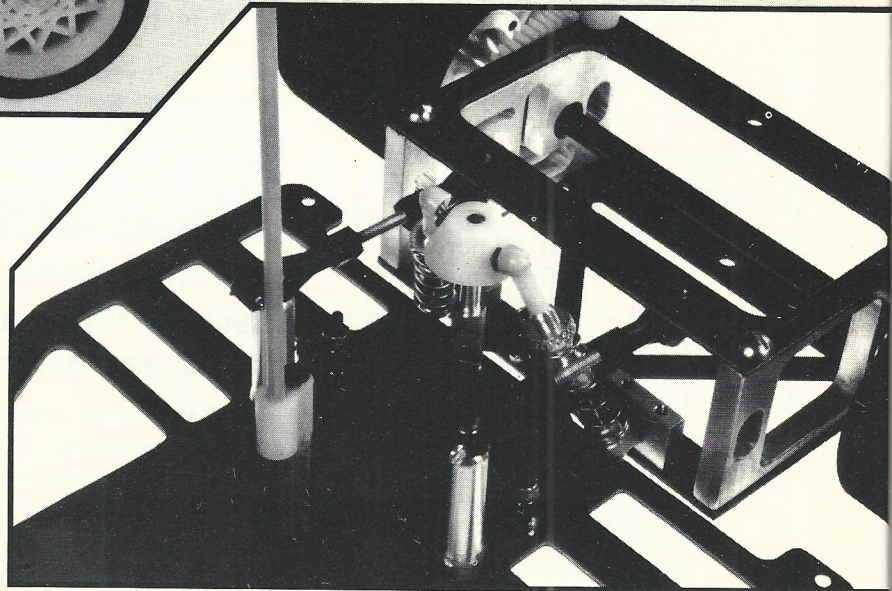
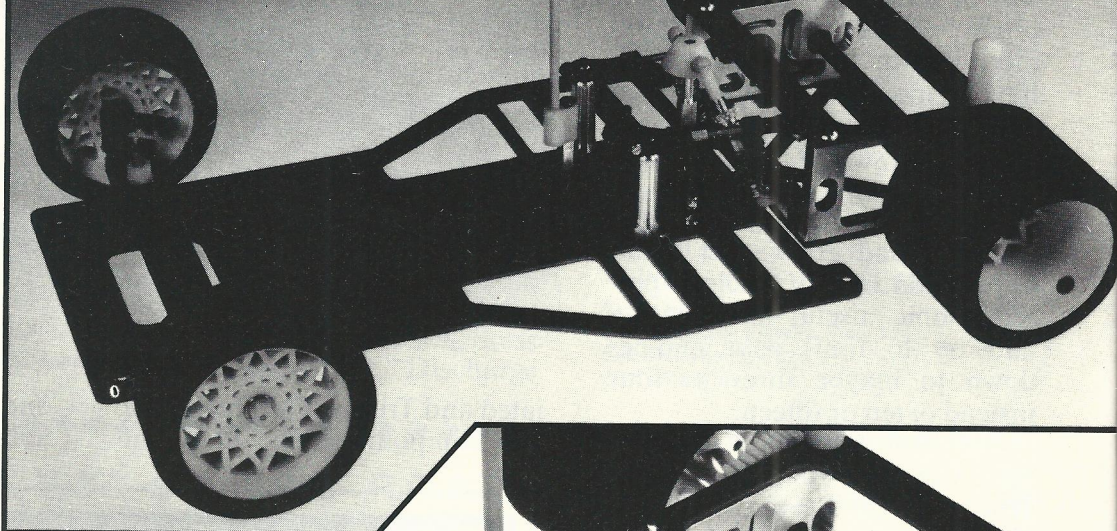
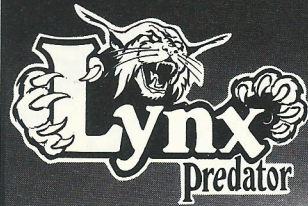
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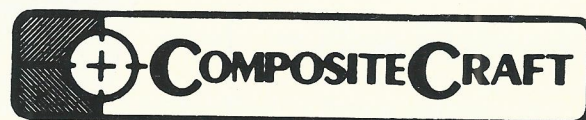


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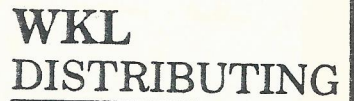
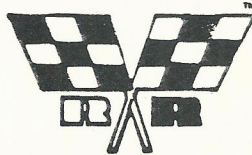
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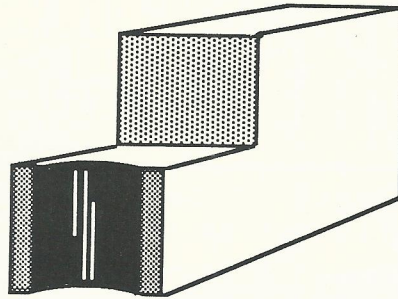
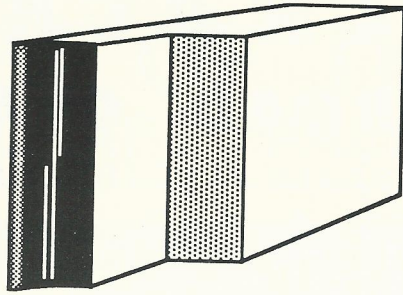
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4WD STOCK	Frequencies	1st _____	2nd _____	3rd _____
2WD MODIFIED	Frequencies	1st _____	2nd _____	3rd _____
4WD MODIFIED	Frequencies	1st _____	2nd _____	3rd _____

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major difference between the Associated and the Trinity is that the Trinity brush has the eyelet on the end of the shunt wire for easy installation with a screw driver and the Associated brush must be soldered to the brush hardware with a soldering iron. This does not present a problem if you have a soldering iron. You must be very careful, though, when soldering, not to have the solder flow up the shunt. If this happens, the shunt will lose the flexibility and the motor brush will hang up in the holder not making contact on the commutator. So be very careful!

I have found that motor performance is vastly increased by changing the brushes every three to four runs. (I think Mike Walker of Twister recommends the same procedure.) Our extensive testing has shown that a motor performs to its maximum with fresh brushes. We only recommend to run your brushes at 5 volts for two to three minutes

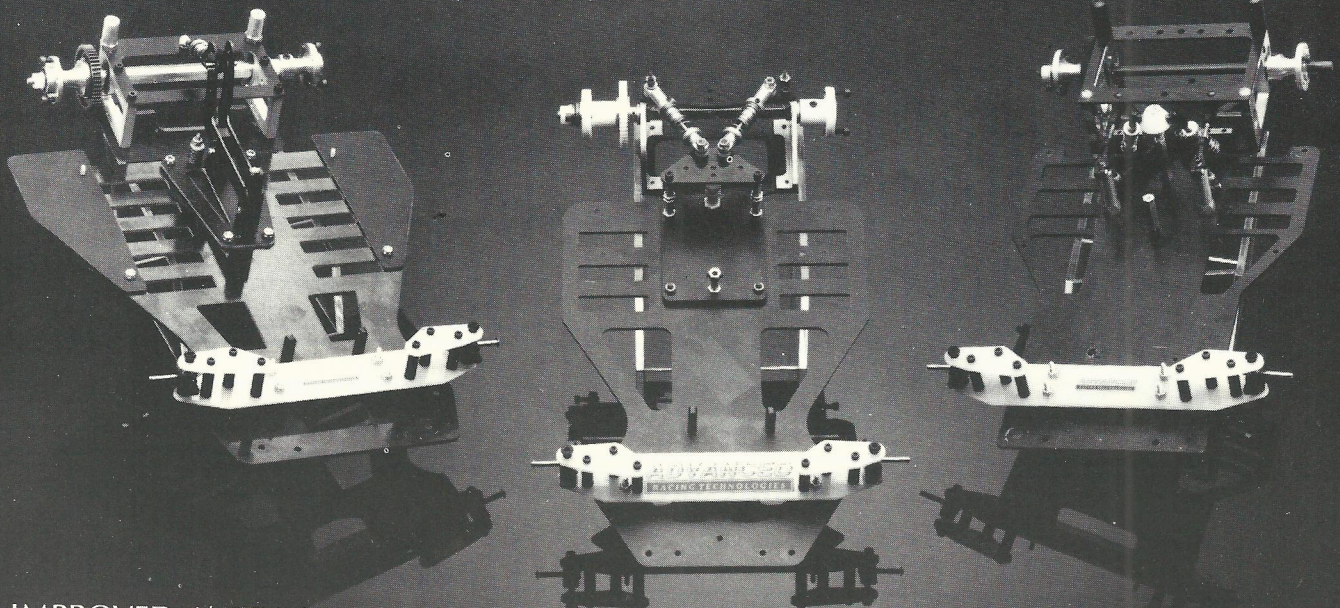


Above: Timed Brush. Below: Off-Road Cut Brush.

to break them in before racing on the track. Some manufacturers are claiming that their best results indicate a full seating of the brush is needed for max-

imum performance. This is only partially true! Throughout the years of our racing experience, we have found motor brushes have strange characteristics. The outside surface and down deep (when they are broken in alot) produce the most horsepower. This is the ultimate way of producing more output from your motor. However, you would have to break your motor in for about 2-3 hours at a very low voltage! Do all of you have two or three hours especially in between your heats? If you just break in the brushes so the surface is just all slightly worn, the motor does not perform that well. Motor brushes are also destroyed by heat! The chemical nature of the brush changes and all the lubricant is drained out of the brush! This lubricant is vital to the performance of the motor. When this lubricant is not transferred to the commutator, there is a lack of horsepower! All I am trying to explain here is the reason we

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recommend just a minute or two of break-in is because this is the method you will mostly be using in your everyday racing activity! If you break your brushes in four hours like everyone tells you after two runs, they are worn out and have to be replaced. Your next heat is due up in 15 minutes and you cannot break-in your motor like they originally did! What do you do? You can put in a new set and run it for about ten minutes to try and fully seat the brush and your motor runs like poop! You say all Trinity/SpeedWorks/Twister/Losi, etc., etc., motors are junk and you put a curse on each company!

Let's look to see what happened? By breaking in the brushes for 10 minutes, you have reached a part of the brush that does not work well! The timing has changed slightly so that the brush ends do not wrap around the commutator the way they used to. This effects the rpm and makes a drastic difference in the way you should gear. Essentially what you have done is taken your awesome stock motor, slowed it up and geared it all wrong due to the timing change; just by changing the brushes. Of course, if you had several hours to break your motor in, like our experts tell you the way it was originally done, you would not have this problem! Now how about trying it our way?

Since the brushes have to be changed every few runs anyway, why not run them on the outer surface that produces the most power anyway? This way there is always enough time to properly seat them, the wrap around the comm is always the same (no change in timing or gears) and we are always set up to run the motor with the brushes set up to produce the most power output! Does this make sense? It certainly sounds a lot more practical to everyday racing and that's what we care about anyway! If someone wants to individually seat their brushes prior to coming to the track and match them to their individual motors there is no way to stop them. But guys, it's a hobby and we all want to have the most fun with the least amount of work!

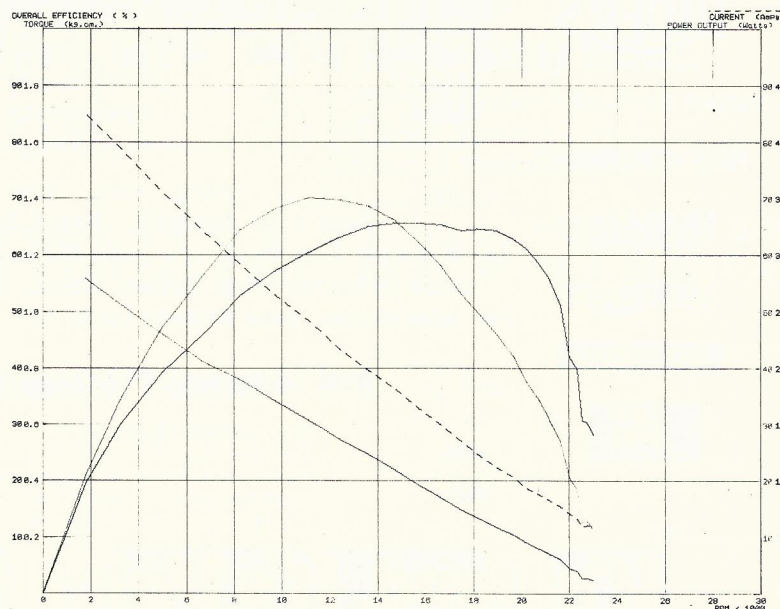
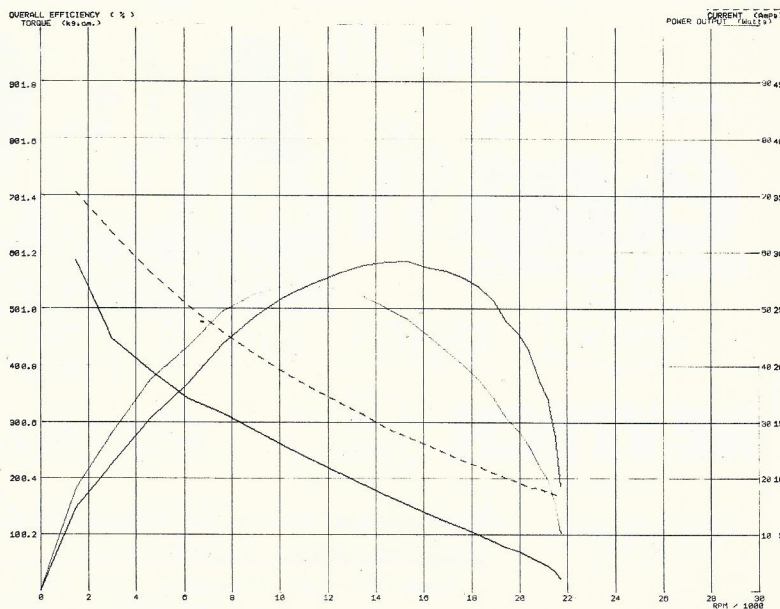
Here's how we accomplish this! I recommend two brushes for stock. Either #4007 timed brushes for maximum rpms and the #4035 off-road cut brush for more torque off the corners. Run the motor for about two minutes at about 5 volts just enough for the brushes to stop arching and smooth out. You will be able to hear the motor when it smooths out by the different pitch of sound it makes when it runs on your power supply or battery pack during break-in. Once you hear this pitch change, you have done it! You have just accomplished what most people cannot decide how to do, and better yet you have done it right!

Let me add one more tip here for break-in. Remember we talked about the lubricant needed by the motor to run properly. This lubricant needs to be transferred from the brush to the comm. One

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Above: Diagram without "Hole Shot". Below: Diagram With "Hole Shot".



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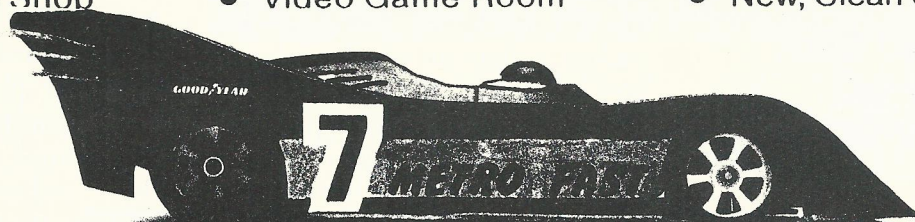
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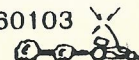
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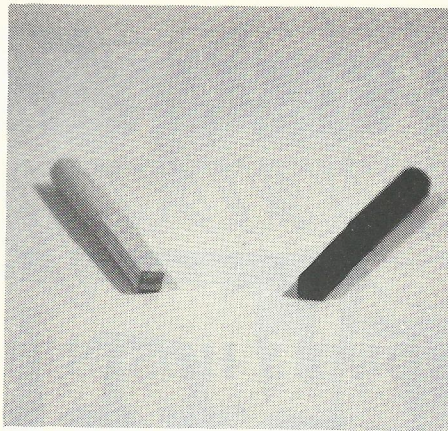
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way of helping this process along is by using an additive. We have just released a new product called "Hole Shot" #4045, which is not only a boost spray like the Reedy in a Can sold by Associated, but also can be used to break-in motor brushes. Give it a try! You will definitely hear this change in pitch made by the motor a lot quicker as well as receiving an increase in horsepower. This dyno graph shows a motor without Hole Shot. It has about 21,600 rpm and a power rating of about 57. With Hole Shot, the rpms have gone to about 23,000 rpms and the power rating has gone to 70. A pretty remarkable turnabout. Remem-



Comm Sticks: right - Yellow left - Black

ber, however, that although Hole Shot will help you break in your brushes and will give you a "blast of horsepower", like any additive, it will disappear after the chemical wears off. So be prepared. Your new found horsepower will not last forever, but maybe it will put you in front just long enough to avoid the early traffic or should I say crashes!

One important note on the timed brushes. Remember we are using a reverse rotation stock motor here so, therefore, the brushes have to be put in opposite of the normal way. In all of our timed brushes, we enclose a diagram which explains how to install the brushes. So take this diagram and put the brushes in the "opposite way".

Dirt next to heat is the biggest enemy of these little land rockets. Remember, open brush electric motors were not intended to run in dirt. I sincerely recommend using one of the many motor sprays on the market (Trinity #4023, Dan's RC/Pro, etc.). Take the springs off and the brushes out of the holders. Spray really well into the holders directly at the commutator. Too much of a good spray will not harm anything, except the bushings. A good motor spray will take all of the lubricant out of the oilite bushings. You must replace this with a good oilite oiler.

After you have cleaned up everything your next task is to clean the commutator. For this

task, you will need Trinity #4050 Commutator Cleaning Sticks. Twister also produces a Comm Stick Model #600. It retails for \$5.00 and does quite a good job. Trinity sells a kit of two sticks, the black one cleans and the yellow one polishes. The retail price for the kit is \$8.50. Insert the black stick into the brush holder and apply a minimum amount of pressure so it just touches the commutator. Rotate the armature about ten times by turning the shaft with your fingers slowly. Remove the Comm stick and lightly clean the end with a piece of 600 grit emery paper. This will remove all carbon deposits from the end of the stick. Re-insert the black stick and give it a few more turns.

After the commutator is clean, spray away all the loose dirt with your motor spray. Then insert the yellow stick and repeat the whole procedure. This will polish the commutator. The round end of the comm stick is designed to clean motor brushes which also have to be maintained just like your commutator does! You use the same procedure as cleaning the commutator, but this time on the contact of the brushes. Use the round end of the comm stick and run the brush contact area to clean off the old crystalized brush material. Use the black comm stick first and then the yellow. Always be sure to move the brush up and down on the comm stick in the correct direction so the brush arc does not change!

Remember the little motor brush is the only link that your batteries have to your motor! By doing everything possible to insure the best electrical path you will only make your motor run faster and faster.

Good luck in your racing and don't be afraid to ride the wave!

CP

Kyosho Honda NSR500 Road Racing Motorcycle

By F. Dale Caughen

It was bound to happen sooner or later. Kyosho just got it together alot sooner than most of us expected and put out a working electric road racing motorcycle.

The NSR500 accurately reproduces the actual road racer produced by Honda and raced by their factory team around the world.

Usually the first thing we R/C modeling nuts do on opening a new kit is pull out the bags and blister packs to gander at all those shiny new goodies, check out the suspension parts, body, tires and wheels, and those all important gears and motor. The first thing I did on opening this kit's box was to dig out the instructions and rummage through to find out how in the world they ever got this little marvel to steer. Fascinating!

This was obviously not an overnight wonder as engineering research and development projects go. Everything had to be scaled down. The steering servo is noticeably smaller than the average unit found in 12th scale cars. The combination 75mhz



radio receiver/speed control is precisely sized to fit under the seat and gas tank. Most amazing of all is the micro-scaled drive

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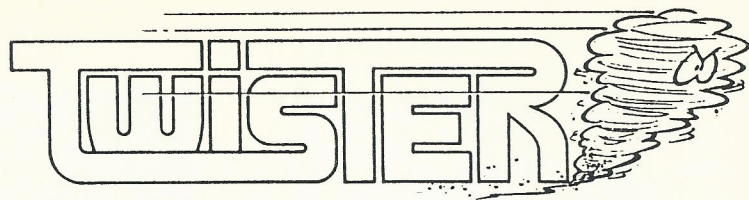
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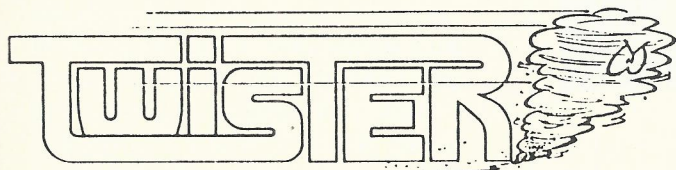
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before we see organized racing for these small wonders, it would be more surprising if a racing class doesn't start up over the next year or two. Are the motorcycles "ready-to-race" right out of the kit box? Well, not quite. But with only a few small improvements they will be race-ready. And if you fancy yourself a potential competitor in this class, there is no time like the present to begin learning to drive, hop-up, and race prepare your own R/C motorcycle. While the prices are still dirt cheap, get the jump on the competition and start learning about the newest thing on wheels before the other guys figure out just how much fun these beasts really are.

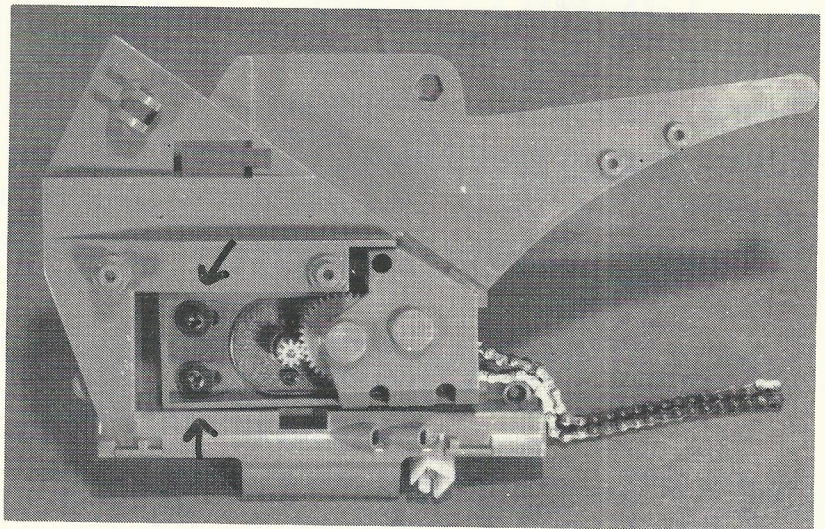
I'll admit that my first reaction upon being assigned the motorcycle was to let out a slight groan. Much as I'd been wanting to get my hands on one of these, being assigned anything other than a carpet racing car during 12th scale season takes time away

from the racing effort and I was sure it was going to be an elongated chore to build. Surprise! Would you believe the entire kit went together in under three hours? How much time you spend building your bike will depend primarily on how fancy you choose to get with the paint

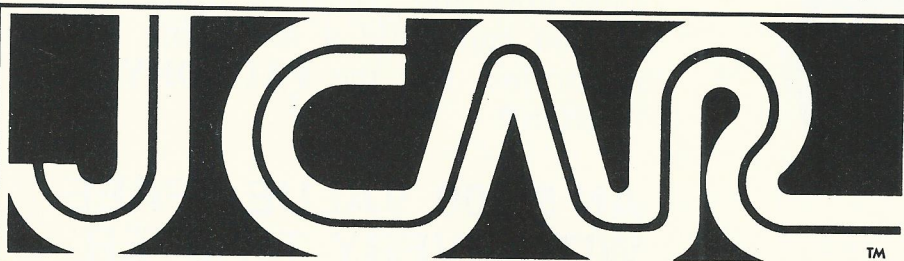
job. Again, if you simply follow the directions supplied and the handy lines scribed right on the plastic parts, only a couple of hours work will produce a very realistic model road racer. Having said all that, let's walk quickly through the nine simple pages that turn this kit from a box of parts into a working motorcycle.

On the inside cover is a list of items needed for the kit's assembly. Add to the list a bottle of Testor's liquid model glue for assembly of the cowlings and driver. This hobby cement dries quickly and doesn't lump up like tube glues. I omitted the striping tape since the molded in lines make painting the bike a breeze and I also skipped the spray paint, opting instead to just thin down the paint and brush on consecutive light coats, thereby avoiding having any masking to do. Definitely do choose the Kyosho RS-M set, as the cavities inside the bike are sized precisely for these components. And at a list price of only \$69.95, you're getting receiver, speed control and servo for less than the cost of most speed controls alone.

When trimming the steering servo to center and setting the speed control in step 1, either enlist the help of a friend or proceed slowly while keeping the transmitter at least ten feet away



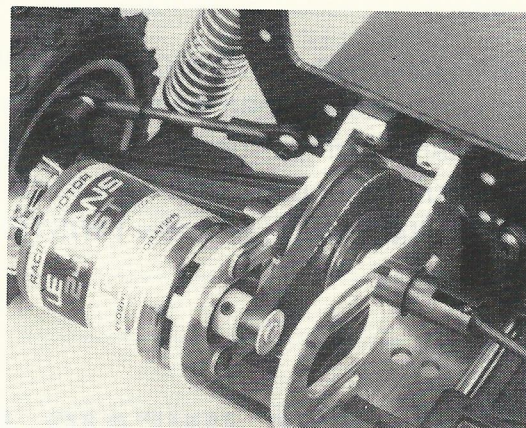
Adjusting the chain tension or switching pinions is a simple matter of loosening these two screws.



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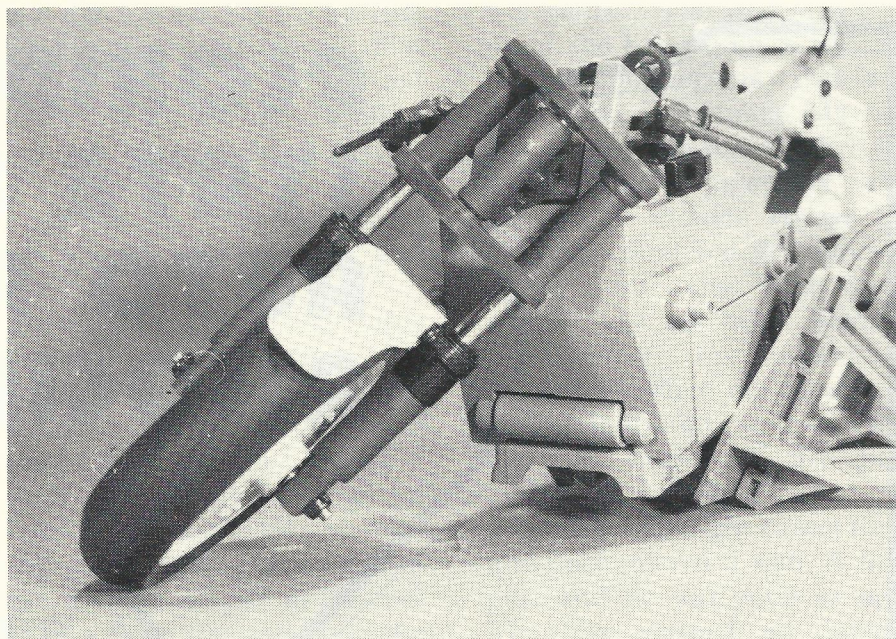
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from the model to avoid deceptive results caused by having the radio transmitter too close to the receiver. The Kyosho micro receiver does an excellent job of filtering out stray signals but your human body can cause false readings in any radio system due to the same static that sometimes gives you a mild shock after walking across a carpeted floor then touching another object. Tune the Kyosho radio gear as directed and it will function flawlessly for you.

Next comes assembly of the two gear transmission with the front chain sprocket, then installation of the motor to the gear-box. There are three pinion gears included with the kit, a ten tooth, a twelve and a fourteen. Start with the fourteen for best performance from the stock kit motor. Then attach the gearbox to the left side of the frame with two screws, leaving the assembly loose on the frame for later adjustment of the drive chain.

Be careful to use the correct 2.6 by 10mm screw in assembling the steering head. There is only one screw this size in the kit. If you are having to apply force to get these parts to go together, you're doing something wrong. When correctly aligned the whole thing will just slip together. Push the steering head into the sleeve first. Then put the assembled parts into the steering head base. Now slip part B of the servo saver through the other end of the steering head base, push part A up against it, slide in the spring and washer and tighten the screw down firmly.

Test fit all radio system components before applying servo tape. While Kyosho's servo tape is as good as any supplied in a kit, I never use kit servo tape. Pick up a wide roll of Bolink brand servo tape for the assembly and your radio gear will stay in place until you're ready to pry it back off. Also, with the Bolink tape, you'll need to mount the servo to only one side of the frame, simplifying disassembly



The bike leans through the turns by swinging the steering head from side to side.

should repairs become necessary. Give some thought to what channel you want to run the bike on before finishing assembly of the frame. The supplied receiver crystal seems to be perfectly compatible with my Futaba transmitter. But changing frequencies is no small task as the receiver is well protected within the frame when assembly is complete.

The rear suspension is true to life with its monoshock and functional swingarm construction. The shock end is a slip fit. Don't glue it on. That's been taken care of by the kit's designers. Everything lines up perfectly and stays together as intended, with the exception of the driver. We'll get to that later. Don't add more grease than the instructions suggest either. The bike works beautifully without additional lube.

Now we get to one of the neatest tricks conceived by Kyosho's engineers. The front wheel contains the device that keeps the bike upright in operation. They call it a flywheel. You'll recognize it as the weighted wheel from your childhood toy, the gyroscope. Simple? Sure, but it works. If anything it works a bit too well. But you'll appreciate its stability while you're learning to

drive the NSR500.

Don't stop now. It's almost a motorcycle. Slip the rear wheel onto the axle and install the gear-box cover. Be sure to leave a slight amount of slack in the chain to avoid overheating the motor and putting a bind on the sprockets which would accelerate wear on all these components. You don't have to worry about getting this adjustment perfect the first time as readjustment is a simple matter of snapping off the gear cover and loosening two screws.

The front suspension looks complicated but is much simpler than that of a car, using fork tubes in lower leg sliders just like the real thing. Make sure the

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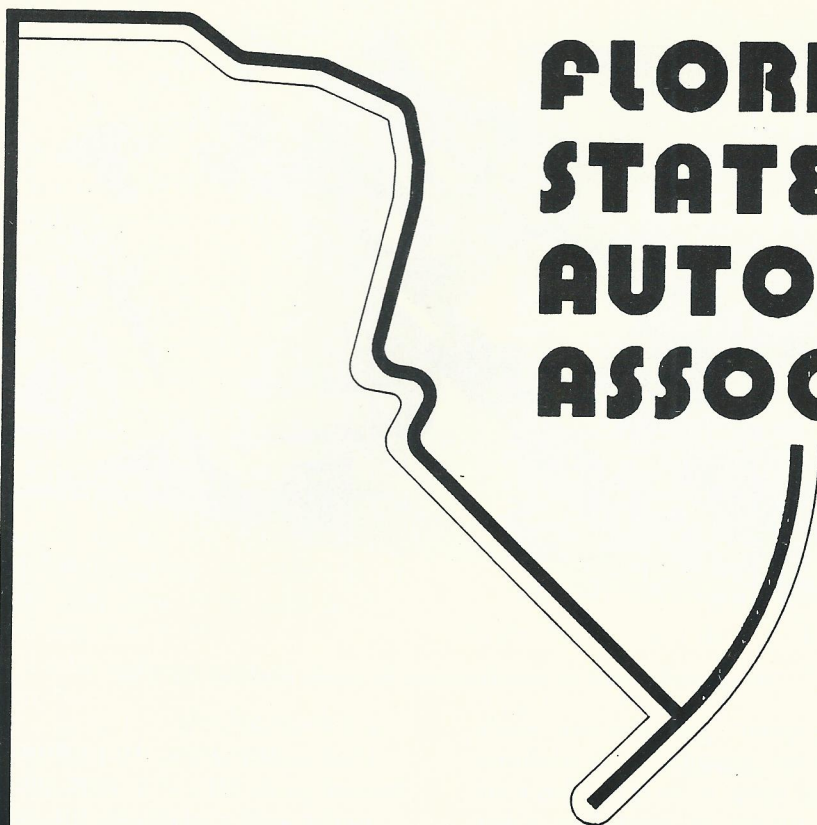
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paint is completely dry on the disc calipers before proceeding or your bid for concours is shot. The easy way through this step is to first assemble both fork legs, then mount the fender to one leg, set the front wheel up into the fender, run the axle through, slip on the other fork leg and finally attach the remaining fender bracket. The handle bars are just dummies that mount to the frame rather than to the steering head or the fork tubes and help hold the rider figure in place. Should you want to keep your model's appearance in like new condition, the driver, handlebars, fairing, footpegs and exhaust pipes can be left off until you've learned to drive the NSR500 well enough to avoid scuffing it up prematurely. Whatever you do though, do not leave off the side skids. These protect the rider and other cosmetics when you get a bit too exuberant in the turns and make it possible to get the bike back on its wheels without having to walk over to it, provided the traction is good.

Mount up the cowlings, insert the charged 270mah battery pack, and you're ready to take your new NSR500 for its first run.

For the first test runs you might want to at least leave the driver figure off the bike. While it does house and somewhat protect the antenna wire, it doesn't contribute to the bike's handling and tends to fly off and come apart when you hit anything. Only about four inches of antenna trail out the top of the bike and the fairly stiff wire tends to stay out of the way of moving parts all by itself. First time out, look for a large flat parking lot. The easiest way to get started is to simply take the bike in your steering hand and roll it straight away from you, give it a little throttle and keep it smooth. Steering response is excellent. A

light touch is the key to enjoying the initial runs. Knowing that there weren't any experienced bike drivers out here, Kyosho thoughtfully included a full page of driving instructions with accompanying explanations of how the bike will behave and why.

In order to keep the bike stable for your driving lessons the engineers traded off a little maneuverability for some controlability. Did I just invent a word? The weight of the kit flywheel makes the bike want to keep going at whatever angle you lean it to. Starting from the center of a large flat area send the bike into a gentle turn and let it straighten up of its own accord. Only after it settles back to straight up attitude should you turn in the opposite direction. After running down a couple of battery packs you'll be ready to try some maximum maneuvers but don't go trying to run your local carpet road course. Bikes are new to us all and this one is designed for you to learn to drive with. If all that sounds like the NSR500 isn't quite ready to go racing with, that's the unfortunate truth. But the flip side of that is that most of us normal mortals wouldn't ever learn to drive with a rip snorting beast that was fast and twitchy enough to go racing a tight road course with. Plus, the new Kyosho bikes list out at only \$114.95 including the DM-20 motor. Most of all though, the bikes are just plain one heck of a lot of fun just as they come from the kit.

When the bike market expands, as it is bound to when everybody figures out how much fun these little critters are, the NSR500 will probably be a middle of the line kit. Its too sophisticated to be called an entry level kit. But I can't wait to see what the top of the line all out racing machines

will be like. With new drivers in mind, the Kyosho bikes are easy to drive and tough as a construction worker's hammer. My first few runs were in spaces much too small for operating an R/C vehicle. On its maiden voyage the driver encountered the ottoman in my front room. What can I say, he lost his head, literally. The helmet visor turned up weeks later when my cat started batting it around the floor. Next trip he came off the bike altogether when I tried to negotiate a too tight carpet track and encountered a wall. A little glue and he was good as new. The bike showed no damage whatsoever from these unscheduled stops except for some minor scuffing of the decals and paint.

Buy a Kyosho bike now and you'll be that much ahead of the guys who wait for organized racing to start up before beginning to learn how to drive and wrench on the motorcycles. In anticipation of demands for higher performance Kyosho has goodies on the way for you go-fast nuts. Already available are a set of eight ball bearings and the DMC20BB high performance motor. By the time you read this, Kyosho will be offering the lighter weight gyro wheel and foam tires to make the bikes handle faster and be more agile on carpet. For rough surfaces, there are oil shocks available. By the time we're all ready to race these little jewels your guess is as good as mine what else those ingenious Kyosho engineers will have come up with.

See you at the first motorcycle race!

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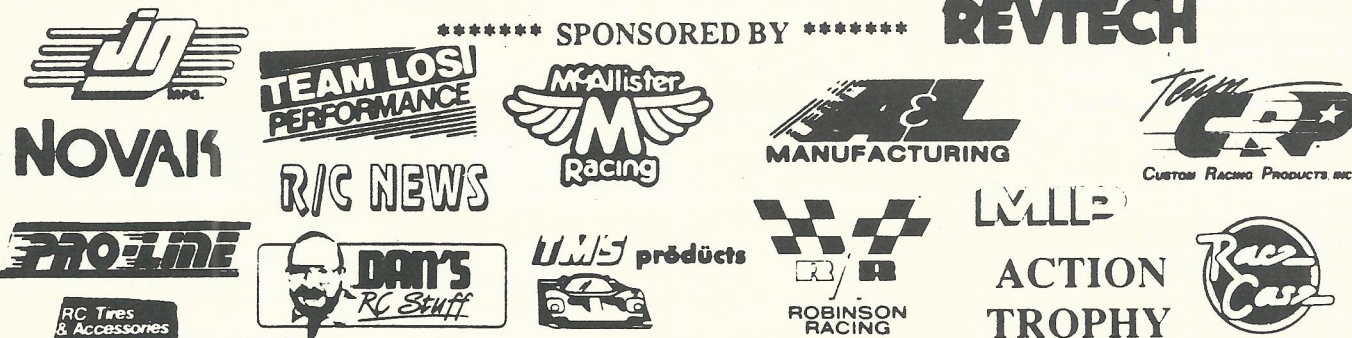
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CARCLUB - COCHRANTON AREA

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QUEEN CITY R/C RACEWAY

1/12, 1/8 and 1/10 scale cars. Every Friday - 7 p.m. -Open Class Every at. -2 p.m. Stock & Open. Every Sun. - 2 p.m. Drag Racing 5050 S. Federal Blvd., Englewood, CO 80110. (303) 730-1391.

PDQ RACEWAYS & HOBBIES

1/8, 1/10, 1/12 Scales
Call times and details. 429 Bankhead Highway, Mableton, GA 30059. (404) 941-2626.

NEW ENGLAND'S

PINE BANKS R/C RACEWAY

We are located in Melrose, Mass. For info contact: B & B R/C Accessories at (617) 324-4465 or Brian Branon at (617) 322-9554.

GROUND ZERO RACEWAY

Sunday: Noon to 6 p.m. 1/10 Off-Road & 1/12 carpet races at 2 p.m. Sign up Noon to 1:30 Tuesday - 1/12 carpet races at 7:30. Friday - 1/10 Dirt Oval races at 7:30. Saturday -Informal Junior Races (16 & under). Speciality clinics. 208th and West Dodge Rd., Omaha NE (402) 289-4184.

SROKA'S INDOOR R/C

Racing every Sunday - Oval racing every 4th Sunday, 5216B Arboga Rd., Marysville, CA 95901. Call Michael or Vickie Sroka (916) 742-6148 or (916) 741-3051.

FLINT R/C CAR CLUB

Flint, MI. Summer: Every other Sun. from May to Sept., Fall & Winter 1/12 4 cell on carpet. For info: Ralph Herndon (313) 658-5390 or Tom Hoos (313) 658-1043.

MILE-HI R/C SPEEDWAYS

Thurs. & Sat. Off-Road, Fri. Carpet, Sunday 2 p.m. 178 S. Kalamath, Denver, CO 80221. (303) 722-6766.

AMERICAN HOBBIES

Thursday Night Oval Racing
Sunday Off-Road & Oval
For info call (201) 446-2010.

C.A.R. CLUB

Racing at Tamarack Raceways. Contact Harry Turner, 120 W. Admans St., Cochranton, PA 16314. (814) 524-7788. Racing every Sunday.

ARROW HOBBIES

Wed. Nights - 1/10; Every other Fri. night 1/8 Sprint Cars only; Sat. nights 1/10 dirt oval. 2710 So. 1-35 West, Burleson, TX (817) 295-2821.

BLASTERS OFF-ROAD CLUB

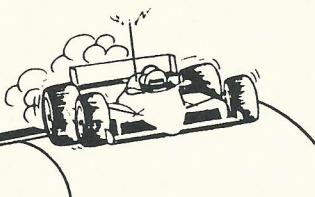
Every Sun. at noon-weather permitting. ROAR. 42 Riel Dr., St. Albert, Alberta.

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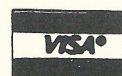
COLORADO

Fort Collins 303-224-5445
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Encinitas 619-942-2014

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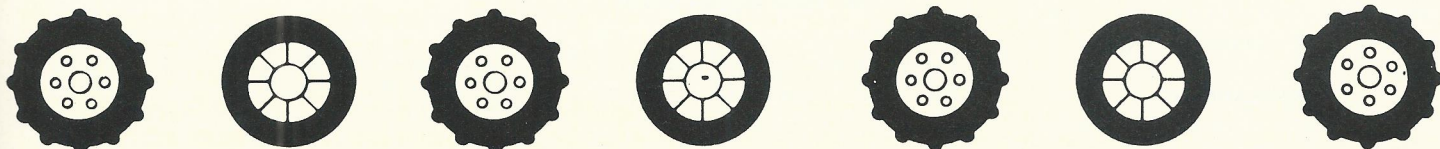


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Canada. Call Fred at (403) 457-9333. In winter on carpet.

BUCKLEY SPEEDWAY

37 Douglas Street, Hartford, CT. Every Sunday April 1st to Nov. 31st Black Top Oval. For more information call "Ziggy" or Debbie Kwasnicki (203) 246-4778.

HOBBY HAVEN RACEWAY

1756 First Street, Livermore, CA 94550 AC power, paved parking, computer scoring, trophy races, trophy dashes, gift certificates. Coming soon night racing & oval races. For info (415) 443-5828 M-F 10-6 p.m.

RADIO OPERATED AUTO RACING OF ROCHESTER

110 Anderson Ave., Behind Village Gate (274 N. Goodman St.)
7:00 p.m. - Monday Pro Night
7:00 p.m. - Tuesday Boy Scout Nite
7:00 p.m. - Wednesday Teen Night
7:00 p.m. - Thursday Indoor Clay
7:00 p.m. - Friday Roarr Meetings
7:00 p.m. - Sat. & Sun. Family Days

HOBBY HUT

2665 Park Marina Dr., Redding, CA 96001, (916) 241-3737. 1/10 Off-Road Racing. Norcal Mini Off-Roaders. Ask for Kevin Paschke.

USA RACEWAYS

6083 Dixie Highway, Bridgeport, Michigan, (517) 777-7USA.
Every Thursday Oval & Off-Road
Every Fri. Indoor Carpet Oval

R.C. BUGGYWORLD & RACEWAY

7511 Hamilton Ave. - RT. 127, MT. Healthy, OH 45231, 522-0809. Wednesday night off-road and oval on alternating weeks. Also carpet races on Monday nights 40 x 80 banked oval.

OUTLAW MOTOR SPEEDWAY

7920 Webster, Highland, CA, (714) 864-1770. Tues. Tamiya Off-Road; Thur. Off-Road & Dirt Oval; Fri. 1/10 & 1/12 on-road; 1st Sun. Dirt Oval; 2nd Sun. 1/10 & 1/12 On-Road; 3rd & 4th Sun. Off-Road.

LITTLES HOBBIES

Monday Nite - 1/10 Trucks
Tuesday Nite - 1/10 Sprint Cars
Wed.-Fri. - Open Practice Available
Sat. - 11 a.m. 2WD 6 yrs. to 16 yrs.
Sun. - 11 a.m. - All Classes Indoor Clay Oval and Road Track Fast -Stock & Modified Classes. Bolink AMB Lap Counter. 111 Main St., Rt. 66, Hebron, CT 06248, (203) 228-4942.

R/C WORLD & TRACK

New indoor facility for 1/10 off-road and oval dirt racing. Wed. and Fri. -oval. Sat. Daytime and Evening off-road. Practice anytime. Call Glen or Debbie at (303) 789-0838, 2788 S. Federal, Denver, CO 80202.

FAST LANE R/C

On Road Asphalt Track. 21616 Golden

Triangle, Saugus, CA. Call (805) 255-2404.

RPM R/C RACEWAY

1112 S. 16th, Elwood, IN 46254. Indoor off-road racing every Sunday at 12:00 noon. For info call (317) 552-7758.

REC. R/C RACEWAY

1/10 scale clay oval track. Racing Sat. - Oval 10-2.30 - Racing at 3:00 p.m. - Sunday - Off-Road 10-2:30 Racing at 3 p.m. Call Erin Clancy (914) 868-7715. Route 82 to Standfordville, NY 12581.

MADISON AREA RADIO CONTROL CAR ASSOCIATION, INC.

Factory Outlet Mall, Madison, Wisconsin. 1/10 and 1/12 scale carpet racing. Practice Sat. Afternoon Racing 6 p.m. Sat. & 7 p.m. Tues. George Jerdee (608) 873-7286.

THE RANCH PIT SHOP

1655 E. Mission Blvd., Pomona, CA 91766 (714) 623-1506. Every Wednesday night at 6 p.m. Alternating Oval and Off-Road.

COMPETITION HOBBY

Off-Road racing indoors on dirt. Every Wednesday night 6:30 -Sunday 12 noon. Juniors (12 and under) & Novice Saturday 12 noon. 8169 S. State St., Midvale, UT 84047. (801) 562-9452.

CONNECTICUT AUTO RACING TEAM

1/10 Off-Road and Sprint Car Oval. 37 Douglas Street, Hartford, CT 06114, Zig (203) 246-4778.

HOBBYTOWN

1/4 Mile High Banked Indoor Carpet Tracks at two of our stores. The Lincoln track is at our Sutter Place Mall store located at 5221 S. 48th St., Lincoln, NE 68516 (402) 483-7427. The Omaha track is located at Rockbrook Village at 11011 Elm Street, Omaha, NE 68144, (402) 391-5669.

Tues. - 7 p.m. - Lincoln
Wed. - 7 p.m. - Omaha
Sat. - 1 p.m. - Lincoln & Omaha
Sun. - 1 p.m. - Lincoln & Omaha

ROMAC

1/10 and 1/12 on large carpet oval (Northern Lights Mall) N. Syracuse, NY. Thursday evenings and Sunday afternoons. Information call (315) 468-1463 or (315) 468-6544.

COOPER'S RC RACE CENTER

Racing every Sunday 2 p.m.
Open Wed. and Fri. 6 p.m.
Open Sat. & Sun. 12 noon
Oval and Off-Road
Contact Norris, Rt. 4 Box 122B, Chatham, VA 24531, (804) 724-4182.

VICTORIA HOBBY SHOP

Every Saturday - 2 p.m. - Off-Road; Every Sunday - 2 p.m. - Ovals.
5211 John Stockbauer, Victoria, TX 77904, (512) 575-3270.

M.H.O.R. R/C RACEWAY

155540 E. Batavia Dr., Aurora, CO 80011, (East on 17th Ave. at Chambers Rd.). Indoor 1/10 Off-Road Racing on Wed. & Sat. Practice/Track Time Tues., Thur., Fri., Sun. Complete Hobby Shop, pit area has AC & DC power, a nice clean handicap accessible racing facility. For info call Jess Brockman, (303) 343-0151 after 3 p.m. MST. Closed Monday.

HOBBYTOWN RACEWAY

4915 W. Elm, McHenry, IL 60050, (815) 344-1777. Hobbytown Raceway, 219 W. Cedar Lake Rd., Round Lake, IL 60073. Indoor - Dirt 80' straightaways, (312) 546-0707. Oval Racing every Friday 7 p.m.; Off-Road Sunday 10 a.m.

BNS COMPETITION HOBBIES

Route 7, Box 380, Anderson, SC 29624, (803) 224-8591, Contact Bob Sanford. Racing and Open Practice Wed. 6:30 p.m., Every Saturday 1:00 p.m. 1/10 Dirt Oval.

DESERT HOBBIES & RACEWAY

Off-Road racing 1st & 3rd Sundays. Sign in 10-11:15 a.m. Every Friday nite 7:30 p.m. 25 minutes from San Bernardino. 17210 Main St., Hesperia, CA 92345, (619) 94858.

TAIT'S HOBBY SHOP

Sat. Off-Road 12 noon, 2WD/4WD Monster Trucks. Sun. Dirt Oval 12 noon 2WD/4WD Any body style. Mon. Indoor Oval Carpet 7 p.m. 1/10 & 1/12. Tues. Truck/Car Pulls 7 p.m.. Wed. Outlaw Dirt Oval 7 p.m. 2WD/4WD Stock cars/ 2WD Sprints. Friday. Off-Road 7 p.m. 2WD/4WD Off-Road cars. 3270 Bay Rd., Saginaw, MI 48603, (517) 799-3900.

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WAGONHILL HOBBIES

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DIXIE R/C HOBBY SHOP

Every weekend Sat. & Sun. The races will alternate between oval and motocross starting May 14 with oval and May 15 with motocross. Dixie R/C Hobby Shop, P. O. Box 135, Ramseur, NC 27316, after 6 p.m. (919) 824-2770.

FORT LAUDERDALE R/C
SPEEDWAY
1989 STATE
WINTER TOWAL CHAMPIONSHIP
JULY 28, 29, & 30 1989

ROAR SANCTION NUMBER 0289281

CLASSES:

- MONSTER TRUCK: TAMIYA TYPE KITS, 6 CELL, \$80.00 ROAR APPROVED MOTOR
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- 2WD MODIFIED: 7 CELL, \$80.00 ROAR APPROVED MOTOR
- 4WD OPEN: 7 CELL, \$80.00 ROAR APPROVED MOTOR
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- TQ IN EACH CLASS
- CONCOURS TROPIES

ENTRIES:

- \$30.00 MODIFIED < 2WD, 4WD, SPRINT >
- \$35.00 STOCK WITH ONE MOTOR
- 2 ENTRY LIMIT

RACE SCHEDULE: FRIDAY, PRACTICE SATURDAY AFTERNOON & NIGHT 2 QUALIFIERS
 SUNDAY AT 10 A.M. 1 QUALIFIER & MAINS
 THERE WILL BE OVERNIGHT PARKING FOR SELF CONTAINED MOTORHOMES
 AT NO COST. FOR MORE INFORMATION CALL 305-472-1032 EVENINGS.

NAME-----ROAR NO.-----

ADDRESS-----

CITY, STATE, ZIP-----

CLASSES: 2WD STOCK--- 2WD MOD--- 4WD OPEN--- SPRINT--- MONSTER TRUCK----

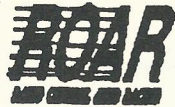
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DEADLINE FOR ENTRIES JULY 10, 1989



REGION III

1/10th SCALE OFF-ROAD

CHAMPIONSHIPS

Presented By

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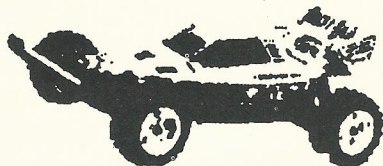
COLUMBUS, OHIO



2WD & 4WD STOCK SAT. July 8, 1989

2WD & 4WD MODIFIED SUN. July 9, 1989

Prepaid entry fees only!! Entry fees <STOCK> which includes a handout motor and a CORCAR T-shirt.....\$35.00. Entry fees <MODIFIED> which includes a CORCAR T-shirt.....\$30.00. **No call in entries accepted!! DEADLINE for mail in entries will be SATURDAY JULY 1, 1989.** Confirmation with map and hotel list will be mailed upon receipt of entry fee with **LARGE SELF-ADDRESSED STAMPED ENVELOPE!** Three qualifiers and a main will be run on each race date. Trophies : 1st thru 10th ; A Mains, 1st thru 3rd all other Mains. Please list at least 3 frequencies, if possible, on the entry form. For more information feel free to contact : Ray Williams at (614) 890-2983 or Richard Love at (614) 866-7902. **Enter early and GOOD LUCK!!**



Name _____ Roar No. _____

Address _____

City _____ State _____ Zip _____

Skill Level <Beginner> [] <Intermediate> [] <Expert> []

2 WD STOCK - Frequencies 1. _____ 2. _____ 3. _____

4 WD STOCK - Frequencies 1. _____ 2. _____ 3. _____

2 WD MODIFIED - Freqs 1. _____ 2. _____ 3. _____

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Check One T-Shirt Size : XXL [] XL [] LG [] MED [] SM []

ROAR SANCTION No. 038905

Total Entries - 250

No More than 2 entries per person



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BREMEN RACEWAY

Clay Oval Track 60 x 100 ft. Under roof, lighted Friday nights 7 p.m. May thru Sept. Call for information (219) 546-3807. Bremen Hobbies, 308 N. Bowen, Bremen, IN 46506.

WEST TEXAS R/C RACEWAY

3477 Lee Blvd. - Racing every Sunday. 1/10 scale off-road and oval dirt. Mailing address: 301 Edith Dr., El Paso, TX 79915. For more information call Hector (915) 772-1382.

JIM'S R/C SPECIALTIES

3107 S.W. Van Buren, Topeka, KS 66611 (913) 273-4070. Racing off-road every Sunday 12 noon to 5 p.m. Oval racing every Saturday night 6 p.m.

EAGLE HOBBY CENTER & RACEWAY

Every Saturday night at 7:30 p.m. 1/12 4 cell stock and modified. 1/10 6 cell stock on-road, call for body style. Eagle Hobby Center & Raceway, 3601 Shepherd, Balch Springs, TX 75180, (214) 557-5290.

SUMMIT SPEEDWAY

Summer Schedule: 1/10 Indoor Oval Outdoor Tri-Oval - Fridays 7 p.m.; Tuesdays off-road 6:30 p.m.; Saturday nights and Sundays. Call for more information (219) 489-RACE.

ACTION SPEEDWAY

Indian River's Facility

1/10 scale half mile clay oval & off-road. Two story covered drivers' stand, large pit area close to track, ample parking, classes for young and old, beginner's to expert's, and truck pulls. Coming soon - 1/10 scale super speedway and road course, night racing, full electric, and concessions. For further information call Trace or Chip Button (407) 231-9410 or Doug Upton (407) 569-8793.

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Every Wednesday - 7 p.m. and Saturday 6 p.m. Classes: 2WD Stock and Modified, 4WD Stock and Modified and Monster Trucks. For more information call (312) 898-5649. 725 Hill Avenue, Aurora, IL 60505.

ABC R/C

Clay track racing every Saturday 1 p.m. Truck pulls every Tuesday 6:30 p.m. Complete R/C headquarters, 1441B E. Main Street, Waukesha, WI 53186, (414) 542-1245.

TC'S R/C'S

Inside and outside race track and RC shop. 1537 Freeport Road, Natrona Heights, PA 15065, call 226-8802.

BROCKTON INTERNATIONAL SPEEDWAY
Monday night 1/10 & 1/12 oval racing 5:30 to 7:30 Practice. Races start 7:30 p.m. 1217 Main st, Brockton, MA. For more information call Ruben (508) 588-9355.

SONOMA COUNTY RACEWAY

806 Brookwood Avenue, P. O. Box 9565, Santa Rosa, CA 95405 -1/10 Dirt Oval, 1/10 Off-Road, 1/10 & 1/12 Asphalt. Mark White (707) 571-7565, Schedule info (707) 571-8044, Competition Products (707) 571-8048.

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5612 S. 108th St. Hales Corners, WI. 1/10 scale indoor dirt track. High speed semi-oval and true off-road courses. Practice Tues, Thrus., and Fri. 6 - 9 p.m. Racing Wednesday nights at 6 p.m., Sat. & Sun. at 1 p.m. For more information call (414) 425-4060.

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Saturdays - 3 Events per month -Off-Road, Monster Truck Pulls and Oval Race. Oval dirt track and Off-road track. 1468 Lander Avenue, Turlock, CA 95380, (209) 668-4454, Ask for Harold Lindquist.

COASTAL BEND SANDBLASTERS R/C CAR CLUB

Races first thru 3rd Sundays, 2 p.m. start. Bill Witt Park, Yorktown Road, Corpus Christi, TX, Call Pete Broadway (512) 992-4448.

CAJON R/C SPEEDWAY

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RADIO CONTROL RACE WORLD

150 Clove Road, Staten Island, NY, (718) 448-0385. Wed. - Fri. 7-10 p.m. Open practice. Saturday 4:30-6 p.m. Race Registration. Sunday 12-5 p.m. Practice/Truck Pulls. Large indoor 1/10 off-road.

R/C RACEWAYS

1/10 indoor dirt oval. 100' straightaways. Wed. 6 p.m. oval. Friday 6:30 p.m. oval. Sunday 12 noon oval or off-road. For more information call (219) 747-6414. 2710 Nuttman, Ft. Wayne, IN 46804.

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Tues. 7:30 p.m. - Practice 5:30 p.m.; Sun. 12 Noon - Practice 11 a.m.; Thurs. 1/10 Outlaw dirt ovals 7:30 p.m. - Practice 5:30 p.m. Route 27, 270 Main St., Hanson, MA 02341. For more information call John or Dom (617) 294-8980.

PARLOR HOBBIES

1/10 on Asphalt - Full bodies -Grand National or ASA bodies preferred. Rab-

bit Lane & 34 Broad St., Matawan, NJ 566-3158. June 4 - 11 -25; July 2 - 9 - 16 - 23; Aug. 6 - 13 - 20 - 27; Sept. 17 - 24; Oct. 1 - 8 - 22 - 29; Nov. 5 - 12 -19.

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1/10 scale dirt oval. Racing every Sunday. Signups 10 a.m. Open Practice 12-6 Tues. - Sat. pit tables, 110 volt power. Call Bob (619) 949-5252. 16175 Main Street, Hesperia, CA.

CORCAR - COLUMBUS, OHIO

1/10 off-road racing May thru Sept. every Sunday. Signups start at 10:30 a.m. Excellent dirt track, computer scoring and picnic area. For information call Ray Williams (614) 890-2983.

MACHESNEY PARK RACEWAY

1220 Shappert Dr., Machesney Park, IL, (815) 282-1311. Racing every Fri. - Clay Track - Summer; Racing every Sat. - Large Asphalt Oval - Summer; Racing every Sat. - Drag Racing - Summer; Racing Every Sat. - Carpet -Winter.

CENTRAL MARYLAND ELECTRIC RACING CLUB

(CMERC) Community R/C Speedway

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SCHENECTADY R/C SPEEDWAY

Indoor Oval Carpet Racing. 1/10 & 1/12 and Monster Trucks. 955 State St., Schenectady, NY, (518) 370-3747.

THE COCKEYSVILLE ASTRODOME

C.A.R. Cockeysville Astrodome Racers, Inc., 10854 York Rd. (Rear) Cockeysville, MD, (301) 666-1098. High Bank Oval racing on concrete (indoors). Benches, Power. Grandstands. 7 p.m. Mon. - Open Practice; 7 p.m. Tues. - Rookie & Stock Practice; 7 p.m. Wed. - Computer Organized Racing; 7 p.m. Thurs. - Modified & Ultra-lite Practice; 7 p.m. Fri. - Trucks & Buggies Practice; 5 p.m. Sat. -Computer Organized Racing; 1 p.m. Sun. - Computer Organized Racing. Art LaPole, Pres. - (301) 889-2070.

BOB'S R/C SUPPLY & RACEWAY

Indoor Carpet Racing At Its Best! Every Tues. 1/10 Oval; Every Fri. 1/12 Road Course; Every Sat. Monster Trucks. Stock & Modified. AMB, computer -snack bar. Call Bob, Nancy or Kevin (319) 232-2235, 935 Sheerer Ave., Waterloo, IA 50701.

EBERSOLE HOBBY & R/C RACEWAY

Off-Road and Oval. Races every Wed., Thrus., Sat., and alternate Sun. 11417 W. Highway 54, Wichita, KS 67209. Call Len Ebersole, (316) 722-8888.

METRO-FAST RACEWAY & HOBBIES

125' x 48' indoor carpet track, pitting for 140+, power, hobby shop, video entertainment, food bar. Oval - Friday night, Kid's racing every Saturday morning and alternate Sundays on on-road and off-road. 950 W. Irving Park Rd., Hanover Park, IL 60103, (312) 213-3977.

MID-CAROLINA R/C SUPER SPEEDWAY

The speedway is located on Flint Hill Rd, Off 1-77/Carowinds exit, south of Charlotte, NC. 1/10 & 1/12 High-Speed Banked Quad-Oval and Road Course. 385 ft. plus 26 degrees banking in turns concrete track. For info call Fred Penland (704) 373-2535 7:30 a.m. to 4:30 p.m.

BROWNIE'S HOBBIES

Off-Road Dirt Track, hobby shop. Wed. eves and Sat. afternoons for practice. Racing - Fri. eves. 4WD & 2WD. Track open April through November. 124 Bennett St., Staten Island, NY 10302, (718) 727-2194.

ROADRUNNER R/C CENTRAL

5620 Bellaire, Houston, TX 77081, (713) 661-7574. 1/12 Carpet Oval or Road Course every Thurs. Night. 1/10 Carpet Oval every Tues. & Fri. night & Sun. pm.

ROADRUNNER R/C NORTH

12760 Veterans Memorial, Houston, TX 77014, (713) 537-7758. 1/10 Dirt Oval every Wed, Fri. night. 1/10 Dirt Off-Road Every Sat. & Sun.

ROADRUNNER R/C SOUTH

12902 Player, Houston, TX 77014, (713) 728-2277. 1/10 Indoor Dirt Off-Road Every Wed., Fri., & Sat.

NORTHERN MINI-RACERS

NMR Raceway, P. O. Box 415, 3524 E. Burdick, Minot, North Dakota 58701. 1st & 3rd Sundays. 1/10, 6 cell, NASCAR bodies, oval racing on carpet. Roger Lee, Pres. (701) 839-4731, 839-5294; Pat McWethy, V. P. (701) 839-8868, 852-6254.

ASHEVILLE HOBBY SPEEDWAY

Racing every Wednesday and Saturday at 7:30. 1/10 & 1/12 Asphalt Oval - Indoors. Hwy. 25, Naples, NC 28760, (704) 684-9814. Ask for Jack or Sharon Murdock.

HOBBY CENTER

High banked carpet oval track. Racing every Friday at 7:30 p.m. 1/10 NASCAR, trucks, 2WD gearbox hot rod, 4WD wedge bodies, 1/12 scale. Any body ROAR stock motors all classes. Open practice during store hours. For race info call (502) 683-7611. Hobby Center, 1233 Sweeney St., Owensboro, KY 42301.

R/C MOTORPLEX & HOBBY

Outside Tracks: One of the Midwest's largest paved oval (160 x 115) with paved infield road course. Lighted for night racing. Indoor Tracks: Dirt off-road and dirt oval. Carpet road course and oval. 1/

12, 1/10 & 1/8. Electronic scoring. Benches with electric provided indoors and outdoors. Snack bar, game room and complete R/C hobby shop on site. 303 Herbert Rd., McHenry, IL 60050, (815) 385-1240. Contact Bob Oaks or Jim Bostrom.

SACRAMENTO MINI-WHEELS RACEWAY

Indoor racing with 1/10 and 1/12 scale. Two tracks with off-road, dirt oval, and on-road. The on-road track is etched concrete. Racing every Wednesday night (off-road). Friday night (on-road). Every other Saturday (dirt oval). Sunday (off-road). 8711 Elder Creek Rd., Sacramento, CA 95826. Call Paul or Marge Schiager at (916) 383-4011.

- 1/12 Scale -

GLASS CITY RADIO CONTROL

Racing 1/10 & 1/12. For more info contact: Clayton White (1/12) (419) 882-2518 or Mike Marshall ((1/10) (313) 241-5321.

S.T.A.R.C.

Every Wed. Night - S.T.A.R.C. Club Series. Rockton, Ontario, Canada. Call Sam Burke (519) 621-5424.

TEAM RACE R/C CAR CLUB

Friday: 6:30 p.m. indoor track, 505 Spring Ridge Rd., Clinton, MS, (601) 924-0722.

NORTHERN MINI-RACERS

NMR Raceway, P. O. Box 415, 3524 East Burdick, Minot, ND 58701. 1st & 3rd Saturdays, 1/12, 4-cell, Can-Am/GTP bodies, road racing on carpet. Roger Lee, Pres. (701) 839-4731 or 839-5294. Pat McWethy, V.P. (701) 839-8868 or 852-6254.

KOUNTRY KLIN HOBBY

1/12 scale small indoor carpet track & hobby store. No regular schedule at this time. Box 247, 324 Railroad Ave., N. Mohall, ND 58761, (701) 756-6307.

USA RACEWAYS

6083 Dixie Highway, Bridgeport, Michigan 48722, (517) 777-7USA
Every Tuesday Nite On-Road
Every Sat. Nite On-Road
Every Other Sat. Eve. Stock On-Road

THE RANCH PIT SHOP

1655 E. Mission Blvd., Pomona, CA 91766, (714) 623-1506. Every 4th Sun. 1/12 & 1/10 On-Road Combined Program.

OMAHA NEBRASKA RADIO OPERATED AUTO DRIVERS

On-Road 6 cell racing two nights per month. ROAR rules apply. Call (402) 331-3931.

S.O.R.C.R.C.C.

Southern Ontario Radio Control Race Car Club in Toronto, Ontario, Canada. Racing Alternating Sunday evenings from October to April. 6 p.m. to 10 p.m. For more information call Scott Reynolds at 298-4941 or Gary Joi at 421-9061.

CENTRAL MARYLAND ELECTRIC RACING CLUB

COMMUNITY R/C SPEEDWAY
Middletown Park, Middletown, Mary-

land. 100' x 50' dirt oval, 14' wide lanes, 2' banked turns, drivers stand, no electricity available, open to the public. Race Director Mark Coats (301) 694-7420.

FLORIDA STATE SERIES

July 8 & 9 - Pinellas
Sept. 30 & Oct. 1 - Ft. Lauderdale
Nov. 4 & 5 - Orlando
Steve Whitney (407) 631-8761

HOBBIES PLUS & R/C RACEWAY

New 1/10 & 1/12 scale indoor carpet racing. Tri-Oval & on-road, 60+ pit areas w/ electric, complete hobby shop, computer scoring, 7 days, open practice. Also new Sunday A.M. 1/10 off-road dirt (150 x 70) and 1/8 gas off-road. 650 Amherst Street, Nashua, NH 03063, (603) 882-9200.

- Special Events -

ROAR REGION VI

OFF-ROAD SERIES

May 27 - Metro Raceway, Bakersfield, Stock & Modified.

July 8 & 9 - Radio Controlled Hobbies, Costa Mesa, Saturday Stock, Sunday Modified.

ROAR REGION VI

OVAL SERIES

June 3 - Racer's Haven, Bakersfield, Stock, Mod. & Sprint

August 6 - R/C Outlaw, Highland, Stock, Mod. & Sprint

For further information call Cliff Soderberg, (213) 988-1006.

1989 1/8 GAS IFMAR WORLD CHAMPIONSHIPS

July 4-9, 1989

Tuesday, Wednesday and Thursday will be qualifying. Saturday will be the bump-up finals day, and Sunday the 9th of July is 1/8, 1/4, 1/2 finals and Main Event day. If you have any questions contact us by phone, fax or letter. P. O. Box 413, 2100 AK Heemstede, Holland, Tel. 31-23-292068, Fax: 31-23-284950.

1989 ROAR NATIONALS

1/12 On-Road - June 8-10. SRS, Tempe, AZ. Contact Larry Stewart (602) 829-9117.

1/10 On-Road - June 22-25. Magic City Car Club, Birmingham, AL. Contact David Swearingen (205) 841-6988.

1/10 Off-Road - July 25-30. SEM-ROCC, Sterling Heights, MI. Contact John Thawley, (313) 644-0669.

1/8 Gas - August 7-13. St. Louis Car Club. St. Louis, MO. Contact Joe Poole, (618) 462-5334.

1/4 Dirt Oval - August 25-27. Two Bit Racers, Alberquerque, NM. Contact George Brazil (505) 345-7413.

1/4 Paved Oval - Aug. 31-Sept. 3. Racers Haven, Bakersfield, CA. Contact Marty Buchanon, (805) 835-0441.

Tri-State 12th Scale Championship
Asheville Hobby Speedway, Hwy 25, Naples, NC 28760, (704) 684-9814. Asphalt Oval. Stock and Modified.

The Year Round Play Ground

RADIO CONTROL PERFORMANCE CENTER

and

NORRCA

National Organization For Racing Radio Control Autos

PRESENTS THE

1989 NEW ENGLAND OFF-ROAD CHAMPIONSHIPS

Sunday, June 25, 1989

1/10 OFF-ROAD

- *NORRCA membership is required. (Memberships Available at Track)*
- *NORRCA rules apply. NORRCA officials will be present*
- *3 Qualifiers and the Mains*
- *Trophies for 1st, 2nd and 3rd Place in all classes.*
- *Entries Limited*
- *Pre-Entries available at RCPC or through NORRCA*
- *Hotel information available on request*
- *Entries close at 9 a.m. on June 25th*
- *Race starts at 10 a.m. on June 25th*
- *Entry Fee: \$15.00*
- *Make check payable & return to: RC Performance Center, 4 Manley Street, West Bridgewater, MA 02379*
- *For more Information Call: (508) 588-9666*

DETACH AND RETURN - NORRCA OFFICIAL OFF-ROAD ENTRY FORM

Name _____

Address _____

City, State, Zip _____

Class(es) 2WD Stock 2WD Open Novice 4WD Stock 4WD Open 2WD Monster Truck

Event Name/Date _____

2WD Frequencies: 1 _____ 2 _____ 3 _____

4WD Frequencies: 1 _____ 2 _____ 3 _____

Sponsors: _____

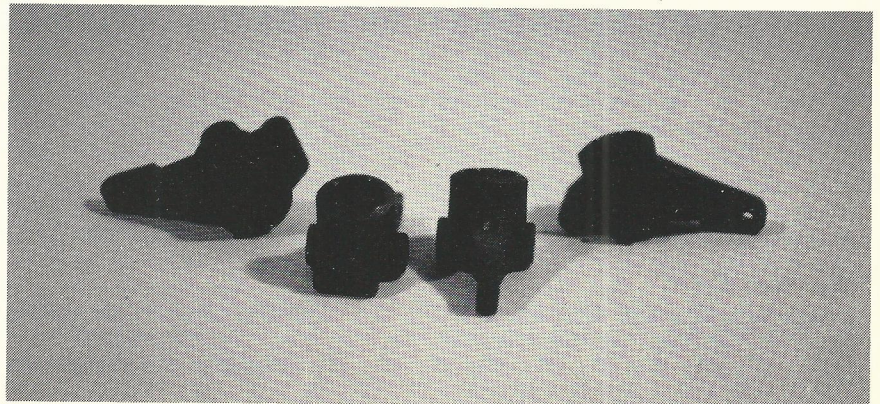
NEW PRODUCTS

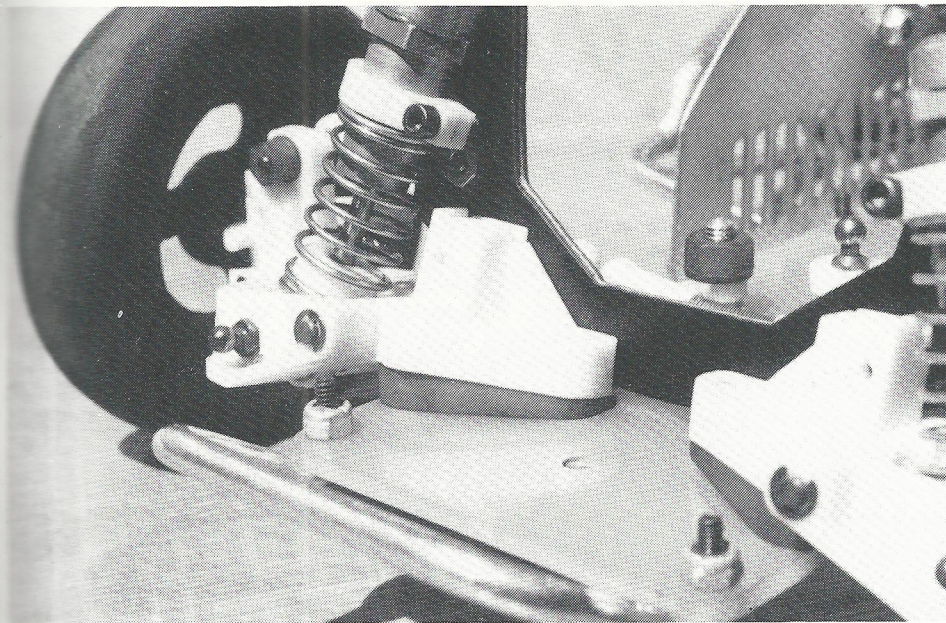
Part No. 12604 Monster Front Wheel Adaptor Nuts \$6.25. Parma proudly announces monster front wheel adaptor nuts. Now you can "stamp out" the local competition with any 2WD Tamiya car and other makes. See your Local Parma dealer for details. Parma International, Inc. 13927 Progress Parkway, North Royalton, OH 44133.



Reedy Matched Packs. SCR -Fast charge, durable, high voltage. Recommended use: Stock & Modified racing. #6792, 6-cell factory pack \$42.00; #6793, 6-cell racer pack \$45.00; #6794 6-cell team pack \$48.00; #6795, 7-cell factory pack \$49.00; #6796, 7-cell racer pack \$52.50; #6797 7-cell team pack \$56.00. SCE -High capacity, new technology battery. Recommended use: Modified Class racing. #6786, 6-cell factory pack \$48.00; #6787, 6-cell racer pack \$51.00; #6788, 6-cell team pack \$54.00; #6789 7-cell factory pack \$56.00; #6790, 7-cell racer pack \$59.50; #6791, 7-cell team pack \$63.00. Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

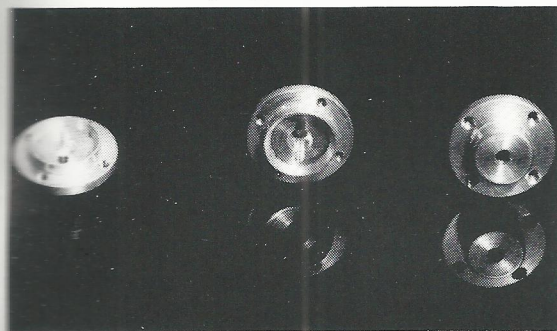
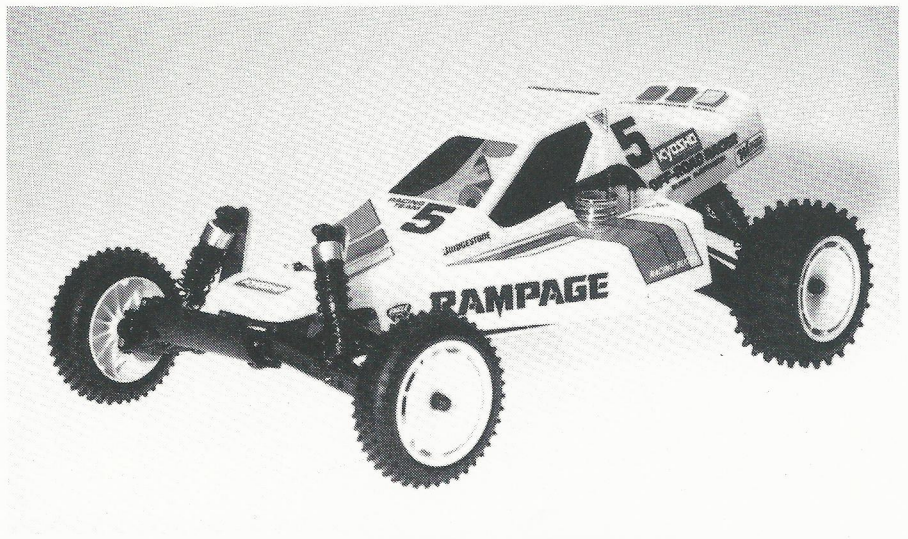
SRS Steering Block Front & Rear Hub Carrier. This new SRS design is made with tougher nylon materials giving you a tighter bearing fit. That means less play in the axles. \$10.95, a price less than stock! SRS, 1120 N. Hayden Road, Tempe, AZ 85281, (602) 829-9117.





Caster Wedges for Flat Pan RC10 based cars (i.e. Big Boy Toys Sprint Cars). Add caster to achieve superior handling and performance. Fit under front suspension blocks. Another quality product from Cheetah Racing. Part No. 2016 - \$5.00. Cheetah Racing, 10823 Amestoy Ave., Granada Hills, CA 91344, (818) 366-2683.

1/10 scale gas off-road buggy features an award winning Ultima front end that gives it superior handling and suspension good for any terrain. The recoil pull starter used on the CZR engine included with this kit, offers a convenience that modelers appreciate. Just grab your fuel, transmitter and ni-starter, and you've got the freedom not common with electric buggies. Running times up to 10 minutes can be expected on one tank of gas. Great Planes Model Distributors, P. O. Box 4021, Champaign, IL 61820.



New Nylon adapters to convert our BBS rims to fit the RC10, Tamiya, and Kyosho. They are strong, durable and economical.

Part No. 0177 - BBS to RC10 - \$3.95/pair.

Part No. 0178 - BBS to Tamiya - \$3.95/pair.

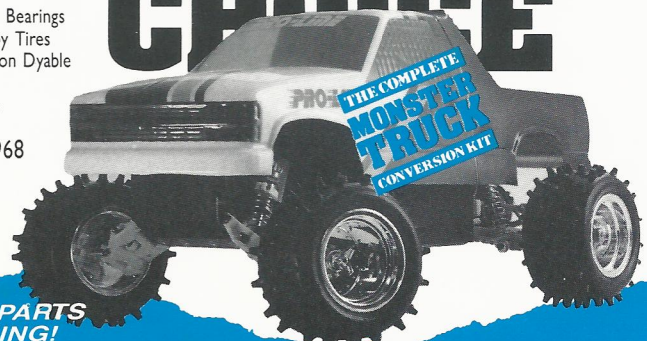
Part No. 0179 - BBS to Kyosho - \$3.95/pair.

Introducing the **PRO-LINE** Monster Truck Conversion Kit, the most COMPLETE RC10 Monster Truck Conversion Kit available. **Features:**

- Chevy Stadium Truck Body clear Lexan
- Professional Assembly Instructions
- Front Nylon Wheel Bearings
- Competition Knobby Tires
- Front and Rear Nylon Dyable Wheels for direct fit
- Truck Body Mounts

FAX (714) 849-2968
 (714) 849-9781
 P.O. Box 456,
 Beaumont, CA
 92223

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THE BEST PARTS OF WINNING!

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for U.S.A.:
DU-MOR R.C. LTD
 1002 UNION LANDING ROAD
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CORALLY®

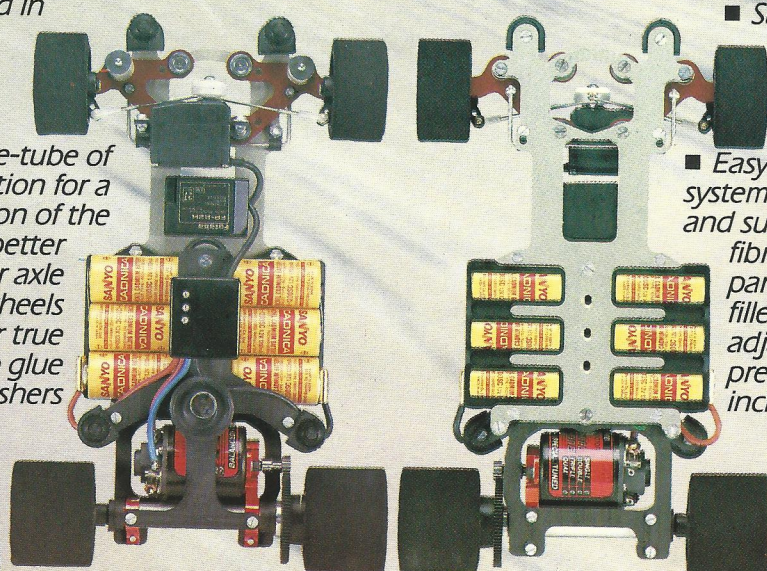
SUPERIOR PERFORMANCE THROUGH HIGH-TECH ENGINEERING



- Oil-filled, dust-free shock absorbers front and rear
- Front and rear ride height adjustment
- Anti Roll Bar for higher cornering speeds
- Roll Over Mast
- Saddle pack batteries for the lowest possible centre of gravity
- Batteries mounted in quick-change trays
- Machined CORAL powerpod for maximum rigidity and heat dissipation
- Axle-tube of oval cross-section for a rigid construction of the powerpod and better alignment of the rear axle ball bearings
- Rear wheels with double support for true running
- No need to glue the differential steel washers

as they are kept in place with 'O'rings, which prevent slip and make the washers self-aligning

- Steering servo mounted on CORAL servo posts
- Quick change wheels secured with rubber 'O'rings



- Suspension arms and T-bar mounted with play free pin joints for smooth suspension action
- T-bar stiffness easy to adjust
- Easy and precise tweak system
- CORAL chassis and suspension arms
- Carbon fibre filled T-bar
- All moulded parts made of carbon fibre filled nylon
- Height adjustable body posts
- All 14 precision ball bearings included.

Note: CORAL is a new space age alloy, it combines high tensile strength with low weight and does not split or tear like fibre filled chassis parts.

CORALLY RACING TEAM®

CORALLY SPlI 1/12 ELECTRIC COMPETITION RC CAR

Made by **CORALLY** Holland. Distributed by **PK MODEL RACING**,
 Toulonselaan 58, 3312 EV Dordrecht Holland, phone 078-132324, fax 078-134595

MAGNUM FORCE.



Tony Neisinger wins the 1989 Futaba Grand Prix with Magnum.

Every race day, more and more Magnums are showing up at the track. That's because Futaba makes a complete selection of Magnum pistol-grip systems to suit every kind of radio controlled car. Each Magnum system is loaded with competition features to give you an edge, whether it's your first race or the World Championships.

Get a grip on our hot, new 2PB/Sport. With a price as comfortable as its ergonomically designed case, the Sport is the perfect Magnum for the beginner. Servo reverse switching and convenient throttle and steering trims make set-up in any car or boat easy, and the Sport ESC option includes our MC112B MOS/FET speed control with reverse.

MOVE INTO THE WINNERS CIRCLE

Our grown up Magnum 2PBKA/Junior gives you some extra moves to put on the competition. Full range steering rate lets you perfectly balance your car's



2PB/Sport

(2PB and 2PBKA available with MC112B speed control)



2PBKA/Junior



handling, even as track conditions change. Fine trimming and ATV controls let you dial in race set-ups fast, and are positioned for easy adjustment.

Racing options for the Junior system include the MC112B and a choice of S148, S132H or S9601 servos.



2PD/AM

(2PD and 3PB available with S9301, S9601 or S132H servos)

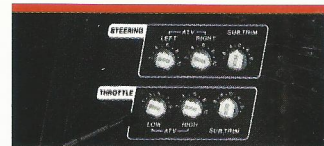


3PB/PCM1024

THE ALL NEW MAGNUM AM

The Magnum 2PD/AM is just what the serious racer ordered. Compact, yet fully equipped with pro-style, fine tune controls like steering rate, brake trim, throttle ATL, ATV and sub trim. The Magnum AM transmitter also lets you customize wheel throw and spring tension.

Like all Magnum 2 channel systems, the 2PD includes our new, narrow-band R102JE receiver. S9301 servos, the choice of most top 1:10 on and offroad drivers, are included, or you can choose S132H or S9601 versions.



Servo reversing, throw adjustment and sub-trimming can be individually preset on the 2PD control panel.

THE ULTIMATE MAGNUM

Racers who want it all turn to the awesome Magnum 3PB/PCM. The 3PB has everything you need for world class competition, in any class. Electronic trimming with sub trims and LED read-outs, programmable mixing, dual rates and exponential, plug-in RF module, DSC and more make the 3PB a uniquely refined and versatile performer.

And the incredible interference protection and resolution of Futaba's exclusive PCM 1024 put it in a class by itself.

MAGNUM Futaba

Futaba Corporation of America
Four Studebaker, Irvine, CA 92718

Your next buggy is waiting

Terra Scorcher and Vanquish Join Tamiya's Lineup of High-Performance Buggies

When you add up the breakthroughs in buggy technology, the name Tamiya is the yardstick by which all others are measured. They didn't stop when they originated 1/10 scale electric powered buggies, in fact it was only the beginning.

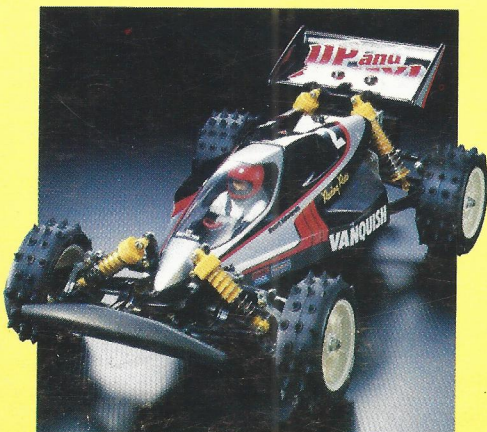
Major contributions have been prolific. From planetary differential to shaft drive systems, from low profile tires to oil-filled shocks, independent suspensions, rubber sealed oil dampers and more. Tamiya was the first to create and market this technology worldwide.

To engineer these kinds of advances you need an almost fanatical dedication and major expenditures of time, facilities, equipment and manpower. That's why today, in a 166,000 sq. ft. facility dedicated solely to research and development, dozens of engineers and technicians continue to spend their energy pushing off-road to the outer limits. While outside the R&D building, on six test tracks, racing drivers put each new development to the test. Before it hits your shop each idea, technique, material choice and engineering concept is thoroughly tested and re-tested under actual driving conditions.

NEW

NEW VANQUISH (58076)

A high performance, 4WD off-road racer with tremendous potential. Race proven mechanics efficiently transmit the power from the mid-ship mounted competition motor to all four wheels. All of the R/C components are neatly packaged into a sturdy monocoque type chassis/frame, and covered by a stylish, streamlined, polycarbonate body.



NEW

NEW TERRA SCORCHER (58075)

Race-oriented 4WD mechanics are wrapped up with a futuristic body styling on this sophisticated off-road racer. 4 wheel independent double wishbone suspension with front and rear stabilizers and oil dampers provides superb stability during all-terrain running. Power is transmitted by a race-proven shaft-driven system, and the ball bearings minimize friction loss.



At this level, high tech is a combination of brainpower, desire and state-of-the-art equipment. And at Tamiya that includes the likes of a Rockwell Hardness Testing machine; Autoclave Curing Ovens; High Temperature Test Cells; Lubricant/Plastic Compatability Test Equipment; Automatic Aging Equipment; Dynamometer Track Simulator; Environmental Simulation equipment - 40 to +100 degree C.; Electro Magnetic Discharge Tooling Equipment; Multi Material Testing to Failure Machinery; XYZ Axis Tape Fed Computer Controlled Automatic Tooling Equipment and so much more. Some of which is so advanced it's still highly classified.

And while these engineers tend to the business of the future, Tamiya tends to make sure you have everything else you need to enjoy the sport today. That's why every year millions of dollars are spent to keep parts in stock. And why MRC is there to provide the services that keep you going.

Buy a Tamiya buggy and you're buying the best. Whether it's your first or your fifth. Whether you've a big budget or a shoe string. Come to the masters of off-road, come to Tamiya, where your next buggy is waiting.

To satisfy your drive for excitement, here's a list of some of the most popular and best engineered off- and on-road buggies you can buy. Available at your local hobby shop.

1/10 SCALE

- 58043 The Grasshopper
- 58045 The Hornet
- 58048 Toyota 4x4 Bruiser
- 58051 The Fox
- 58055 Boomerang
- 58056 Falcon
- 58057 Bigwig
- 58058 Blackfoot
- 58060 Monster Beetle
- 58061 Striker
- 58062 Hotshot II
- 58063 Wizard F-1
- 58065 Clodbuster
- 58066 Super Sabre
- 58067 Thunder Shot
- 58068 Lotus Honda 99T
- 58069 Williams FW-11B Honda
- 58071 Sonic Fighter
- 58072 Avante
- 58073 Thunder Dragon
- 58074 Grasshopper II
- 58075 Terra Scorcher
- 58076 Vanquish

1/12 SCALE

- 58042 Porsche 956
- 58049 Toyota TOM's 84C
- 58059 Porsche 959
- 58063 Lunch Box
- 58064 Toyota Celica Gr. B
- 58070 Midnight Pumpkin

1/14 SCALE QUICK DRIVE R/C CARS

- Ready-to-Run
- 46001 Thunder Shot QD
- 46002 Super Sabre QD

MRC

TAMIYA

Model Rectifier Corporation
200 Carter Drive, Edison, NJ 08817