

# HOW TO GET STARTED IN R/C RACING

AUGUST 1989

Vol. 4, No. 43

ADIO  
**R/C**  
CONTROL

# Model Cars®



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## Schumacher's TOP CAT



## Edelbrock's Q-scale SPRINT CAR

## DETAILS!

Concours-winning  
paint tips



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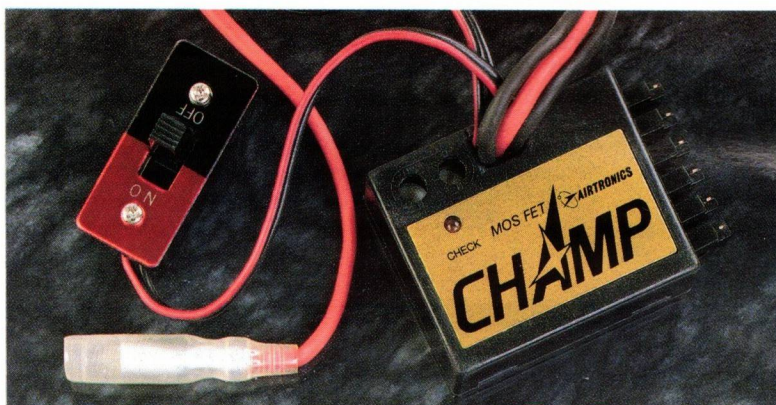
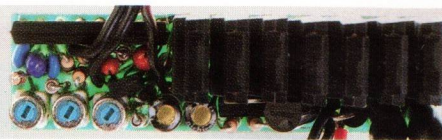
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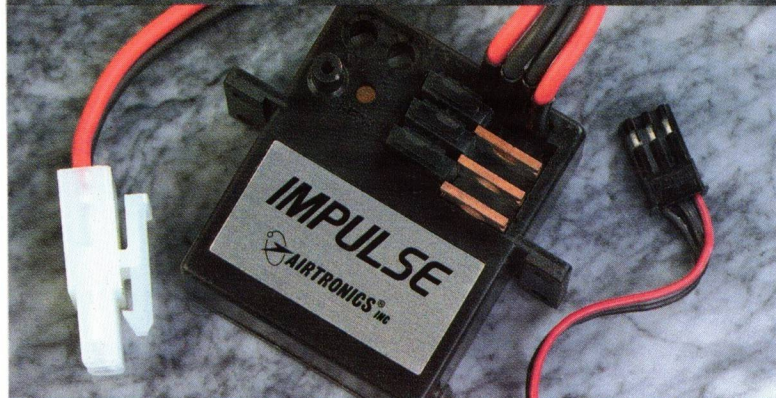
### Specifications:

Voltage Loss: 0.010 Volts Per Amp

Dimensions: 1.26" x 1.69" x 0.63"

Current Rating: Surge - 300 Amps / Continuous - 90 Amps

Weight: 0.78 oz.



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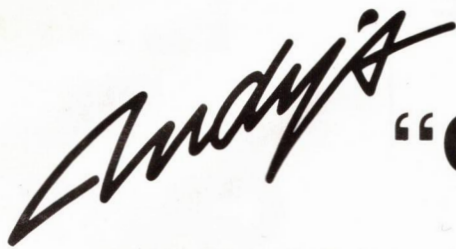
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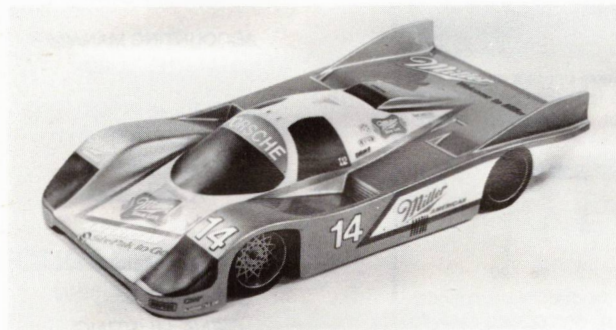
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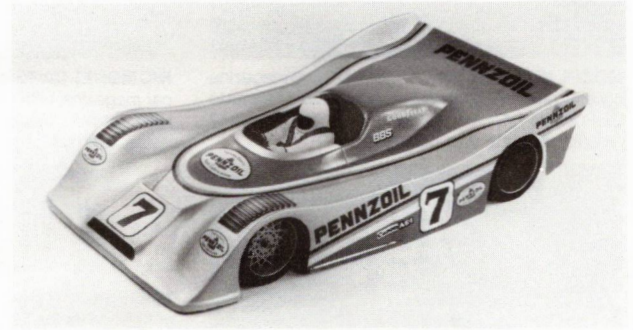
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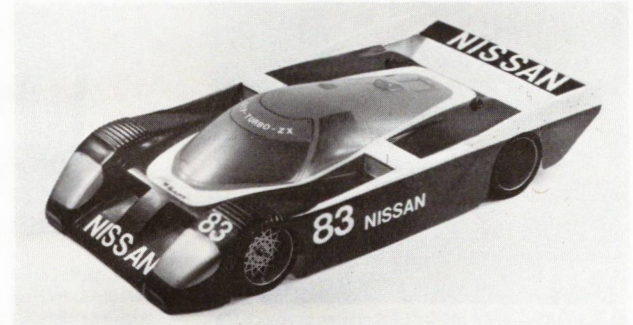
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3145 - Nissan GTP

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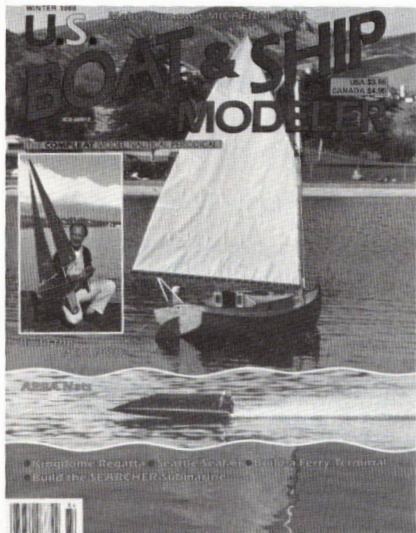
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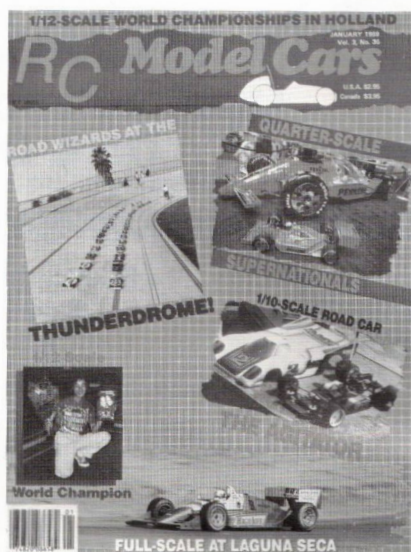
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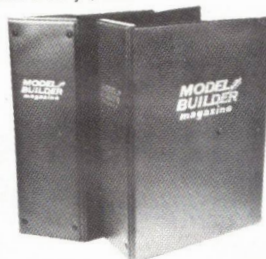
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# RADIO CONTROL Model Cars

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## FEATURES

### AGAINST THE WIND 22

By Mike Liem

Aerodynamics are very important to R/C car performance; our Traxxas columnist gives you some tips.

### HOW TO PAINT 30

By Mike Ogle

In Part Five of our painting series the author gets into the all-important detailing steps that can lead to a trophy.

### SPORTSMANS CUP 46

By Stephen Brown

Sponsored by Speedworks/Trinity, the Sportsman's Cup was designed to give the unsponsored driver a fighting chance for glory.

### EDELBROCK'S SPRINTER 50

The Performer from Edelbrock is a quarter-scale sprint car that faithfully reproduces the full-size racer.

### TOP CAT 56

By Stephen Brown

Schumacher's version of the 2WD dirt racer is innovative, and sure to be popular on this side of the Atlantic.

### EVERYTHING YOU NEED TO KNOW 60

By Gene Husting

For the newcomer to R/C racing, here is a guide to the sport with a description of all the scales and types of racers involved.

### TRAXXAS STREET CAT 82

By Stu Richmond

Here's a ready-to-run 1/10-scale dirt car that's ready to roar.

## DEPARTMENTS

### AT THE WHEEL/Richard Dowdy 8

### PITSTOP 10

### READERS' PAGES 12

### ANSWERMEN 16

### RADIO WORKSHOP/Eloy Marez 18

### TRACKSIDE/Mike Liem 26

### R/C SPORTSMAN/Woody Trimble 28

### TRACK GUIDE 68

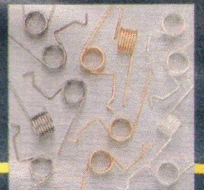
**COVER:** We're rushing headlong into summer with features on quarter scale, 2WD dirt racing, indoor road racing, and how to detail your car.





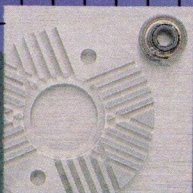
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- #0003 350 2WD, 18 Turns, 34,000 RPM
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- #0012 The Road Beast, 20 Turns, 30,000 RPM



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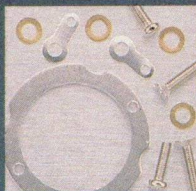


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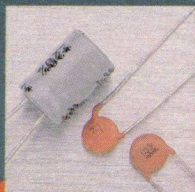
#0011 Sport Pack,  
6 Cell Sanyo KR-1300SC



#4044 Motor Rebuild Kit.



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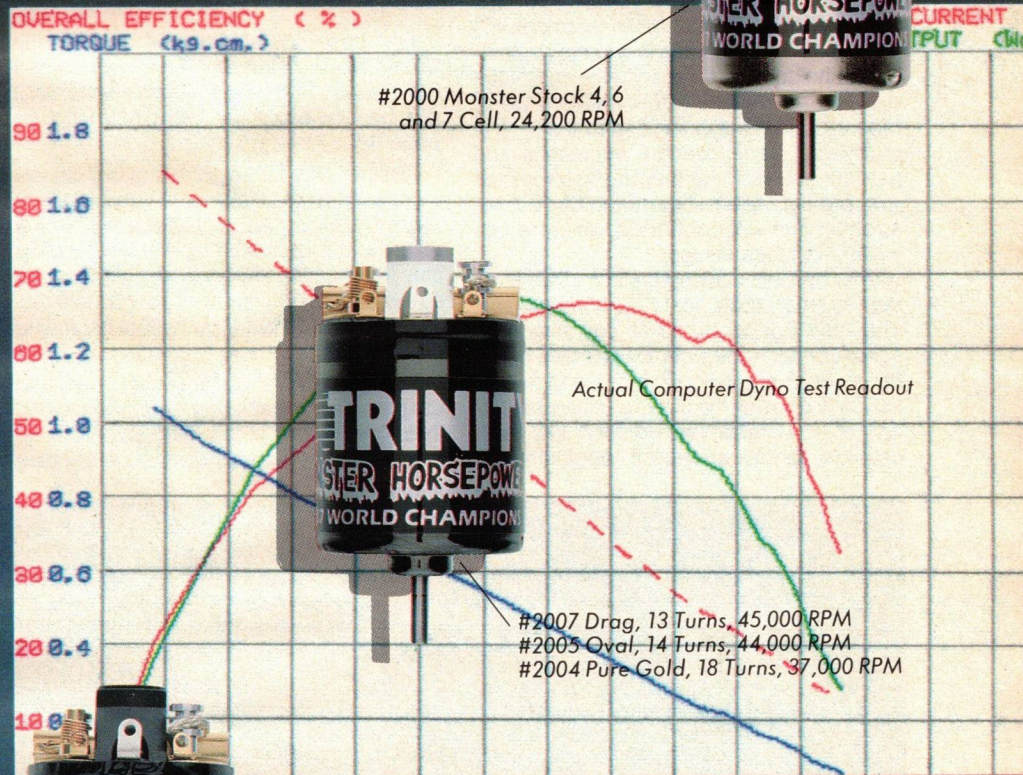
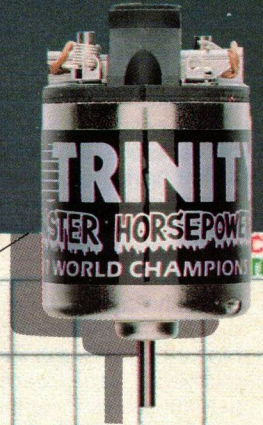
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- #2014 Top Fuel, 11 Turns, 47,000 RPM
- #2015 Godzilla, 12 Turns, 46,200 RPM
- #2002 Sprint, 15 Turns, 41,000 RPM
- #1010 4 Cell Single, 15 Turns, 40,000 RPM
- #2008 Whippoorwill, 16 Turns, 39,500 RPM
- #1004 4 Cell Double, 16 Turns, 39,200 RPM
- #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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## IN THIS ISSUE

**O**ur series on painting Lexan car bodies has entered its fifth installment, with this issue's subject being how to detail your car to win concours competitions. Of course, the motivation to enter concours events is not the only reason for making your car appear at its best; there's the personal satisfaction of having a car that reflects your own abilities and talents, whether it be as a scale model or a creative expression you have designed yourself. Our how-to-paint features have given you the tools to use these painting techniques to create your own unique designs. As reflected by the letters we've received since beginning this series back in our March issue, readers appreciate and use our professional painting tips for their own projects. We're heartened by your response, and will continue to explore this subject in future issues.

This month's car reviews span the range from quarter scale to 1/10 scale offroad. The new Edelbrock sprint car in quarter scale comes from a company that's had a tremendous reputation in full-size racing. Al Novotnik gives us the blow-by-blow description of how assembly went on this well-detailed sprint car replica, beginning on

page 50.

The 1/10-scale offroad feature this month is the Schumacher Top Cat, by Stephen Brown, who describes this hot car's innovative design and predicts success for this two-wheel drive racer, the same success that has led the Schumacher Cat 4WD to the top of the heap as four-wheel drive world champion. Look for the Top Cat, beginning on page 56 of this issue.

For those just starting out who feel an assembly job is too much for them, there's the Traxxas Street Cat, an entry-level 2WD dirt car reviewed by Stu Richmond on page 82.

Another plus for beginners is this issue's feature by Gene Husting, "Everything You Wanted to Know About R/C Racing," which takes us through each type of R/C racing, plus information on battery and motor care, as well as choosing the right car for you. You'll find this informative feature beginning on page 60.

The majority of R/C racers who compete are just like you and I; sportsmen who spend their time racing at the local level with no pretensions about sponsorship or reaching

the top of the pro class. This majority of racers was given an opportunity to step into the spotlight with the running of the first Speedworks Sportsman's Cup race, held recently in Detroit, Michigan. As Stephen Brown relates, the emphasis was on the sportsman this weekend, with invitational pro drivers on hand for an exhibition race, and more importantly, available to anyone who wanted to get some advice and racing tips. Seminars headed by these pros were well-attended affairs; the chance to learn from the experts was something the sports racers were not going to miss. Our Sportsman's Cup coverage begins on page 46.

Those are just some of the highlights awaiting you this month. We have our usually informative columns by our contributing editors plus a whole raft of new products pages to let you know what's available in the marketplace, making this issue one you'll want to refer to more than once. Next month, we review the Team Losi JRX-2; get into motor brushes and their care; and cover the U.S. Formula One Grand Prix from Phoenix, Arizona with a colorful photo feature, in addition to our regular features, plus some surprises too. See you here. •



Detailing your R/C car, Part Five in our continuing how-to-paint series, begins on page 30.

# JR-X2 TECHNOLOGY IS HERE!

## 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.

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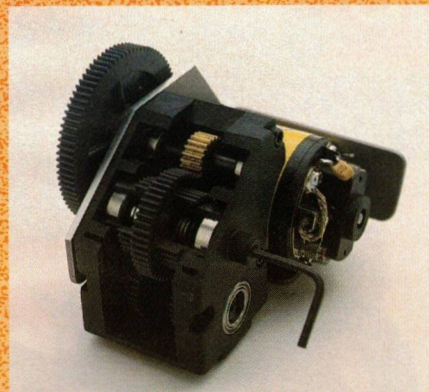


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Dear RCMC,

Your recent issue's coverage of the racers at Long Beach was terrific. I have a Vicfor with an Indy body on it and I am proud to say it is a replica of the Valvoline car driven by Al Unser Jr. I've been known to do a little "bumping" myself, but with open-wheel cars it is a risky proposition that may take you out as well as the guy you push. I think there is more chance of getting tangled in R/C racing than full size, but at speed, things happen, as the saying goes. Anyway, I just wanted to thank you for the colorful photos of the Indy cars. Give me more!

John Duff  
East Lansing, Michigan

Dear RCMC,

I've followed your series of painting articles and I have learned a lot from them. I am painting a Wedge Vette body from Andy's R/C right now, and I am doing it with the same technique used by your writer to "fog" the panels on the hood and sides. It is almost finished, and I will send a picture for the Readers' Pages as soon as I take some. Keep those painting articles coming, I can use the help!

Rick Wallace  
Portland, Oregon

Dear RCMC,

I am new to R/C racing, although I have built and flown some R/C gliders before, so I do know something about R/C. Cars are pretty much a mystery to me, and I got into this because my son gave me a car (A Frog) for my birthday. Now I am committed to doing as well as I can at maintaining and racing my car. What I am interested in is whether or not you have back issues that can fill in a beginner to the sport. I can use all the help I can find! Thank you.

Carl Johnston  
Scottsdale, Arizona

Carl: This month Gene Husting has an article just for you! It covers all the basics of R/C car racing and describes each scale and how to get started. You'll find information on batteries, chargers, motors, and more. Check it out; I'm sure you'll benefit from it.—Ed.

Dear RCMC,

I want to know why there aren't more girls involved in R/C racing. I go to the local dirt track, and the only girls I see are girlfriends of the drivers. Never have I seen a girl drive a

car! What's the matter, don't they like it? Or doesn't it interest them? I'm sure they could be just as good as the guys when it comes to driving, so I don't understand it. Do you know of any girls who drive R/C cars?

Marty Evans  
Los Angeles, California

Marty: Keep your mind on your racing! I'll admit I haven't seen too many females in the drivers' stand, but there are some very competent ladies who race R/C. If you want to help get more women involved in R/C racing, why not invite a few lady friends of your to come to the track and have a run with your car? Once they've driven it, they're likely to want to do it again.—Ed.

Dear RCMC,

I just got my June issue with the How to Paint Flames article, and it's groovy cool. I have a Parma Ford pickup body for my Black-foot and I am painting it black with flames. Thank you for this great series. I would like to see an article on painting pinstripes like Big Daddy Roth's. You guys are unreal.

Bill Bennett  
St. Landry, Louisiana

# KYOSHO

## A World Champion Ultima

For winning races, Ultima is the name to know. Whatever 2WD off-road crowd you race with, from beginners to pros, Kyosho has a 1/10 scale electric Ultima that is just right for you. Out of the box, the new **Ultima Pro** with graphite chassis puts serious racers in charge of the most advanced 2WD buggy available. If you're hungry for a taste of high-powered competition, the **Turbo Ultima** offers a long menu of the most important upgrades. The original World Champion **Ultima's** amazing record of wins is still unmatched — a perfect choice to begin your racing career!

The Kyosho Ultimas are Number 1 in 2WD off-road competition. There's a high-tech Ultima for every racing level, making your successful onslaught into the top ranks at your track simply a matter of good judgment. Choose your weapon carefully, and the winning will take care of itself.



### Ultima™

The Ultima claims top honors every time, including sweeping the 1987/88 IFMAR World Championships and taking Number 1 at many demanding national, regional, and local competitions. It's the perfect car for anyone ready to start racing — and winning.

- Most advanced suspension geometry available.
- Includes many features found in higher-priced models, from a powerful stock motor to high grip, low profile tires.
- Accepts hop-ups for even greater performance.

### Turbo Ultima™

For drivers who are ready to move up in performance and durability, Kyosho offers the Turbo Ultima. It has all of the Ultima's proven features, plus over \$350.00 worth of hop-ups — at a price you can afford.

- Full set of 14 ball bearings.
- Special, heavy duty 2mm chassis.
- Race-winning Kyosho ball differential, 4 Platinum Shocks, Heavy Duty Rotary Speed Control, and more!

Dear RCMC,

Recently my son, John and I had the pleasure of participating in the Speedworks Sportsman Cup Race held in Detroit over the Easter holidays. Although mechanical problems and electronic glitches prevented us from placing as high as we thought we could, we didn't go home feeling like losers. To be sure there were agonizing moments of failure but these clearly pale in comparison to the many wonderful memories of this event.

One can not begin to say enough good things about the invitational drivers. Not only did they sacrifice their vacation time but they freely shared many of their heretofore closely guarded speed secrets with us. In addition to speaking in a series of seminars devoted to appropriate topics such as motors, batteries, handling, etc. they also aided individual racers on a one to one basis. One can learn quite a bit about setting up a diff when the master Buddy Bartos is showing you step by step how to do it. The dyno sessions with Kevin Maurer dealing with brushes, springs and chemical sprays were also quite helpful and we can't wait to begin our own testing program with our newly acquired Bud's dyno.

We also learned numerous ways to make a 12L go fast from Tony Neisinger and Rick Hohwart. I thoroughly enjoyed the theoretical

conversations I had with Tyree Phillips regarding roll centers, ride heights, battery chargers, etc. and have come to regard him as not only a fine driver but also a superb engineer in much the same way Mark Donahue and Al Holbert were in full scale. It is also clear from talking with John that he was very much favorably impressed with and helped by Chris Doseck and Terry Rott. In every case when we followed their advice our car's performance improved considerably. Indeed about the only advice that we didn't immediately heed was the Captain's (Chris Moore) to buy a Corally. Obviously this was good advice since this was the dominating 12th scale car in both the Invitational and Sportsman races with Bob "The Bullet" Light and Frank Cassandra being the respective winners.

When talking about the Invitational drivers we must also mention the awesome display of driving skills that they consistently showed lap after lap. Indeed the total number of times that they required marshalling during all eight races could be counted on three fingers despite running in extremely close order and constantly battling for position. One should also comment that both on and off the track the Invitational drivers behaved much more as comrades than combatants and their spirit

of sportsmanship prevailed over the entire proceedings to the benefit of all of us.

The gang at Stoney Creek Hobbies can attest that I spend considerable sums of money on our R/C racing effort. Now that I have had an opportunity to meet firsthand some of the people behind these products such as Ernie Provetti of Trinity and Tim Morton of TRC, I feel much more comfortable about buying their products. For one thing it is clear that the various manufacturers supporting the Sportsman Cup have major R&D programs to assure that the racer is getting top-notch, high-performance parts that really work. It is also clear that they are willing to plow a portion of their profits back into the sport by underwriting events such as the Sportsman Cup. The continued support of such enlightened manufacturers as Trinity coupled with the dynamic and capable management skills of ROAR administrator John Thawley means that the future of our hobby has never been more promising.

I think that everyone who attended will agree that the Speedworks Sportsman Cup race lived up to its advance billing of being the "Racer's Race of 1989." What more can I say except see ya' there next year.

Gary Grove  
Media, Pennsylvania

## Design for Every Driver



The new Ultima Pro is the buggy that Kyosho Team drivers will be winning with at the next championships. Straight from the box, it's fully equipped to take experienced drivers racing through heated competitions in a blaze of glory!

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Whichever Kyosho Ultima design you choose, you'll be in impressive company. Joel Johnson, Chris McElroy, Scott Montgomery, and hundreds of local racers everywhere have filled their trophy shelves by making an Ultima their choice. But there's still plenty of gold to be won. Drive the Ultima designed for your style of competition – and get yours!

The Kyosho Ultima swept First, Second and Third Places at the 1987/1988 IFMAR World Championships.

For an inside look at the hottest Kyosho R/C models, send to the address below for your free copy of the Kyosho Mini Catalog from Great Planes.

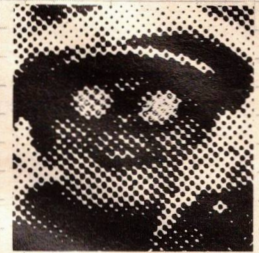
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# READERS' PAGES



This hot 1/10-scale sprint car is from Chuck Frowein, of Fairfield, California, who wrote to tell us that he's invested \$1150 (including the radio) on his RC10 sprint conversion using a Big Boy Toys kit. The radio is a Futaba, and under the hood is a Novak speed control, a Losi Revolution motor, Trinity gears, Advance mags and tires. Chuck's a winner with this beauty!



## DEL SIGHTINGS

Our missing Readers' Pages editor, Del Bagshaw, has been reported by readers to have turned up at the Ayatollah's funeral; the 1/12-scale Nationals in Tempe, Arizona; and Bolivia. As the readers' photos continue to pile up, we only hope that Del is on his way back to work.



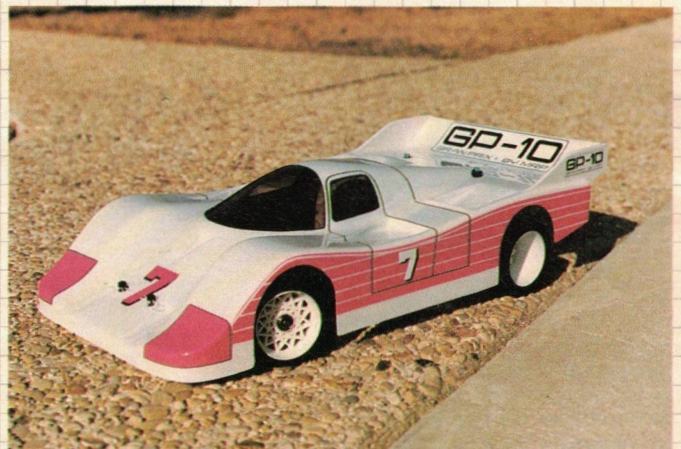
Alfredo Ortiz, of Teresita, Bayamon, Puerto Rico, is the proud owner of this RC10, which won concours honors at the Belen Offroad Internationals in '87. With a Novak speed control, Reedy motor, and bearings, Alfredo is ready to race with this hot number.



This RC10 has a Composite Craft graphite chassis and shock towers. It's from Todd Daly, of Milwaukie, Oregon, who did all the painting. He's sponsored by Property Damage Appraisers. No damage here; Todd gets a free subscription to *R/C Model Cars*.



Daniel Bauza, of the Bronx, NY, says he likes to run his RC10 on a joggers track across from Yankee Stadium. Dan is confident that he can whip any Optima, Hornet, or Ultima in town with his setup.



Brian Forbes built this GP-10 with a Lamborghini body and Trinity motor. Brian airbrushed the body, and says he uses Novak electronics and a Futaba radio. Here's a free one-year subscription to Brian for his efforts.

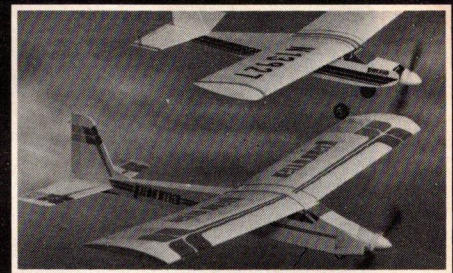
# 25 YEARS OF WINNING SERVICE TO THE HOBBY INDUSTRY



#10254 Cobra Body \$19.00  
 #10450 Body Mounting Kit \$ 6.50  
 Named as one of the top 10 R/C bodies in the world. The Ford Cobra is molded in clear lexan and can easily become a convertible by trimming off the roof, side and rear windows. The Cobra fits any 1/10 scale chassis with the use of a Parma adjustable body mount kit. See it at your local Parma dealer.



#12604 Monster Front Wheel Adaptor Pr/\$6.25  
 Parma proudly announces monster front wheel adaptor nuts. Now you can "stamp out" the local competition with any 2 WD Tamiya car, and other makes. See your local Parma dealer for details.



#25000 Aero-Tiger Basic Kit \$ 59.95  
 #25100 Aero-Tiger Deluxe Kit \$160.00  
 #25500 Aero-Sprint A.R.F. \$149.95  
 Parma takes to the air with these two sport/trainer type electric air craft. On top is the Aero-Tiger, perfect for those who enjoy building a precision kit as much as flying one. It comes in both basic and deluxe versions. Also shown is the Aero Sprint. This plane shares the same gentle flying characteristics as Aero-Tiger but all major assemblies come pre-built. It's Almost Ready to Fly! Look for it at your local Parma dealer.



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 #10640 Oval #2 6x8 \$4.00  
 #10653 Mr. Gasket 6x8 \$4.50  
 #10661 Mr. Goodwrench 6x8 \$3.50

Parma continues to be the leader in colorful self adhesive mylar decals. Shown above are five new releases for 1/10 & 1/12 scale. Winston Cup, Baja, Oval Racing #2, Mr. Gasket and Mr. Goodwrench. Race into your local Parma dealer today and ask to see our entire line.



#1964 1/12 Olds NASCAR Body \$11.00  
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Parma is proud to introduce its 1/12 scale NASCAR '88 Olds. Available in clear. Parma combines excellent detail as well as superb aerodynamics. It fits all 1/12 scale chassis with the use of a Parma universal 1/12 body mount kit. Now available at your local Parma dealer.

## parma NEW PRODUCTS

No.9

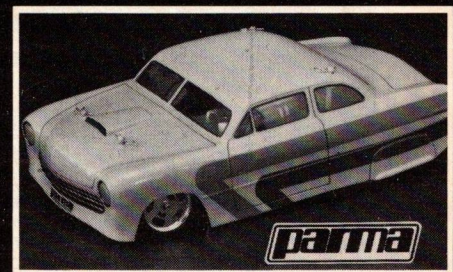


#17031 Front Wheels Pr/\$15.00  
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 #17950 Front Hubs Pr/\$12.50  
 #18051 Rear Hubs Pr/\$13.50

From Parma's full line of accessories include these funny car wheels and hubs for 1/10 scale. The chrome plated wheels will fit Parma's Pro Panther 10 Series funny car and other makes. The hubs are precision machined from solid aluminum to fit Parma's funny car. See them and other accessories at your local Parma dealer.



#17310 98 Tooth \$4.00 #17311 102 Tooth \$4.00  
 #17312 106 Tooth \$4.00 #17313 110 Tooth \$4.00  
 Parma unveils their own 64 pitch spur gears! Molded out of tough nylon composite material, they're supplied in white (but can be dyed any color). An exclusive drive ring carrier/grease pocket design allows for smooth differential operation.



#10266 '50 Ford Custom Coupe Body \$19.00  
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Parma's line of classic bodies includes this '50 Ford custom, chopped coupe. It fits most 1/10 scale cars, with the use of a universal adjustable body mount kit. Look for this, and many other great Parma bodies at your local Parma dealer.



#1356 Valvoline 9x12 \$6.00  
 #1355 Havoline 9x12 \$6.00  
 #10638-A Fluorescent 6x8 \$3.50

Parma's line of self-sticking mylar decals welcomes three new editions. In the 1/4 & 1/8 scale category are, Valvoline and Havoline. For 1/10 & 1/12 scale it's the fluorescent version of the ever popular endless line look for them all at your local Parma dealer.

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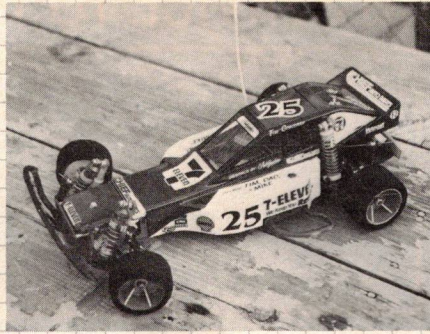
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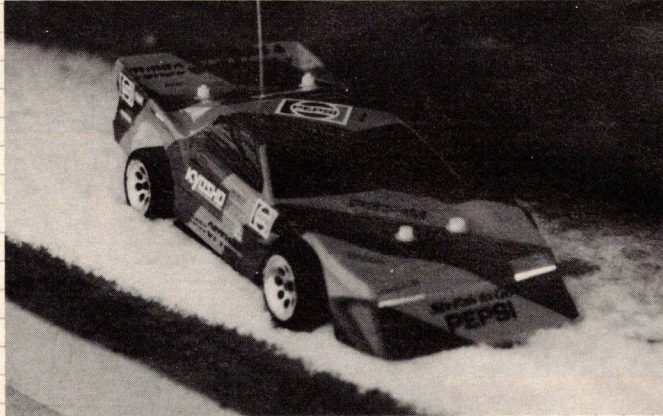
This Blackfoot running over a defenseless Frog belongs to Carl Below, who painted his truck in the University of Oregon colors. The truck is stock throughout, and Carl uses a Futaba radio for control.



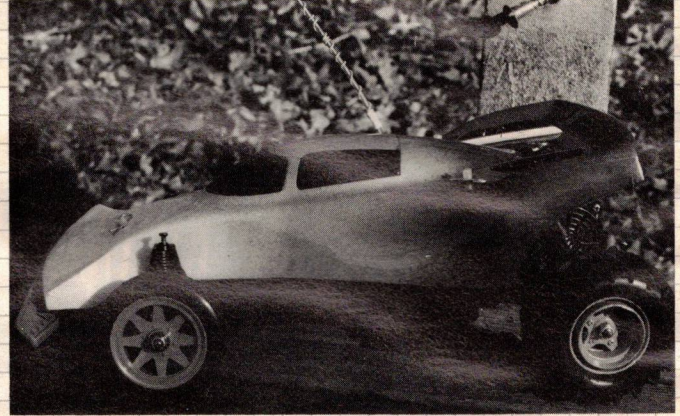
Here's Mike Corcoran's RC10 with a Chenoweth body. Under the body is a Novak speed control, a Futaba radio system, and full bearings. The car, driven by Mike's son Mike Jr., is a consistent winner.



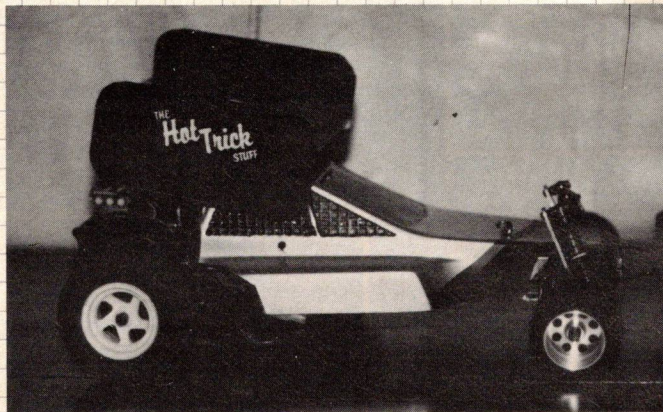
Harlan Harris, of West Bend, Wisconsin, is building a stable of Hardee's racers. Included in the lineup are two RC10s, a Yokomo, and an Optima. Shown here is the RC10 asphalt racer.



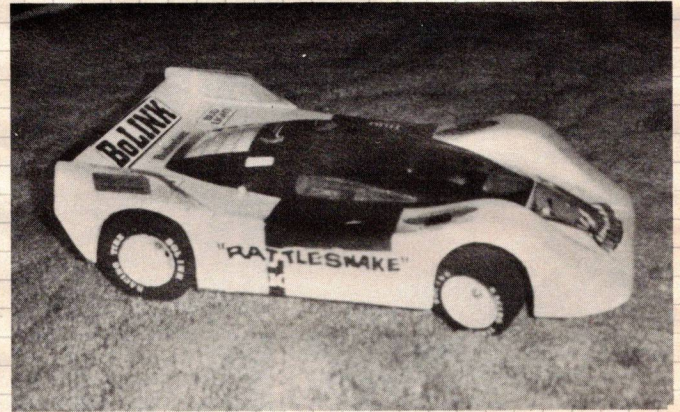
Derek Mesaros, of Battle Ground, Indiana, runs this Turbo Optima RCH conversion with a Reedy motor and a Diamond armature. Controlled by Futaba, the racer has an ASA Camaro body.



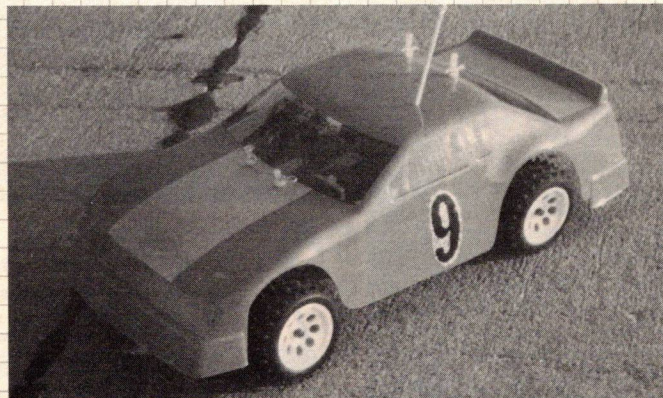
Here's a Rockbuster with a LeMans 360ST motor, ball bearings, Falcon front wheels, and an Aristo-Craft speed control. It belongs to Bill Boynansky, of New York, NY.



Chad Atkins, of Chenoa, Illinois, says this Kyosho Ultima is a first-time project. It has NMB bearings, a Pro-Line body, and a Trinity Monster Horsepower motor. Chad's won first place two out of three times.



John Hopper, from Midway, Pennsylvania, sends this shot of his BoLink Invader with an Associated stock motor, aluminum hubs, graphite axle, and bearings front and rear. It is controlled by a Futaba system.



A Turbo Optima with a LeMans 240SB motor and a Novak speed control is the work of Dick Cade, who along with John Millhone duel it out in hot club competition in Clarinda, Iowa.



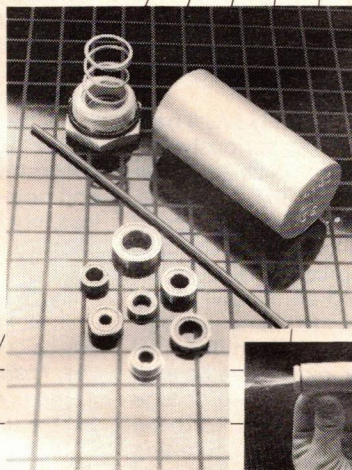
J.J. Weckesser, of Rhinebeck, New York sent us this photo of his Big Brute powered by a Trinity 2000 motor. With bearings and front headlights, a sealed chassis and a handmade lift kit, this is one tough brute, says J.J.

# MCS

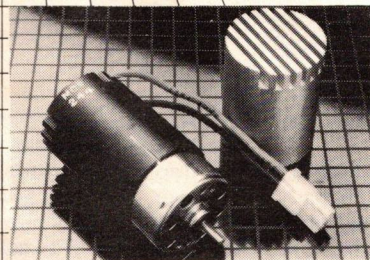
P R O D U C T S



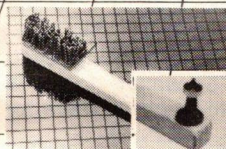
**Portable Parts Washer**  
#8000



**Bearing Cleaner**  
#6021

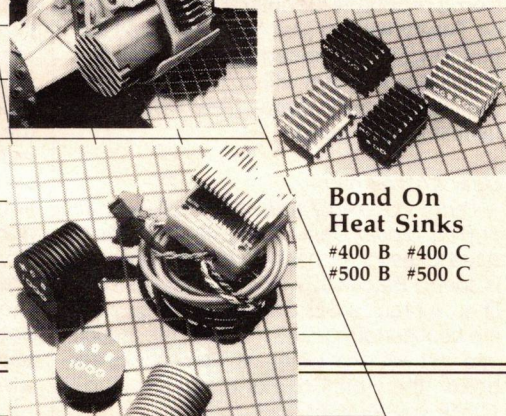


**Motor Cover Heat Sink**  
#244



**Ugly Stick**  
#1111

**Speed Control Heat Sinks**  
#1000 B #1000 C  
#2000 B #2000 C

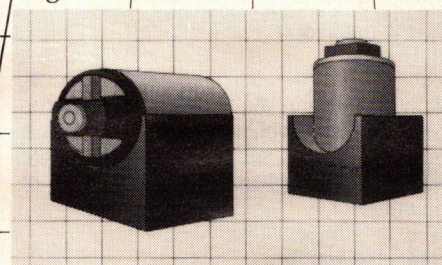


**Bond On Heat Sinks**  
#400 B #400 C  
#500 B #500 C

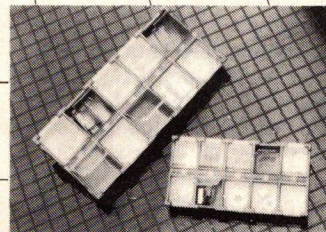
## NEW PRODUCTS



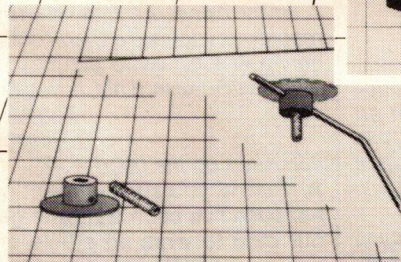
**Dog Bone Straightener & Alignment Tool** #3000



**Motor Block**  
#5000

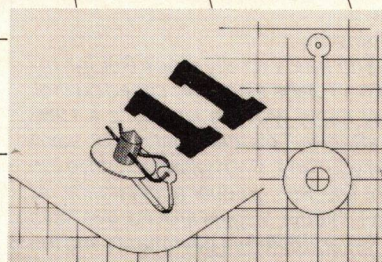


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Dear Answerman,

I am a 13-year-old R/C racer and I race monster trucks. It is a customized Midnight Pumpkin with a lexan body and a Speedworks motor. I am wondering what motor will make my truck the fastest and still be in the stock truck class. And also the fastest-tooth pinion gear. The motor should be in the \$25-30 range.

Robbie Naught  
Washington, Pennsylvania

**A.** Since you plan to continue racing in the stock truck class, your choice of motors is basically limited to stock motors, all of which are in the price range you mentioned. Any of the stock motors from a reputable manufacturer like Reedy or Trinity will do just fine. As far as the pinion gear is concerned, just stick the biggest pinion that will go the duration of the race on your motor. That will be the fastest pinion gear!

Dear Answerman,

I am 14 years old and I love what you write in R/C Model Cars. You give me a lot of good ideas for my cars. What I want to know is, for my Blackfoot, would a Futaba MC11B fit an Airtronics BEC, and would it give me the best performance? If not, tell me a good one that will. And, which oil-filled shocks are better, the Gold Long or Platinum Long? Thank you for your time.

Anthony Michael Maher  
Hines, Oregon

**A.** Anthony, the Futaba MC11B is not the most efficient speed controller, but for applications such as yours, it's a great choice. Unfortunately, it will not be compatible with the Airtronics BEC, as the power connectors are different from the BECs. You will have to change the connectors to make the unit compatible.

As for the shocks, the Kyosho Golds are not only better than the Platins, they are also cheaper! Need I say more?

Dear Answerman,

My friend has a totally stock BoLink Invader with a Futaba electronic speed control. The body came with the kit and is a 1986 Buick LeSabre. This car continually spins out when you run it, even when you drive it in a straight line with gradual acceleration. At about half-throttle, it spins around. We have run it on several different pavements and the same thing always happens. The tires are the same ones that come in the kit. They feel similar to the ones on my car, which does not have this problem. My car is an RC10 converted to a road car.

One thing we were wondering is that maybe air is being trapped under the body and building up pressure, causing the car to lift and lose traction. The car sits very low to the ground and has no way for air to escape from inside the body.

Could you make a suggestion as to what

to do to help us solve this traction problem? Thanks for any help you can give us. Your mag is great. We read it all the time.

Puzzled,  
Terry Keeber  
Coconut Creek, Florida

**A.** Your friend's car certainly has a traction problem, but I doubt seriously that trapped air is causing the problem. However, there are several possible reasons. The Invader's rear suspension is a good design, but it must be completely free from bind to work properly. Make sure that all of the moving parts move freely without any tendency to "hang up." Another thing to check out is the differential slip setting. The BoLink diff can be a bit tedious to set because of the coarse thread on the stud, but it's well worth the time to get the proper setting. Try setting the diff so that it clips a little; this will reduce the amount of wheelspin under acceleration. Finally, for maximum traction, use a traction additive like the Paragon Ground Effects fluid or BoLink's Max Trac tire lotion. By the way, if the air problem bothers you, why not do what the pros do when running stock car bodies? Cut out the rear panel, leaving only the taillights, and you'll have somewhere for that trapped air to go.

Dear Answerman,

I am new to radio-control racing, and am about to purchase an offroad car. I've been looking at the Kyosho Raider. Is this a good choice and does the LeMans stock 05 motor supply sufficient power? Thanks and keep up the good work.

Jimmy Shulch  
Talladega, Alabama

**A.** Yes, Jimmy, the Raider is one of the better entry-level, offroad cars on the market, and yes, the LeMans stock motor will give a beginning racer plenty of power.

Dear Answerman,

I was wondering which car is faster between the Tamiya Falcon and with an RX540SD motor and a Kyosho Raider 2WD with a LeMans stock 05 motor. Also, would it be possible to put a LeMans 240S motor in the Raider?

Now, referring to Vince Ducato's letter in the April issue, my cousin and two of my friends have the Golden Arrow and it is the fastest car I have ever seen. It has beaten a stock Tamiya Falcon and a modified Blackfoot and a modified Monster Beetle, all by at least 5 feet. The Blackfoot my cousin raced had a LeMans 240S motor in it. My cousin also raced his Golden Arrow at a local hobby shop's track and came in fourth out of about 30 cars.

Dean Ferraro  
Pittsburgh, Pennsylvania

**A.** Since the Falcon and the Raider are both entry-level, offroad cars, and given the similar power output of the RX540 and the LeMans 05, I would rate the speed of both cars as nearly equal. Keep in mind however, that all out speed is not the only objective in offroad racing.

As for the Golden Arrow, I have no doubt that the car is a fast racer. My concern is the lack of support in replacement and hop-up parts for the car. Nevertheless, my hat is off to your cousin for his effort.

Dear RCMC,

I would like to know if you could tell me where I may be able to order a gearbox for the Yokomo Dogfighter, and their 1/12th scale tires. If you have this information, please send to Bel-Air Hobby c/o Steve Lichtenberg, 12100 West Center Road, Omaha, Nebraska 68144. Thanks for your time.

Steve Lichtenberg  
Omaha, Nebraska

**A.** Steve, the sole U.S. importer of the Yokomo product line is Associated Electrics. Have your hobby supplier contact them for the parts you need.

Dear Answerman,

I am 11 years old. I want to get a radio-control offroad car. It must be under 75 dollars. How about a Futaba FX10? What other cars could you suggest in my price range? Thank you.

Ryan Welch  
Treasure Island, Florida

P.S. Your magazine is great!

**A.** The FX10 would be a good choice for outright beginners like yourself. Other cars that you may want to consider include the Minicraft Lazer and the Traxxas Cat.

Dear Answerman,

I'm the owner of a Traxxas Bullet and I just recently purchased a Blackfoot. I was wondering where I could purchase a trailer to carry the Bullet in. If not, how do I build one?

Tommy Nicholson  
Jasper, Alabama

P.S. Keep up the good work!

**A.** Funny you should mention trailers, because I've been trying to get a guy in our club to write an article on building custom race car trailers for concours competition. At the present, I'm not aware of any trailer manufacturers, so I guess you'll have to wait for the how-to article to come out!

**DO YOU HAVE A QUESTION** for the Answerman you'd like to have answered? It's easy, all you have to do is send your question to Answerman, R/C Model Cars, 898 W. 16th St., Newport Beach, California 92663.



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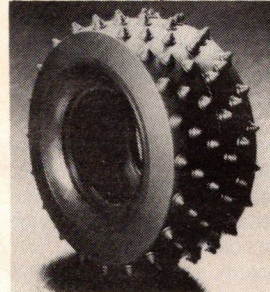
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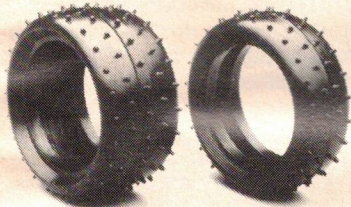


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**MONSTER PADDLE TIRE**

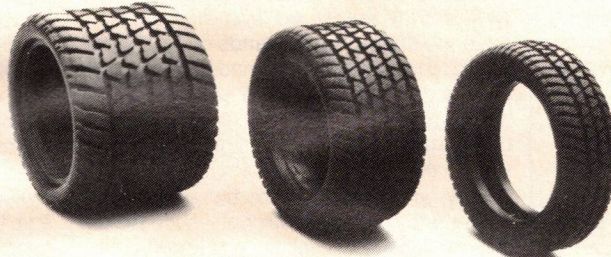


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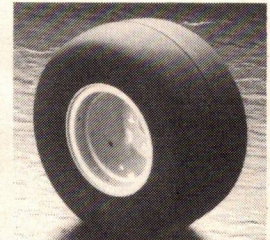
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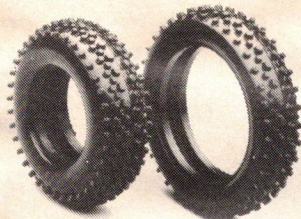
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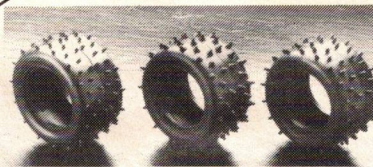
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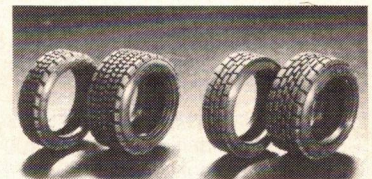
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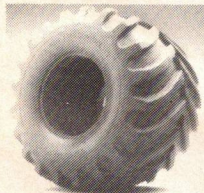


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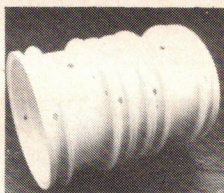
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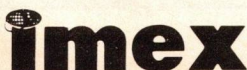


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## THE RIGHT CONNECTION

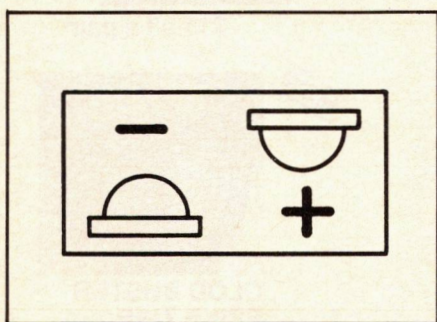
**P**lugs, for battery and motor connections was the subject covered here last month, and we are going to continue on the same vein this month. This is an important subject, both because the proper selection and installation of these little insignificant-looking devices will make a lot of difference in the operation and reliability of the vehicle, but also because it is in the installation of plugs that the average R/C car fan shows his true workmanship skills. (Or lack of them, which probably happens more often than not!)

The first plug we are going to talk about this month needs little introduction, it is:

**AYK/RACE PREP's** little orange square-looking male/female pair. I have not seen any actual resistance measurements of this connector, but it has all of the physical requirements for a low resistance, high efficiency unit: large contact area, positive pressure, and what appears to be gold plating on the pins and solder lugs. It is small and lightweight, and properly used it probably should do its intended job extremely well.

Properly used—that is the key—the weak link in this plug system is the same as that in a lot of others, it has to be soldered-in by the user.

Does it sound like I am some kind of a bug on proper soldering, or maybe too hard on those that are not quite experts at it. Probably! Proper soldering is an essential part of R/C car racing and is actually such a simple thing to do correctly. My opinions are not without reason, as I have seen and handled thousands, yes thousands, of these poor plug installations for which the owner blamed something else including the parentage of the designer of the speed control for its resulting improper operation. Less than a week ago, as I write this, I had in my hand one of these AYK/Race Prep plugs with a complete solid solder bridge across both lugs. Being on the motor side, it had shorted out and killed the speed control, which was then sent in for repair "under warranty."



Proper orientation of the wires on the AYK/Race Prep connector plugs results in correct alignment of the wires and a better-looking installation in your car.

I discussed the proper techniques for soldering the heavy wire we use to this type of plug last month (July). If you missed it, it is worth digging up a copy and reviewing the procedures. Same as with most other solder-on plugs, neatness and insulation count! Figure 1 shows the attachment of a wire to the female part of the plug. Note again the complete covering of soldering on both the wire and the solder lug, and the complete absence of any loose strands of wire. Electrically, this is a perfectly made connection, but not so mechanically! It was made this way purposely for clarity in the photograph, but actually, the wire should go on the other side of the lug.

Why, you ask? Just so things will look neater and more professional—such things do worry the competition, you know! Refer now to Figure 2, which shows the rear of the Race Prep connectors. Notice that the lugs are off center, towards the edge on both terminals, and further, are marked with a Positive (+) and Negative (-) terminals. If the wires being attached to the plug are soldered

on the edge side of it, it will make a bulky-looking package. Soldered towards the inside, the wires line up automatically, and your entire male/female connection will look a lot neater. Figure 3 shows the finished job, complete with shrink tubing over EACH solder lug, and another piece over both wires simply to keep them together.

Ready to go run? Well, not quite, there is a caution that must be observed with this connector. It is well polarized, and you can not plug it in backwards, no matter how hard you work at it. But, you can TOUCH the conductors together, and in the case of the battery to speed control connection, that will amount to a \$30 mistake. That is about what it will cost to repair the instantaneous damage. Don't even try to talk around it when you send the ESC in for repairs; reverse voltage damage is obvious and it doesn't help to say that you only touched the two pieces together for a couple of seconds. Electricity travels at the speed of light, and by the time you realize that you've made a mistake its been too late by a lot of electrons. I see

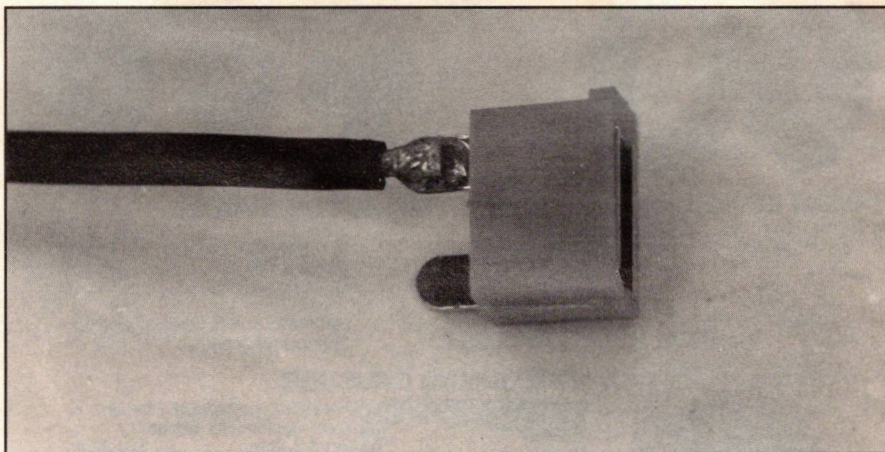


Figure 1.

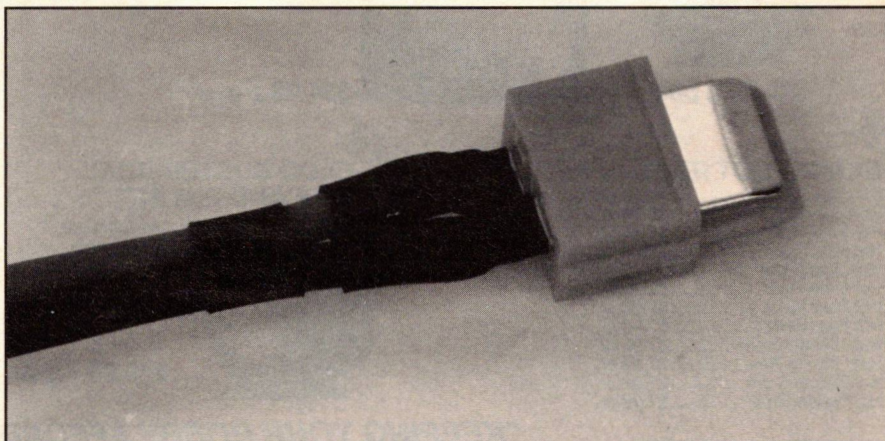


Figure 3.

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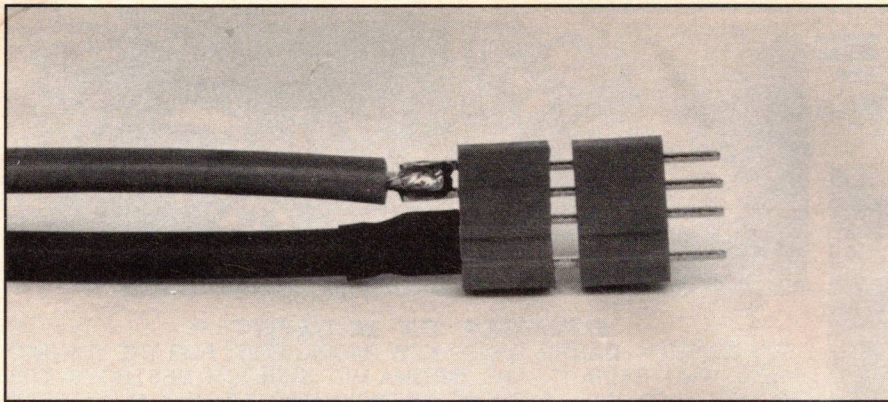
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When properly connected and soldered, the complete Deans Plug should look like this, with shrink tubing on both sides, of course. This popular plug was recently redesigned.

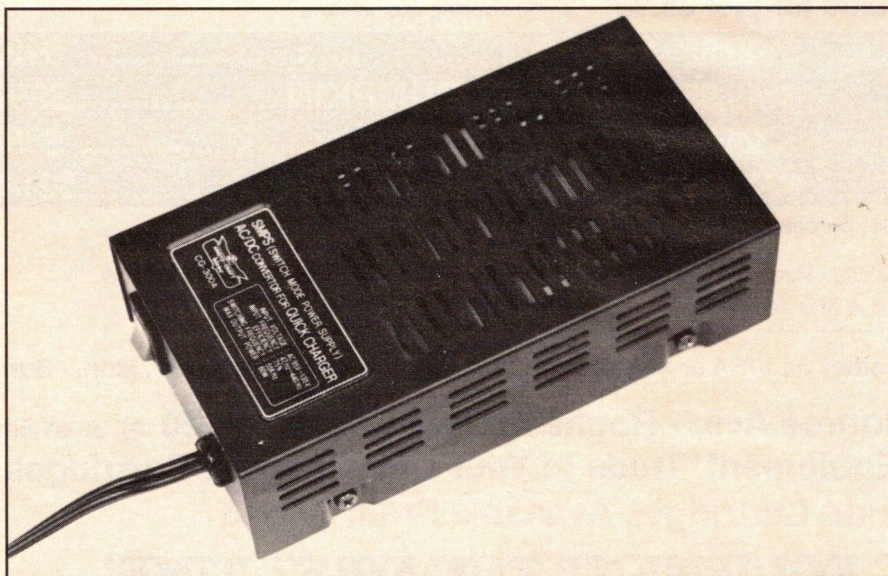
attempts to further polarize these plugs by painting matching surfaces, filing or cutting notches, etc., and it probably all helps. However, if you followed the polarity markings on the back of each plug, and if you are also properly color coding the wires themselves, you have an obvious clue to the proper connections: the wires themselves line up, color to color. That is, the black wire connects to

the black wire; red wire connects to the red wire; foot bone connected to the, oops, that's another story, but you get the idea. (In case you didn't, correct polarity is important, incorrect polarity is FATAL!)

**THE DEANS PLUG:** an old time favorite. In its original form, the connector goes back quite a number of years, to the days when servos all used four wires. Believe it or not,



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there was a time when they had even more. Believe it or not #2, R/C did not start with the RC10! But when the RC10 and others came along, the four-pin Deans plug, no longer needed for three-wire servos, was given a new lease on life. It quickly became popular for power connectors, due I suppose more to its small size and neat looks than to anything else. Even with its small pin area, by doubling up on the pins for each conductor, it does well in the contact resistance race, probably due to a tight fit and plated pins. However, it does share the same problems as the Race Prep connector just described, it has to be soldered in and is subject to reverse connection.

The original four-pin Deans plug favored for R/C car connections had three pins on equal spacing, and the fourth one, intended to provide mechanical polarization, is placed outwards a few more thousandths of an inch. There is also a small "U" groove in the bodies as an aid to proper orientation. Refer now to Figure 4—in attaching the wires to the pins, both parts are tinned and then the wire is soldered *between* the pins. Again, shrink tubing of the proper size is a must, and if neatness counts with you, another piece of tubing can be used to keep the wires together.

Recently, a new Deans four-pin plug was introduced, and it is that one which you see in the photograph. This Deans is red, has a shallow "U" notch for orientation, and has the fourth pin spaced out even further away for better visual alignment before the two parts are mated together. Both the groove and spacing help to insure that properly polarized connections are made, however the pin spacing on the one side is now a little too wide for ease of attaching the wire. It is not impossible, you will just have to be a little more agile with that soldering iron.

A reminder is in order. Don't try to solder the wire to this connector, or any other, for that matter, with it floating around on your workbench or in the car. Sloppy-looking, improperly soldered connections will be the results, with poor efficiency and reliability. Use a small vise, or at least tape the pieces to something so they will remain firm and unmoving while the solder is applied and while it cools.

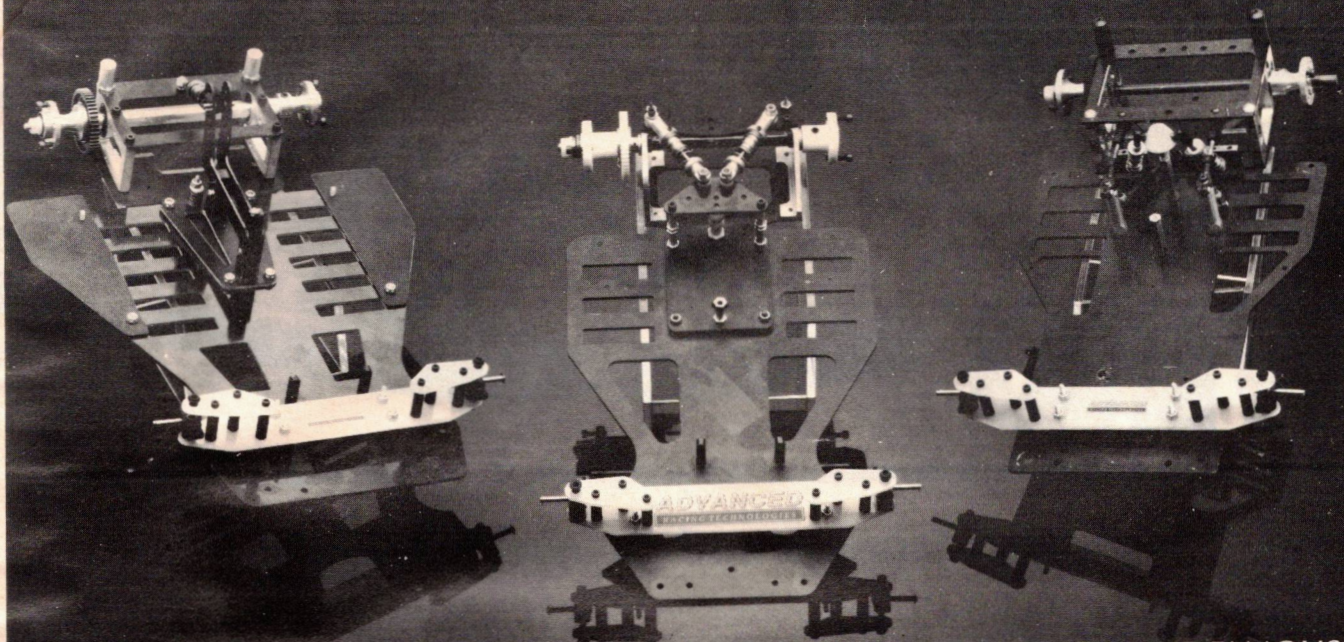
This new Deans connector is not easily mated together incorrectly; however, if you really work at it, you can touch the contacts together enough to cause some damage. As in the previous example, the use of color-coded wires and constant reference to them as the plugs are mated together should eliminate any reverse voltage connections.

Before we conclude our visit with AYK/Race Prep and the W.S. Deans Company, one more reminder is in order. When making up your wiring harness, be sure to attach the female plug, the one with the connections inside the plastic body, to the leads coming from the battery. In that manner, there are no exposed "hot" pins sticking out and looking for something to short against. Another reminder: select the plugs so that you can plug the motor directly into the battery for testing purposes.

New products are always of interest, and

*Continued on page 75*

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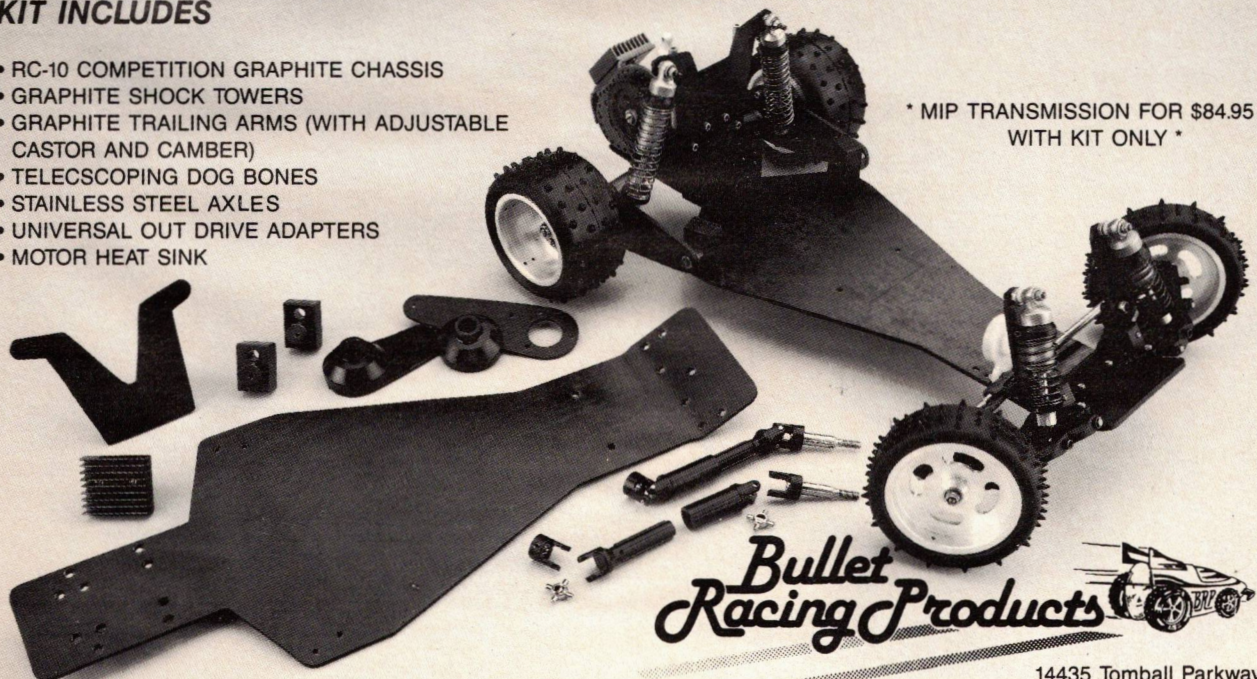
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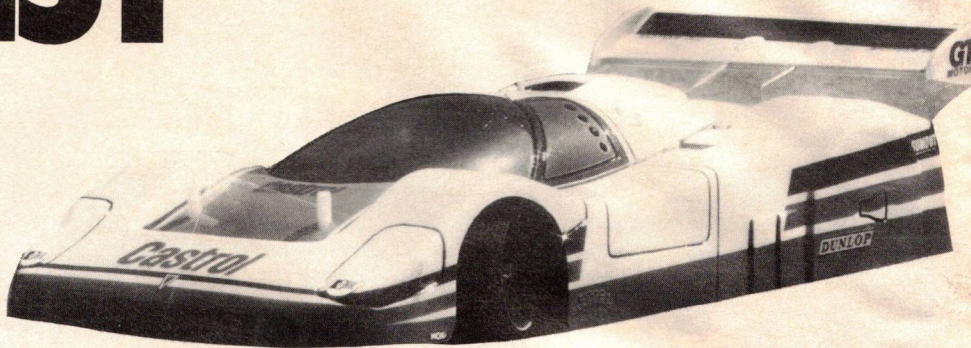
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# AGAINST THE WIND



## *Aerodynamics and the R/C race car*

BY MIKE LIEM

**P**utting a swoopy new McAllister Jaguar GTP body on my 1/10 onroad racer gives me great satisfaction from an aesthetic as well as functional point of view. Not only does the body look absolutely bitchin', but I know it works, too, because of the hundreds of hours of aerodynamic research that went into the development of that good-looking shape.

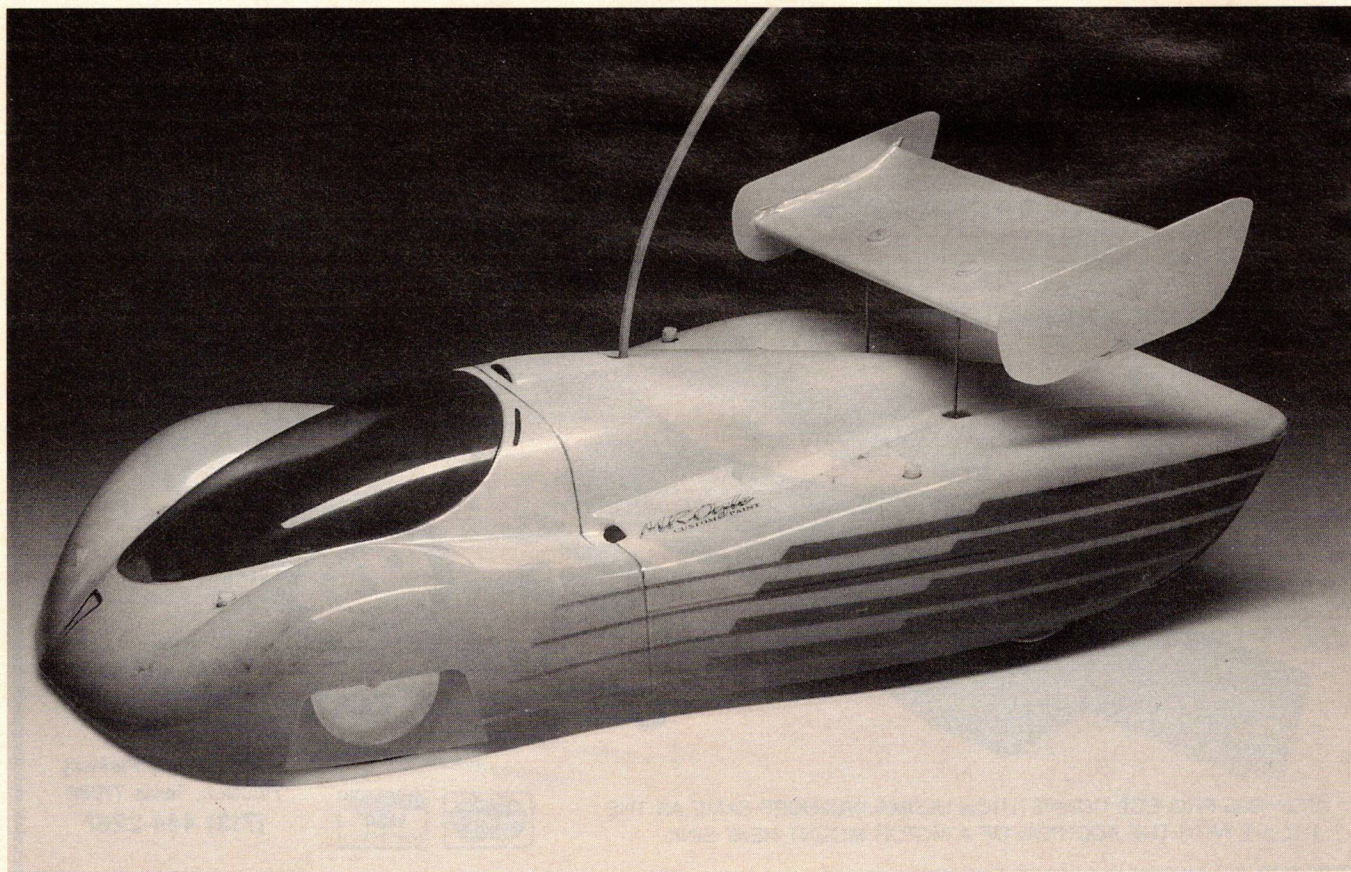
No, Gary McAllister didn't spend all those hours in the wind tunnel. But the Jaguar engineers who developed the full-size cats sure did. And the Jag's slick aerodynamics

is one of the reasons it can compete head-to-head with cars like the Porsche 962 and the Nissan GTP-ZX, which pack a lot more horsepower under the hood. That, my friend, only serves to emphasize the importance of race car aerodynamics, whether full-size or scale.

The first step in model race car wind management (!) is mounting the body on the car. There are no if's, and's, or but's about this; mount the body as low to the ground as possible. The lower the body is mounted, the less air you'll have slipping under the car. Air

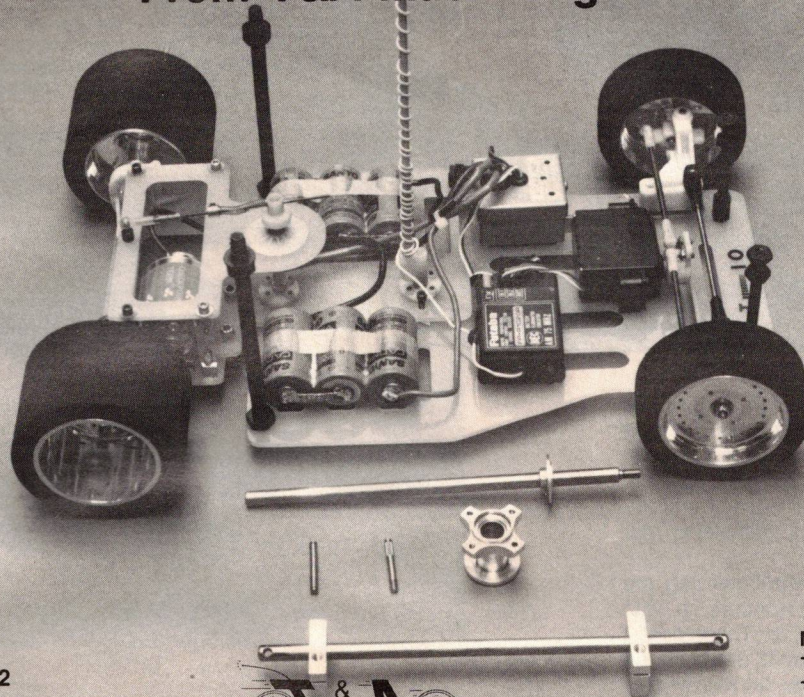
under a moving vehicle develops a condition called lift, and lift is an aerodynamic no-no as far as race cars are concerned. When cutting up a new body to fit, try to leave enough lexan along the front and sides of the body to protrude past the bottom of the chassis and act as "skirts" to block out the air. As a rule of thumb, if the body doesn't scrape the ground at any point on the race track, it's not low enough. Mount the body so that it touches the ground when you push down on the car and compress the suspension fully.

Now, what do you do with the air that does



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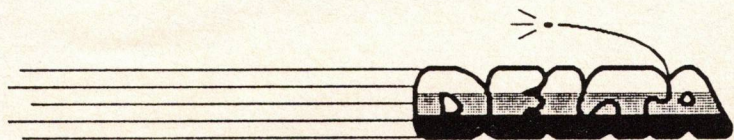
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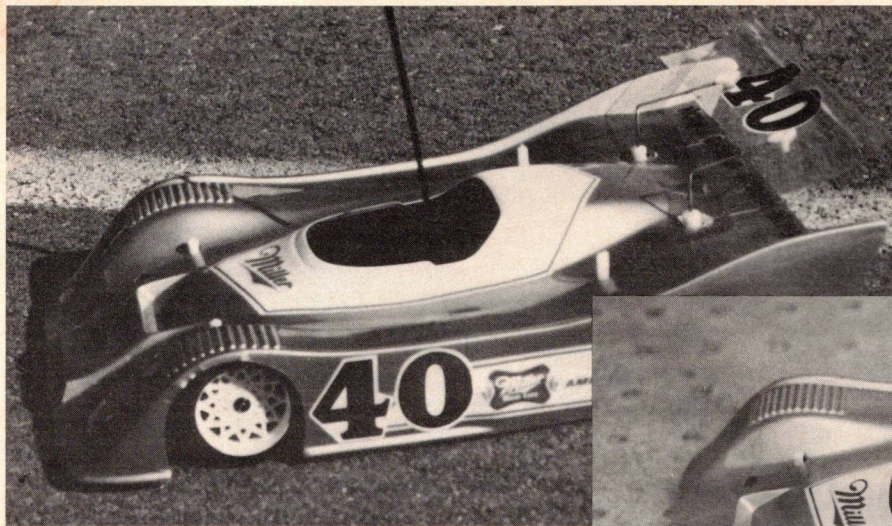
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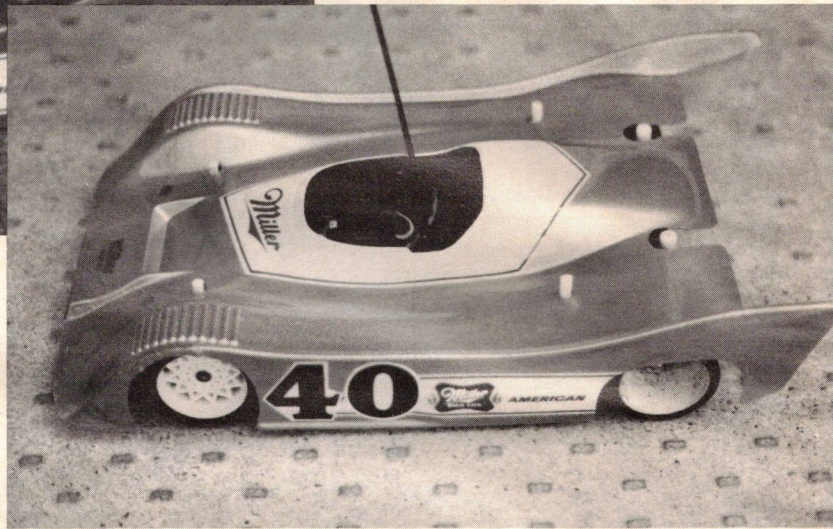
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Left: a low body and a high wing are ideal for maximum downforce. Below: Note how much of the rear spoiler area on the author's Toj body has been cut out. The twin slots around the wing mounting buttons allows the removal of the body without taking off the wing.



slip underneath the car? You let it out, of course. The best way to do this is to cut away the entire rear panel of the body to make a big rear exit. If you must, you can leave the rear taillight and radiator area intact. But do cut away the remaining rear panel.

Some bodies, like the McAllister Jag, are intended to be run like the real cars, i.e., with the rear wheel well covers on. Theoretically, this is a good idea, as it cuts down on the turbulence created by the turning wheels and tires. However, many racers find the wheel covers an inconvenience because it prevents them from making quick differential adjustments. It also makes for a rather nasty-looking paint treatment when you hit the wall sideways.

Now that you have the body mounted in ground-hugging fashion, we need a wing to make that sucker really fly. No, that little spoiler at the back of the body isn't going to do you any good. Lexan is such a flexible plastic (at least the thin lexan used in molding R/C car bodies) that any downforce created by the spoiler is lost in all that flexing. Ditto for those silly wings that some guys mount on

the bodies of their cars. To make the wing work, it must be mounted on the car, so that the downforce is generated on the car, not the body.

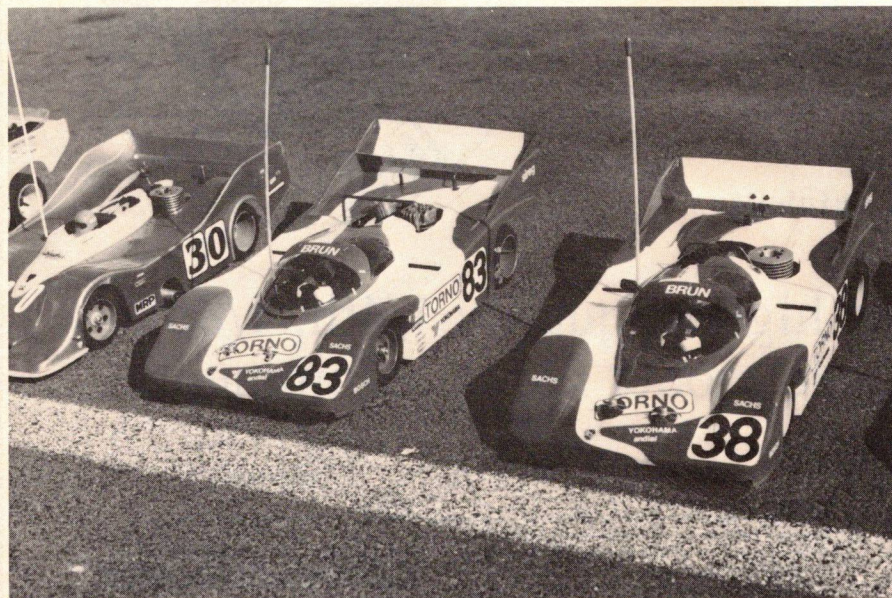
How should you mount the wing? The wing is most effective when mounted as high up over the car as the rules permit. What this does is get the wing in the "clean air area" rather than in the wake of the moving air that passes over the bodywork. Mounting the wing up high does not create additional aerodynamic drag, but it does enhance its functions because the wing needs air to flow over and under it. To further improve its effectiveness, you should also cut

away the rear spoiler if your car's body is molded with one. This will allow the air to flow more freely under the wing.

One aspect of the wing that determines the amount of downforce it produces is the wing angle. The more angle, or rake, you have on the wing, the more downforce you'll get. Since most race car wings are already elliptical in shape, you don't really need too much of an angle to obtain sufficient downforce. A wing angle of 10 to 20 degrees is usually plenty. Remember, a consequence of too much of a wing angle is excessive drag. If you need more downforce, try moving the wing toward the rear of the car a bit more.

The latest trend in wing design is the so-called "bi-level" wing, which was developed by Bud Bartos of Bud's Racing Products. The bi-level wing combines a single-plane wing with a movable spoiler that can be adjusted angle-wise. The advantage of a bi-level wing is that it can be run fairly flat and still generate enough downforce and stability. On the negative side, it's a little more fragile than a regular wing and more likely to break in a rollover situation.

One last note about the wing concerns the mounting process. If you do run one, make sure it's mounted securely. You can have your car hooking up like Velcro on a tweed jacket, and have all that handling go away because the wing fell off the car. If your car is equipped with wing tubes, put a good kink in the wing wire ends to hold them in place. Some of the newer 1/10 onroad cars have wing mounting buttons instead of tubes, and the task of having to secure the wing wire with setscrews is about as convenient as changing a flat. But, it's better than having that wing part company with your car just as you're catching the first-place car on the track. . . .



These replicas of the Brun Motorsports Porsche 962s had to be seen to be appreciated. It's almost a shame these bodies had to be raced to qualify for concours competition. The 1/8-scale 962 body has excellent aerodynamics.

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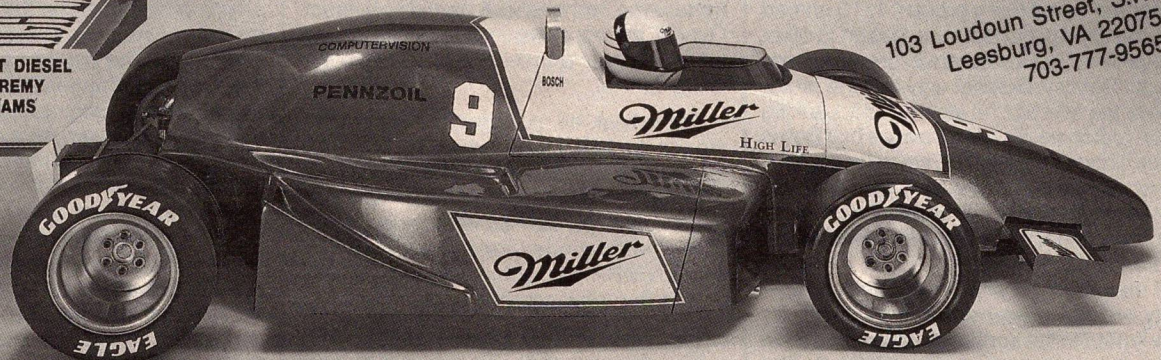
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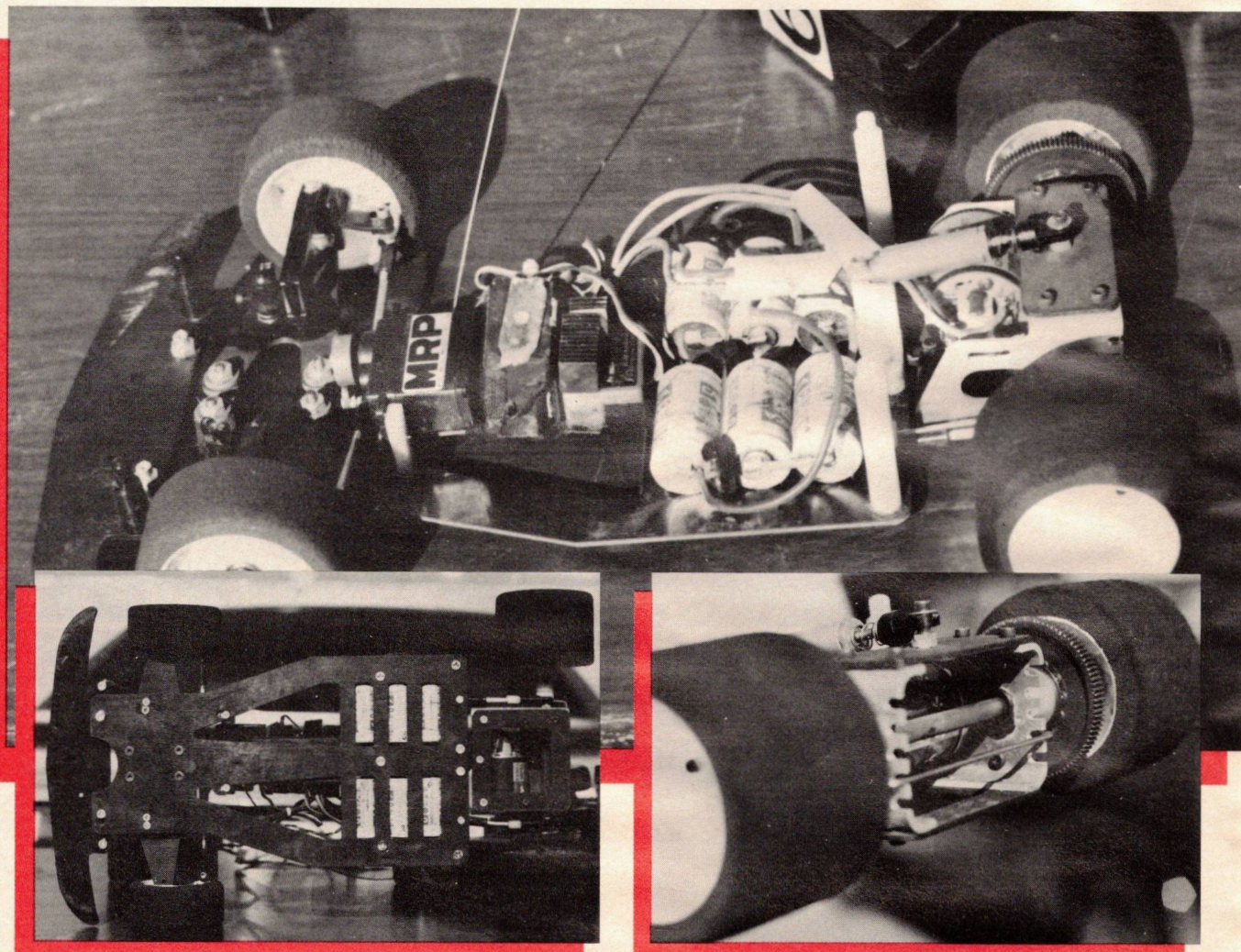
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# MRP's PROTOTYPE ROAD RACER



**T**he last time I talked with Bob Welch, the head of R & D at Model Racing Products, he told me that the preliminary design for a new 1/10 onroad racer has been established. At that time, all he could tell me was that the new car would be a radical departure from MRP's present 1/10 onroad car, the GP-10, but similar in design to other competitive cars in this rapidly growing class.

Last Sunday, Bob not only had the prototype of the new car, he also raced it. Looking at the prototype, it's quite obvious that Bob is determined to put MRP on equal footing with the competition. Judging by its performance, it's evident that Welch Prototfab (Bob's moniker for his research and development team) had done its homework.

If the prototype shares any design similarity with its predecessor, the GP-10, it's only limited to the front suspension. And even then, the execution is very different. The prototype retains the GP-10's swing arm

front suspension, a proven design that yields good handling and exceptional tire wear characteristics. Instead of fiberglass, however, the arms are now made of a thick graphite composite. The coil springs used are bigger than the GP-10's, and gone is the transverse mono-shock damping system. Overall, the front suspension appears to be lighter, simpler, and more effective than that of the GP-10.

At the rear, an aluminum power pod replaces the bulky nylon unit. The rear suspension is Bob's own design. Utilizing a single ball-joint and an anti-roll bar to locate the pod, Bob has devised yet another version of the floating pod rear suspension. The proven MRP ball diff is now lighter, too, thanks to a new graphite axle.

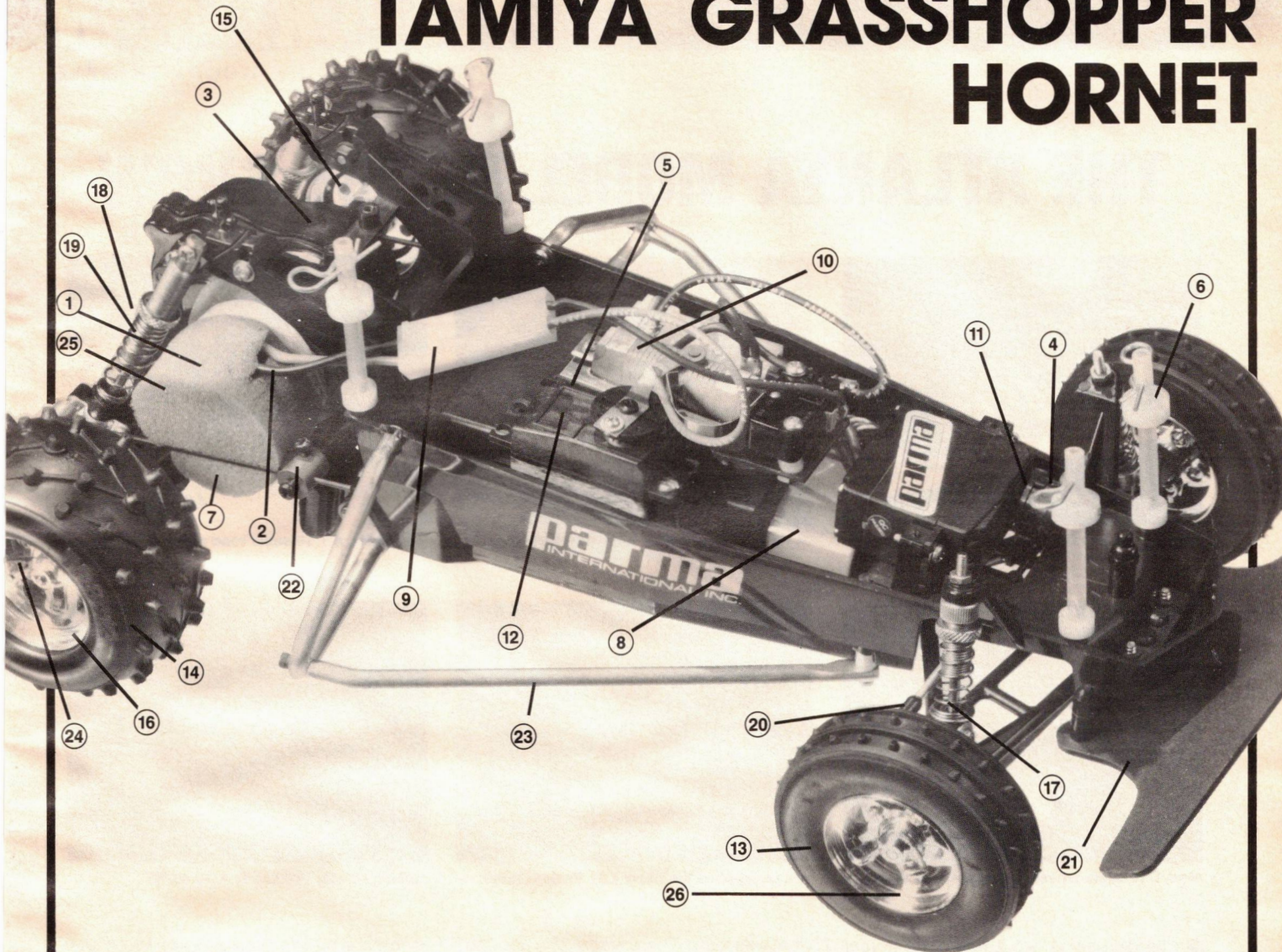
The main chassis of the prototype is a single-plane graphite unit with saddle-type slots on either side. The car can also be run

with stick-type battery packs with no significant changes in handling and performance.

Since Bob and I raced in different heats last Sunday (save for the mains), I was able to see Bob put the car through its paces. It should be noted that Mr. Welch can make *anything* look good on the track. But it was no secret that the prototype was really hooked up. The car was very consistent in the corners and appears to be quite forgiving as well. Not that Bob makes a lot of mistakes, mind you! However, he did say that it was much easier to drive than the GP-10.

Although Bob couldn't tell me when the production version of the new car will be made available (MRP is currently swamped with its electric boat production), he hoped that the growing popularity of 1/10 onroad will help speed things up. The only thing I can tell you now is that when the new car is finally produced, you'll read about it first in these pages!

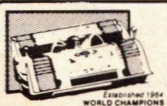
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①	4042	Motor capacitor kit	\$ 2.00	⑭	12023	Rear "V" spiked tires, 1-1/2"	Pr/\$ 6.95
②	4050	Silicone hook-up wire	\$ 2.50	⑮	12110	Aluminum rear hubs	Pr/\$18.00
③	6000J	17 tooth machined steel pinion	\$ 4.00	⑯	12111	Rear chrome wheels, 1-1/2", 3 pc.	Pr/\$ 8.00
④	8038	"Super Gripper" hood pins	6/\$ 1.50	⑰	12601	Front shocks for Grasshopper/Hornet	Pr/\$16.50
⑤	8055	Servo tape 1" X 3 ft.	\$ 2.60	⑱	12610	Rear Frog shocks	Pr/\$17.00
⑥	10450	Universal adjustable body mounts	\$ 6.50	⑲	12641	Progressive rear springs	Pr/\$11.00
⑦	11011	"Cool Filter" end bell cover, foam	\$ 2.75	⑳	12827	Rod end kit for Grasshopper/Hornet	\$ 6.50
⑧	11250	6 cell matched Sanyo SC pk w/female plug	\$30.00	㉑	13202	Skid plate bumper for Frog	\$ 4.00
⑨	11500	Heavy duty Tamiya/Kyosho connector set	\$ 2.10	㉒	13224	Rear adjustable anti-roll bar	\$13.00
⑩	11518	Assembled resistor control with reverse	\$24.00	㉓	13277	3 pt. aluminum side nerf bar	Pr/\$25.00
⑪	11810	Universal servo saver	\$ 5.00	㉔	13626	Chrome plated "knock-off" nuts	4/\$ 3.60
⑫	11850	Servo with Futaba plug	\$20.00	㉕	14024	Cyclone stock motor	\$28.00
⑬	12011	Front spiked narrow ribbed tires, 1-1/2"	Pr/\$ 7.95	㉖	12105	Front chrome wheels, 3 pc	Pr/\$ 6.25

## OTHER PARMA PARTS NOT SHOWN

8039	Quick-clip bent hood pins	4/\$ 1.50	12104	Front gold, 3 piece wheels	Pr/\$ 6.25
8047	3" tie wraps	12/\$ 1.75	12106	Front, 2.1" front wheels	Pr/\$ 6.00
10213	Grasshopper, clear body	\$13.00	12107	Front track adjust. wheels	Pr/\$11.00
11010	Dust cap motor cover	\$ 1.75	12108	Rear gold, 3 piece wheels	Pr/\$ 7.00
11011	"Cool Filter" end bell cover	\$ 2.75	12112	Rear wheels, 2.1"	Pr/\$ 7.50
11501	Pre-wired Tamiya/Kyosho connector set	\$ 3.00	12868	Front dual wheel adaptors	Pr/\$ 5.00
11515	Resistor speed controller without reverse	\$15.00	13002	Rear dual wheel adaptors	Pr/\$ 7.00
11801	Vertical whip antenna with mount	\$ 2.50	13211	Full width bumper	\$ 4.50
11802	Horizontal whip antenna with mount	\$ 2.25	13625	Wheel knock-off nuts	6/\$ 2.40



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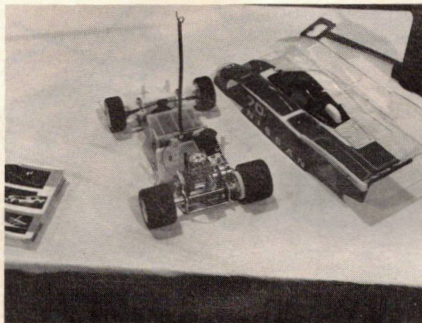
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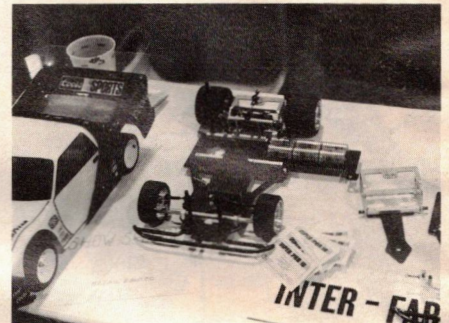
## THE ATLANTA MODEL HOBBY SHOW



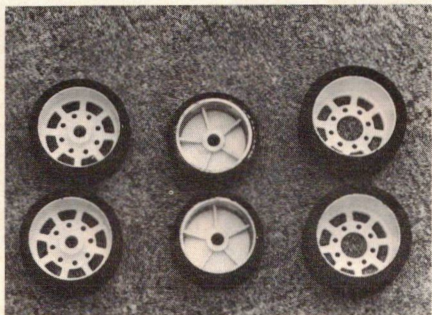
1/10 car bodies from Motion Graphics.



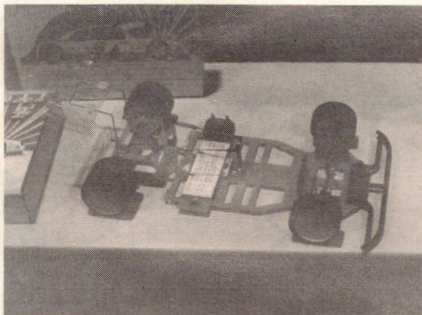
A new 1/12 gas racer from Cox Hobbies.



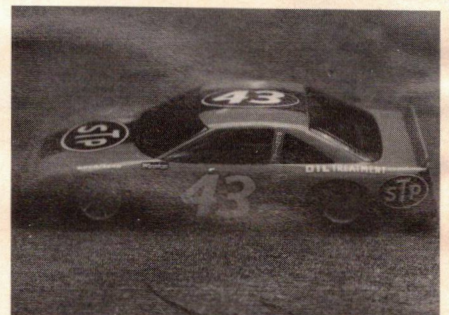
The Viper, a 1/10-scale road racer by Inter-Fab.



New 1/12-scale wheels available from BoLink.



A hazy shot of the Lazer Lite Enduro racer.



BoLink's Petty Pontiac in 1/10 scale.

It hardly seems like it has been a year since the first IMS was held in Atlanta, Georgia. But, on May 13 and 14 approximately 140 exhibitors displayed their wares to the public. The exhibitors included displays for model planes, boats, cars, and trains as well as all sorts of support equipment such as radios, batteries, and electronic accessories and tools. The exhibit featured an indoor boat pond, an indoor racetrack for cars of all scales, as well as a radio-controlled blimp and rubber-powered aircraft demonstrations.

Needless to say, the area in which I spent my time was concentrated around the radio control cars. I will have to admit that when the gas-powered cars started up, huge crowds gathered to watch. The car demonstrations included road cars in 1/10 scale gas, 1/8 scale gas, 1/4 scale gas, and 1/10 scale electric. In fact, there was an actual race for the 1/10-scale electric cars during the two days of the show.

Somehow during the process of going through the show, I flipped the switch for the flash on my camera and most of the pictures that I took turned out to be the same picture; that of the inside of a coal mine at midnight. Hopefully, however, I can relate some of

what was there. There was a lot to see and if you missed it you will have to wait until next year. It is like finding a giant hobby shop to browse in.

I really don't know where to start. But I will start with the first exhibit that I saw as I entered. That being the Total Racing Connection (TRC) booth manned by Tim Morton. TRC was displaying their PRO 10 race car as well as their world-class wheels and tires. In addition, TRC, as one of the importers of the Schumacher Cat (4-wheel drive) and Top Cat (2-wheel drive) cars, had several of them on display as well. A new product that TRC is developing, and had a sample of on display, is a new style of 1/10 scale onroad tire. They have a rubber compound over the normal foam-type tire. A couple of weeks ago I had the opportunity to try a set of the pre-production tires and they really worked well. Tim told me that their testing at the Peachbowl track in Snellville, Georgia (Atlanta) was resulting in an approximate gain of two laps.

The Inter-Fab folks were there with the Viper Pro 10 car. It is a good-looking electric 1/10 scale car. I talked to them for a while and they have both an enduro car as well as the regular car.

Joel Mullins, of Advantage Products, was

displaying his 1/10 scale gas-powered race car, the Advenger. The car is designed to use a .11 gas car engine. It looks very similar to the 1/10 scale electric except for the motor and gas tank.

Speaking of gas-powered cars for a minute, there was also a 1/12-scale gas car on display by Cox. Their representative said it should be out sometime this summer. It was lightweight and looked good. Brought back memories of the start of R/C racing with the Jerobee cars.

BoLink was there with an impressive display of products ranging from tires to complete car kits. In addition to their line of Eliminator race cars in 1/12 and 1/10 scales, they have an impressive line of bodies. Kerry Johnson showed me their new releases which include bodies of the Chevy Lumina, Chrysler Lebaron, 1940 Ford truck, and an outlaw wedge. New parts for the Eliminator 10 include a new differential, graphite "T" plate, motor mounts with adjustable ride height adjusters, a ball suspension kit, and a graphite king pin brace. I will have more on these items in a future article. In addition, they were displaying some new, lightweight style wheels also for 1/10 scale. These wheels not only are lighter than their original style, they look good.

This month's body of the month is a BoLink

rendition of the Richard Petty Pontiac. It features real Petty paint. In color it looks like the real car!

While I am speaking of bodies, the folks from Motion Graphics were there with a really tremendous display of 1/10 scale paint jobs. In fact calling them paint jobs is probably an insult, as they were really something to see.

To help you detail your car you will need decals. Pro-Cut Decals has one of the most complete selection of NASCAR-style decals that you can find.

Parma, perhaps, had the most active display of the show. There was a crowd there the whole time. I wish my pictures had turned out as they pulled no punches on this display. They had a tower above the display floor from where you could see out over the entire crowd. Their display seemed to feature all their products which is considerable, ranging from decals and accessories to complete car kits. In fact they had an operating slot car track which really got a workout. Paul Marziani showed me their new items, one of which was a 1/10 scale trailer and van and many others. They were showing their line of drag cars as well as road race cars. They had some superbly painted bodies, especially a 1967 Pontiac GTO and a blue and gray '33 Ford coupe. If they gave an award for most impressive display, this would have had my vote. I don't believe Paul got a break the whole time I was at the show.

The folks from Trinity were there with a new display arrangement. They were featuring their line of Speedworks products as well as the normal line of motors and accessories. In addition, Trinity is also the other importer of the Schumacher line of cars and also had them on display.

Alan Baum of Boca Bearings was there. He has perhaps the best bearings going. Looking at his catalog you will think that he has a bearing for every car application.

There seemed to be more 1/4-scale cars than last year. They were there in Indy style as well as NASCAR style. These cars are impressive to look at as well as watch run. The folks from Raco had a good looking late model body that looked like it was ready for the Saturday night battle at the local track.

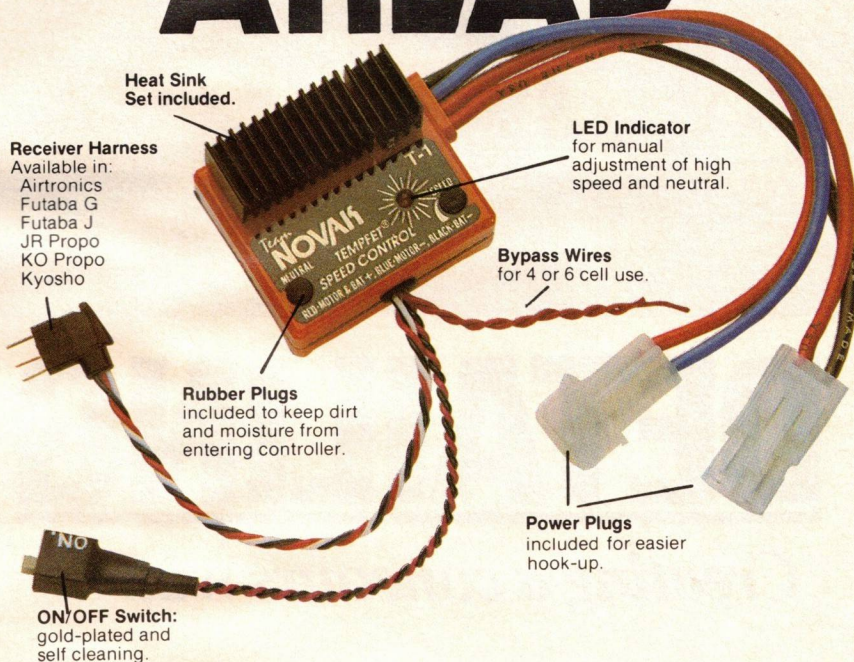
Bob Urban, of Lazer Lite, was there displaying some impressive-looking drag and road racing cars. His cars not only look good but run good. I can't wait to get one of his drag cars. He is coming out with a variety of bodies that range from classics to the modern drag racers. The Lazer Lite cars also were displaying their enduro kit.

Bobby Williams, of Condor Trading Company, was displaying his line of products which include the Shinwa line of test equipment for R/C cars. I had a review of their torque checker about a month back.

In addition to the manufacturers there were also several hobby shops with displays. There was also a swap section where you could find some old or outdated parts. I don't mean to slight anyone by not mentioning them as all the exhibits were interesting. I hope all the exhibitors come back next year as well as some of the others. One last thought, if you missed this IMS don't forget that there will be another one next year, so plan to attend as you will really enjoy it.

Till next month.

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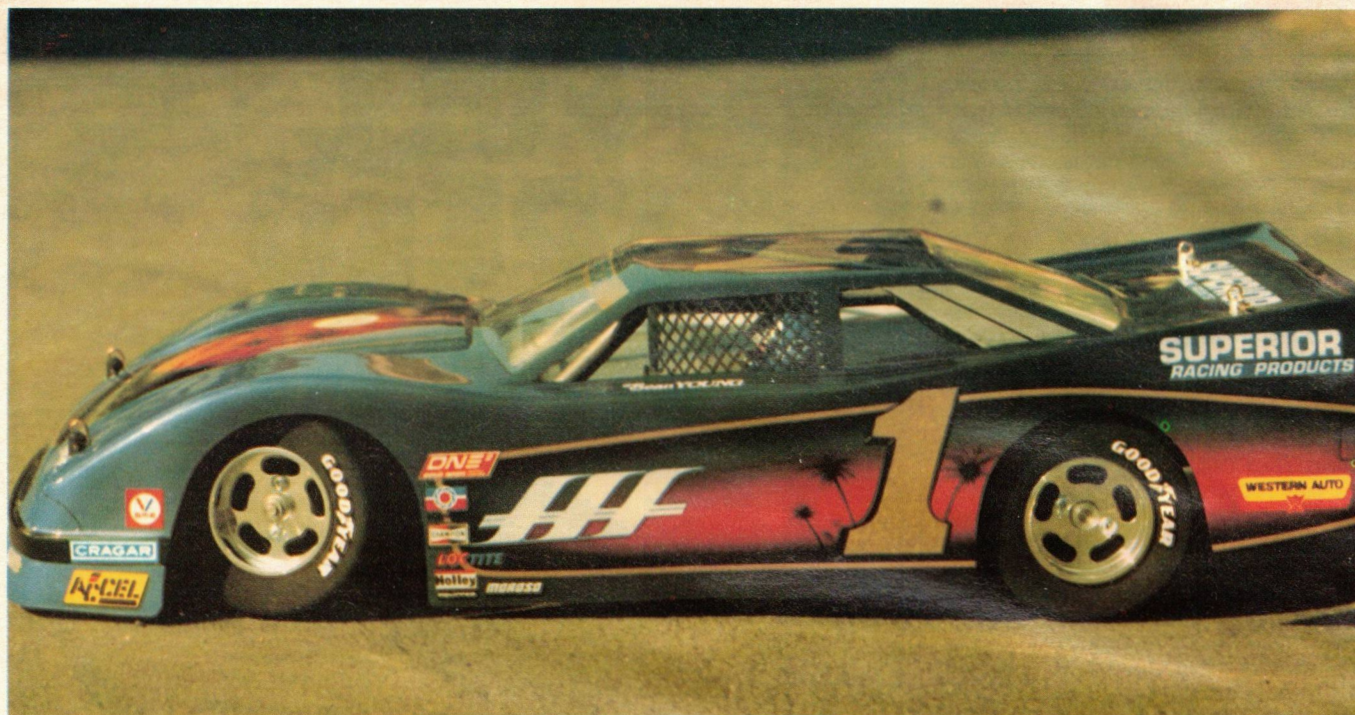
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Current Efficiency	99%+	99%+	99%+
Motor & Battery Plugs	yes	yes	no

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# DETAILING

## *Creating a concours winner*

BY MIKE OGLE

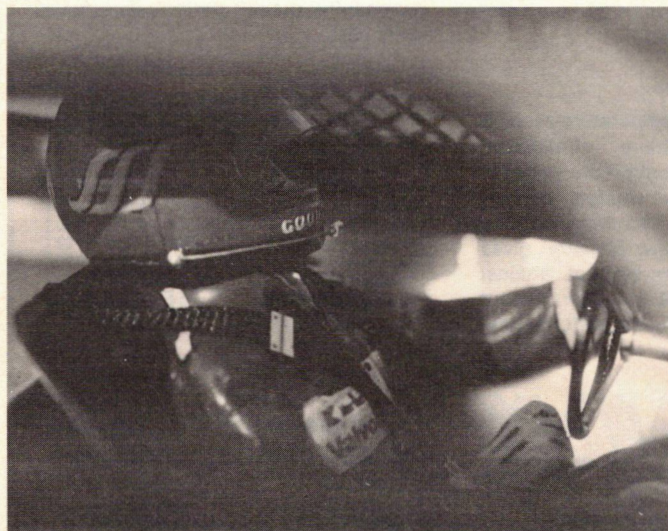
**O**ver the first few months we've experimented with different paint schemes and techniques to "show your colors" and get you on your way to capturing a concours trophy. But a great paint job, no matter how intricate it is, won't sway some concours judges. They're looking for those smaller scale details; the "real car" touches that win heavy points when the judging gets close.

So, this month we'll assume that you've got a paint job executed already and now it's ready for the finishing touches.

Unless you're really familiar with the type of race car you're modeling, the first thing I'd do is go to the magazine stand and get some full-size race car magazines to get some reference material for detailing. A picture is worth a thousand words, you know.

Most race cars, like production cars, will look better if you outline each window in the car in black, simulating a rubber window mounting or window frame. This is most easily done with a permanent (Sharpie) marker, as it will produce an even-width stripe with one clean pass, and you can get as many "takes" as you want by using denatured alcohol to remove any goofs. However, if you're like most people, the side windows are the natural "grab points" that you use to put on or take off the body, and Sharpie marker may be eventually rubbed off, especially if you hands have motor spray, oil, or any other type of solvent on them. For this reason, I usually paint the black outline around the windows with my long, tapered bristle brush.

I know that most of you reading this are probably thinking, "Yeah, right. There's no way I could ever be steady enough to paint a thin line around the front windshield of my car." But, if you want to try, I can promise you



Driver in the ASA Mustang features seatbelts, sunglasses, two-way microphone, and insignias on helmet and driving suit.



With visor flipped up you can see driver's sunglasses, which add to your chances of catching the concours judges' eyes. Note window mesh.

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DTXC4008, 4009, 4010, 4011 1.9R

DTXC4016, 4017, 4018, 4019 1.9F

#### For Associated RC-10 2WD

DTXC4004, 4005, 4006, 4007 1.6R

DTXC4012, 4013, 4014, 4015 1.9R

DTXC4020, 4021, 4022, 4023 1.9F

#### For Tamiya 2WD & 4WD

DTXC4024, 4025, 4026, 4027 1.9F

DTXC4028, 4029, 4030, 4031 1.9R





Get a snapshot of yourself and cut out your face to a little bigger than the helmet of your Lexan driver.



Curve the cut-out photo as shown, and cement it into the helmet so it shows through visor.



Now you're really in the driver's seat!

that it's much easier if you use a thin paint brush with bristles from 1/2 to one inch long, and very flexible, like camel hair or sable. If you've ever seen real car pinstriping done, you know that the brushes used to do that are strange looking little devices that have a short handle and long, long bristles that are cut to a point. The idea is that the long bristles flow with the line more smoothly, enabling you to do long, thin lines without re-dipping frequently. It really works, even in smaller scales.

OK, so now you've detailed around the windows in black. Are there any rivets or bolts around the window perimeter that you'd like to add? How about (like on ASA or GTP cars) bolted-up headlight or taillight holes or other body panels? If so, go to your local stationery store and get a Pilot brand, extra-fine point, silver marker. They come in a square, clear plastic tube and they cost between two and three bucks. This is the very best thing I've ever seen for making bolts or rivets. Just shake up the fluid in the barrel, start the pen by pressing the tip down on a piece of paper a few times until the paint starts flowing, and then "dot" away on your car. Just one touch makes a perfect, tiny round rivet that dries in about a half hour and is reasonably resistant to handling. A line of rivets around the windows of a competition car looks very tough and is unbelievably easy with one of these markers.

While you're at the stationery store, pick up a fine-point black or gray permanent marker to do your hood lines and door lines. If your body has strong, pronounced lines for the hood and doors, you may want to use either a gray or very thin black line to highlight them. Just run the point of the marker down the grooves. I have had some success with using a darker shade marker that is the same basic color as the car's body. For example, a dark blue marker to do hood lines on a lighter blue car, but beware of a very weird color happening. If you're not sure, first try it somewhere it won't show.

The only observation I have made about detailing body lines is that it usually looks better to not do them at all rather than overdoing them. In one-tenth scale, we're reproducing a 1/4- to 1/8-inch break in the real car's skin, which as you can calculate, makes a pretty thin line on a model car's body. So, again, just don't overdo it.

Now, how about tinting your newly detailed windows? Well, if you have an airbrush, you can do the standard dark smoke window tinting by mixing an extremely thinned-down black paint and spraying on many light, light coats. Gentle is the word for this operation. I usually make my window tint formula about five to one thinner to black paint and mist on four or five light coats. If you're modeling a passenger car or production car-based racer, put an extra coat or two along the top edge of the windshield for a "graduated tint" window that is very common in real cars. If you don't have access to an airbrush, don't worry. Pactra has just added a couple of new colors of aerosol paints: candy blue, candy red and, I think, candy purple that will make some really hot-looking tinted windows if you put on a few light coats. Just make sure that your windows are clean on the inside by doing an alcohol wipe-down, and be sure

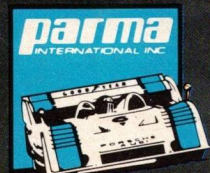


**RACE PROVEN**

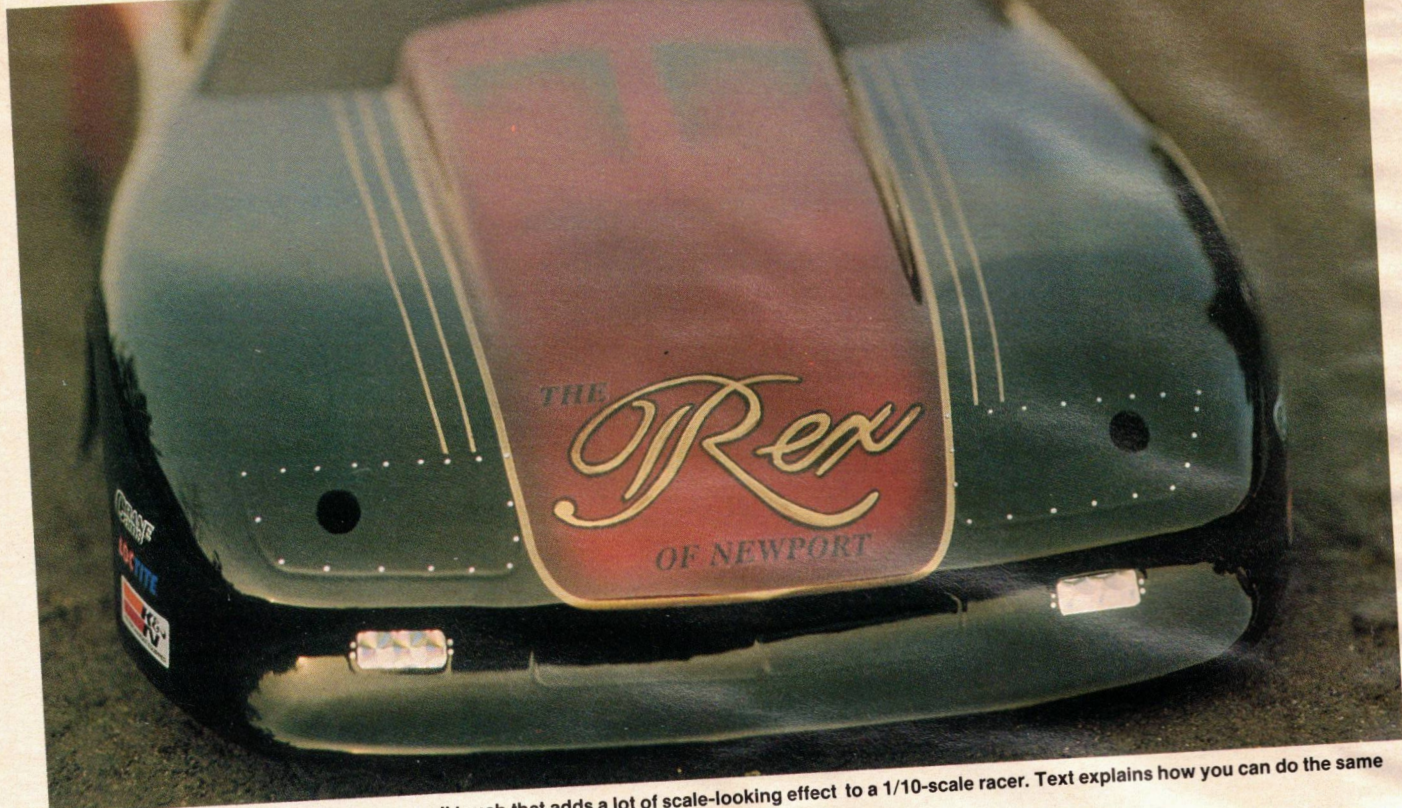
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**Note rivet detail on the Rex Mustang; a small touch that adds a lot of scale-looking effect to a 1/10-scale racer. Text explains how you can do the same thing, easily and quickly.**

that the rest of your paint job is adequately thick or adequately backed with white, black or some opaque color so that your window tinting spraying doesn't also "tint" your car's paint job.

While we're working on the cockpit area of the car, what about the driver? Well, a lot of concours contests are won or lost on the basis of the inclusion (or not) of a realistic, molded driver. Most of the time, the reasons for not putting in a driver figure are either that it's extra weight, extra hassle, or just a pain in

the butt to detail one up. I know it takes time to detail, but although you'd rather be using this valuable car preparation time to watch your batteries peak, if you want to win concours, you gotta have one.

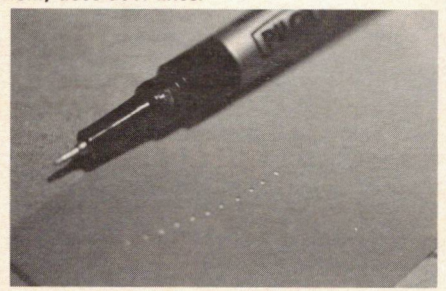
I've done drivers with everything from real seat belts, sunglasses, and two-way radio microphones on them, on out to the far extremes. I could spend weeks talking about different ways to do a driver figure. If you're going to try to do a full-figure driver like in the photos, start with a toy army soldier (like a

G.I. Joe) that is approximately 1/10 scale and use a molded Tamiya driver's head with helmet, as you would find in a Grasshopper, Hornet or Williams F-1 Car kit. This will give you a good starting basis. The real driving suits of today are multicolored and carry almost as many sponsor's logos as the car themselves. Check Rick Mears' yellow driving suit and yellow helmet that coordinates perfectly with his yellow Pennzoil Indy car.

*Continued on page 38*



**Pilot brand silver marker does super bolts or rivets. Wide-point Sharpie (center) outlines windows in one pass. Fine-point Sharpie (bottom) does door lines.**



**Silver marker makes easy rivets with one touch. Practice on a piece of scrap Lexan first.**

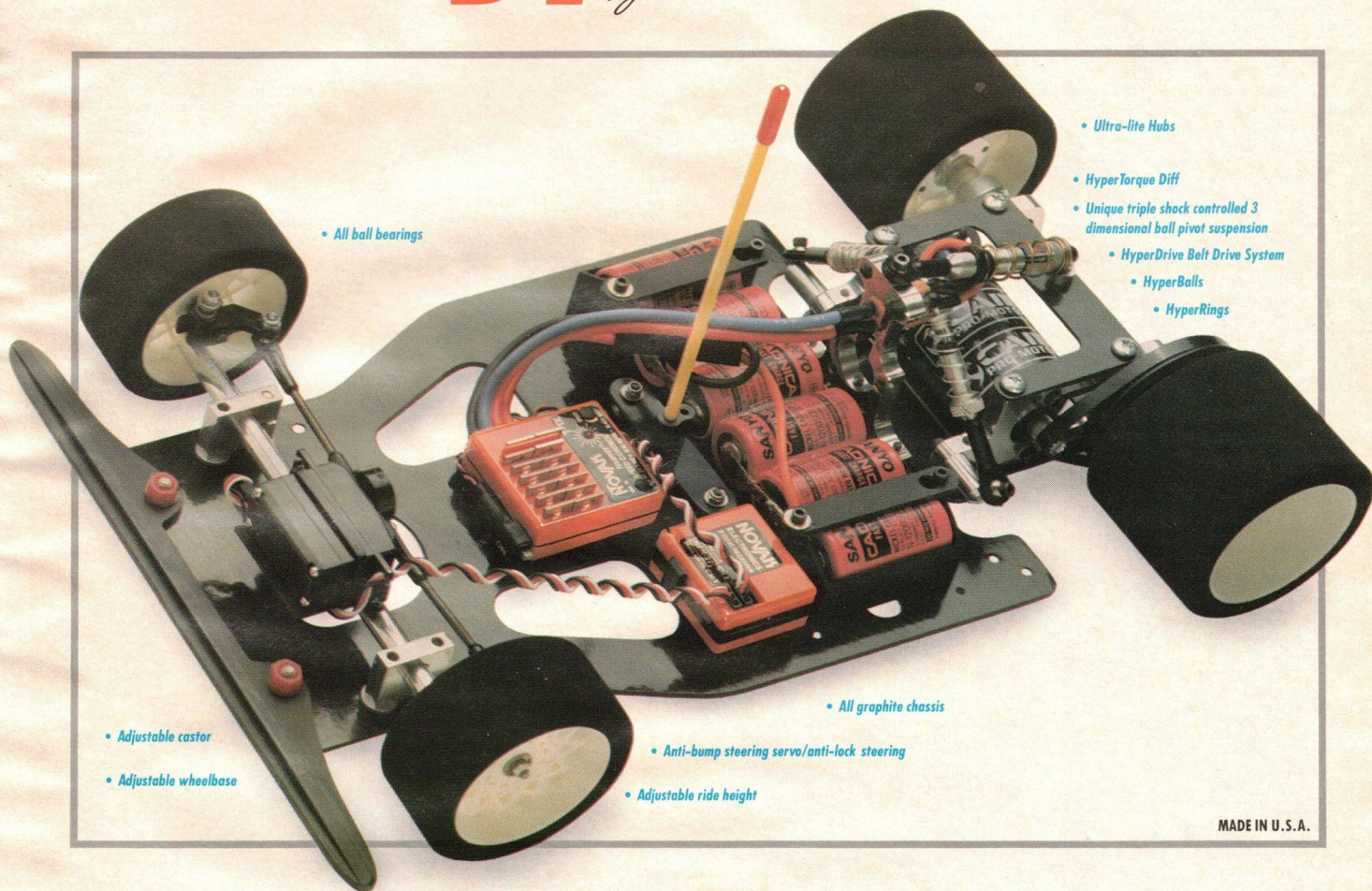


**Riveted-in headlight covers and cut out vents with nylon mesh add detail to this concours-winning car.**

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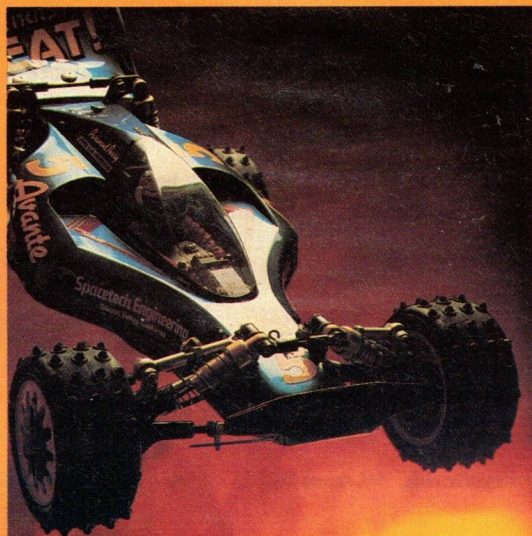
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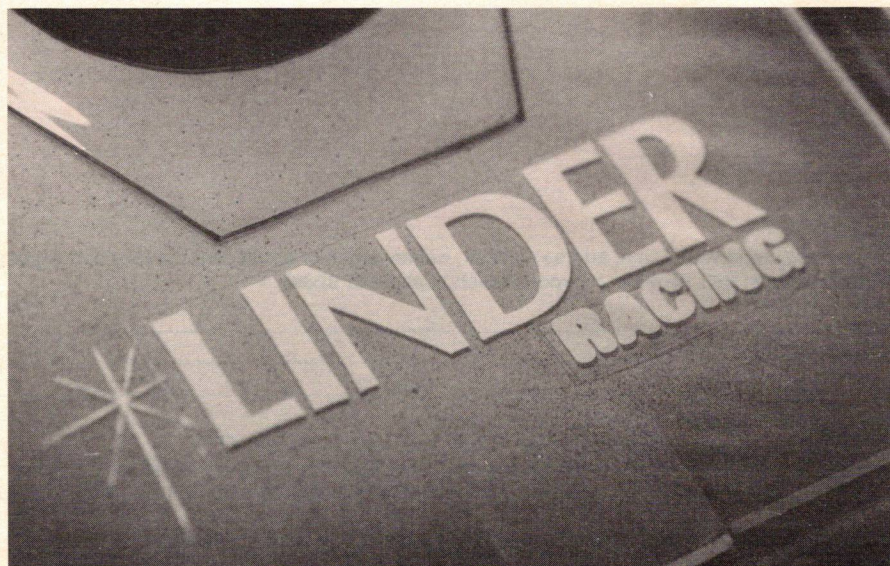
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Rear window reinforcement straps look great with a row of rivets. Note black outline around windows which enhances depth and detail.



Press-type rub-on lettering comes in a big variety of sizes and styles to replicate most any type you see on race cars.



Cover over press-type lettering with clear tape for protection.

Seat belts are easily made out of thin strips of cloth or electrical tape, or thin hair ribbons, as on the driver in the photos. Just be sure they're snugly fit to the driver, not loosely surrounding him.

If you want to use your regular clear plastic molded one-piece driver, but still want to do something really tricky, try this one:

Paint and detail the driver's figure as you normally would and leave the visor on the helmet clear. Paint the helmet a color corresponding to the car's body on the inside so, it too, has a nice, hi-gloss finish. Now go to your stack of color magazines and find a color photograph of a "face" for your driver, about 3/4" to one inch high, and cut it out. Mount this on a thin piece of cardstock and give it a slight "curve" outward. Now mount the face inside the helmet so the face looks forward through the visor, and use shoe-goo or silicone cement to hold it there. It looks pretty real; surprisingly so if you've been careful.

If you really want to have some fun with this, go down to the local drugstore and find an "instant photo" booth. Pop in there and take your own photo and put yourself behind the wheel of your own racer. This effect can stop a concours judge dead in his tracks. Of course, you can use a small photo of yourself, your best friend, your girlfriend, your dog, or your hamster. Use your imagination!

Now that you're personally driving your racer in 1/10 scale, wouldn't it be nice to have your name on the side of your car too? Well, you're probably not going to find your name on any existing decal sheets, but if you go to a local art supply store, you can buy sheets of rub-on letters in a multitude of sizes and styles. The brand names to ask for are Chartpak or Letraset transfers. They come in "point" sizes from about twelve point, which is about 1/8 inch high, on up to seventy-two point letters, about an inch and a half high.

To apply these letters to your car's body, first wipe down the surface of the car, where you're going to apply the letters, with a good solvent like denatured alcohol. This removes any fingerprint oil or overspray that may make the letters not want to "adhere" to the body. Now take a blunt pencil, ballpoint pen, or other similar blunt tool, and thoroughly rub over the front of the letter once it is in position. The letter releases from the sheet and transfers to the car. Continue letter by letter until your whole name is finished. If you make a mistake, you can remove the transferred lettering with alcohol.

Once you finish, you will need to apply a piece of clear cellophane tape, like clear packing tape, over the lettering to protect it. I do this by putting a decidedly too large piece of clear tape over the lettered area, burnishing it thoroughly to remove any air bubbles around the letters, then trim it closely around the lettering with a sharp hobby knife. What you end up with looks just like a regular sticker.

You can do driver's names, your sponsor's name, or you can get a typestyle to duplicate a real car's sponsor lettering; there are hundreds of styles of this stuff available.

While we're on the subject of stickers, there are two schools of thought on "sponsor" stickers. Hobbyists who want to give

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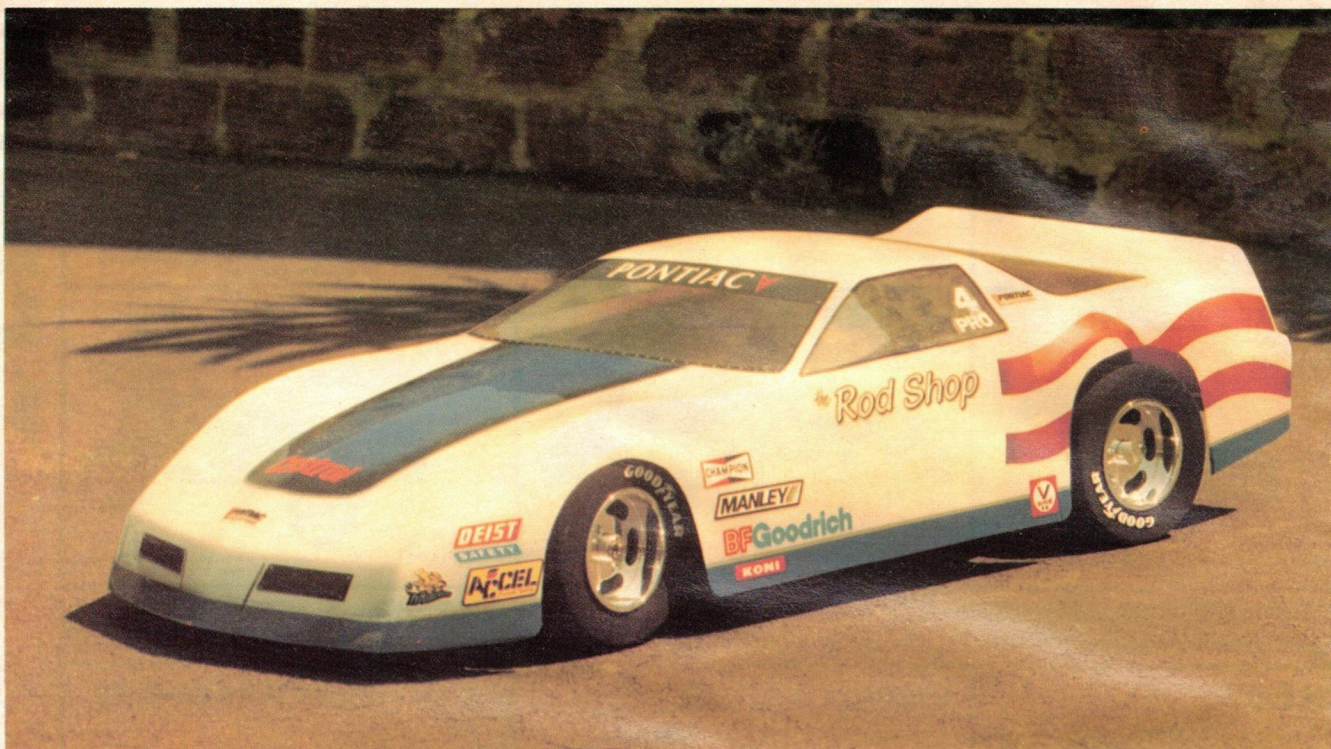


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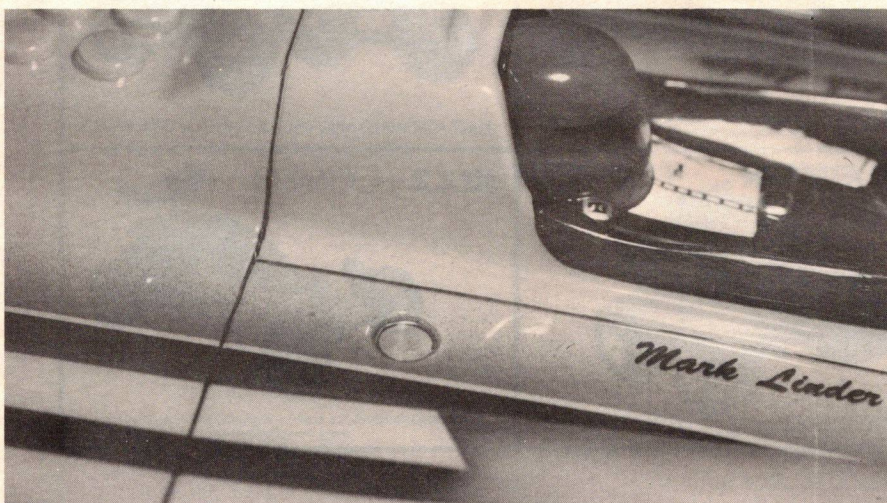
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All items are subject to prior sale or manufacturers availability. Not responsible for typographical errors. Prices subject to change without notice.



Appropriate small sponsor decals should be placed as on prototype. Look at racing magazines (or *R/C Model Cars!*) for examples of full-size racers to model yours after.



Use the fine-point Sharpie in hood and door lines, but don't make them too thick!



This T-Bird stocker shows heavy use of stickers on front fender like rear NASCAR racers. Note black outlines around windows and thin hood lines.

their car a realistic appearance will usually use scaled-down real-car sponsor stickers, such as Goodyear, Valvoline and Champion emblems. The hobbyist who only wants to race however, will opt for R/C manufacturer's stickers, such as Reedy, Novak or Parma insignias.

Whichever category you choose, it helps to remember that in full-size race cars, the spectators and other racers see the car from the sides a lot more than from the top. This is pretty much the opposite of us R/C racers, who see the top of the car from driver's stand and seldom get an on-the-pavement side view of the car. So, if you want to look more scale-like, put the sponsor's stickers on the sides, down low, on the front fenders or wherever fits your car in the most realistic way. On Grand National stock cars, the front fenders of each car carry the majority of the sponsor stickers, and always in a predetermined position. Whether you used scaled-down real car emblems or R/C manufacturer's emblems, if you apply them in authentic positions, the car will look more "scale." Remember, in real racing, the drivers get paid to have each sticker on their car, and they're unlikely to have two or three different brands of tire, motor oil, or spark plug represented on the same car. Pay attention to what each sticker represents and you won't get caught losing concours points for carrying both a Goodyear and a Firestone emblem!

The most important thing to remember is that whether you're building an exact replica of a real race car, or making up your own exotic dream machine, individualize it! Make sure your car stands out. It will make you proud and the spectators will take notice that this is a car that was carefully prepared. And, you just might find that a concours trophy can make you feel mighty good, even if you only made the C-Main!

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Ralph Burch wins  
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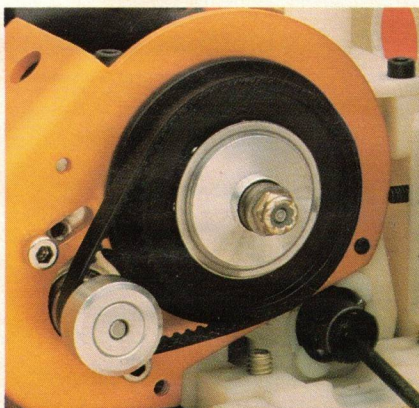
The Associated RC-10. One of the most popular RC off-road race cars of all time.

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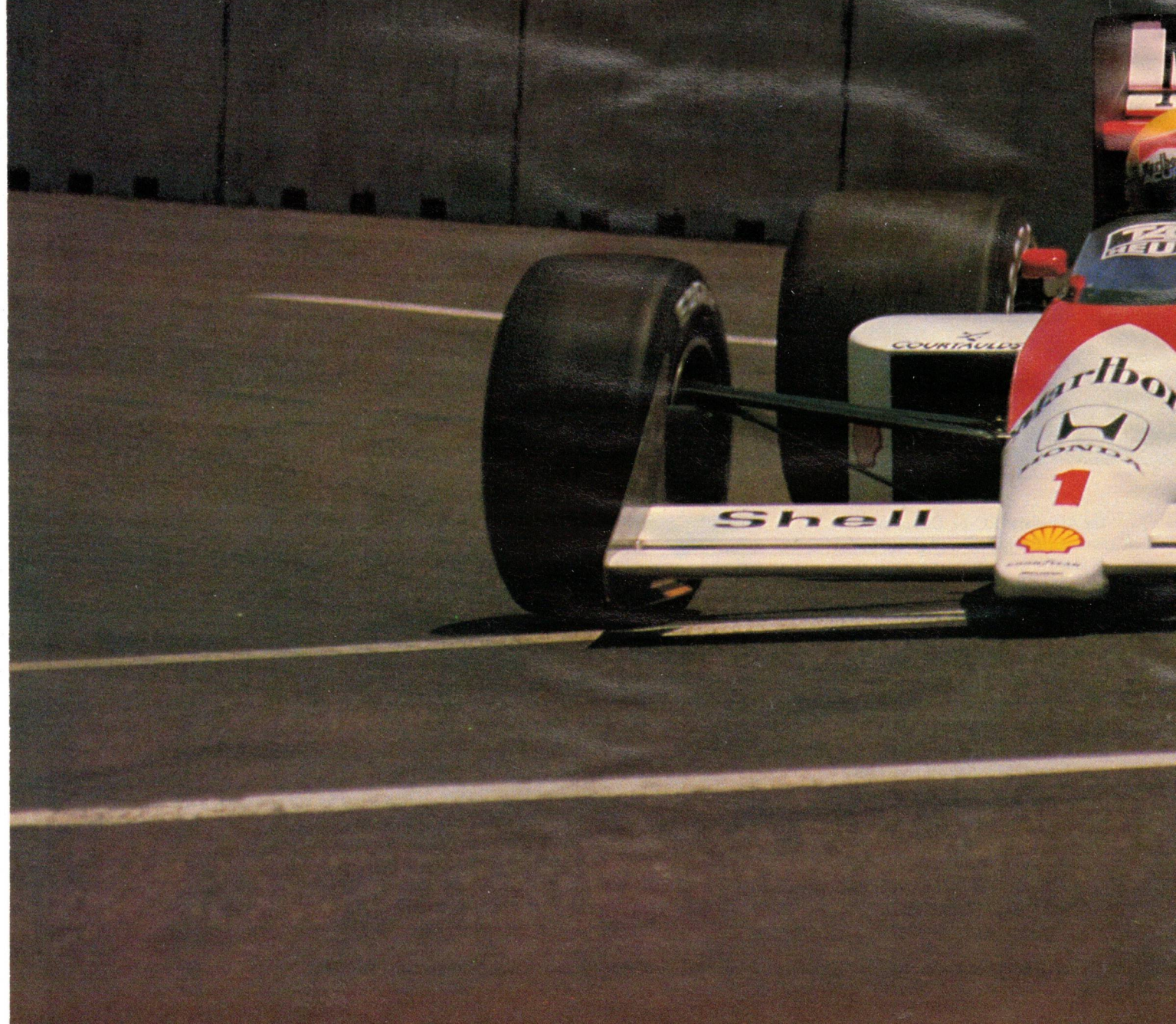
Hyperdrive is available for the RC-10 and most other popular off-road race cars and practically all  $\frac{1}{10}$  and  $\frac{1}{12}$  on-road applications. Ask for our RC-10 full race kit.

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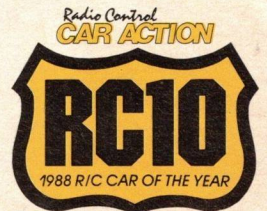
*Ayrton Senna, World Formula One Champion, in the McLaren MP4/5.*



# IF YOU'RE REALLY SERIOUS

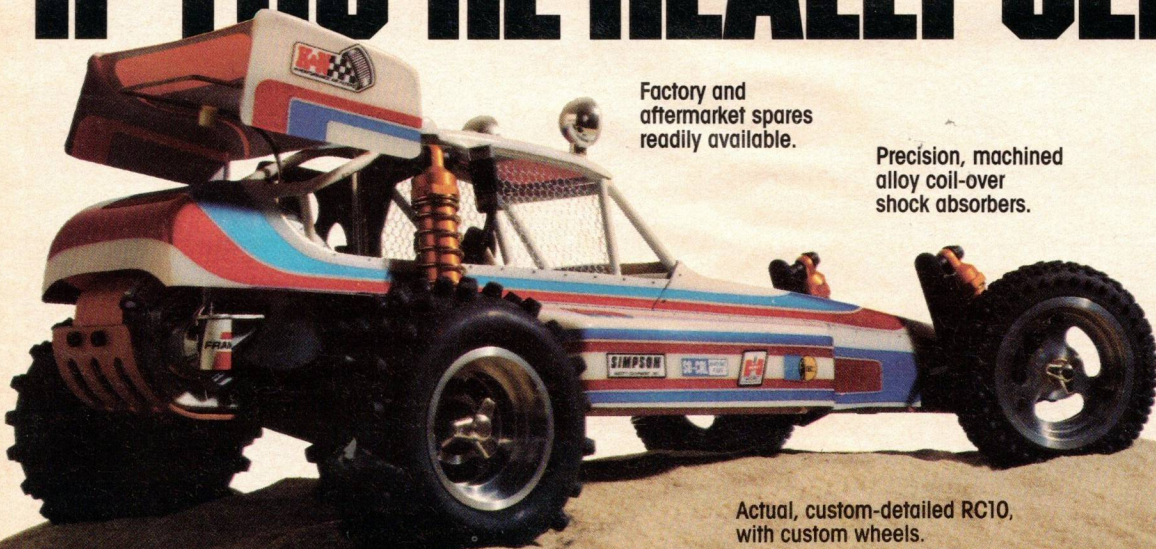
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Like *World Championships*, Team Associated cars and drivers have won an unparalleled six, including titles in 1:12, 1:10 and 1:8 scale competition. No other R/C car manufacturer's team has won more than two.

Associated cars win more than just the biggest races, too. Readers of *Radio Control Car Action* magazine voted the RC10 the 1988 R/C Car of the Year, and by a resounding margin of six to one over the second place car! Thank you very much, readers. *Radio Control Car Action* also held a shoot-out between the RC10 and the next most popular car, and the RC10 came out a winner again!

And at the Reedy Race of Champions (called a re-run of the World Championships because all the drivers from *Europe*, *Japan*, and the *USA* who made the A Main at the

World Championships were present), the RC10 finished first and second.

Racers, readers and dealers all agree. Performance, reliability and readily available spares make the RC10 a big Number One.

Whoops, gotta go now. I want to watch *World Champion Jammin' Jay Halsey* take a victory lap with his RC10.



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# SPEEDWORKS

## *Sportsman's Cup*

*A race for amateurs gives the spotlight to the little guys*



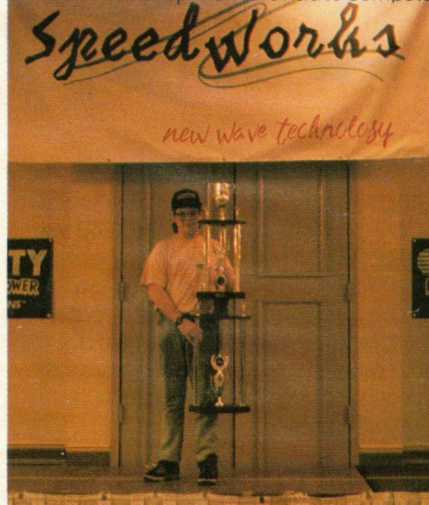
BY STEPHEN BROWN

I have Just returned from one of the most important R/C races I've ever attended. This race was not important simply because all the big-name drivers were there, although most of them were there. It was not important because it gave away huge sums of money to the winners, although the trophies at this race were the nicest I have ever seen and cost the most of any that I have heard of. It was important not for these traditional reasons, but rather because it broke with tradition.

The race was the first Sportsman's Cup Race and it was sponsored by the Speedworks division of Trinity. The reason this race was so important, and to a degree why it was so successful, was that the concept of this race was that this race would be held for the benefit of the sportsman drivers. For the first time ever a major race was held to encourage and promote the average, unsponsored driver; guys like most of you reading this who have a great time racing and may do reasonably well at it, but are not yet at the level of the top drivers in the world.

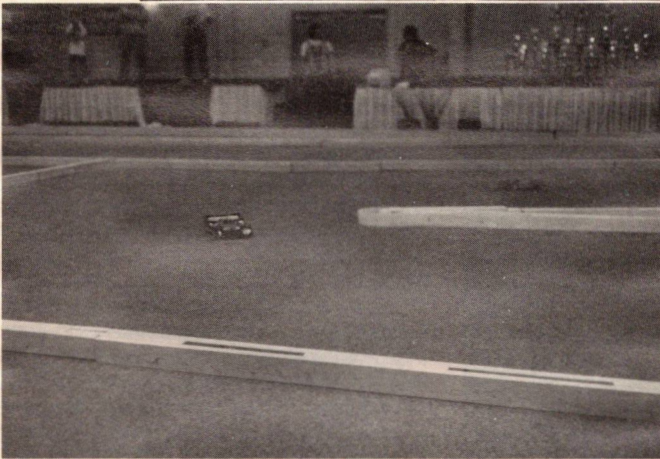
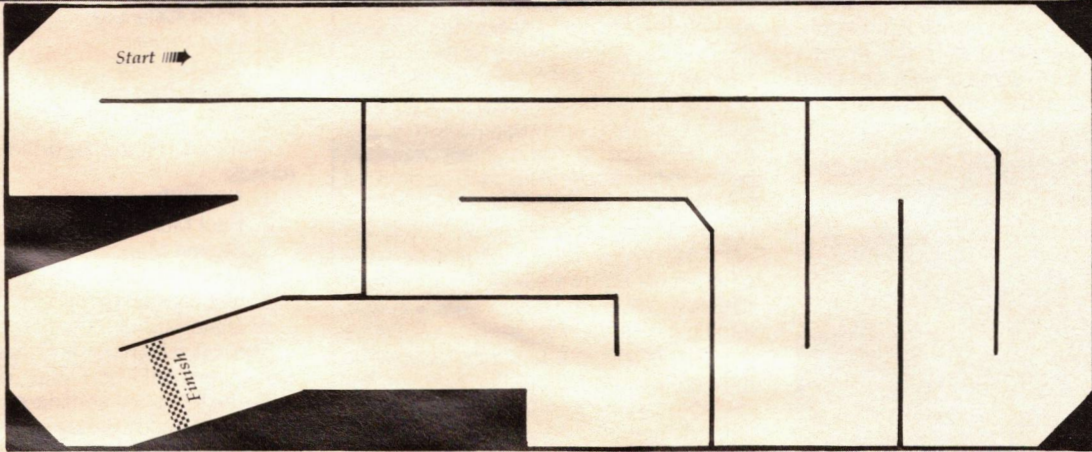
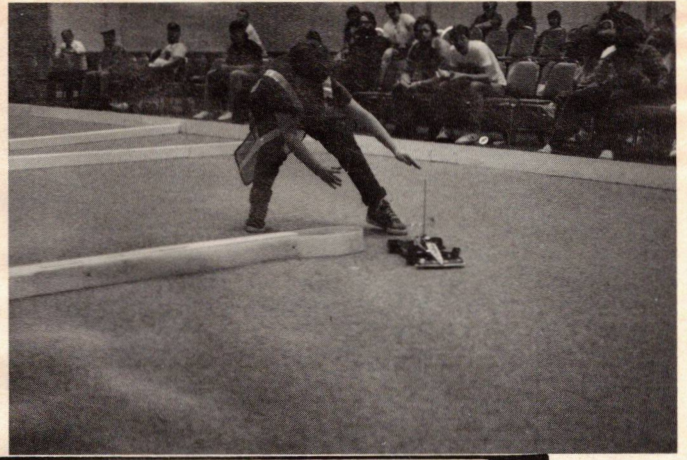
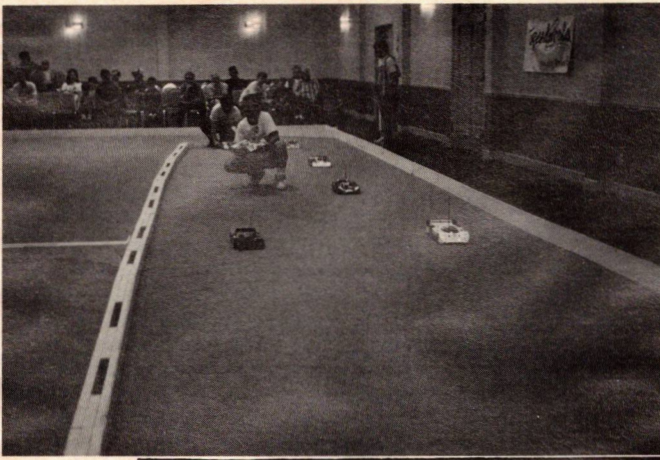
The original plan was to invite ten of the top drivers in the world to run in an invitational class, and then open entries in a sportsman

class. All drivers in both classes (Yes, even the pros!) would use handout Speedworks motors. There would be two classes: 1/12th-scale and 1/10th-scale onroad. Sportsmen could compete in either or both of the classes but pro drivers had to compete



Sportsman's 1/10 Champ was Mike Pulfer, seen here with his trophy.

in both. Qualifying and mains for the sportsmen were done as is normal in any ROAR race, but for the pros the winner would be determined by a points system that would take into account their best three out of four finishes in each scale. The overall winner would be determined by this points system, instead of by one main. However, since this race was for the benefit of the sportsman drivers, the invitational drivers would not just get their cars, go down from their rooms to the track, run their race and return to the solitude of their room. Nope, not at this race! At the Speedworks Sportsman's Cup Race all invited drivers were required to give seminars on their specialty to the sportsman drivers and their pit crews. They also had to give one-on-one seminars to a lucky few drivers. Could you imagine getting the chance to sit down and talk with the likes of Tony Neisinger or Bob "The Bullet" Light about your car and racing and anything else that came to mind for a half an hour? Having them explain what it is that makes them faster than the competition and how you too can be faster than your competition. No wonder that when the word got out about this race people started signing up from all over the country.



As I said, the "original" plan was to invite ten of the top drivers in the country. Coming from team Trinity were Chris Doseck, Bob Light and new addition to team Trinity, Tony Neisinger. From Cam Motors: Terry Rott; from Team Losi: Tyree Philips; from Peak Performance: Rick Howart, and from Bud's Racing Products/Cam Motors the crowd's favorite: Bud "the original Bud-Man" Bartos. Also invited, but unfortunately unable to attend, was Joel Johnson. As Joel was a last-minute cancellation, it wasn't easy to find someone to take his place. Fortunately, help was locally available in the very competent personage of Joe Lawrence. Joe was only recently signed by Team Trinity and was only too glad to get the chance to race in this race. He quickly became quite a crowd favorite, but more about him later. Unfortunately, there were no attendees from Team Associated, so eight of the best drivers in the

country competed against each other in the Speedworks Pro.

Any race that is going to be run on a national level with this caliber of racing needs great organization. We were lucky enough to have John Thawley as race director. John not only made certain that this race ran smoothly (and on time), he consistently held the crowd's attention with his vibrant, personable announcing of the races. John, when you read this give yourself a pat on the back. You deserve it.

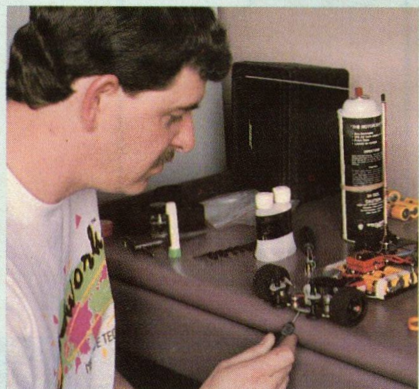
The first day, Wednesday, was set aside for building the track. As people trickled in they were constantly amazed by the sheer size of it. Although the lanes were quite wide, the track looked like it would be a driver's track, with narrowly defined driving lines and every type of turn from sweeper to switch-back. It was one of the largest indoor tracks any of us had ever seen. As it was being built,

drivers would stand around and try to figure out how best to drive it and what on earth to use as a gear ratio. One driver, whom I had never seen before, was standing near Bob Light while these gear ratio discussions were taking place. He looked a little confused and turning to Bob asked him how he planned on gearing his car. Bob told him how he would start the gearing for his 1/12th scale car and the two of them chatted away for a couple of minutes before the newcomer left to go back to his room. He obviously had no idea who he was talking to as he said, "I hope we're in the same heat," to Bob. This seemed to set the tone for the weekend, to establish that the invitational drivers were there to help out, to encourage newcomers, or just to talk. The concept of this race was for the manufacturers (primarily, of course, Trinity as the concept and financial backing came from Ernie Provetti of Trinity) and pro drivers to

# A PRO'S PERSPECTIVE

BY BOB LIGHT

It was quite an honor to be part of the invitational portion of the Speedworks Sportsman's Cup Race, one of the most enjoyable and professionally run races I've ever attended. Each invitational driver was asked to conduct a one-on-one seminar with a randomly chosen driver from the sportsman class. My seminar was with the eventual winner of the 1/12th Sportsman class A-Main, Frank Calandra. As Frank and I both race the Corally SP II in 1/12th-scale racing we had a lot to talk about. I would like to share some of what we talked about with the readers of *R/C Model Cars*.



**Bob Light, pro competitor, not only competed in 1/10- and 1/12-scale races, but also gave advice to sportsman racers.**

The Corally SP II is imported from Holland by Chris Morris of Du-Mor R/C. Chris is the best in the business at setting up the Corally car, but you too can do a terrific job if you follow the instruction manual and take a little care in setting it up. This should give you an extraordinary car, but, since a race car is more than a chassis, here are some more tips on other aspects of car setup.

When installing the radio system in the car the speed controller should be mounted on top of the radio plate, above the batteries. This will help keep all battery and motor wires as short as possible. This is something which you will always want to do, as the longer the wires are the more voltage loss there will be. The more voltage that gets sapped up by excess wire the less voltage your motor will get. Always keep all wires as short as possible! In the Corally car the receiver fits perfectly right behind the steering servo. This will put it out of the way of the other wiring and keep it easily accessible to the wires from the speed controller and steering servo, again something to always keep in mind. Whatever kind of car you use, take a bit of time and care in determining the location of your radio gear; it will pay off in the end.

The auto-count transponder, which is now used at virtually all major races, should be kept as low and as close to the center of the chassis as possible. I made a mount of

Lexan and servō taped it to the steering servo to accomplish this. This sort of arrangement will work on almost any car and is far preferable to mounting it up high in the air, as in attaching it to the body.

The ride height can be easily adjusted and should be set up to run the car as low as possible, without rubbing on the racing surface. The Corally has a spacer under the T-plate which can be moved from front to back to control the flex of the T-plate. I usually start with the spacer mounted forward, moving it toward the rear if more steering is desired. Moving the spacer all the way to the rear will make the car change directions very quickly, thus making it harder to drive. On low-bite tracks the spacer can be removed completely, thus making the car very stable and easy to drive. This is something you have to experiment with at every different track, no one setting will work everywhere.

Because the Corally is a quick-reacting, high-tech race car the slightest tweak will be magnified when on the race track. What do I mean by tweak? That's the unequal loading of each wheel, which makes the car turn more in one direction than in the other, given equal steering throw in each direction. When a car is badly tweaked, turning the wheel one direction will cause the car to spin out uncontrollably, while turning the wheel the other direction will result in barely enough steering to get through the turn. The object of having the car correctly tweaked is to have the spring rate equal on all four wheels. A tweak board should be used, if possible, to allow you to check the tweak with the springs loaded. If a tweak board is not available you can place the car on a level surface, and slowly lift the car from the center of the front. I will usually use an X-acto knife for this purpose, placing the sharp side of the blade in the exact center of the car, lifting slowly. The object is to have both front tires leave the ground at the same time. If they do, the car should be correctly tweaked, if not, make the necessary adjustments until they do. This works fairly well, but remember that you are checking the car with unloaded springs. Using a tweak board all four corners of the car will be correctly sprung, resulting in a more accurate check of the tweak. It may sound complicated but it's really quite simple once you get the hang of it. There is very little you can do that will more dramatically improve the handling of your car than correctly setting the tweak, so spend a little time doing it and get used to doing this every time you race your car. I think you'll find that the people who win do, and you want to win also, don't you?

The Speedworks race was the innovative idea of Ernie Provetti, president of Trinity. This race not only gave him, but team members like myself a chance to give something back to a sport that has given us so much. So when I say "Thank You" to all the racers who were present and helped make it such a huge success, I am speaking not only for myself, but for the other members of Team Trinity as well. We all look forward to more races like the Speedworks Sportsman's Cup. ●

give something back to the amateurs who really are the backbone of racing. This seemed to be realized early on in the weekend by the pro drivers as none retreated to their rooms, they were always accessible.

As the first qualifying rounds went off people were just starting to get comfortable with being there, and with the track. Many had never before raced in a race of this magnitude and were trying to figure out where they were supposed to be, and when. Rick Howart (invited driver of Peak Performance fame) was wandering around looking for a 23-tooth pinion. Everyone was checking out everyone else's car to see how they had them set up. The early leaders in 1/12th-scale Sportsman, after two rounds of qualifying, were:

1. Wayne Penfold
2. Frank Calandra
3. Mike Pulfer
4. Curt Demars
5. Chuck Sommers
6. Mike Baker

In 1/10th-scale Sportsman after two rounds:

1. Chuck Sommers
2. Paul Morack
3. Steven Mancinelli
4. Mike Pulfer
5. Chuck Pfahler
6. Dave Monegan

These first two rounds of qualifying in each class were held on Friday, also on Friday were the first of the seminars for drivers (and pit crews). Buddy Bartos gave two seminars on building a differential (I know it may sound boring, but it's always great fun to talk with Buddy and his seminars drew great response from the people who were there; Rick Howart (who still hadn't found a 23-tooth pinion anywhere in the place), and Ernie Provetti gave one on beginner motor care and maintenance; and Chris Doseck, Bob Light, Terry Rott, Tim Morton (owner of TRC) and Tony Neisinger gave one on chassis setup. Many of the participants attended these seminars, and all were enthusiastic about the amount of information handed out by these guys. Most of the amateurs thought that pros carefully guarded their secrets, that they would be reluctant to talk to anyone not on their level. That proved not to be the case at all. All of these guys were more than willing to share any knowledge they had, in fact, most were eager to discuss this sport that they love with anyone who was willing to listen. This was an extraordinary chance for dialogue. Going to bed on Friday, we all were just starting to realize that this was not going to be an ordinary race, and not an ordinary weekend. This may sound terribly corny but the degree of sportsmanship and genuine goodwill exhibited by all the competitors was contagious. It's amazing just how nice people can be when given the chance.

The third and fourth rounds of qualifying were held on Saturday. Wandering around talking to people on Saturday I noticed a lot of changes, some small, some large. One kid, who had run a Volkswagen body in practice, had switched to a more usable and better-handling body. He saw what Chris Doseck was running on his car and asked him why he (Chris) was running it. Chris apparently convinced him that a VW was not the hot tip, as it never again appeared. An-

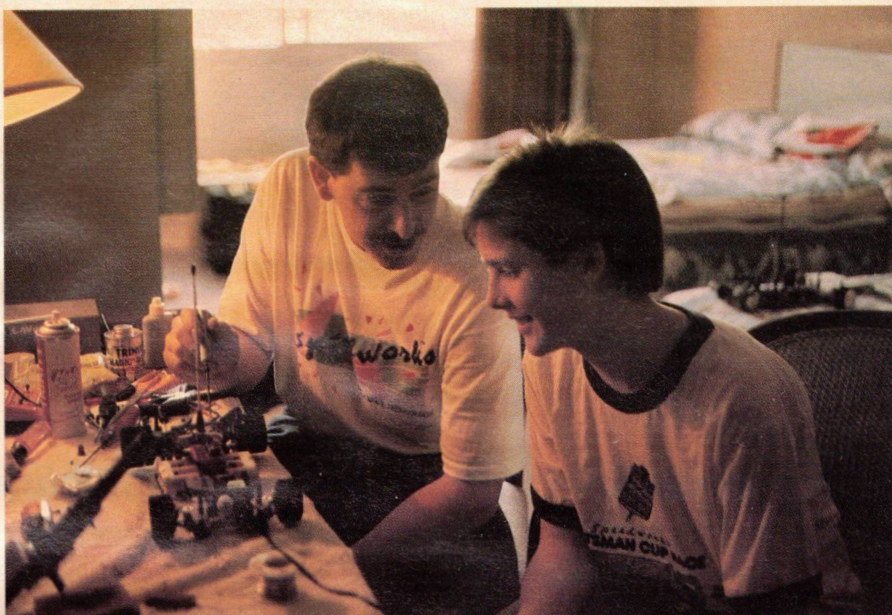
other kid's car which I had looked at during practice looked totally different. When he first showed up he had the wires from his electronic speed controller wrapped around the car. One of the pros happened to notice it and asked why he did it that way. The kid replied that he had read that you shouldn't cut your antenna wire and had assumed the same thing for the wires coming out of the ESC. He was gently told that the wires could, and should, be cut and was given a hand doing it. On Saturday his car looked great and obviously handled great. Things were progressing nicely for all, including Rick Howart, who had finally found a 23-tooth pinion, borrowing one from sportsman driver John Grove.



**Trinity driver Tony Neisinger with the guy who put it all together, Ernie Provetti, of Trinity/Speedworks, sponsor of the Sportsman's Cup.**

Saturday's seminars included two more by Bud Bartos on differential setup; intermediate motor care and maintenance by Ernie Provetti and Kevin Maurer; and a battery seminar by Rick Howart, Terry Rott, and Tyree Philips. During one of the pro heats Joe Lawrence was nowhere to be found. Everyone asked where he was and shortly word came down that he would not be able to participate in this round. This was terribly unfortunate for him as essentially all rounds can count, if you better a previous time. We were all worried and wondering what had happened that would cause him to miss a heat. When I asked him, about twenty minutes later, what had happened, he just said that he couldn't make it. He was simply being modest as I found out later. What had, in fact, happened was that he was pitting with a friend of his who was racing in sportsman. As Joe was getting his friend's car ready for his last qualifying heat somehow the battery pack shorted out. There certainly wasn't time to charge another one. Joe, realizing this and realizing it would cost him a precious round of qualifying, pulled the battery pack out of his car and put it in his friend's car. His friend obliged by qualifying for the A main. In doing this Joe exhibited the kind of sportsmanship we all would like to see, not just in pro drivers, but in ourselves. He set a superb example, not by talking but by doing.

After the final two rounds of sportsman qualifying the top qualifier for 1/12th scale was Frank Calandra, with Conan Honeck just a couple of seconds behind him. In



**Bob Light gives a one-on-one seminar on setting up a 1/12-scale road racer to sportsman competitor John Grove, whose lap times improved markedly after the session with Bob.**

1/10th scale little Mike Pulfer was untouchable with the only 16-lap round in his class.

Sunday was reserved for the final rounds for the invitational drivers and the mains for the sportsman drivers. After the mains there would be a ceremony to give away the trophies that we had been admiring all weekend. The trophies for the winner in each class were topped by large silver bowls from Tiffany's. There were lots of trophies to be given away as well as door prizes of merchandise donated by manufacturers. We were all a bit sad that the weekend was coming to a close, but it had to happen. The racing in the sportsman's mains was very close, most of them exhibiting a terrific increase in driving over the course of the race. Congratulations to all.

You may have noticed that I haven't mentioned much about the invitational driver's races. That is because the focus on the race was supposed to be, and rightly so, on the

sportsmen. Well, the pros did race, and certainly took it very seriously, and there was an overall winner: Bob "The Bullet" Light. Bob had his Corally car absolutely hooked, winning three out of four of his 1/12th-scale heats and coming in second in three out of four of the 1/10th-scale races, ending up with a point total well in excess of second place Tyree Philips. Tony Neisinger was actually tied for second, the tie being broken by a back-up time. Tony deserves a great deal of credit for his terrific performance as he was brand new to Team Trinity and he had never before tried either a Corally car (he loved it! He talked at great length about it to me after the race) or a TRC Pro-10. Chris Doseck and Terry Rott both showed up with prototypes for the new Predator Lynx. They look great and will undoubtedly continue the winning tradition created by the original

*Continued on page 80*



**Young racers admire the Speedworks trophies before the start of the racing action.**

# EDELBROCK Q-SCALE SPRINT CAR

*With a reputation in full-size racing well-established, Edelbrock is making a name for itself in quarter scale*

BY AL NOVOTNIK

**T**he full-scale sprint cars have many different chassis and car builders, such as Gambler, Challenger, Lightning, and Stanton. When the quarter-scale sprinters got started there was only one. Now as the popularity increases new manufacturers are entering the scene. In the quarter scale world there is WCM, Alves, and Longhorn just to name a few. Edelbrock Corp. is the new kid on the block. The Edelbrock Delara quarter-scale Performer sprinter is quite a kit. Designed by Gary Delara, the sprinter is a miniature sprint car in every way and not just another quarter-scale R/C car.

Opening the huge box that houses all the components for the Performer you'll be absolutely amazed as to how everything is packaged. Every small assembly is packaged in a plastic bag with all the parts needed for that particular assembly right down to the hardware.

The only thing you will need to put the Performer on the track will be a radio system and a can of gas. When purchasing a radio system, make sure you have a radio that is for cars, and on the proper frequency. Running a car in an area of close proximity to airplanes on the wrong frequency could be disastrous for both. Heavy-duty servos are suggested for the steering and throttle/brake. The battery pack should be 1200 Mil Sub-C NiCd (rechargeable type).

A few things will be needed for the assembly process of the Performer:

- #242 Loctite (blue)
- an assortment of drill bits
- standard allen wrench set
- fiberglass cloth
- fiberglass resin
- 3M super weatherstrip adhesive #08008 (black)

- Slow Zap PT-33 for tires
- wood brace 1/2 x 1/2 x 4-3/8 for tail tank
- wooden blocks 2 1-1/4, 2 1-3/4

- 3/8" hose clamp
- 3/8" socket wrench

Now that everything is in place and ready to get started, begin the construction with the chassis. By following the instruction in the illustrated instruction manual and the Per-

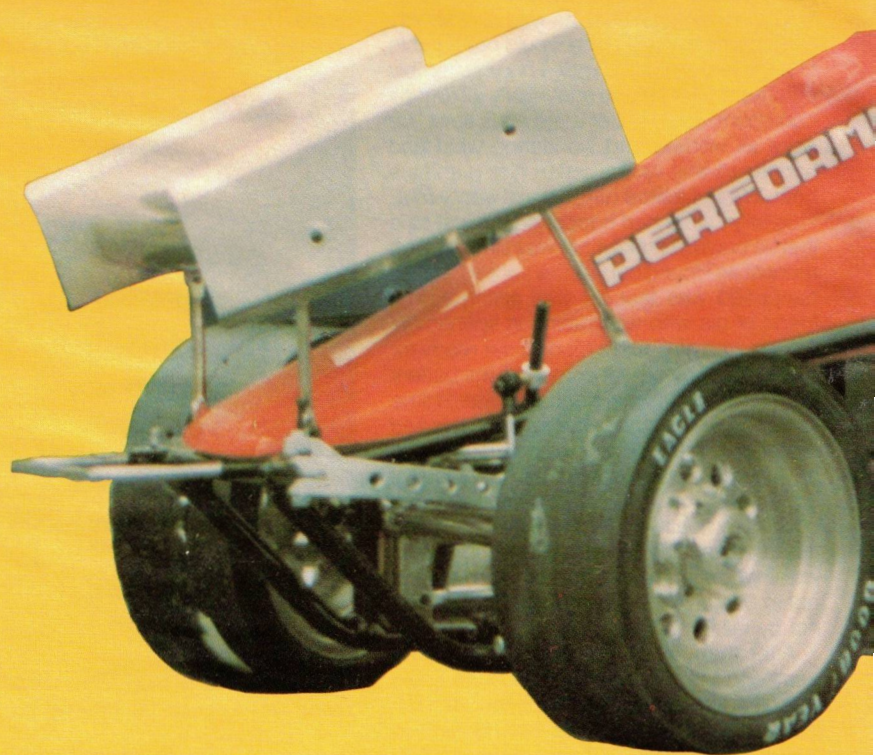
former will progress very rapidly.

The Performer is designed with the 1.3 cu. in. Kawasaki Engine fastened directly to the aluminum motor plate. The motorplate is in turn bolted directly to the chassis. The chassis is 4130 chrome moly tubing, all welded and powder coated. The chassis is an exact duplicate of the full-scale sprint chassis.

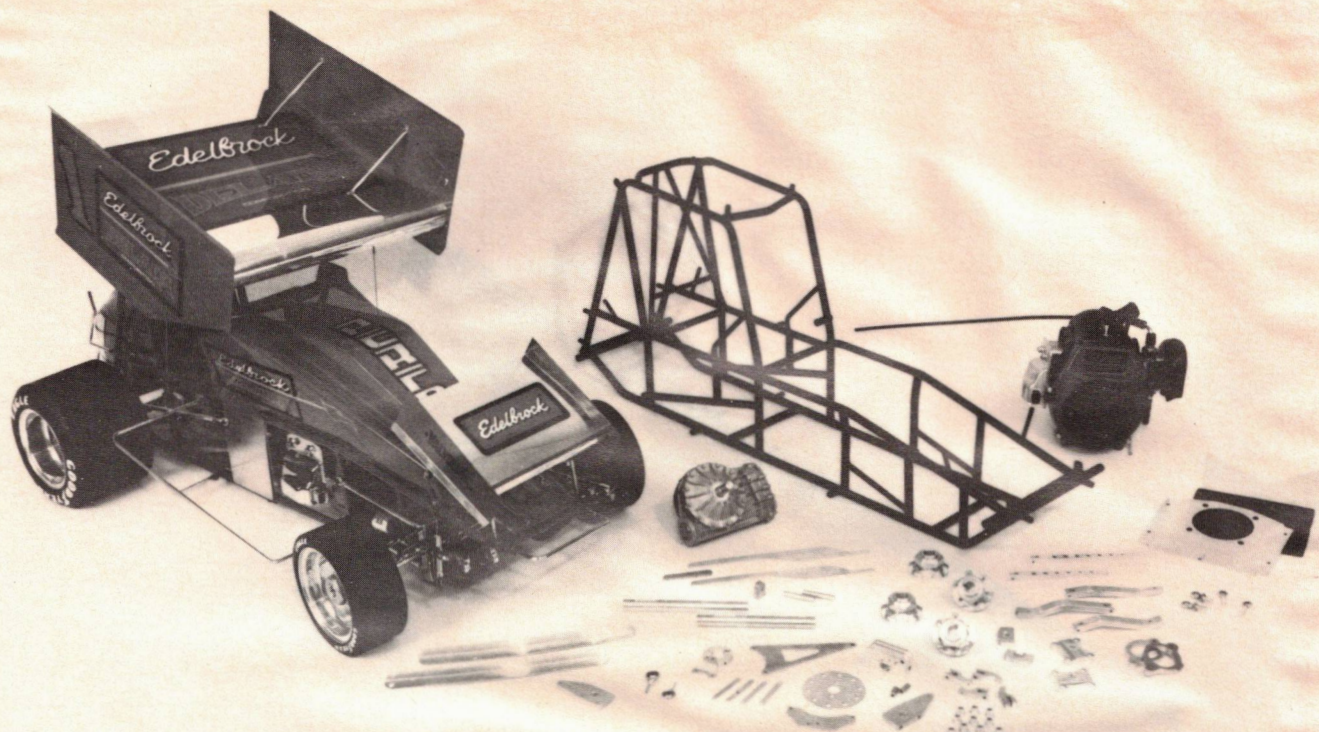
The floor panels and dash panel are installed with tie wraps and a 4-40 bolt through the dash into the chassis. The floor panel will need a hole for a 6-32 bolt drilled through it.

Assembly of the front axle should be next on the list. Clean the chrome flashing from the roller holes and install the rollers. These are held in place with the familiar E-Clips. When these are both secure, the king pin housing must be either lightly sanded or deburred. The top and bottom pieces are screwed to the center spindle housing. The

assembly is held in place with the king pin and E-clips. Both right and left spindle assemblies are assembled in the same manner. Now open the bag with the steering rods and follow the instruction booklet for assembly. When these are all in place, next is the assembly of the shock absorbers. On the front, the lower shock mounts to the housing on the axle with 4-40 bolt and nuts. The upper part of the shock mounts over the shock tower on the chassis and is held in place with a collar.







The array of Edelbrock Performer kit components reveal the quarter-scale car's adherence to its full-size counterpart. Chrome moly chassis is a duplicate of the full-scale sprinter.

Now you'll need two wooden blocks 1-1/4" in height, to rest on the frame rails of the chassis under the axle to let the axle rest on the blocks. Do not remove the blocks during this assembly process. With this in place you can assemble the front torsion bar assemblies. Insert the bushings as shown and follow all the assembly instructions for proper alignment. These bars are a very important part of the race car. With all these parts in place the only part of the front suspension left is the installation of the radius rods. There is one on the left side of the Performer and two on the right, all secured in

place with 4-40 hardware. The rods are adjustable through the spherical rod ends.

Now we move to the rear of the Performer and assemble the Jacob's ladder to the chassis. This is the linkage assembly that keeps the rear end aligned with the chassis and stops movement from side to side.

The torque arm assembly is next on the agenda. This unit is fastened to the rear end housing and pivots just behind the motor plate.

The torque arm assembly should be secured to the rear end assembly. This rear is a precision piece of equipment and must be

greased. You have the luxury of changing gear ratios when desired. The ring and pinion can be greased by removing the right side plate. The rear plate can be removed to change gears and grease change gears.

Just like its big brother, the brake assembly is mounted on the quick change housing. It has a caliper, rotor and brake pads. The brake is actuated by a rod from the throttle servo that turns a cam to depress the brake pad.

Now take the rear assembly, with brake and torque arm and insert into rear of the chassis. The torque arm secures to one hole in the chassis. With the rear up in place, the axles can now be installed. The short is the left side and conversely the right is the larger one. Slip on the birdcage's bearings and retainers. The axle is held on the rear with a groove pin. Note that all these parts fit freely, so do not force. If need be, deburr the balky part.

Onto the rear torsion bar assembly and rear shocks. This installation is straightforward per the instruction sheet. This is where you'll need the 1-3/4" blocks. Place the block on the rear chassis frame and let the rear axle rest on the blocks. With the rear torsion bars and shocks all hooked up, move onto the driveshaft assembly. Install the universal joints and make sure you use Loctite where specified. You don't want these screws getting loose.

The rear suspension radius rods are now installed and the suspension is complete.

Select the bubble-wrapped hubs and assemble the front hubs. The hubs consist of a right and left hub, pressure washer, hex nut (both right and left thread) hub bearing washers, and dowel pins. This is one area where you will have to grind down a 3/8" socket wrench to fit inside the hub. Hub should spin freely.

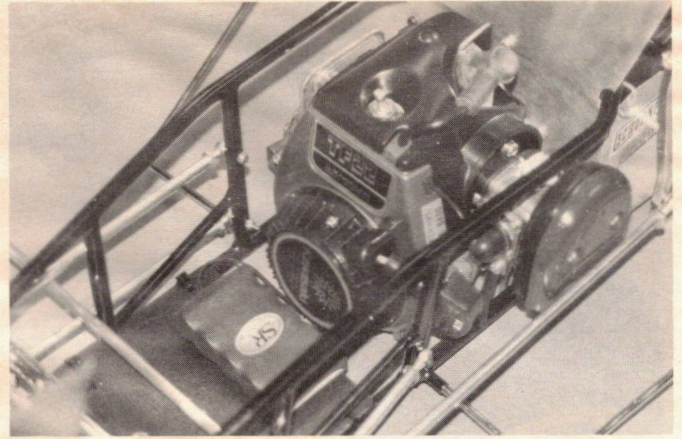
The rear hubs go together the same way



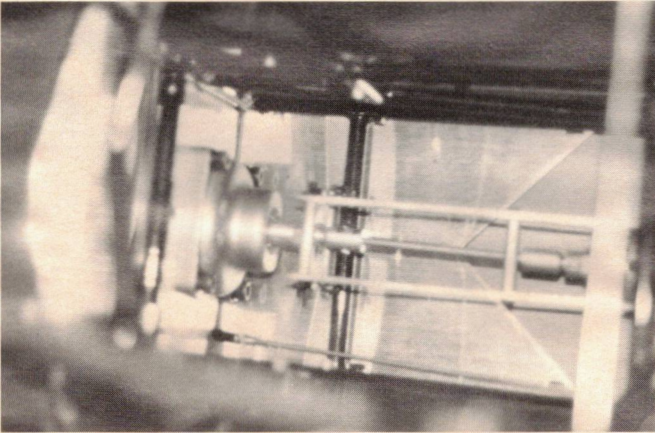
Exhaust manifold for the 1.3 cu. in. Kawasaki, which comes with the Performer kit. All you need is a radio system, and you're race ready.



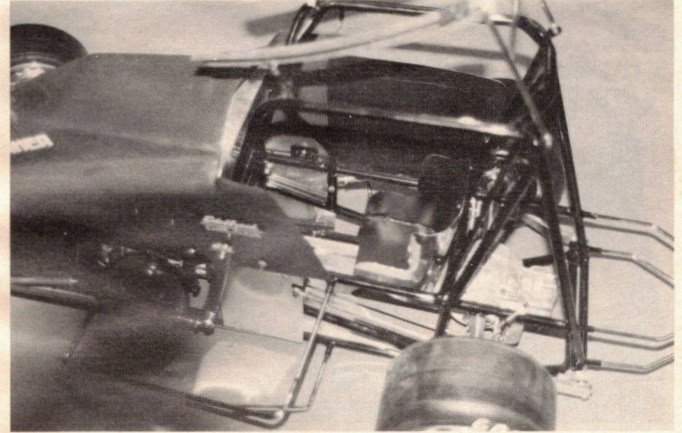
At left is the air cleaner and steering arm. Note the spherical joints. Radius rods are adjustable through the spherical rod ends.



Kawasaki 1.3 engine comes bolted directly to the aluminum motor plate on the Edelbrock Performer, ready to gas up and start.



Looking down on the torque box between the motor plate and the rear end.



The driver's seat installed as Performer's assembly reaches a conclusion.

except the bearing here is inside the bird-cages. The hub slides on the axle and is secured in place with bolt on backside. The hub can be moved in or out to provide offset.

Remember here the rule regarding hex nut knock off. Screw on to rear of car. Screw off to front of car.

The tires are very scale looking with the words Goodyear Eagle molded into the tire. The only non-scale thing about the tires is that they look like asphalt tires and not dirt ones. You'll have to put the tread on.

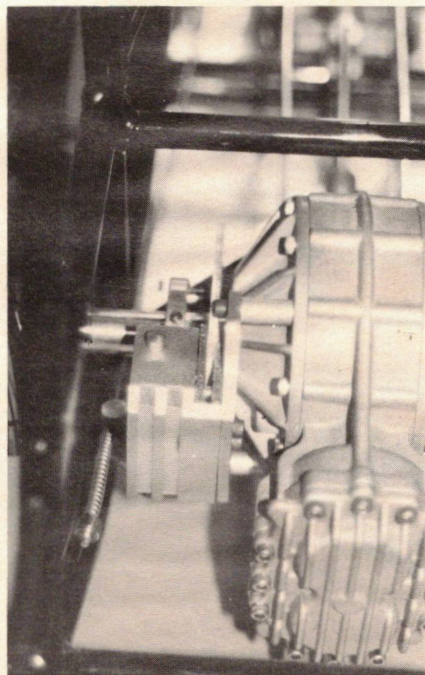
The rims are spun aluminum in two pieces for each wheel. A little polishing and they are ready for the tires.

Follow these instructions for mounting tires and wheels:

Remove inner core for gluing. Be careful not to rip core. Once core is removed, scuff inside tread area. Apply 3M Super Weather Strip Adhesive (part #08008, black) to all of inside tread area only, not side wall. Insert core and work core in place until smooth. To mount the B & L racing tires, you will need a bottle of Slow Zap PT-33, available at hobby stores. This is a slow-drying gap filler. Slow Zap is also good at the track for quick repairs and works well on outside of tire rim beads for extra-tight bead lock. Under no circumstances use regular super glue. It will not work.

Before gluing tires to rims, scuff all surfaces to be glued except the inside of the sponge. Apply two 1/8" beads of glue to the sponge where the underside of bead (smooth side) will sit on the sponge. Do not

press bead down on the sponge. When installed, the wheel will compress the underside of the bead to the sponge. Glue the rib side of the bead sparingly with glue, filling the ribs. Next take a wheel half and apply glue sparingly to wheel. Push wheel half into tire.



The brake assembly mounted on the rear end of the Performer.

Next, do the other side in the same manner. Use two 6/32" bolts and nuts to hold the wheel compressed. Allow ample time for the glue to set up.

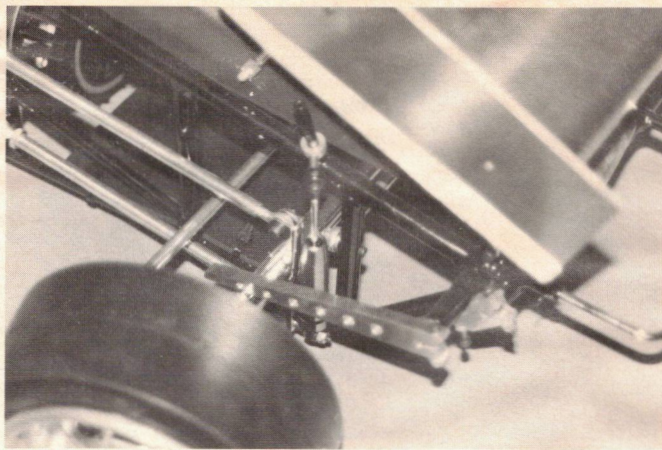
The drag link which is for looks only really add that little extra something to the Performer. The drag link mount, Pitman arm and drag link are all included in kit with all the hardware.

The time has come to install the radio system in the car. Read and follow instructions with the radio equipment before beginning.

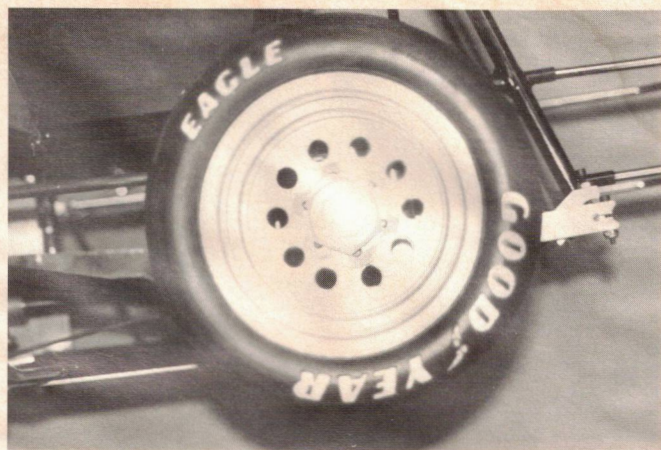
1. Turn on radio. Make sure battery indicator shows adequate charge.
2. Recharge or replace batteries if necessary.
3. Set both radio trim adjustments to neutral position.
4. Turn on the car's electrical system (radio first, car second). The steering and throttle/brake servos should move to their neutral position and each should move as you manipulate the radio controls.
5. Brake linkage: from brake arm to servo horn hole should measure approximately 7-1/4".
6. After this complete assembly cut off excess linkage.
7. You should install the radio antenna in center/top of hood for best reception.

Always: Use servo tape to tape bottom of servo to tray.

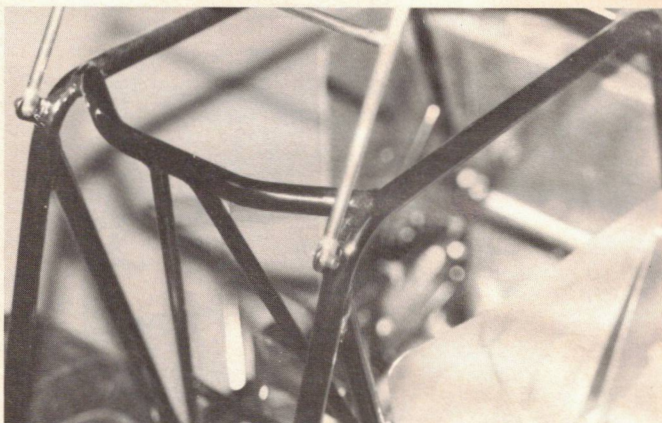
1. Cut servo horn as shown.
2. To ensure strength make aluminum brace to cover horn.



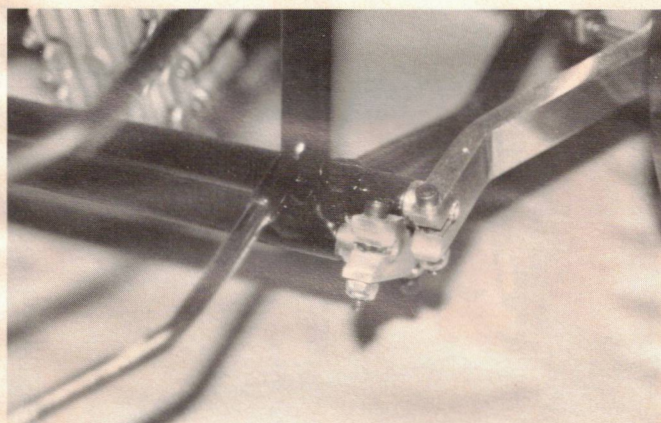
Front torsion bar and shock assembly.



Drilled-out wheels add to the car's authenticity.



The wing fastening brackets are easily accessed.



The rear torsion bar adjustment fitting.

3. Align servo horn with steering rod.
4. Bolt 4-40 x 1/2" through rod end. Screw on 4-40 hex nut. Bolt through servo horn. Secure with 4-40 lock nut.
5. Drill two small holes on each side of servo through servo tray. Use two 11" tie straps to secure servo.
6. Do same as shown at right with on/off switch and receiver battery pack.
7. Secure receiver with velcro.
1. Use servo tape to tape bottom of servo to floor pan.

2. Use round servo horn (pie shaped). Divide into four quarters. Cut off 3/4". Measure 2 holes 1/2" apart in remaining 3/4 piece. Use 2/56" drill bit-or see figure 28 using two ends for throttle/brake.

3. Kwik links from throttle and brake will snap into holds.

4. Use 3/8" hose clamp to secure throttle cable to lower frame rail. Cable should be in and shape toward front of car. Bottom of V at lower frame rail through bottom left corner of motor plate to servo.

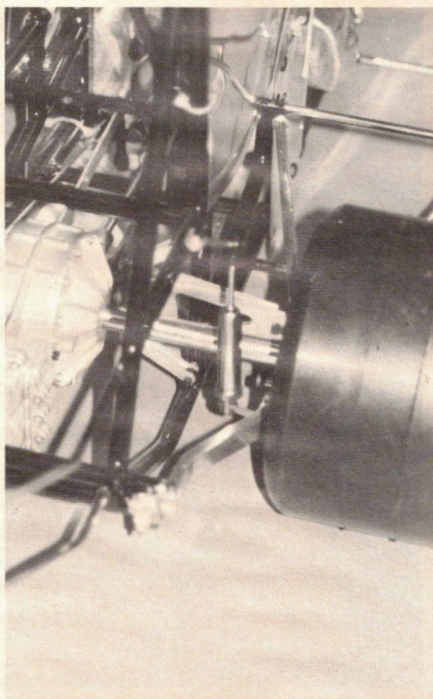
With the radio installed and working, let's move on to the side panels. These are aluminum panels; a right and left located just forward of rear radius rod mount and held in place with tie wraps.

We're ready now to mount the hardware to hold the top wing. Again, this is all provided in a plastic bag. The wing itself consists of the center section (airfoil), left panel, right panel, inner brackets and stabilizers. The aluminum parts come to you with a protective plastic peel-off coating to prevent

scratching during shipping. The wing is held in place with velcro, so that in case of an accident or flip, it will come off.

The nose wing is assembled in the same manner. It is held in place on the chassis and fastened to the hood.

The tail and fuel tank or fuel cell, as it's



Rear shock absorber and Jacob's ladder.

called, the two tail halves must be tacked together with super glue. Lay fiberglass cloth along the inside of the tail, wet the cloth with resin and let dry. The tail can be sanded, and filled with putty, let that dry and sand smooth. The tank must be notched on the front side to clear the quick change. Follow the instructions for installation of fuel tank and lines. The tank assembly is located inside the tail assembly, the tail is mounted to the frame rail with tie wraps.

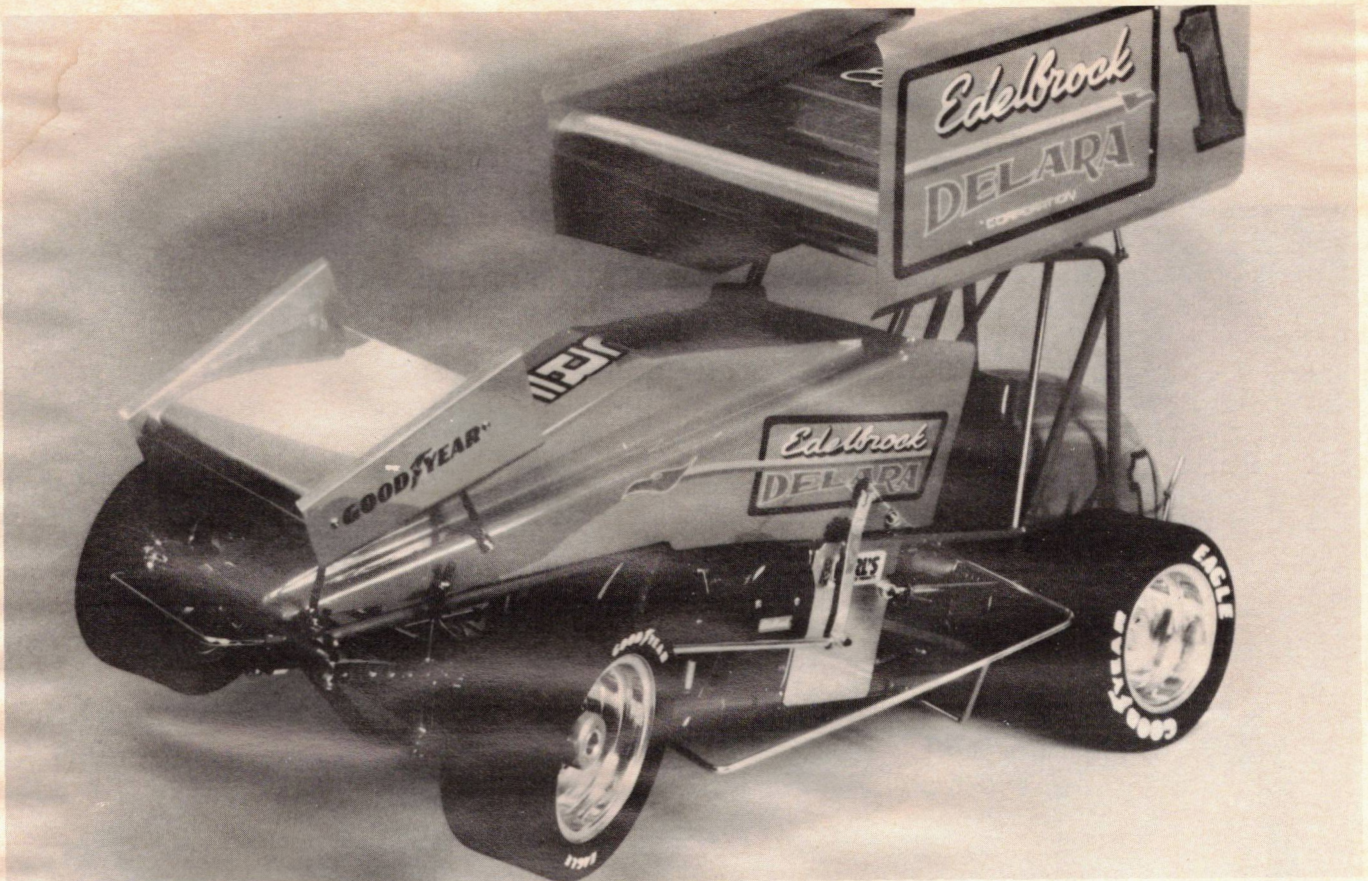
A little trimming on the hood is all that is needed. Mark holes for Dzus fasteners and steering arm. Now you can prepare the hood and tail section for painting. I used automotive Ditzler primer. With two light coats of primer and fine sanding, I applied two coats of Ditzler Deltron paint. When dry I wet sanded with 600 grit paper and applied the numbers and decals. With these all in place, I sprayed on a coat of clear Deltron.

With the body parts painted and mounted in place, you can now see your efforts in the assembly of a fine quarter-scale kit. I added two optional parts from Edelbrock on my Performer; the mud shield that goes on the right side of the car to protect the driver, and a seat. These just add a little more scale to the car.

Now that the car is ready for final adjustments, set the car in the following way. This is a starting point but it will get you started in the right direction.

Basic Setup—Starting Point

Ride height is measured from center of torsion bar to ground, Front and rear. Estab-



The Edelbrock quarter-scale sprint car replicates in amazing detail the full-size sprinter.

lishing ride height will also add weight to each wheel. (4 Points)

1. Measure all 4 points. If you have a scale, weigh them also.
2. Start at left front torsion stop. Back off hex nut. Screw-in bolt 1-1/2 turns.
3. Do same on right-front adjuster.
4. Measure the 4 points again.
5. Check difference between measurements and weight.

6. Continue to left rear and right rear. Measure and weigh again.

NOTE: Adjusting the left front will effect the right rear more than any other point. The right front will effect the left rear, etc.

7. When setup is satisfactory, tighten hex nuts on adjusters.

NOTE: If you are a new quarter-scale driver, begin slowly. Get to know your car. Be safe. Keep a note pad and write down any changes you make in height or weight, type of track, length of track and track conditions. The quarter-scale Performer Sprint Car works very well without the nose and top wings. If you wish to learn without them—do it. Check your radio equipment. Have fun and remember Safety First!

#### ENGINE SPECIFICATIONS

Carburetor.

Do not adjust or attempt to service the carburetor unless you are qualified. The engine is shipped from the factory with the correct adjustments to the carburetor. Quite often what appears to be a problem caused by the carburetor is in fact not in the carburetor. For correct adjustment see your dealer. Incorrect adjustments can cause serious damage to the engine.

#### SAFETY INSTRUCTIONS—WARNINGS

1. Read owner's manual before operating car.
2. Do not operate the car unless you understand all assembly and operation instructions.
3. Always check your radio operation.
4. Turn ON the radio first and the car last.

5. Turn OFF the car first and the radio last.

6. Do not operate the Performer Sprint Car near large metal structures as there may be radio interference.

7. Always operate the car in an open area free of bystanders. Never operate the car when children or animals are nearby.

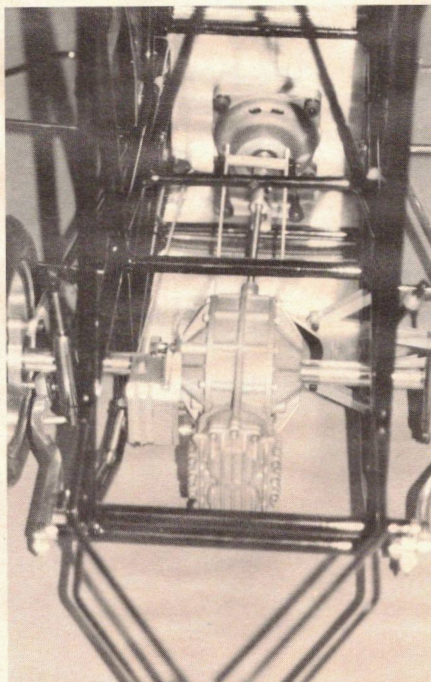
8. Always be certain your vision of the car is not obstructed by objects in the area of operation; loss of sight of the vehicle means loss of control.

9. Use extreme care when handling gasoline during refueling. Gasoline is extremely flammable and dangerous. Do not refuel in an enclosed area, near an open flame, or while smoking.

When the car is set up and ready to run, it's off to the track or large parking lot. Don't forget your fuel and a few wrenches to adjust the car's handling. When ready, fill the fuel tank with the gas and oil mix. Choke the carb and give a few quick pulls on the recoil starter. After the Kawasaki has come to life and you're ready to run, the centrifugal clutch will let you run the engine without the car moving. Slowly advance the throttle on the transmitter and you're on your way. Keep the speed down till you get accustomed to the car's handling.

The Performer handles very easily. It's responsive to your every command. Once you have the correct adjustments, you'll be running deep in the turns and power sliding just like the big ones.

The name Edelbrock has been in auto sports for many years. We hope to see more fine race cars from Edelbrock in the future.



Note driveshaft and torque rods, and the quick-change rear.



**SCHUMACHER'S  
AMAZING 1/10  
DIRT RACER**

# TOP CAT

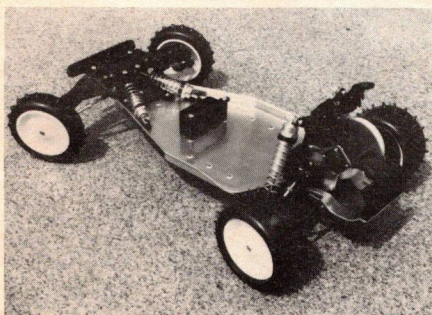


BY STEPHEN BROWN

**W**e've all been looking longingly at those ads for the new two-wheel drive Schumacher Top Cat for many months now. They show a covered-up car that has an unmistakable resemblance to the World Championship-winning four-wheel drive Schumacher Cat XLS. Pretty sneaky, huh? Makes you wonder what's so special underneath that they would cover it up. Well, I have finally had the chance to check out this car, and I think you're going to be pretty impressed with it; I sure am.

Let me tell you one thing right off the bat, this is no RC10 clone, this is a really unique, extraordinary new design. Look carefully at the pictures of the front of the car. Looks like it has no shocks, right? Look again. The shocks are inside the tub of the car, just like on Formula One and Indy (CART) cars. That gets them out of the way of the air flow and lowers the center of gravity. It also helps to keep them clean. This is quite a feat of engineering, but it is something we have come to expect from any Schumacher car. The fact that the Top Cat gets engineering assistance from Formula One cars should come as no surprise to those of us who know Cecil Schumacher, the engineering genius behind the cars that bear his name. Cecil gained his engineering expertise working for Cosworth Engineering (makers of one of the winningest engines in formula racing) and for Team Lotus, working on their Formula One effort. He also was the original designer of the ball differential that we all use on our R/C cars, although it was designed for Team Lotus' Formula One car, rather than for R/C. After finding out a little about the designer of this car we can understand why there is such incredible attention to detail, why every facet of the car is an improvement on previous designs. Take the transmission, for example. Inside it is an adjustable ball differential (what else would you expect?) that is driven by a Kevlar drive belt. On the outside is a 48-pitch spur gear on a quick-change mount. Power is transmitted to the rear wheels by Schumacher's own telescoping axles, instead of the vastly inferior dog bones. The front end features Schumacher's own "crashback" feature that allows the front end to give a little instead of simply breaking. Every detail here is what we would ask for if we could have a car designed for us, but, of course, few of us have that option. Even something as apparently simple as the battery box has been given the Schumacher treatment. The one on the Top Cat is very lightweight and virtually bulletproof. It may look very simple, but it happens to work better than any other battery box on the market. Perhaps a better battery box is not all that important, but it is typical of the attention to detail on this car. It all makes for a car that is a step ahead of the competition in design.

This car was designed to be enjoyed by





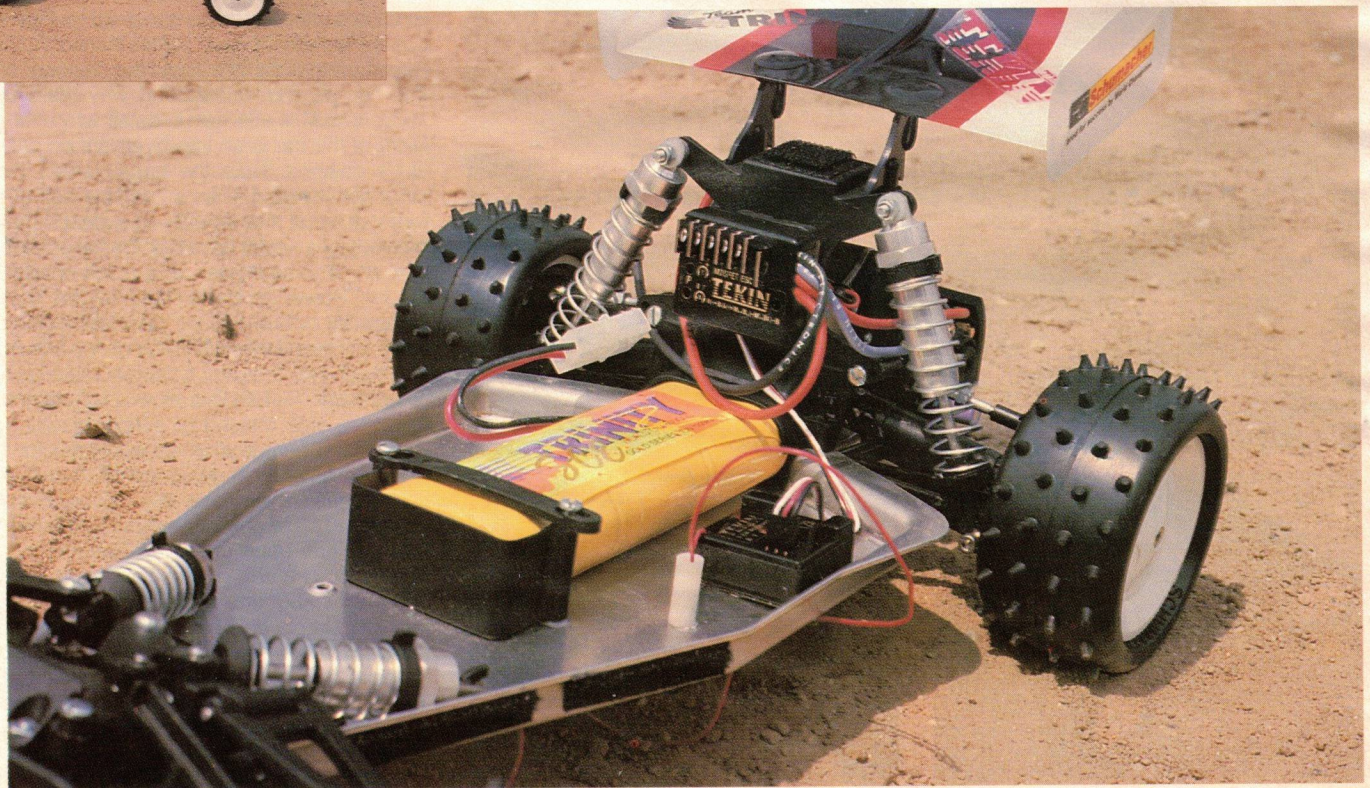
Utilizing his experience in the design of the full-size Team Lotus Formula One cars, Cecil Schumacher's shock-mount design follows the lead of the F.1 car with this unique setup that allows a lower front body profile.



both novice and expert, according to the instructions, so it had better not be too difficult to put together. After looking through the box and perusing the instruction manual we can see that this car should go together fairly easily. The parts are bagged to correspond with steps in the instruction manual, and the manual is well separated into modular car sections. This means that you will first build

the rear suspension, from the rear suspension bags, then move on to building the shocks from the shock bag, and so on. The manual is extremely well-organized, making the laborious task of building a car much, much easier. One thing that I particularly appreciated were the frequent tips on building that these instructions give you. Little hints like when to deburr a metal part, or when to be particularly careful about over-tightening a screw into a plastic part. This sort of thing does make your job of building the car all that much easier. There were also frequent tips on the proper preparation of the car for racing that are not normally found in manuals. There is, for example, a very lucid and detailed explanation of setting tension for the belt. The approach behind this would seem to be that they want anyone to be able to build a competitive race car, not just get the job of building the car finished.

When I built this car I came across no major problems, certainly none of the problems which we all come across in manuals written translated from a foreign language. Actually I did keep coming across the word "whilst" in the manual, but I think that's just the English being eccentric. Perhaps the most difficult part of this car to build is the differential. Even this is not so rough that it can't be done with just a little bit of perseverance. Trinity does have an aftermarket differential that fits well and might be easier for you to use. Actually, this is about the only thing that I can think of that you might want to add to this car. You might want to replace the standard wing mounts, neat as they are, with Trinity's top-mount wing mounts, you also might want to check out Andy's arms for the car, after they come out. Basically just put it



together the way they tell you to in the instructions without too many modifications and you should have yourself a winner.

After getting this car put together, and taking some pictures while (whilst?) it still looked brand-spanking new (you would be amazed at what my cars look like when I'm done "testing" them; torturing would actually be a better term for what I do to them) I put in the radio gear, motor and batteries to do some testing. For a motor I picked the Trinity #2005 Oval wind, and for batteries Trinity's matched seven cells. Anyone who has tried Trinity's Oval wind motor knows how fast this puppy is. I know I could make do with something slower but hey, I can't help it. I like going fast. Besides, I wanted to see if the Top Cat could hook all this horsepower up to the ground.

In my last car test I had the opportunity to try the new generation of Tekin radio gear. I was so impressed by it that I brought it back for a second look. The Tekin ESC Pro 300 and Pro receiver were no less impressive this time out. Kevin Orton seems to have figured out something special that makes his radio gear so extraordinary. I guess for the Tekin ESC Pro 300 a lot of this has to do with the exclusive Tekin custom-made chip. While all other ESC manufacturers have to make do with a reworked servo amp, Tekin went out and had a chip made specially for them. This really does show up in terms of increased driveability and a two- to four-per cent increase in horsepower over the competition. Not bad! Tekin has really done their homework on this one. All this plus the security of Tempjet circuitry and the smallest and lightest package around make this one very special ESC. If you look carefully at the pictures of the car you will see the Tekin pro receiver. I know that it's small but believe me, it's there. It's only about the size of a quarter but it works as well as, or better than any of the behemoth receivers we all used to use. With the addition of a Futaba S-132 servo for steering we were set to go racing.

Do you get the idea? This was not one of my better days, in terms of being prepared. I would love to be able to tell you that I set new lap records, won the A main, etc. This was simply not the case, although I do feel that I raced fairly competently (yes, I did get to practice before the race and I did finally get the body held on my car) what I accomplished on that day would be better described as "durability testing." I managed to flip my car over (am I a talented test driver, or what?) to test the break-away wing mounts. They worked perfectly, allowing the wing to bend back whilst (I'm kind of getting used to "whilst, aren't you?) upside down, and then pull it

As I live in New York City, it isn't always easy for me to get to a dirt track to test. There is always good old Mother Goose Raceway, of course, but it is a little early in the year for anyone to be running there. Therefore, I allowed myself to be kidnapped by the Grove family and transported to a track out in the middle of nowhere. I really don't know quite where I was, but it looked a bit like South Jersey (no one around here uses "New" when referring to that state, least of all the inhabitants; saying "New Jersey" shows that you are from California and should immediately be followed by "Dude") and as the



**The current world champion in four-wheel drive is the Schumacher Cat. The author would not be surprised if the next reigning champ in two-wheel drive is the Top Cat.**

track looked terrific I decided to stay. I should point out, in my own defense, that this was the first time I had ever run the car. Whilst (while) everyone else was out practicing I was still looking for my little screwdriver to adjust my speed controller. When my friend John (one of my kidnappers) was able to consider which tires were the best I was feverishly pulling stuff out of my bag and throwing it all over the ground looking, in vain, for the body clips I forgot to bring. About the time everyone else decided that they had enough practice, I had just remembered that my body was held on by velcro! When I finally ran full-tilt from my pit over to the track, with my completed car, trying to figure out which direction the track ran, I heard "Ten minutes to first heat, track closed."

right back when the car was finally right side up. I managed to test the crash-back front suspension by hitting the wall on the outside of the sweeper numerous times. This could have something to do with the fact that the sweeper was to my left and I was looking to my right; I'm still not sure why, but it doesn't really matter. It accomplished the purpose of fully testing the front suspension. I clipped those boards in every conceivable manner (and more times than I care to relate) with nothing breaking on the front end. I do think I saw some large pieces of those outside boards being broken, but that couldn't possibly have been done by me, now could it?

The point of all this, aside from the obvious merits of being prepared to race when you go to all the trouble to show up at a race, is that the Top Cat showed extraordinary potential. No car, no matter how good, wins the A main the first time out. You have to get all the adjustments right (my shocks were set totally wrong, much too stiff) and you have to bulletproof the car (I found out the hard way where I forgot to use threadlock). Despite my

lack of preparation and my incorrect settings my car was one of the fastest out there. The car is so incredibly light (lightest two-wheel drive race car on the market) and handles so well out of the box that I was able to be competitive without even trying. I was able to handle the jump and the 180-degree berm as well as any car out there. No one got off the line faster than I did. With a very little bit of work, and perhaps the right driver, this car could definitely be the best.

In subsequent testing I found out some things which might be of some use to you. My car ran best with 10-weight oil in the front and 30 in the rear. Set it up as low to the ground as you can get away with and forget about toe-in; this car runs better with a little toe-out. This is easily adjusted with the linkage supplied with the kit, there's no need to get an aftermarket part for that. Running off-road I found it to be a help to put the O-ring between the screws on the bell cranks which operate the shocks, as suggested in the manual. Setting it up like this will give you a car that is perfectly stable going over jumps and confidence inspiring on ovals. I have yet to try it on carpet, but I find it hard to imagine that any other car in its class could even come close.

The four-wheel drive Schumacher Cat is the current World Champion, it would not surprise me at all to see the Top Cat as the next two-wheel drive World Championship-winning car. Spending some time looking at this car, taking it apart, putting it back together and running it again makes me appreciate just how different, and good, this car is. It really does seem better in every regard than the old two-wheel drive cars. I can assure you of one thing, this Trinity-powered, Tekin-equipped Top Cat is the car that I will be showing up at races with and I fully expect that I will beat all lesser machines. •

# EVERYTHING

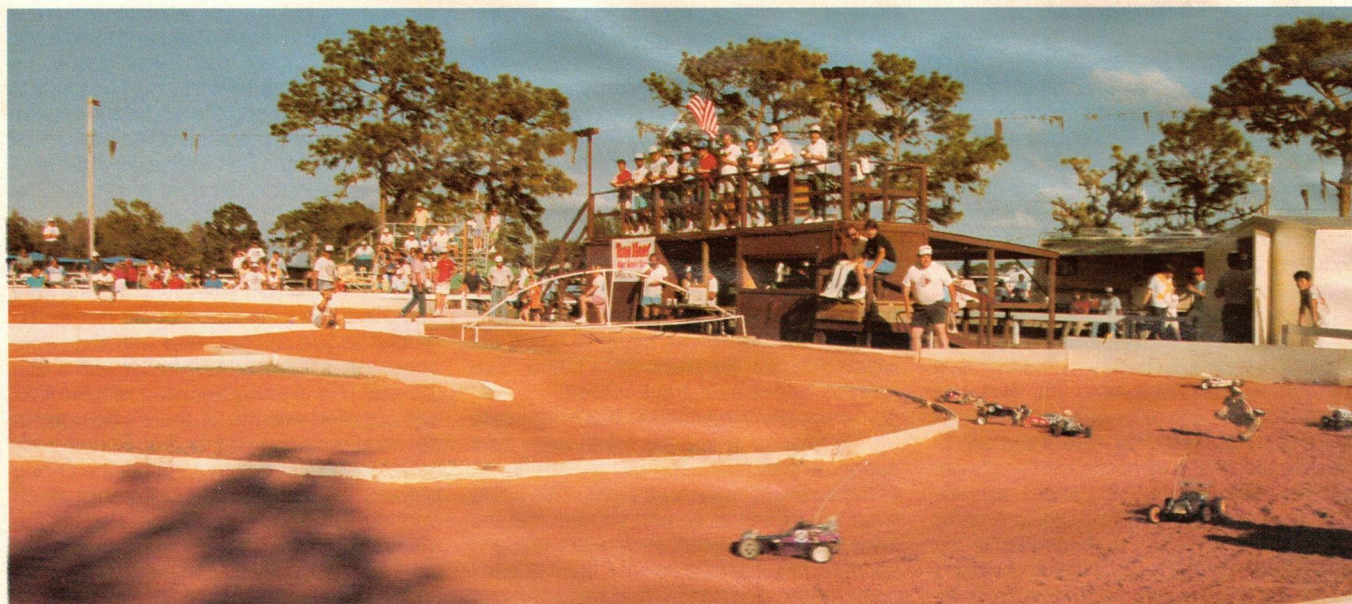
YOU ALWAYS WANTED

# TO KNOW

ABOUT

# R/C CAR RACING

BY GENE HUSTING



**B**eginners in the exciting world of R/C car racing have a million questions, which is quite understandable. I won't be able to answer every one of your questions, but I'm sure I can help you to get started with more confidence.

## CARS

There are so many different types of R/C cars, which is best for you? I can't answer that. Only you can answer that. I'll tell you something about the different types of cars, which will make deciding on the correct one a little easier for you.

### 1/10 OFFROAD ELECTRIC

This is by far the most popular type of car, than *all* the other kinds of cars put together,

by a big margin. There are two basic types of cars, 2WD (2-wheel drive) and 4WD (4-wheel drive). 2WD is much more popular than 4WD, by a 5 to 1 margin, at least. Why? 2WD costs less, is easier to assemble and maintain, and 2WD cars are much stronger and more durable. I would DEFINITELY recommend, if you're thinking about offroad, to start with a 2WD car.

Offroad races on dirt road courses are by far the most popular. Next would be offroad cars on dirt oval tracks. There are a number of companies making monster truck conversion kits for the most popular 2WD cars. And, there are also more companies making sprint car conversion kits for the most popular 2WD

cars. The offroad monster truck road racing is becoming more popular all the time. There are also some tractor pull events in the midwest.

### 1/10 ONROAD ELECTRIC

This is the fastest-growing new class of R/C car racing, and it's already moved into second place. The 1/10 onroad cars are a larger version of the 1/12 onroad cars. What made the 1/10 onroad cars more popular than the 1/12 onroad cars, is that they're much larger, closer to the size of the 1/8 gas cars, and they're much easier to drive.

The problem with the 1/12 cars is that they're overpowered for outdoor asphalt-type racing. Something like a blown fuel

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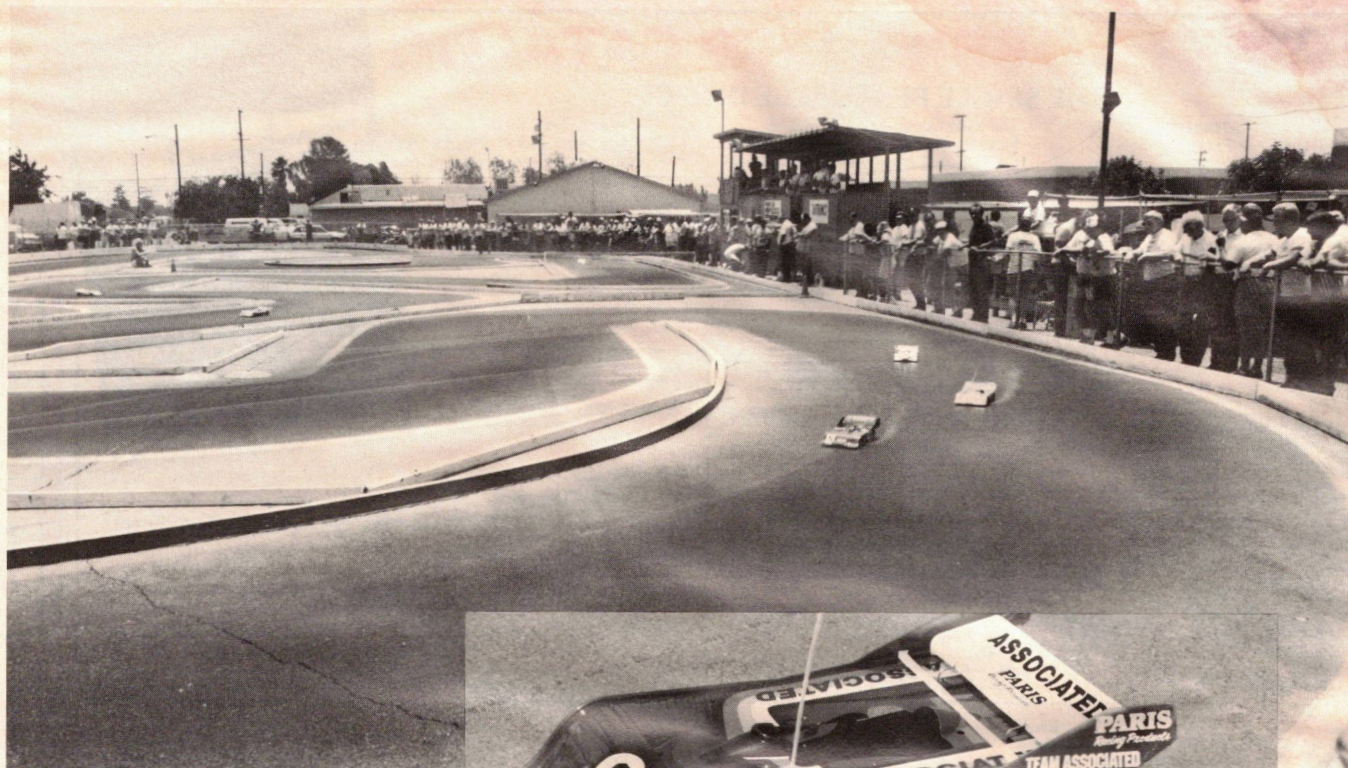
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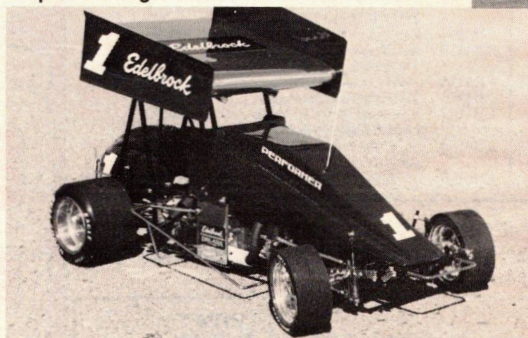
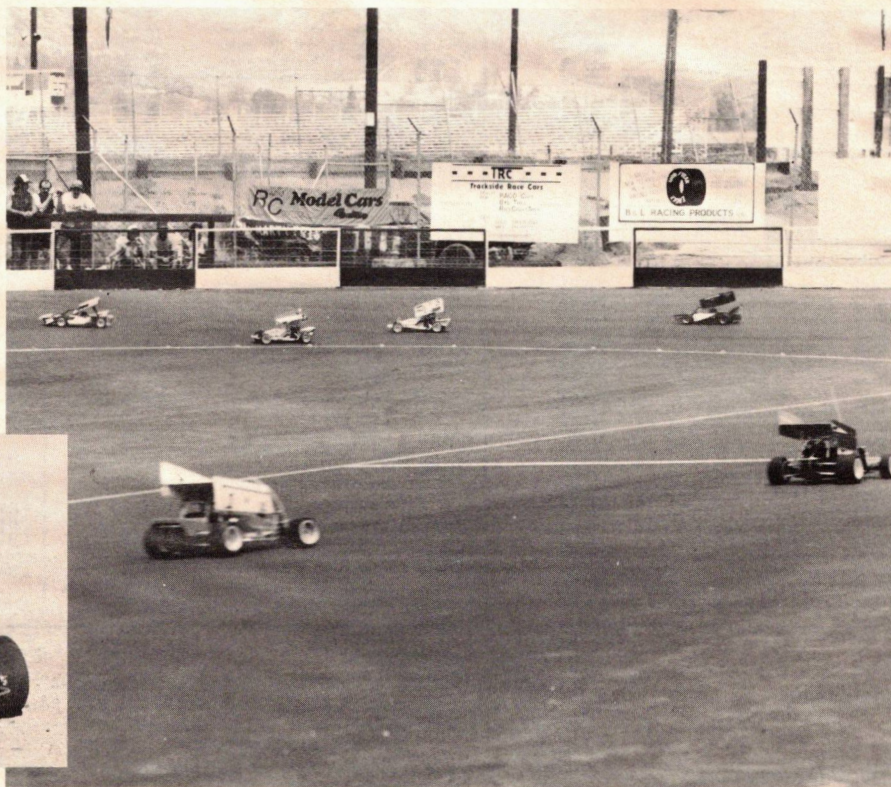
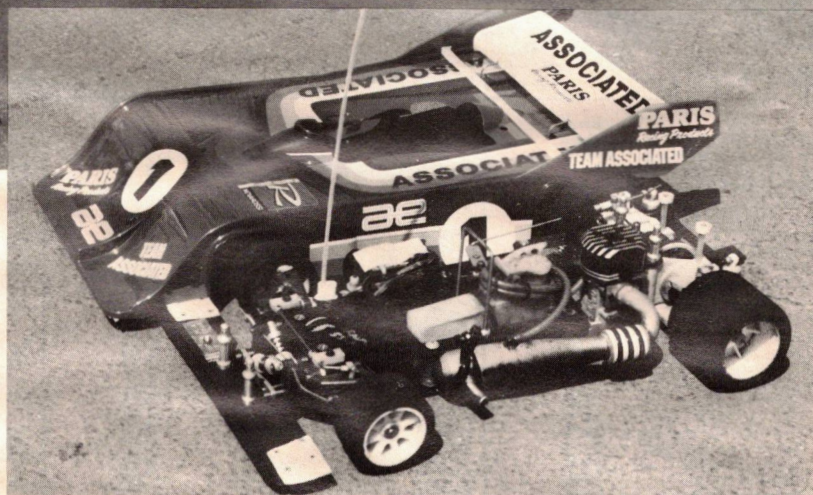
Chrysler in a VW. Only the expert class racers can really drive them smoothly. Everyone else is struggling. On the other hand, the 1/10 cars for outdoor asphalt racing are bigger and easier to see, and handle much better, making them a lot easier to drive, even for the novice and amateur class drivers. They handle so well, that close, door handle to door handle racing is common.

The cost of this type racing is also the least expensive for all categories of racing and gives the most fun per buck spent.

#### 1/12 ONROAD ELECTRIC

This was the most popular type of R/C car racing for ten years. And it's still the most popular indoor carpet racing there is. These 1/12 cars on carpet are incredible. For out and out acceleration and cornering, these cars are in a world by themselves. They're very popular in the wintertime when all racing moves indoors in the northern states. It's probably the easiest scale from which to judge a driver's performance.

Still more expensive, and difficult to transport, the quarter-scale class is generally limited to an older group of devotees who enjoy the relationship of the larger cars to full-size machines.





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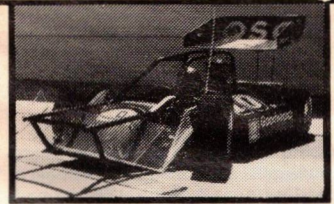
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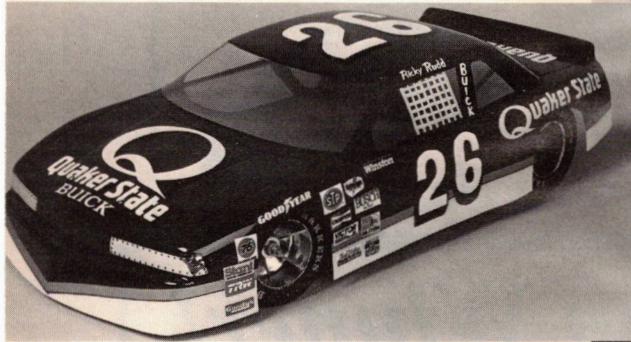


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Oval racing is strong in the south, where 1/10-scale oval tracks are numerous. The cost of 1/10-scale road racing is the lowest by comparison to other scales of radio-controlled racing.



### 1/8 ONROAD GAS

This is the class that started R/C car racing over 20 years ago, and it's still going strong. For the first six years of R/C car racing everyone ran gas cars, until the 1/12 electric cars began.

There is no question that 1/8 gas cars give the greatest feeling of satisfaction and accomplishment in winning a race, than any of the other scales. This is because it takes much more cost and work in building and maintaining a 1/8 gas car. The results are that you have a model of a real Indy, F-1 or GTP car with 2 or 4WD, independent coil-over suspension, automatic clutch, automatic two-speed transmission, differential, disc brakes and a gas engine that will turn 35,000 rpm. This all adds up to a car that can go over 70 mph, with incredible cornering ability and is relatively easy to drive. But the cost is high and there is much more maintenance required.

### 1/4 ONROAD GAS

Simply the biggest R/C cars. If they'd only made them 1/2 scale you'd be able to get in

them and drive them yourself. These cars cost the most of any R/C cars, which is one reason of the limited popularity. They also do not handle near as well as any of the other R/C cars, even though top speed is only 40 mph. Their size requires a pickup truck, station wagon or trailer to haul them around. But there's just something about seeing an R/C car that's this big running around a track that's neat.

### 1/12, 1/8 & 1/4 DRAG CARS

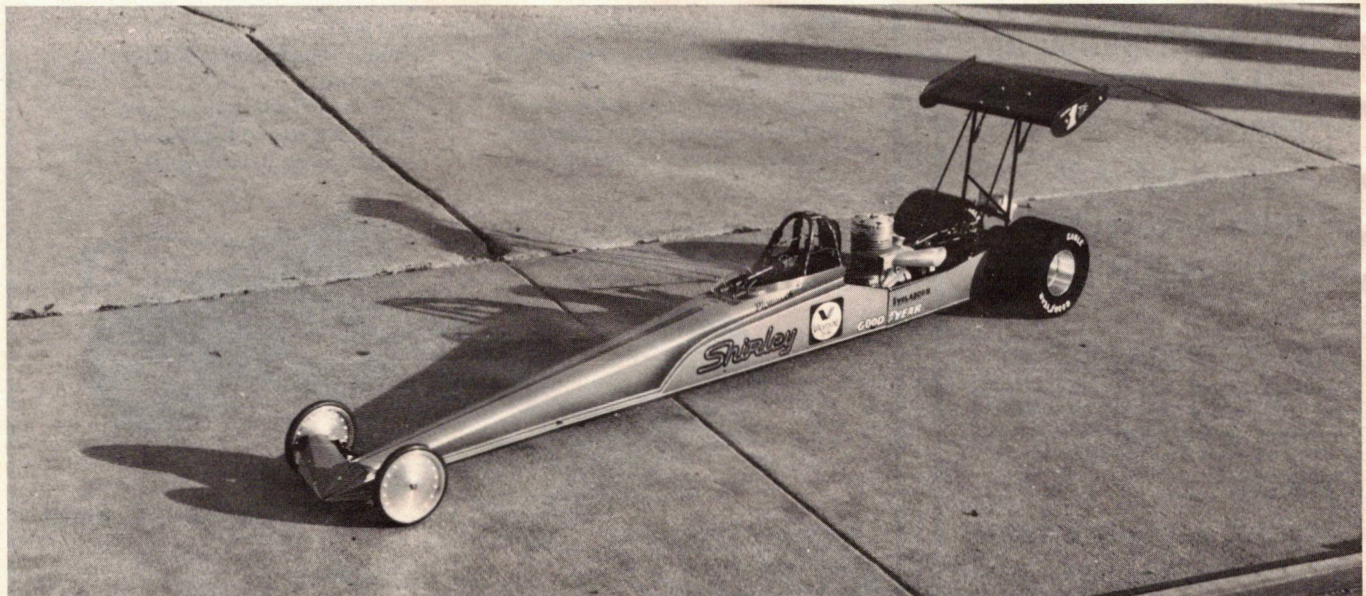
There is some limited activity of drag racing going on in a few areas of the country. I've tried 1/8 drag racing, but 2-1/2 second runs just aren't enough driving time, especially after I've driven in 24 hour enduros in 1/8 gas road cars.

If you have not already bought your new car yet, take your time. Read the magazine to see which cars are doing good at the races. Ask your local hobby shop where and when R/C cars are raced in your area. Go to your local track and watch some racing. See which cars are doing the best. Talk to the

racers. Ask them what they like about their particular brand of car, and also ask what they dislike. You can learn a lot this way.

When you've narrowed your choice down to one or two cars, go back to your hobby shop and see if they sell the car, and equally important, if they have a stock of spare parts for the car you've chosen. You MUST be able to get spare parts for your car, or as soon as you break or wear out one part on your car, and you can't replace that part, your car is useless.

When you decide on which car you want, see if there are different models available. Some come with bushings and some with ball bearings. It's best to start with the best kit you can afford. If that's a bushing kit, that's OK because you can always add ball bearings later. Buy your kit, but don't buy a bunch of trick add on hop up parts right away. Some of those items will help you, but there are a lot of them that will hurt you. Wait until later to add these parts, when you know a little more about what you're doing.



Radio-controlled drag racing is exciting, but with 2-1/2-second runs, driving time is limited when compared to other types of racing. Pit preparation consumes most of the time. Here, the 1/8-scale gas dragster by John Muldowney reproduces the full-size car his mom, Shirley, drove to many victories.

### ASSEMBLING YOUR KIT

Take your time and assemble your car exactly like the instructions tell you. Don't try and rush through and get it done with the attitude that it's good enough. That's exactly the way the car will run: good enough! I'm sure you want your car to be the best possible car you can have. Then you must assemble it the best possible way that you can. It won't take that much longer to do it right, and you'll be much happier later with the way it runs.

### RADIO

Most R/C car racers use steering wheel type radios, because they're easier to drive with. You only need a two channel radio, even though some come with three channels which are used in boats. Futaba and Airtronics are the most popular radios, but there are also other good radios available. Again, get the best radio you can afford. This is generally a question of the more you pay the better it is. The difference between the cheaper radios and the more expensive radios, is that the cheaper radios are more susceptible to radio interference which can affect how your car runs.

The better radio systems have higher quality transmitters and receivers which lessens your chances of getting radio interference. They're worth it. Radios come on either 27 or 75 frequencies for cars. The difference is, there's less chance of radio interference on the 27 frequencies, but there are more available frequencies on 75. The choice is yours. Mine would be 27.

### SPEED CONTROLLERS

The most popular to date have been Novak and Tekin, but Futaba and Airtronics have new reliable speed controllers as well as a dozen other companies. Check with your hobby shop to see what they recommend.

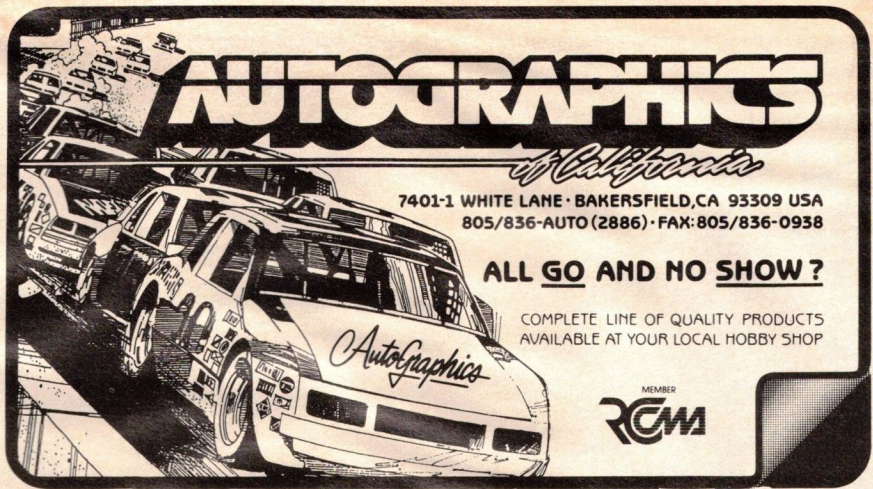
### BATTERY CHARGERS

Again Novak and Tekin have the chargers most popular with the racers, but there are a lot of excellent chargers available. Chargers will vary quite a bit in price depending on features. The simplest method is a charge cord. It is the least expensive and it does charge the batteries. The next would be a basic 12-volt or 110-volt charger with a timer switch. Next would be a charger that shuts off automatically when the batteries are fully charged. This is the Novak and Tekin type and is highly recommended. The next best would be an automatic charger with a built in LCD voltmeter. The ultimate is an automatic charger with a computerized circuit, with LCD readout showing many functions, charging voltage, charging amperage, which are both adjustable, peak voltage, adjustable discharge rate with readout.

### BATTERIES

There are two basic types of batteries being used now. Sanyo SCR and Sanyo SCE. The advantage of the SCE batteries is they have a little more power but the big disadvantage is, to obtain the best performance they can only be used once a day, or preferably, once a week. The SCR batteries have a little less power, but you can use them over and over again every day. Just remember to let them cool down at least 30 minutes before recharging after using.

There are also matched packs of batteries



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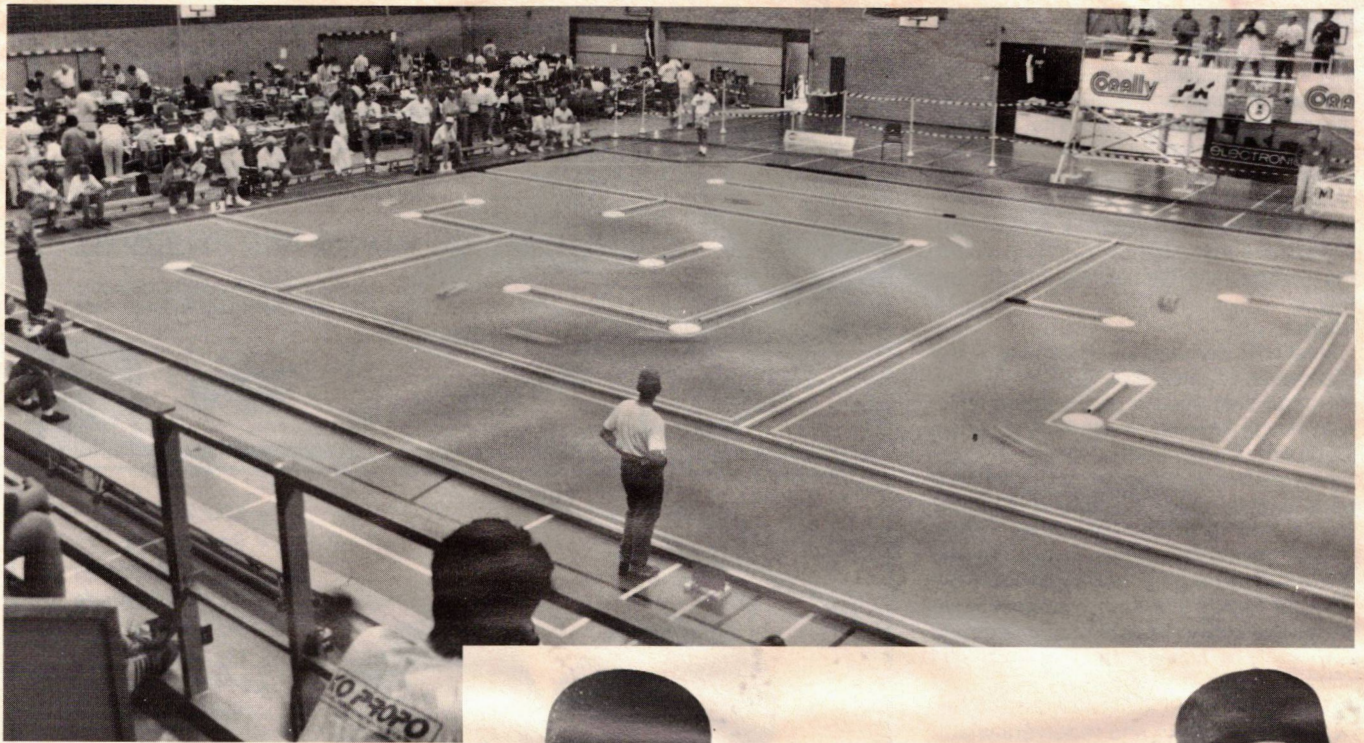
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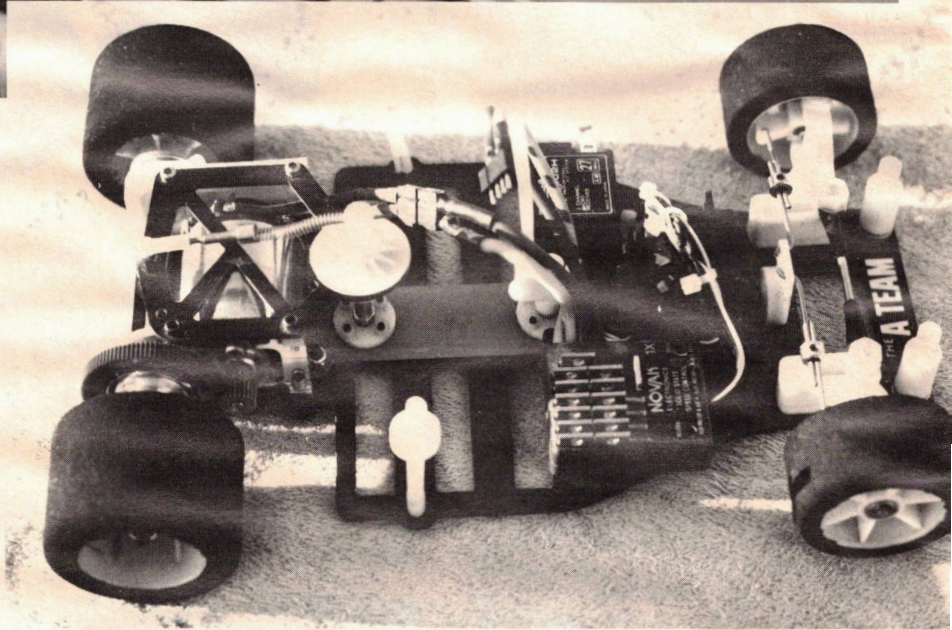
available, but don't worry about getting these for awhile. What you will need to begin with, is the Sanyo SCR batteries, so you can get as much practice time as possible. two or three packs of these is enough for the beginning.

#### **LEARNING TO DRIVE**

It will probably take you about 30 to 60 minutes to be able to make LH and RH turns without having to think about it. Then it will become automatic. At that point your driving will improve quite rapidly. Find a place, while you're learning how to drive, that's as big as possible, and that's impossible to run into anybody else or anything else. You certainly don't want to hurt anyone else and you don't want to destroy your car running into a curb.

**PRACTICE! PRACTICE! PRACTICE!** PRACTICE! There's simply no substitute for it. Two of the best drivers in the world believe in a lot of track time. Masami Hirotsuka, from Japan, the current 1/12 and 1/10 IFMAR offroad world champion, practices two hours every day when he's not racing. Cliff Lett, the 1988 Driver of the Year, and the leading candidate for the same honors in 1989, races at least twice a week and goes early to get as much practice time in as possible. If the best drivers in the world believe in practice, then you know it's got to do you some good, too.

I've won a LOT of major races, as well as ROAR Nationals and have placed 3rd overall in the IFMAR 1/8 gas World Championships. It's not because I was such a great driver; I'm a very good driver, but I was able to beat a lot of great drivers because my car was easier to drive than theirs.



Sounds simple doesn't it? Why doesn't everyone do it? Good question. Some people are better mechanics than others. Some people understand how the car works better than others, and consequently what to do to make it HANDLE BETTER. Notice I didn't say how to make it go faster. Simply being able to go faster in a straight line doesn't guarantee you that you're going to win your next race. You'll have a far better chance to win, if you improve your car's handling.

When we race on Sunday, we use Saturday as a practice day. I can tell you I looked forward to running on Saturday, as much as I did on running and winning on Sunday. Doesn't sound right does it? But it's the truth. Because I couldn't wait to get to the track on Saturday to try the latest new change I thought of. To me, it was just as exciting to find something new to make the car handle better on Saturday, as it was to win on Sunday. When you find something new that works on Saturday, you can't wait for Sunday to come.

I don't want to make it sound like horsepower isn't important. It sure is. But horsepower alone isn't a cure-all. Handling is. I probably spent 25% of my time building horsepower and 75% on the car. My motors were as fast as anyone's and usually faster, and I felt my cars handled as well or better than anyone else's. But I felt I had to have that kind of edge to beat guys that were better drivers than I was. and it worked!

Now I don't expect you to come up with some startling new discovery every time you go to the track. It's not that easy and it's not really necessary. But I do believe it is possible for you to keep improving your performance by **PRACTICING AND TRYING DIFFERENT THINGS.**

If you're running offroad, and you feel you've progressed to the point that you can tell exactly what happens when you change something on the car, then it's time to experiment. Unless you've got a photographic memory, it would be a good idea to have a notebook to record every change you make

and how that change affected the car.

Now we're going to start with the assumption you've got the car in perfect running order, otherwise nothing else we do will make sense. Run the car a few laps until you know exactly how the car feels. It's not really necessary to run the battery pack all the way down.

Make a note in your notebook about how the car was running. Was the speed OK? Did it jump OK? Did it have enough steering in the slow corners and in the fast corners? You now have a base to start with. Let's say you want more steering. Are the other guys running different front tires than you are? If so, try what they're running. What happened when you tried the tires? Make a note of what tires were on the car, what you changed to, and then what the car did. Make a note of the condition of the track, hard packed, soft, damp, etc.

This procedure can be completed again, and again and again. With front springs, with rear springs, shock oils, anti-roll bars, front and rear ride heights, wings, gearing, tires, etc.

I know you won't be able to try everything at your next race. But it doesn't make any difference. Try as much as you can. NEVER TRY TWO THINGS AT THE SAME TIME. You'll never know what's happening. Be as scientific as possible about it. Be as sure as possible about your findings. You may have to switch the same parts back and forth two or three times before you're absolutely certain which one is working better.

If it sounds like a lot of work, don't even think of it that way. Just think that you and your car are going to be going faster and faster with the more things you try. It's going

to get easier and easier for you to beat guys you've never beaten before. YOU CAN DO IT IF YOU WANT TO!

Good luck in your racing!

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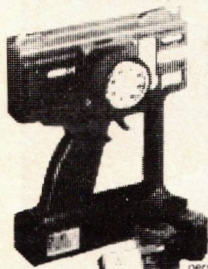
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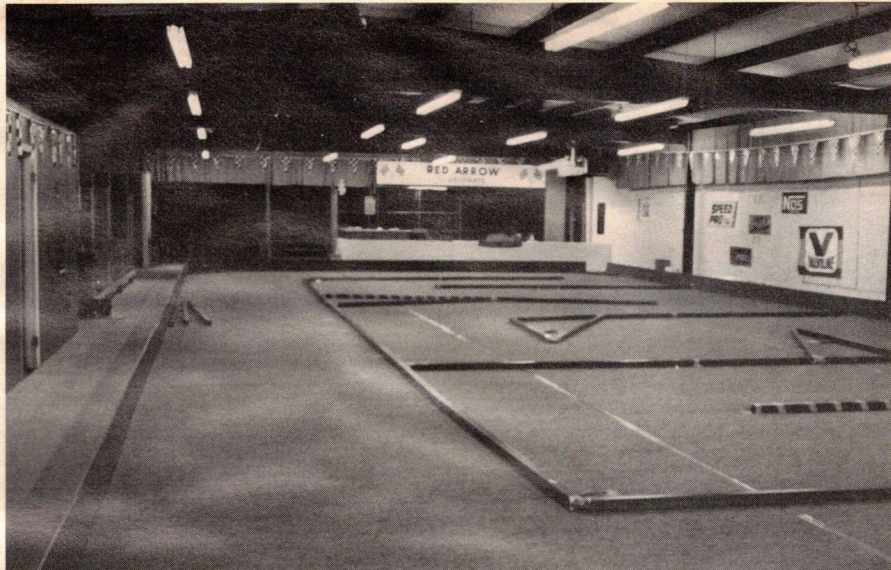
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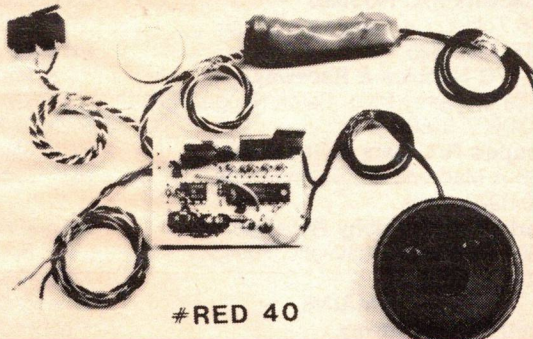
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(616)465-6525  
**Tait's Hobbies & Raceway**  
3270 Bay Rd., Saginaw, 48603  
(517)799-3900

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Kansas City, 64137  
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**Hobby Village and Raceway**  
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Riverside, 64150  
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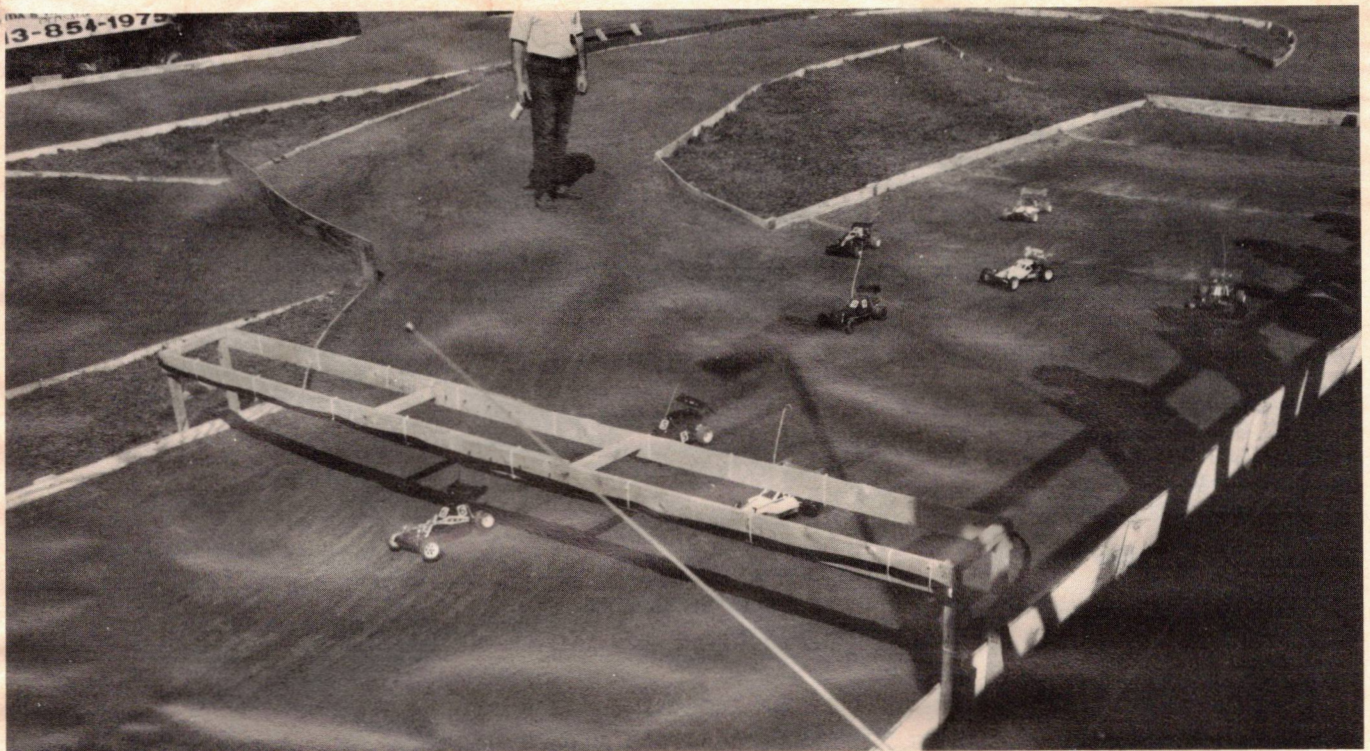
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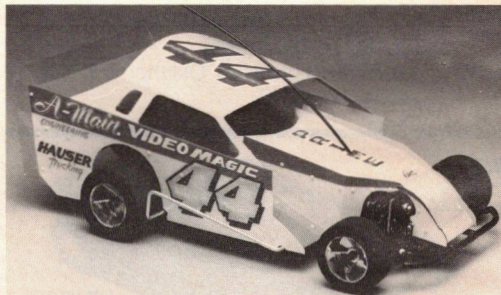
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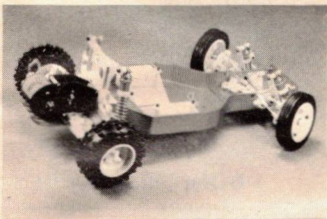
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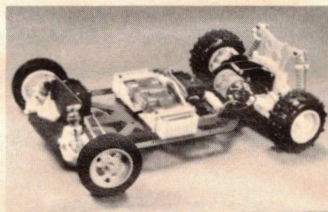
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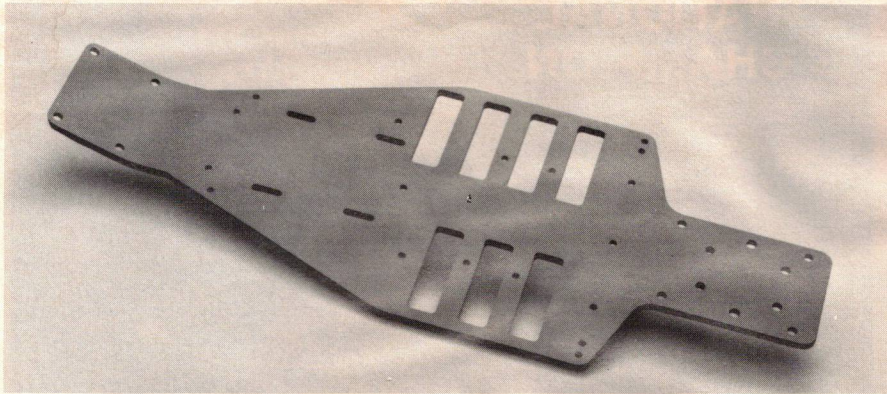
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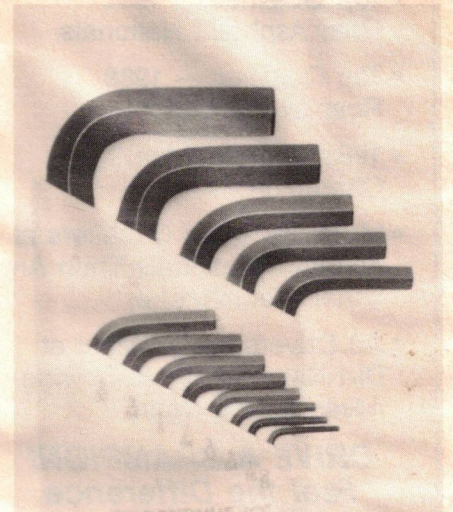
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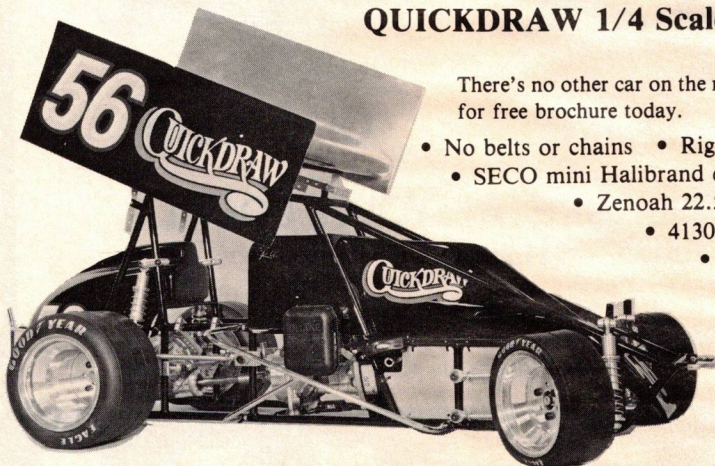


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Continued from page 20

this month I have a couple to share with you, both from Aristo-Craft. First is the Model CG-25 "Multi-Charge-A-Matic" NiCd charger and efficiency tester, a kind of big brother to the original Model CG-315 "Charge-A-Matic" peak detection charger. This newest addition is first of all, a 12 VDC input peak detection charger, designed for batteries of from 270 to 1800 mAh capacity, and from 4.0 to 12 volts. The charge rate is adjustable from 9 to 4.5 amperes; the instructions containing recommendations for different batteries. Upon completion of the charging cycle, a buzzer sounds, and the rate drops down to a lower value of from 50 to 200 mA depending on the initial charging rate selected.

As is commonly done in most instructions for R/C car battery chargers, this slower rate is erroneously referred to as "trickle" charge in the Multi-Charge-A-Matic instructions. The trickle rate as established by the battery industry, a rate at which the battery can be maintained indefinitely, is much lower than that. The actual established trickle rate is from C/100 to C/25; .01 to .04 of the rated cell capacity. Leaving NiCds on for long periods at the higher rates will definitely lead to overcharging and shortened life. This fact is obviously recognized by the designers of this unit, as it automatically shuts off completely after fifty minutes time. An externally

replaceable fuse protects the charger from short circuits or reversed connections.

As most of us learn sooner or later in the charging game, to charge any given battery requires a voltage higher than that of the battery, and most chargers operating with a 12VDC input are limited to charging seven cells. This new one from Aristo-Craft includes a voltage booster which allows the charging of the higher voltage batteries mentioned, though above 9.6 volts, the rate is limited to 2.6 amps. I don't know exactly how this is accomplished in this unit, though there are any one of a number of modern techniques for doing so.

The CG-325 includes a discharger section, termed the "Efficiency Test Section." Its purpose is to discharge the fully charged battery at a given rate, selectable from 270 to 1800 milliamperes, and display the results on an LED indicator as from 60 to 120% efficiency. The 120 is there as some cells will actually produce a higher-than-rated capacity when charged rapidly and discharged immediately after. The lower limit is probably set at 60% as anything lower than that is hardly worth using in anything important. An explanation, simple formulas, and a chart are given to provide you with a sound interpretation of the condition of your cells.

A good power source is a prime requirement for this and all other DC-operated chargers. For field use, the high-capacity

automotive battery has no peers, but for home or shop use, something easier to handle is required, and Aristo-Craft provides one in the CG-300A AC/DC Converter. A power supply with another name? Well yes, however this is not your normal transformer and rectifier poorly regulated unit, the CG-300A utilizes the latest power handling methods, termed as "switching" circuitry. The family includes power supplies and voltage regulators, and are referred to as switching systems since the circuitry actually switches on and off at relatively high frequency rates. This permits a resting period for critical components, resulting in high current capacities in lighter and smaller packages. Switching power supplies are more expensive than their simpler counterparts, but make up for it in efficiency and cleaner outputs.

Operated from your nearest IIOV wall socket, this new unit by Aristo-Craft produces a steady 12 volts, at a maximum of 5 amps, more than adequate for the CG-325 and all other similar chargers. An internal self resetting circuit breaker provides the necessary circuit protection in case of shorted output or overload.

Both of these units are of extremely high mechanical and electrical quality and given reasonable care should provide years of dependable service. Pricing and information is available from Aristo-Craft/Polk's Model Craft Hobbies, 12 Bergen Ave, Room 12, Jersey City, NJ 07304; (201)332-8100. •

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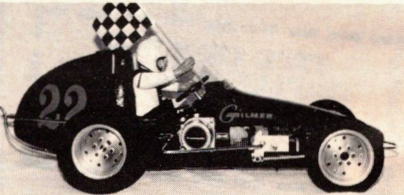
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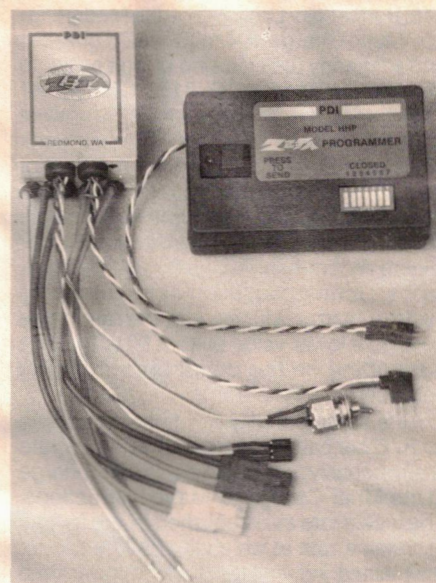
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# WHAT'S NEW



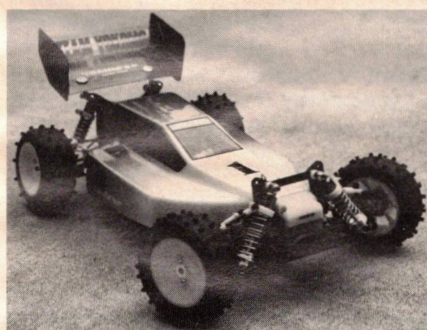
## GOLD BARS

These solid copper, 24-karat gold-plated bars are the ultimate in getting the most power out of your matched battery packs. Lighter and stronger than braid, they are easy to use, and are available from Dan's R/C Stuff. Check your local hobby shop.



## TURBO ZETA ESC

The new Turbo Zeta speed control will handle up to 32 cells, making it ideal for twin-motor monster trucks or tractor truck pullers. The Turbo Zeta has a proportional forward and proportional reverse, and the all-aluminum case is completely watertight. The Turbo comes with a hand held programmer to input any of 32 acceleration rates and 9 trigger response curves. The Turbo has 90-day parts and labor warranty, and is available with your choice of four receiver connectors. For more information, including a free catalog, contact Product Design, Inc., 16922 N.E. 124th St., Redmond, Washington 98052, and be sure to tell them you read about it in *R/C Model Cars*.



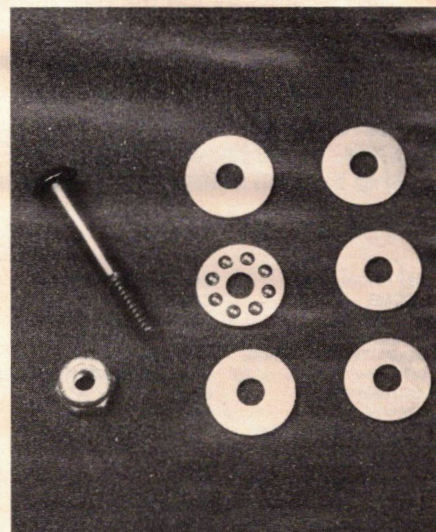
## RAZER BODY

The new Razer racing body for the Yokomo YZ10 is from Dahm's Racing Bodies, and features aerodynamic styling with functional cooling vents. Also shown are Dahm's Razer Power Pan and the Big Fin Wing, a bi-level wing kit. Look for Dahm's products at your hobby shop, or send \$1.00 for a catalog and color decals to: Dahm's Racing Bodies, Box 386, Cupertino, California 95015-8321.



## TECHNISPORT RADIO

Altech Marketing has a new Acoms R/C system available for cars that includes servo reversing switches, a folding antenna, throttle travel adjustment knob, battery level meter, trims for both channels, and a charging jack for optional NiCds. The grip can be changed for right- or left-handed use, and the set comes with two AS-7 servos, a BEC receiver, and a one-year limited warranty. Take a look at this new system at your nearest hobby dealer.



## HEAVY-DUTY THRUST BEARING

Originally designed for monster trucks, the Team Losi Heavy-Duty Thrust Bearing will exceed the need for all types of offroad racing, including the JR-X2 dirt racer. The bearing is made of special phosphorus bronze with eight balls and ultra-hard ground thrust washers for longer life. You can make diff tuning a simple matter with the new Losi Thrust Bearing. See your dealer.



### FUTABA MAGNUM RADIO

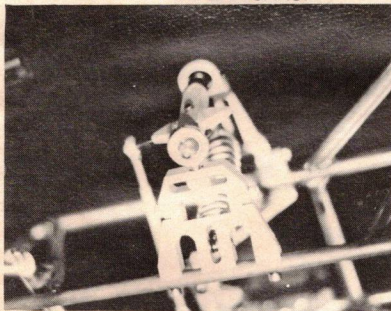
The new generation of Futaba wheel radios is here, including the 2PD/Magnum AM 2-channel radio system that includes a R102JE two-channel BEC receiver, and your choice of servos. The new look in pistolgrip transmitters has a soft grip adapter pad and hand strap for comfort and ease of use. Custom adjustments also include steering wheel spring tension and throw. Other features are an adjustable steering rate, throttle ATL, servo reversing and throttle ATV, battery level meter, quick-change frequency crystal, and optional NiCd battery pack. Look for the new Futaba wheel radios at your local Futaba dealer.

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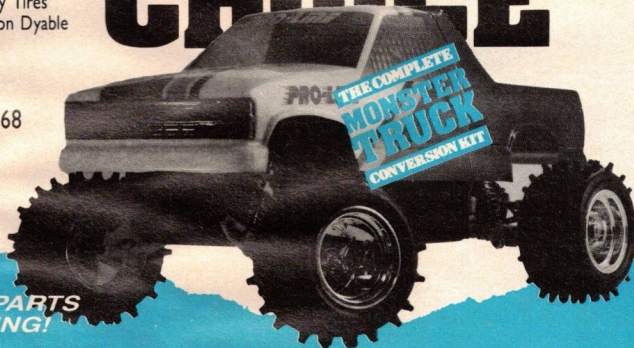
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## Fast Forward.

Super Vortex is Airtronics' ultimate electronic speed controller specially designed for competition 1/10 scale R/C cars. Solid state componentry gives the Super Vortex a compact configuration for easier installation and greater flexibility for a wider range of models and applications.

Suitable for on and off-road use, the lightweight Super Vortex utilizes the latest MOS FET Transistor technology and a highly efficient regulator for increased run times. A Proportional Electronic Throttle Control provides instant throttle control response, without the use of an extra servo.

The Super Vortex features a built-in adjustable power curve control to vary motor



### 96312 Super Vortex Specifications:

**Power Supply:** 4 Cell 4.8 to 7 Cell, 8.4 Volt NiCd pack    **Voltage Loss:** 0.0075 Volts/Amp

**FET Current Ratings:** Continuous Maximum Current—360 Amps  
Instantaneous Maximum Current—1260 Amps

**Dimensions:** 2.11" x 0.77" x 0.79"    **Weight:** 0.91 oz. (with connectors less switch)

**Continuous Current Rating:** 38 Amps with cooling

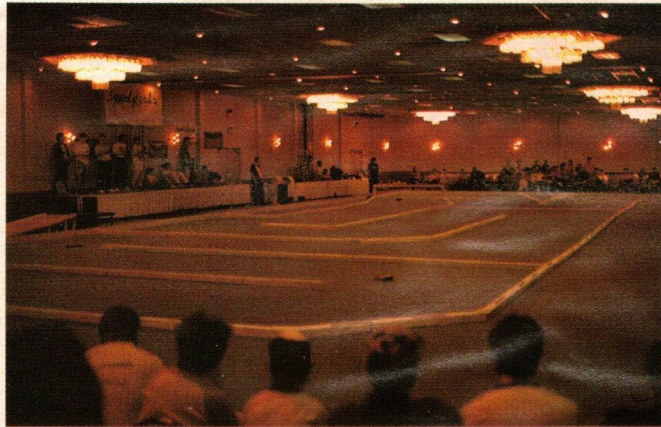
**Intended Use:** All 1/10 and 1/12 scale electric cars

**Adjustment Type:** Neutral Point, High Point, Brake Adjustment and Power Curve

response characteristics from linear to exponential, an Electronic FET Brake and an ultra small power switch.

Fast forward past the competition with Airtronics' Super Vortex speed controller.

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Racing during the 1/12-scale Sportsman competition, held at the Plymouth Hilton, in Detroit.



1/12-scale action during the Pro event at the Sportsman's Cup. The pros were on hand to offer their knowledge to any who wished to learn. There were many takers.

Predator. The final results of the invitational races are:

1. Bob Light
2. Tyree Philips
3. Tony Neisinger
4. Chris Doseck
5. Terry Rott
6. Rick Howart
7. Joe Lawrence
8. Bud Bartos

After all the racing was over, and the trophies handed out, I walked around talking to people trying to find out what they had gotten out of this weekend, if things had really gone as well as I thought they had. The comments were entirely positive. As Gary Grove (father of, and pit crew for, sportsman racer John) said to Ernie Proveti, "We (his son John and he) couldn't have done much worse on the track (not true, John was one of those who

showed enormous progress over the weekend as well as great potential as a driver) but we simply couldn't have had a better time." When Invitational driver Tyree Philips came off the driver's stand for the last time, he immediately walked over to Ernie and said, "We should just forget about running modified motors. These motors run plenty fast enough and this is some of the best racing I've ever seen." An amateur driver walked over to Ernie after all the festivities were over and said, "I understand that you prefer criticism to compliments." Ernie, flushing slightly, replied that that was true. The driver said, "Sorry, I have nothing bad to say about this race." For my part, as an observer, I have never seen so many people leave a race with such positive feelings. All the pro drivers with whom I spoke were unanimous in their praise for the way the race was run, for the concept behind it, and simply for the fact that they had a great time.

How do you determine if a race was a success or not? By every criterion that I can come up with this was an astounding success. When someone tells you that he placed so far down in the field that he doesn't know what position he finished in, but still had the best time of any race he has ever raced in, THAT race would have to be considered a success. This was supposed to be a learning/teaching process for all the drivers. I think that I can safely say that everyone went home having learned more than they ever imagined they would. Some had their cars personally worked on by pros, all had the opportunity to talk to them and listen to them. Whether the pros did this in order to give something back to the sport, or because they simply liked being there doesn't matter. Ernie Proveti's concept was one of having a race where those who profit from the industry, manufacturer and driver alike, would try to show the people who support them that they do matter, that they are recognized as being the basis for this industry. Without the amateur drivers there would be no R/C car racing. I think that Ernie's vision of a weekend of generosity and goodwill worked perfectly. Ernie Proveti, John Thawley, all the invitational drivers and the Speedworks Sportsman's Cup staff are all to be congratulated. There were no losers this weekend. •

### 1/10 SPORTSMAN A MAIN

1. Pulfer, Mike	16
2. Morack, Paul	16
3. Fitzpatrick, Joseph	15
4. Sommers, Chuck	15
5. McCarthy, Ted	15
6. Monegan, Dave	15
7. Roberts, Jeff	15
8. Pfahler, Chuck	15
9. Mancinelli, Steven	15
10. Rottach, Rick	0

### 1/12 SPORTSMAN A MAIN

1. Calandra, Frank	31
2. Sommers, Chuck	30
3. Honeck, Conan	30
4. Baker, Mike	30
5. Mancinelli, Steven	30
6. Penfold, Wayne	30
7. Demars, Curt	30
8. Hamilton, Keith	29
9. Smith, Dale J.	29
10. Pulfer, Mike	25



The invited pros gave well-attended seminars on batteries, motors, and race car setup to all in attendance. Here Tyree Moore leads the discussion on chassis setup.

AT LAST . . .

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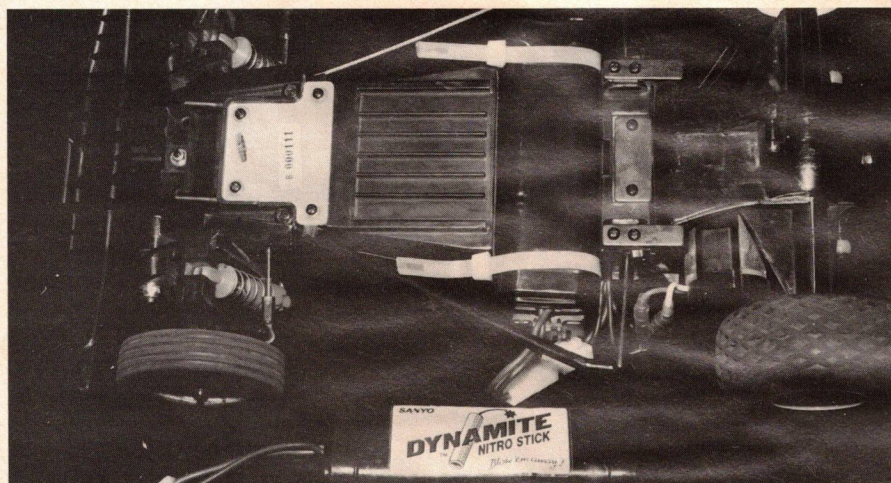
# TRAXXAS

## Street Cat

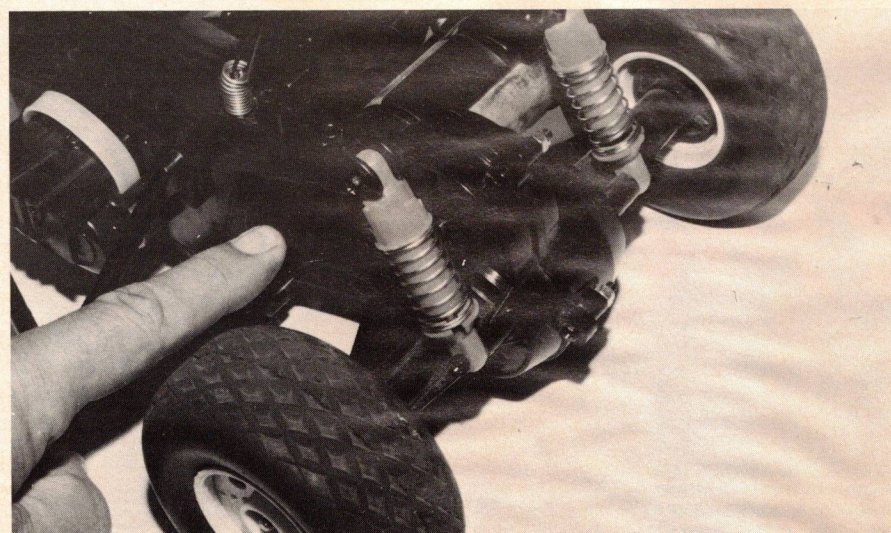
BY STU RICHMOND

Life is getting simpler and this special production 1/10th scale racer is the first of a new breed.

Toy cars have been around (like from Radio Shack) for a long time—but this one is no toy. This is a high-performance two-wheel drive car that's had its basic drive components thoroughly tested and improved to a



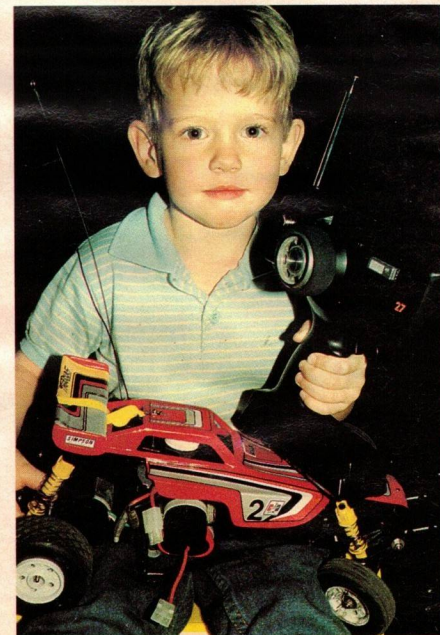
Bottom view of the Street Cat shows transverse battery mounted with easily uncinched nylon straps. Car is durable and strong.



A downward push with the finger shows how the drive pod is hinged and how far rear shocks compress. Tires show no real wear after prolonged driving in local parking lot test session.

very elegant degree of reliability over the past two years.

Assembling a modern race car can be a bit awesome for younger drivers—there are bunches of parts, and one error can cause more problems than having to cut the grass on a warm summer Sunday afternoon when the other guys are out racing! One of the U.S.A.'s biggest suppliers to hobby shops has had Traxxas of Dallas, Texas work up this special version of the Cat and it's either at your local hobby shop as you read this—or your hobby dealer can order this special Street Cat from Horizon Hobby Distributors



The Street Cat is an ideal first R/C car. Chris loves his; it came all assembled, ready to run.

# PENNY WISE!

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For over 10 years, Royal has offered quality servos at exceptional prices. The new generation **TITAN II** is no exception! Engineered for dependability, Titan's Mabuchi motor has a life expectancy of over one million cycles. Its Noble potentiometer and Mitsubishi I.C. are among the most rugged, precise and reliable in the industry today!

The facts are as simple as Titan's plain black case — **you can pay more, but you can't buy better.** Stop by your local hobby dealer today. Compare quality and above all, compare price! You can't pinch pennies when investing in a quality servo, but by being "penny wise" with **Titan**, you can sure make the competition appear "dollar foolish!"

### TITAN II SPECIFICATIONS:

#### Standard

Weight ..... 1.8 oz.  
Output torque ..... 48.7 oz.-in.  
Transit time ..... 24 sec/60°  
Dimensions ..... 1-7/8" x 1-5/8" x 3/4"

#### Shorty

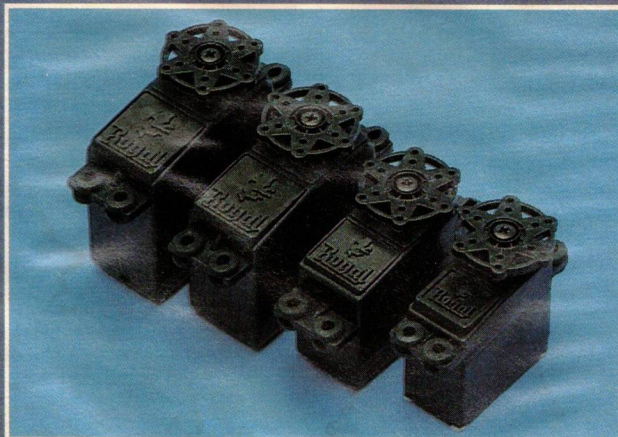
Weight ..... 1.4 oz.  
Output torque ..... 44 oz.-in.  
Transit time ..... 23 sec/60°  
Dimensions ..... 1-11/16" x 1-5/8" x 3/4"

#### Mini

Weight ..... 1.1 oz.  
Output torque ..... 33.5 oz.-in.  
Transit time ..... 16 sec/60°  
Dimensions .. 1-7/16" x 1-7/16" x 11/16"

#### Micro

Weight ..... .9 oz.  
Output torque ..... 27 oz.-in.  
Transit time ..... 14 sec/60°  
Dimensions ..... 1-1/2" x 1-7/32" x 5/8"



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- 90-day warranty plus lifetime flat repair/replacement available at a reasonable cost.
- Servos electronically matched with proper connector installed to fit: Futaba AM/FM, JR/Circus, Airtronics, World Engines/Aristo, old and new.

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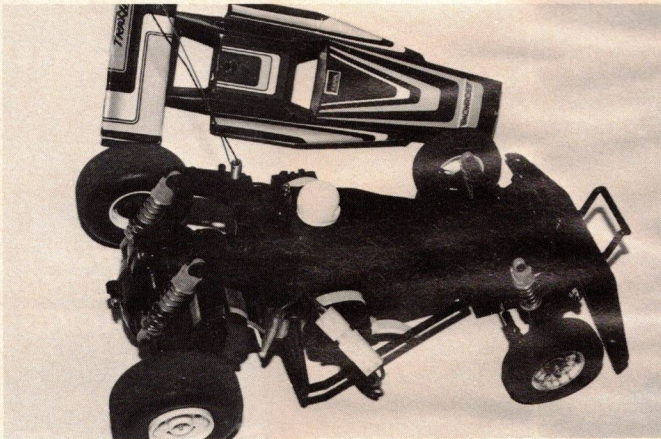
790 W. Tennessee Ave., Denver, CO 80223



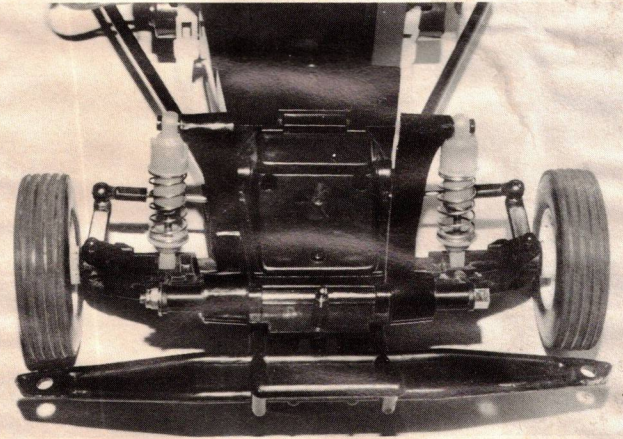
The pistol-grip transmitter is light and comfortable. The radio includes steering and throttle trim adjustments, and a red indicator light that flashes on and off if batteries get low.



The Street Cat can easily be tweaked for left and right turns by adjusting stepped collets at the top of the four shocks. Finger points to a collet.



Base of the receiving antenna is an indestructible coil spring.



The independent trailing arm front suspension with adjustable oil shocks can be seen in this front view. The front bumper is tough, showing no damage after some horrendous forays into the curb.

for you. The best part is that it comes all assembled and ready to run! Just slip eight penzell batteries in the base of the transmitter and charge up a Sanyo Dynamite Nitro Stick for ten to fifteen minutes of terrific fun on wheels. The Street Cat comes with all directions in the booklet, just as if you had a box full of parts that you had to put together to get race-ready. But all the assembly is already done!

The Street Cat is an ideal first car. You can study the assembly manual if you want to see how the work was done. And best of all, after the 30-day warranty period expires, Traxxas will repair or replace any needed electronic components for a flat rate of \$15.00 plus \$5.00 for shipping and handling. This covers the transmitter, receiver, servo and the electronic speed controller.

We bought the Traxxas Model 1208 Street Cat, two Sanyo Dynamite Nitro Sticks (one charges while we're driving the other one) and an Aristo-ARI315 charger that plugs into the cigarette lighter.

This ready-to-run racer flies along quickly when fully accelerated. Accidentally we sideswiped a curb at full bore and just slid and skidded back onto the pavement; no big

deal. We later did a bunch of this without damage. While screaming downhill the car hit straight-on into one of those huge poured cement foundations onto which they bolt the lightposts in the parking lots. The foundation sure didn't budget, but the Street Cat bounced back about eight to ten feet. We thought it must be totaled—nope, no problem—no damage!! This is one tough Cat.

The car is plenty agile but it drives real solid too. The trim for steering and for throttle action is easy to set and it stays set too with no drifting. The transmitter is putting out 750 milliwatts of control energy which is a bit more than many pistol grip units, and we've yet to lose control of the Street Cat except when it slid under the wooden door of the Burger King trash bin storage area. But that wasn't a big deal either—kinda spectacular!

We quickly became proficient on the use of "reverse"—when you hit "reverse" from full "forward" and turn the wheels fully to either side the Street Cat does a real fancy slide-to-stop maneuver if you release reverse at the right moment. We could consistently park the car at the wanted spot every time from the sliding stop. This special

#1208 version of the Street Cat comes with the fully proportional speed controller, so there's no mechanical speed control to maintain. Also included are special oversize rear street tires instead of the knobby rears for running in the dirt. The crash-proof body has the windows cut out to provide cooling for the speed controller and when the vinyl stickers are applied to the body it looks, from a few feet away, like a custom paint job for sure. Neat!

The Traxxas #1208 Street Cat is a special edition available at hobby shops that buy from Horizon Hobby Distributors for \$199.95. The six-cell Sanyo Dynamite Sticks are \$32.95 and two are a bit of a luxury, but darned nice to have. The Aristo-Craft charger is \$49.95 and a spare automotive-style fuse can be bought at your local automotive parts store for about 65 cents, and is a good investment.

I've talked with the people at Traxxas about future products. They're doing new research and product testing on a real gut-tearing monster truck that'll be available after summer. Stop in at your local hobby shop and ask to see the Street Cat; it's neat!!!! •

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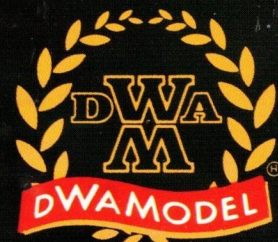
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### AD INDEX

A-Main Engineering	72
Advanced Racing Technologies	21
Airtronics Inc.	CV2
Airtronics Inc.	79
Alves Mfg.	73
Andy's R.C. Products	3
Associated Electrics	4
Autographics	65
B & L Racing Products	65
Bolink R/C Cars Inc.	74
Bullet Racing Products	21
Cox Hobbies Inc.	76
Dahm's Racing Bodies	19
Delta Mfg. Co.	23
First Quarter Hobby & Racing	29
Futaba Industries	CV3
Gilmer Hobby & Machine, Inc.	76
HO/RC Hobbies Inc.	19
Hobbico Inc.	31
Hobbico Inc.	10,11
Hobby Dynamics Distributors	81
Imex Model Co. Inc.	17
Ja Lea Company	76
JR Radio Systems	81
Live Performance	85
M K Model Products	39
M.C.S. Products Inc.	15
Model Builder Subs	67
Model Rectifier Corporation	CV4
New Era Models Inc.	70
Novak Electronics	29
Oval Track R/C Racing	68
Pappy John's R/C	68
Paragon Racing Products	25
Parma International Inc.	13,27,33
Polk's Model Craft Hobbies	68
Pro-Line Mfg. Co.	77
Product Design Inc.	67
Quarter Scale Connection	63
Quickdraw 1/4 Scale R/C Cars	74
R B S Fab. Inc.	86
R/C Buyers Guide	79
R/C Model Car Subs.	36,37
Race Tech	25
Raco Modelcraft Inc.	63
Radio Controlled Models/Ram	69
Ron Charles & Associates Inc.	86
Royal Products Corp.	83
S.S. Industries Hyper Drive	35
S.S. Industries Hyper Drive	41
T & A Machining	23
T & A Machining	72
Team Losi Performance	9
Tech-Toys	75
Tower Hobbies	61
Track Master Mfg.	73
Trinity Products	6-7
W.C.M. Inc.	77
Wagonhill Hobbies	65
Walt's Hobby and Crafts	76

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# MAGNUM FORCE.



Tony Neisinger wins the 1989 Futaba Grand Prix with Magnum.

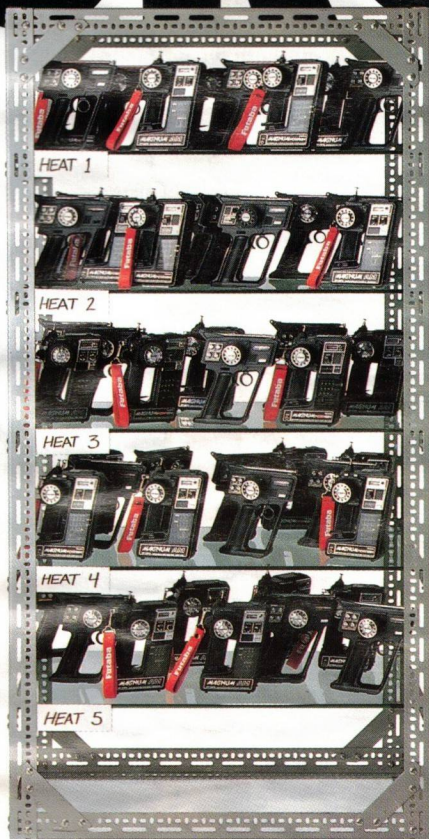
Every race day, more and more Magnums are showing up at the track. That's because Futaba makes a complete selection of Magnum pistol-grip systems to suit every kind of radio

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



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.

## 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.



2PB/Sport

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



2PBKA/Junior



2PD/AM

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



3PB/PCM1024

**MAGNUM**  
**Futaba**

Futaba Corporation of America  
Four Studebaker, Irvine, CA 92718

# MRC-Tamiya's Blackfoot

**Tamiya enters the all-terrain crusher category...and everything that came before doesn't come close.**

## Setting the standards to power the industry

Churning mud and spitting rocks like a malicious monster gone mad, the Blackfoot is the nastiest, most powerful brute in the bog. He's also the most beautifully detailed R/C pickup, and the leader of the new generation of great looking, hot performing crusher pickups.

## A deranged Ranger

This 1/10 scale Ford Ranger is all business and no compromise. Perched on its mammoth wheels and turf chompin' tires that are nearly a full 5" high, the Blackfoot towers above the ground like a Goliath. It stands high enough to scale sharp inclines and stomp the stumps and bumps that strand lesser pickups. Single piece hubs allow quick assembly, low weight and maximum ruggedness.

## Tall isn't all

The Blackfoot's hefty ground clearance means it'll climb most any obstacle. And Tamiya's high output, high torque RS-540S engine pumps plenty of ground thumping power. While the Blackfoot's heavy duty, coil-dampened suspension — double wishbone in front, trailing arm in the rear — lets it effortlessly cut and dart with a nimbleness that belies its size.

## Other creature features

Tamiya has engineered the Blackfoot with attention to quality and durability. Like a sealed gear box to protect the drive train gears from debris and moisture, differential gears for tight cornering stability and positive control on any type of terrain. And its one-source power from its BEC (Battery Eliminator Circuitry) gives you maximum space in the chassis with lower weight. For overall best performance we suggest you buy genuine, matched MRC-Tamiya ni-cads (not included).

## The beauty at rest

Check out the lifelike scale and detail on the authentic undercarriage. Examine the carefully crafted chrome grille, the headlights, the doorlocks. From top to bottom, few R/C reproductions rival it.

## Don't pussyfoot...get the Blackfoot

Add excitement to your hobby, and take command of the Blackfoot today. It's a beauty and a beast...prowling in a hobby shop near you.

**MRC** 



**Model Rectifier Corporation**  
2500 Woodbridge Avenue  
Edison, New Jersey 08817



**A beauty  
and a beast.**