ISIDE!

WIN A FREE WORLD SCALE TRUCK SEE PAGE 39



RADIO CONTROL MODEL CARS

ARCH 1995 • DISPLAY UNTIL MARCH 2

KYOSHO'S GAS-POWERED

Top Fuel

LOCKMANN'S DRAGSTER



Sandmaster SL

elta's Hot Fireball Racer

ction at the NORRCA
ruck World Cup

low to Create a
ASCAR Body

Pre-Runner

FROM TAMIYA

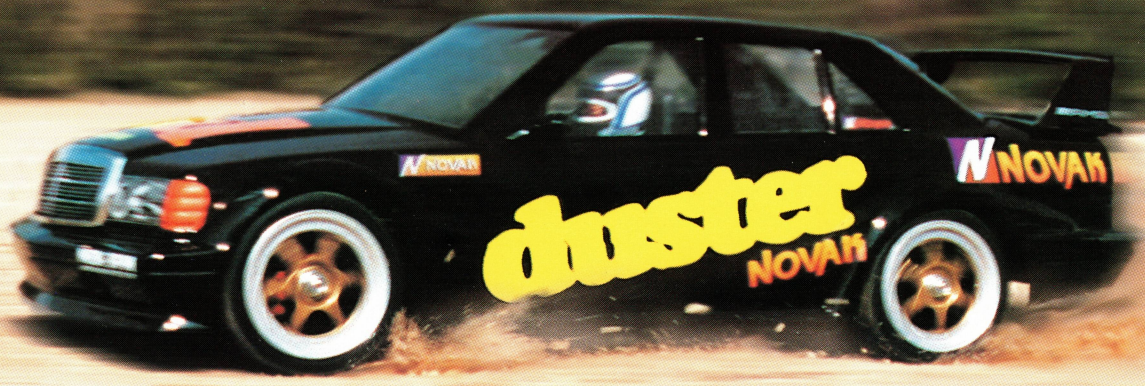
'95 WHAT'S NEW AWESOME PRODUCTS

EASY! HOW TO BALANCE YOUR WHEELS

$2.95 CANADA $3.95
03
71486 01334 1

duster SPORT

HIGH FREQUENCY MEGAFET PERFORMANCE



Leave the pack in the dust with the Duster Sport ESC™ from Team Novak.



Experience the excitement of monster trucks, the thrill of F1 machines, and the gripping performance of 4WD road cars with the Novak Duster Sport speed control. Based on the legendary Novak 410-M5, the Duster takes Sport Performance to a new level. The Duster uses the power of MEGAFET transistors and the simplicity of One-Touch Set-Up™ to create a speed control that can handle any application with ease. Press one button and you're ready to have fun. And, the Duster is loaded with features. Race-proven, high frequency operation provides longer run time, less motor wear, and super smooth throttle response. Digital glitch-prevention helps eliminate radio problems. Plus, new Radio Priority Circuitry™ maintains total control of the vehicle even after the battery pack has completely "dumped".

Dust the competition!

Best of all, the Duster is reasonably priced to fit into any Sportsman's budget. Fast, easy, affordable. When the dust settles, the clear choice for Sport Performance is the Duster from Team Novak.



ONE TOUCH IS ALL IT TAKES!

ONE TOUCH SET-UP

See your local hobby dealer for the complete line of Novak products. Or, call or write to us for a free Team Novak catalog.

NOVAK ELECTRONICS, INC. RACING TEAM

© 1994 NOVAK ELECTRONICS, INC. • All Rights Reserved • Duster Sport ESC™, Radio Priority Circuitry™, and One-Touch Set-Up™ are trademarks of Novak Electronics, Inc. The Duster Sport ESC™ (Part #1950) is avaliable at your hobby dealer.

NOVAK ELECTRONICS, INC. • 18910 Teller Ave. • Irvine, CA 92715 • (714) 833-8873

MIP MIP MIP

RACE WITH US

WORLD LEADER IN ELECTRIC R/C GOES GAS!

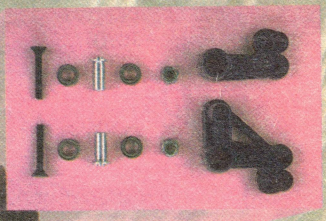


NEW!

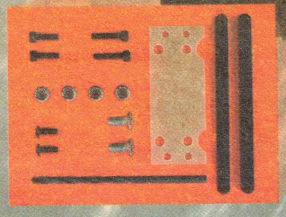
MIP ON-BOARD TEMP™ GAUGE

Knowing is Winning. Maximum engine performance is the key to winning in gas racing, and the head temp is the key to max engine performance. You can't win if you don't know.

- LCD Readout (visible from 10 ft.)
- 0° to 450° Temp Range
- Replaceable Battery
- Fuel Proof Housing



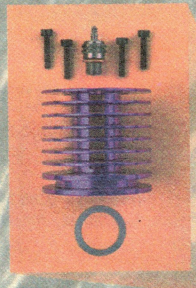
MIP ZERO MAINTENANCE STEERING
Precision smooth ball bearing steering kit.
#3013.....**$24.95**



MIP 11.5 STRETCH KIT
Everything you need to stretch the GT 3/8" longer.
#3011
$14.95



MIP ON-BOARD TEMP™ GAUGE
#3600.....**$47.50** (fahrenheit)
#3601.....**$49.50** (centigrade)



MIP HEADSINK™
Designed for OS .12 CZ-R and CZ-Z. Predecked and comes with MC-9 plug.
#3009.....**$24.95**



MIP 4-N-1 CLUTCH
A pre-calculated system for a perfect clutch every time.
#3012.....**$11.95**



MIP 360 STINGER™
Tuned exhaust with the REAR advantage! Mounts on OS, Yokomo, Dynamite and Image .12 engines.
#3002...**$49.95** (Associated)
#3001...**$52.95** (Traxxas)



MIP DIFF REBUILD KIT
Lengthen the time between rebuilds, with race quality carbide balls, polished rings, and no grit lube.
#3014.....**$10.95**

All MIP gas products were used to Win the '94 1/10 GAS OFF-ROAD WORLD SERIES.

MIP PRODUCTS DESIGNED & MANUFACTURED IN THE USA SINCE 1979 • CONTACT YOUR DEALER OR SEND $1 TO MIP FOR CATALOG

MOORE'S IDEAL PRODUCTS • 746 E. EDNA PLACE • COVINA • CA • 91723 • USA • (818) 339-9008

RADIO CONTROL MODEL CARS

MARCH 1995 VOLUME 10 NUMBER 6

contents



We've got cars, trucks and how-to specials as we gear up for a new season of RC fun and competition. Choose your weapon!

features

16 HOW TO BUILD A TRICKLE CHARGER Ben Chiu
Here's a simple how-to project: make yourself a trickle charger for your transmitter batteries.

20 REVIEW: KYOSHO'S SANDMASTER ST Jeff Bates
The kit comes 90% assembled, and is powered by a spirited O.S. .10 FP-BX engine with recoil starter. It's a truck made for racing excitement.

28 THE FIRST TIME Eric Sands
There's always a first time, and someone who will take you through the steps of getting involved. Here's a story that started one racer's hobby habit.

30 HOW TO BALANCE YOUR WHEELS Ben Chiu
Our resident how-to man is back with instructions on how to balance your wheels for better performance.

36 REVIEW: DELTA'S FIREBALL Chris Kovachevich
A venerable RC company's latest is this thoroughly enjoyable (and fast!) gas-powered onroad racer.

38 HOW TO MAKE A 7-IN-1 NASCAR BODY Kevin Meyer
The master of the weird is off in left field again as he shows how to get the most out of one NASCAR body.

44 NORRCA'S TRUCK WORLD CUP Gene Husting
The first World Cup race for trucks was held recently at the Ranch in Pomona, California. We were there to capture the action.

50 TAMIYA'S FWD HONDA, PT. 3 Frank Killam
The hot front-wheel drive racer from Tamiya gets a serious once-over from our Mr. Intense, The Frank, in this third installment.

56 IEDA GARDEN STATE NATS Jeff Dubiel
Kim's Pit Stop was the site of the record-breaking Nationals where most every class saw the records fall to all-new marks.

60 REVIEW: TOYOTA PRE-RUNNER Jeff Bates
Tamiya's fun truck is a scale-like reproduction of the full-size Toyota. Here's a look from top to bottom.

64 REVIEW: LOCKMANN'S TOP FUELER Rich Lacharite
Team Stroker's Rich Lacharite takes us through the building of a Joe Amato-inspired top fuel racer.

72 PROFILE OF A DRAG RACER Wes McPheeters
Mitch Williamson, the spark plug behind the Northern California Drag Association, is a tireless worker promoting RC drag racing.

76 INDYCARS AT LAGUNA SECA Richard Dowdy
The last race of the '94 season was also Mario Andretti's last race, as well as Nigel Mansell's final Indycar appearance.

departments

10 Readers' Page

12 Big Tips

14 Starting Out

26 Answerman

32 Quarter Scale Notebook

67 Drag Club Listings





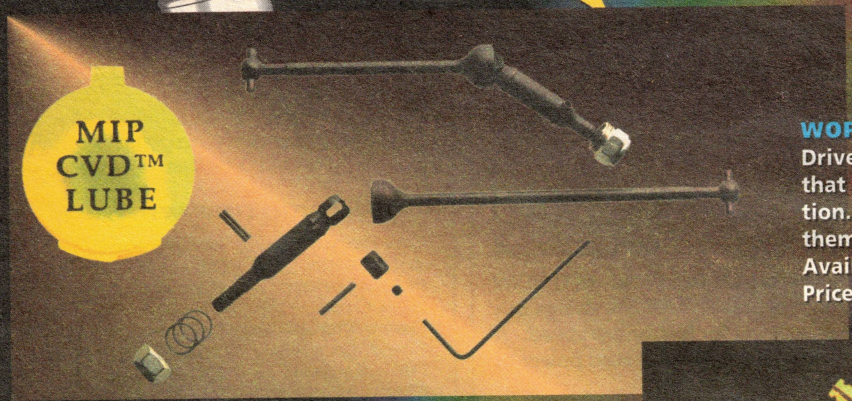
POSTAL INDENTIFICATION INFORMATION IS LOCATED ON PAGE 6.

MIP MIP MIP

RACE WITH US

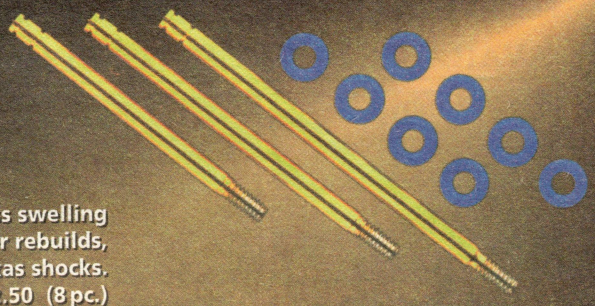
WORLD NATIONAL CHAMPIONS



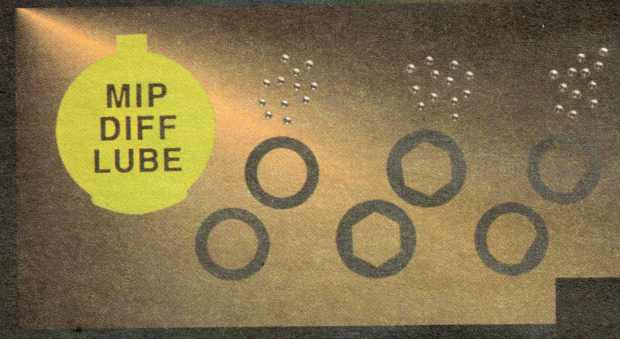


WORLD WINNING MIP CVD™'s (Constant Velocity Drives) are the only completely rebuildable drives that have been proven in National and World competition. Factory Team drivers use MIP CVD™s to put them in the winners circle, and you can too.
Available for Associated, Losi, Traxxas cars & trucks.
Prices start at $27.50 (a set)

MIP GOLDEN SHOCK SHAFTS™ enhance the performance and reliability in your RC car and truck. Manufactured of high grade stainless steel, micro finished for smoothness, and Titanium Nitride coated for durability. Available for Associated, Losi, Traxxas cars & trucks.
Prices start at $3.99 (each)

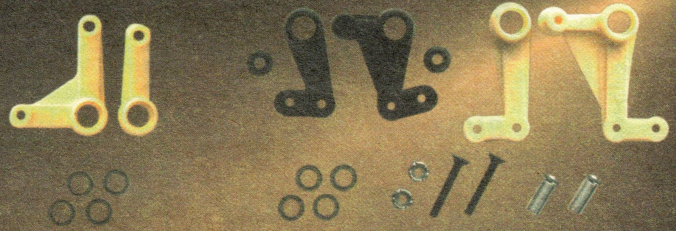


MIP BLUE SEALS™ reduce friction on shock shafts with less swelling and wear than any other "O" rings. Blue Seals™ mean fewer rebuilds, and oil changes. Available for Associated, Losi, & Traxxas shocks.
Price $2.50 (8 pc.)



MIP SUPER DIFF REBUILD KITS feature MIP's custom made carbide balls, and smooth polished diff rings, with special compounded no grit diff lube. Now spend more time on the track winning and less time in the pits rebuilding.
Available for Associated, Traxxas, Losi cars & trucks.
All kits priced at $10.95

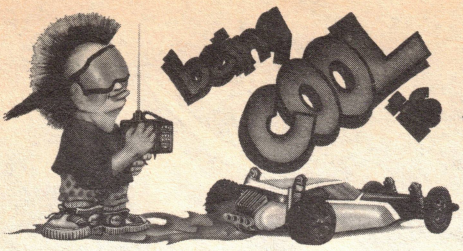
MIP'S ZERO MAINTENANCE BALL BEARING STEERING is ultra light glass filled nylon, with four Teflon sealed ball bearings. Get maximum control and steering for the competitive edge. Kits are direct stock replacements, no modifications needed.
Available for Associated, and Losi cars & trucks.
Prices start at $19.95



Copyright 1994 ©

MIP PRODUCTS DESIGNED & MANUFACTURED IN THE USA SINCE 1979 • CONTACT YOUR DEALER OR SEND $1 TO MIP FOR CATALOG

MOORE'S IDEAL PRODUCTS • 746 E. EDNA PLACE • COVINA • CA • 91723 • USA • (818) 339-9008

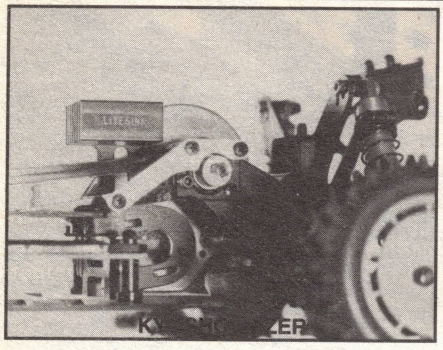


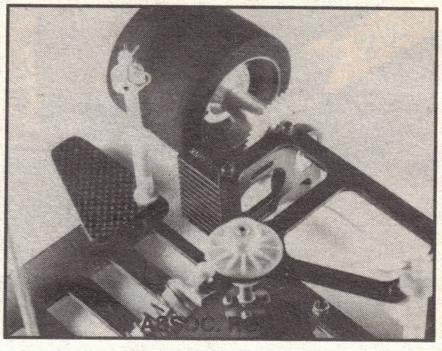
MORE TORQUE
HIGHER SPEED
LONGER RUN TIMES
EXTENDED MOTOR LIFE

LITESINK

LITESINKS ARE THE PERFORMANCE MOTOR COOLING HEATSINKS FROM LITESPEED, AND A LITESINK COOLED MOTOR IS THE HOT SET-UP TO GET MAXIMUM POWER AND PERFORMANCE FROM YOUR R/C CAR.

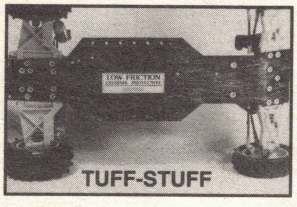
NEW • LIGHTER WEIGHT • MORE COOLING





HEAT drains motors of power. HEAT is not cool, but a LiteSpeed LiteSink is! NOTHING beats a LiteSink for removing unwanted motor heat! The race proven LiteSink design can lengthen run times by 20-40% and provide the option of gearing for higher top speed. A LiteSink will increase your motor's torque and speed. Experience the increased power of running a LiteSink and burn up the track, not your motor.

AVAILABLE FOR MOST POPULAR CARS AND TRUCKS



Low friction covering reduces drag & stops costly chassis wear.



The lowest resistance highest performance connectors available.



Special heat transfer gaskets seal out dirt and aid motor cooling.



TO RECEIVE OUR **NEW CATALOG** WITH MORE INFORMATION ABOUT THESE AND OTHER QUALITY LITESPEED PRODUCTS, SEND YOUR NAME, ADDRESS, AND (2) STAMPS TO:

LITESPEED INC.
P.O. BOX 4765
SPOKANE, WA 99202
(509) 535-2717

Accepting resumes

QUARTER FLASH MOTORS, INC.



BURY THE COMPETITION!



20 % OFF

Dealer inquiries welcome.

QUARTER FLASH MOTORS • (602) 625-9274
16301 S. Santa Rita, #C • Sahuarita, AZ 85629

CONGRATULATIONS!!!

Drivers Representing QFM at the
1994 NORRCA NATIONALS

Paul Schwander
6th "A" Expert St. Trk. with **Undertaker "2"** Motor
10th "A" Expert Mod. Trk. with **12/2 Ultra-Mod** Motor

Alexi Quinitaran
5th "A" Handout St. Car with QFM's **Z cut** Brushes
5th "A" Handout St. Trk. with QFM's **Hollow cut** Brushes

Mike Evert
1st "A" Sportsman Mod. Car with **17/3 Ultra-mod** Motor

RADIO CONTROL MODEL CARS

P.O. Box 2459
Capistrano Beach, CA 92624-0459
Phone: (714) 496-5411

PUBLISHER
Mark Thiffault

EDITOR
Richard Dowdy

ART DIRECTOR
Scott A. McPherson

ADVERTISING DIRECTOR
Mark Thiffault

ACCOUNTING MANAGER
Jim Lenhart

OFFICE STAFF
Kay Bastnagel
Brett Thiffault

CONTRIBUTING WRITERS

Del Bagshaw
Jeff Bates
R.C. Canon
Ben Chiu
Reed Deanfield
Chris Dvorak
Rick Eyrich
Gene Husting
Rich Lacharite
Mike Liem
Vernon Lewis
Kevin Meyer
Tom Nusbickel
Don Redondo
Joe Ringeisen
Dave Sproul
Bill Strauss
Eric Wiens

RADIO CONTROL MODEL CARS MAGAZINE (ISSN1061-7213) is published monthly at the editorial offices, located at 34249 Camino Capistrano, Capistrano Beach, California 92629. Phone (714) 496-5411. CONTRIBUTIONS: All contributions are welcome. Address your submission to Editor, Radio Control Model Cars, 34249 Camino Capistrano, Capistrano Beach, California 92629. Please enclose postage with manuscripts, photographs and illustrations if material is to be returned. Radio Control Model Cars accepts no responsibility for unsolicited material. All photos should be packed carefully and marked PRESS PHOTOS—DO NOT BEND. All materials published in Radio Control Model Cars becomes the exclusive property of Gallant Models Inc., unless prior arrangement has been made in writing with the publisher. Gallant Models, Inc., assumes no responsibility for unsolicited material. Manuscripts and photographs accompanied by an SASE will be returned. SUBSCRIPTIONS: One year (12 issues) $25.00 per year, two years $47.00. Single Copies $2.95. Subscriptions outside the US (except APO & FPO) $33.00 for one year, two years $63.00. In Canada, one year $35.00, two years $66.00. Foreign and Canadian orders must be in money order form, payable in U.S. dollars.

Copyright 1995 by Gallant Models, Inc. All rights reserved. Reproduction without permission prohibited.

CHANGE OF ADDRESS: Six weeks are required to change your address. In the meantime, forwarding postage is paid by you, and lost copies cannot be replaced. Send old address at least six weeks before you move, and include new address. POSTMASTER: Send address changes to Radio Control Model Cars, P.O. Box 2459, Capistrano Beach, California 92624. ADVERTISING RATES: Rate card is available on request. Contact the advertising director at the editorial address, or call: (714) 496-5411 HOBBY SHOP ORDERS: contact Radio Control Model Cars at P.O. Box 2459, Capistrano Beach, CA 92624 for details. BACK ISSUES: Some issues are available. See the back issues ad in the current magazine or send $5.00 for each issue desired along with the month and year to editorial address. Magazines will be mailed second class, postpaid. FOREIGN ORDERS: write for details. SECOND CLASS POSTAGE is paid at Dana Point, California and additional mailing offices. Made in U.S.A.

MEMBER
RCHTA
RADIO CONTROL HOBBY TRADE ASSOCIATION

Kyosho "ST" stadium trucks.
The tickets are cheap, but the fun is front-row.



Check the scores on these 1/10 scale, 2WD Kyosho stadium trucks. Low price—"10!" Easy operation—"10!" And they rip the lid right off the ol' Fun-O-Meter.

Let's say you're new to R/C. You can still raise a ruckus with the **Outrage ST** electric. Good News Part 1, we don't make you buy a motor or speed control separately (ka-ching!). Good News Part 2, it builds fast as a bullet, for even faster racing. You get lots of dash and still save cash.

Then there's the nitro-fueled **Sandmaster ST**—an easy choice if you're pumped for gas. How easy? Try 90% prebuilt and almost ready to rock, with a snarling O.S. powerplant included and installed. Great when you can't wait to spew some fumes!

Loaded with great features!	Electric Outrage ST	Nitro Sandmaster ST
4-wheel independent double wishbone suspension	✓	✓
Oil-filled shocks	✓	✓
Heavy-duty speed control	✓	
Strong 3-gear transmission with ball bearings	✓	✓
Bellcrank steering	✓	✓
Heavy-duty drum brakes		✓
Ribbed front tires and rear mini block tires	✓	✓
Easy-access chassis layout	✓	✓
Easy pull start system on engine		✓
Factory-installed engine, gearbox and suspension parts		✓
Sealed gearbox, rear-mounted for easy gearing changes	✓	
High-capacity 75 cc fuel tank with flip-top cap and primer button		✓
Dirt-repelling deep dish wheels	✓	✓

To give you maximum mileage from your modeling buck, each truck can be tricked out for hotter performance. (And if, down the road, you Outrage ST'ers want to beef it up with nitro... Kyosho's optional Outrage Gas Conversion Kit comes with everything you need.)



Nitro-powered
SANDMASTER ST
Already installed, the Sandmaster ST's O.S. .10 FP-BX engine comes equipped with a recoil starting system. No electric starter is needed.



Electric-powered
OUTRAGE ST
Low maintenance machine with a nice, low price — includes Mabuchi 540 motor.

For a free brochure and the location of the dealer nearest you, please call 1-800-682-8948, ext. 095A.

KYOSHO®
THE FINEST RADIO CONTROL MODELS

Distributed exclusively through
GREAT PLANES MODEL DISTRIBUTORS COMPANY
P.O. Box 9021 Champaign, IL 61826-9021

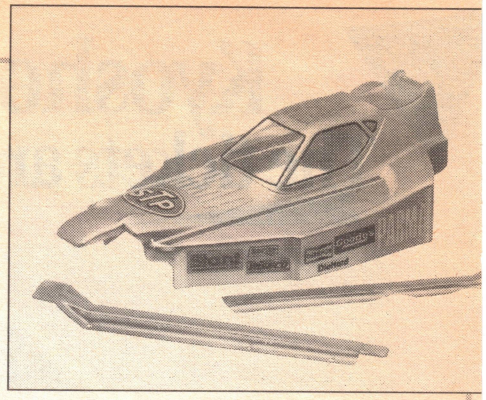
© Copyright 1994 — 3070352

AWESOME '95 WHAT'S NEW PRODUCTS

service that can't be beat. Choose from Novak, Twister, Kimbrough, FIne Design, Lockmann, Lightz, Protoform and BoLink products at sizeable discount. Get your catalog today! NCDA Distributors, (415) 966-1681

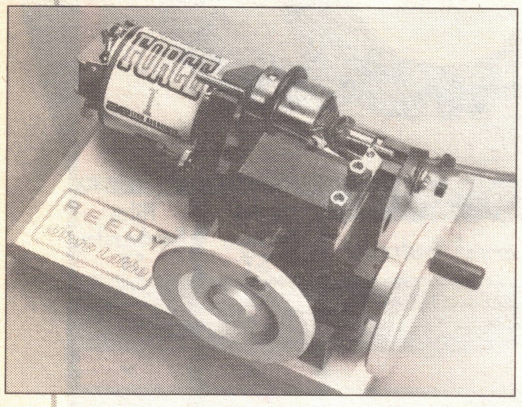
KYOSHO IMPRESS CHASSIS

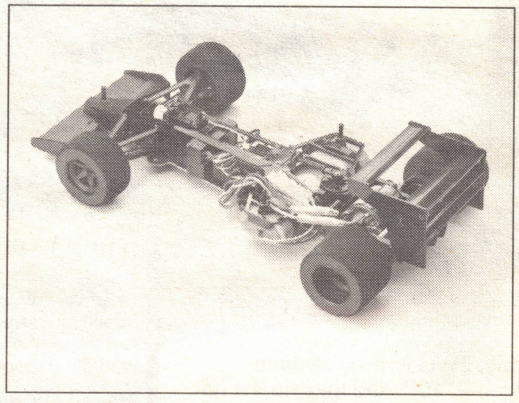
The latest in F1/Indycar technology has found its way into the Impress chassis from Kyosho/Great Planes. The impressive features include front sweep-stroke suspension with adjustable caster and camber up front, allowing adjustments to suit track or driving styles. The Impress has an advanced 360-degree friction plate T-bar rear suspension, and a wheelbase of 9.8 inches. The Impress kit includes 10 bearings, including bearings on each axle. The FRP (fiberglass-reinforced plastic) chassis uses



PARMA STRAY CAT BODY

The Stray Cat is a direct replacement body for the Schumacher BossCat, and comes with free belt covers. From Parma International, 13927 Progress Parkway, North Royalton, Ohio 44133.





DYNAMITE MEGA CHARGERS

Dynamite's Mega Chargers have AC/DC power capability, voltmeter taps, trickle charge light, 15-minute timers and a year's warranty behind them. Batteries are charged quickly with the powerful 5-amp initial charge rate. The units come pre-wired with a Tamiya-style battery connector, and can handle 6- or 7-cell packs. The Mega 1 has all these features, while the Mega 2 adds discharge capability and an analog meter to monitor charge status. A higher-rated bridge rectifier than other chargers in its price range means they're more rugged and dependable than other economy chargers on the market. From Horizon Hobby Dist., 4105 Fieldstone Rd., Champaign, Illinois 61821.

REEDY COMM LATHE

Reedy Modifieds' new modified motor comm lathe is designed for the serious racer who wants to get the most from each electric motor throughout its entire life. The lathe works for both standard and lay-down commutator armatures. Compact and easily transported, it comes with a stock Reedy motor already installed. The lathe also includes a replaceable carbide insert cutter with three separate cutting edtes. The lathe operates from a five-volt power supply or a six-cell battery pack. From Reedy Modifieds, 3585 Cadillac Ave., Costa Mesa, California 92626.

NCDA DISTRIBUTORS CATALOG

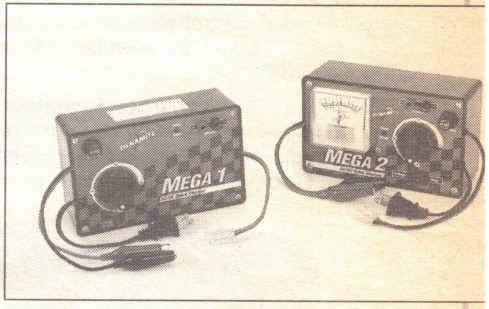
Here's your one-stop source for the finest in RC drag components and kits. NCDA's buying power means lower prices and direct-to-you

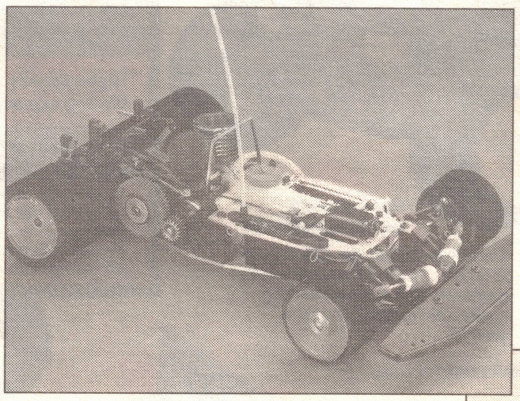


durable, molded front and rear nylon wings and a newly designed ball diff. Motor, ESC and your choice of Indy or F1 body can be purchased separately. Available from Great Planes Model Distributors, 2904 Research Rd., Champaign, Illinois 61826. (217) 398-3630.

BMT 1/10 ONROAD/OVAL RACER

BMT cars, imported from Italy by Racer's Choice RC Products, 6N258 Acacia Lane, Medina, Illinois 60157, (708) 980-5420, is a ready-to-race out of the box kit that is a proven winner on tracks worldwide. The features include inboard disc brakes on the gear axle, a two-speed transmission, solid rear axle, adjustable four-

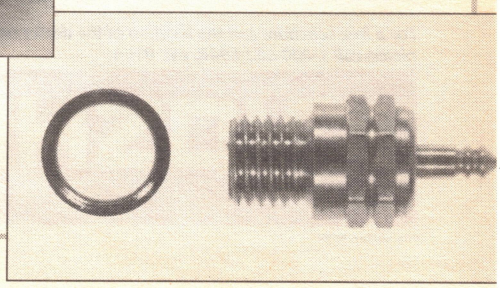




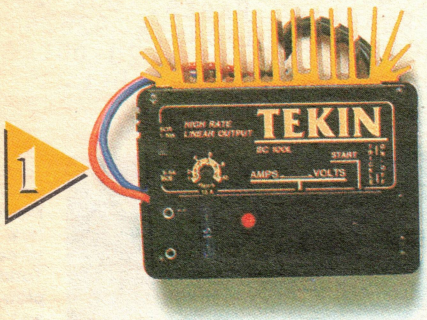
MCCOY PLUG FOR THE 12 R & Z HEADSINK

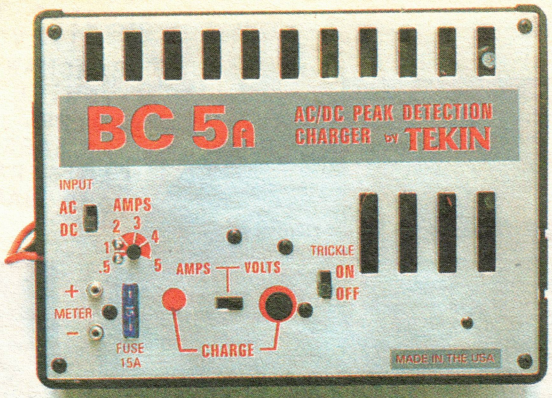
McCoy's plug has been found to offer the best performance with MIP's Headsink for 1/10-scale offroad racing. The Headsink allows your gas engine to come up to temperature faster for easier and more consistent tuning. The specifically designed cooling fins on the Headsink dissipate the heat quicker for offroad racing. The McCoy plug sells for only $4.95, from Moore's Ideal Products, 746 E. Edna Pl., Covina, California 91723. (818) 339-9008.

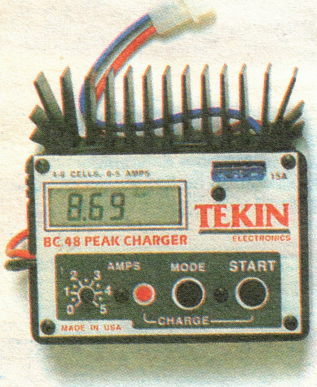
wheel independent suspension, steering servo saver, four-shoe clutch, precision bearings and four hydraulic shock absorbers. Not included: body, engine and radio equipment. For details, contact Racer's Choice.

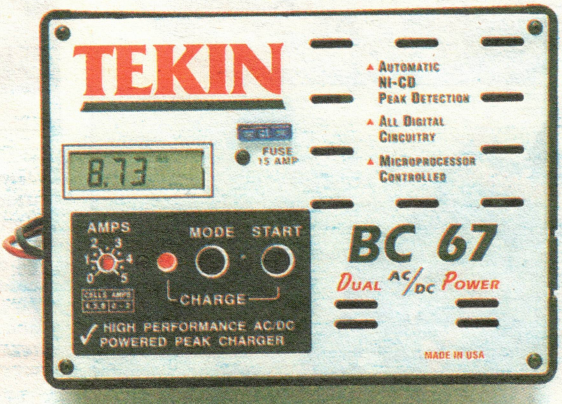


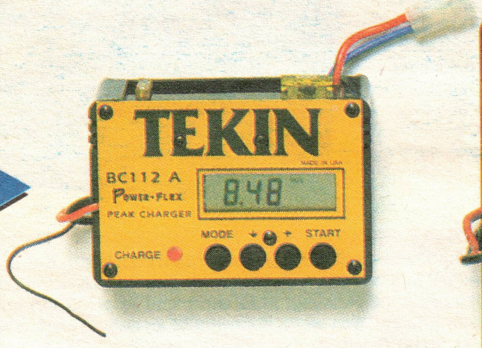
CHARGE!

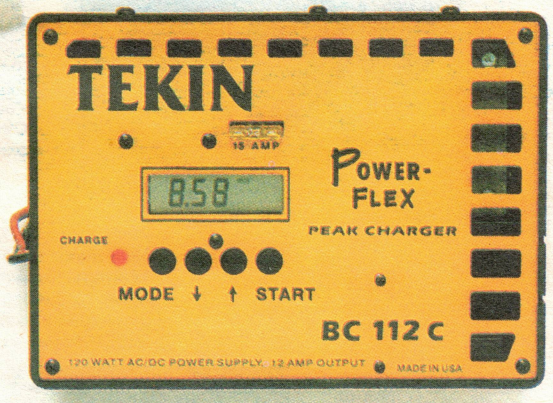












1994 World Champion

1 **BC 100L:** Dependable, small size, proven, high performance DC Racing Peak Charger.

2 **BC 48:** Adds digital accuracy, and multi-function LCD display with three charge modes.

3 **BC 112A:** Adds Power-Flex high horsepower cell conditioning, cool switching operation, extra display modes, and optional discharger.

BC 5A: Adds built-in, solid 5 amp, soft pulse AC/DC power supply. 4

BC 67: Adds built-in, solid 5 amp output, linear pulse AC/DC power supply. 5

BC 112C: Adds high performance, 24 volt, 10 amp, cool running switch-mode, dual linear AC/DC power supply. 6

TEKIN®

940 Calle Negocio, San Clemente, CA 92673

For further information and complete specifications, visit your local hobby dealer.

Readers' Page

GET BUSY! RACING SEASON IS HERE AGAIN (WHO SAID IT EVER LEFT?) AND I KNOW YOU HAVE SOME TASTY CARS AND TRUCKS SITTING THERE BEGGING TO BE PHOTOGRAPHED. YOU KNOW WHAT? IF YOU SEND YOUR PHOTOS TO ME, DEL BAGSHAW, AND I PICK THEM TO APPEAR HERE, YOU'LL WIN STUFF! FREE!! IT COULDN'T BE EASIER. DO IT NOW: SEND YOUR PHOTOS TO DEL BAGSHAW, READERS' PAGES, BOX 2459, CAPISTRANO BEACH, CALIFORNIA 92624. PRINT YOUR NAME ON THE BACK OF A 20-DOLLAR BILL AND THE FIX IS IN.—DEL.



This is no slacker—Roman Balzar of Stanford, Connecticut has put his RC10T to good use as a snow plow—just the thing for those raging Nor'easters. Roman uses Dahm's Thriller ST body, Associated's blue springs, HPI Five-Star rims, Duratrax Split-V tires, Novak's 410-M5 speed control, Motorman's 15-turn Hurricane motor and a Futaba FT-2PB Magnum Sport radio for control. The plow? He made it from a chicken broth can! Dahm's is sending a brand-new body to Roman to spiff out his rig. Dig it.



Another plower! This version is by Todd Merrick, of Hoboken, New Jersey, which he calls "The Beast." Todd added an ESP plow, V-spiked tires and all-new chrome parts to his Clod. It runs on twin Parma motors, Novak ESC and a Futaba radio. Todd says he's adding tail lights and oil shocks right now. Hey, Todd, we're adding your name to our subscription list. Congratulations!



Woe is he—this is John Jackson's second Kyosho Indycar—the first was bagged from his garage last April (boo, bad guy; you're karma will come back to haunt you!), and it was really tricked out. The stolen car was a Rick Mears Pennzoil replica, so if you see it, you'll know it—it has a blue Jordan wing with a yellow body. John's new car was put together by his cousin, Bob Carroll, who took all the spare Kyosho parts John could find left over from his first car, and adding some more, came up with this fine Hardee's number. Dahm's Indycar body, Autographics decals, HPI's rear wing and Novak's receiver and ESC and a 24-degree motor add up to a decent replacement. John races at Racer's Haven in Bakersfield, and would like to thank cousin Bob for getting him into RC in the first place. We're sending a six-month subscription from *RC Model Cars* to John for his hard work.

Jerry Judman, a friend from downunder (Queensland), shows off his Li'l Zipper 1/3-scale go-Kart, running on an O.S. .21 RFB motor, burning 25% nitro. The radio is a Futaba, and the rear wing was made by Jerry. The nosecone was fabricated by Pit Stop RC Cars & Accessories in Sydney. Painted with Pactra's Candy Blue and Candy

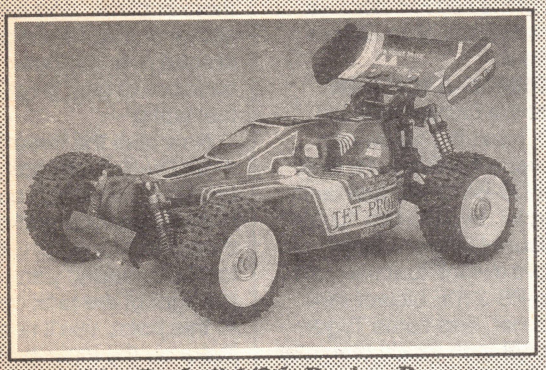


Nick Rhoads, from Madison, Wisconsin, says his RC10 Team Car has ball bearings, Novak's Rooster ESC, a Slot Machine 2 motor, Dynamite's Dyna-Sport 1500 6-cell pack and Futaba's S148 servo and Attack Sport radio. He's just added a headlight set, and we're throwing in an assortment of Associated/RPM/MIP hop-up parts! Thanks for sending the cool photo, Nick!

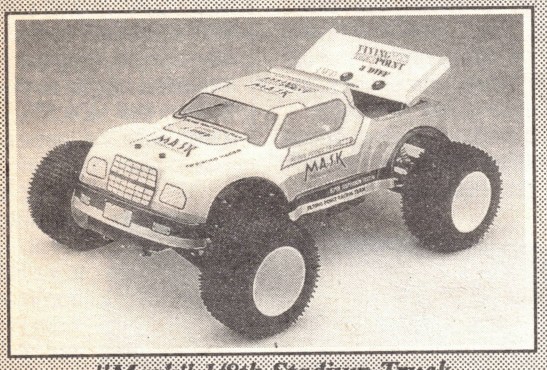


The New Contenders...

Flying Point's High-Tech, Nitro-Powered Gas Cars . . .
Fun, *Fast*, Durable & Tough to Beat!



"Jet-Probe" 1/8th Racing Buggy



"Mask" 1/8th Stadium Truck



"Magic Climber" 1/8th Monster Truck

Features:	Jet Probe	Mask Truck	Magic Climber
Good Parts Availability	X	X	X
Four Wheel Shaft Drive	X	X	X
.21 Nitro-Powered	X	X	X
3-Diff. Planetary Style	X	X	N/A
2-Diff. w/Central Transmission	N/A	N/A	X
Steel Planet/Satellite Gears	X	X	X
Steel Bevel Gears	X	Opt.	X
Steel Main Gears	X	Opt.	X
Steel Pinion Gears	X	X	X
All Steel Dogbones	X	X	X
Front Universal Halfshafts	X	X	X
All Precision Ball Bearings	X	X	X
Hi-Capacity Adjustable Shocks	X(1)	X	X
Offroad Muffler Included	X	X	X
Double Filtered Fueltank	X	X	X
Non-Distorting Race Rims	X	X	X
Heavy Duty Disc Brakes	X	X	X
Front & Rear Dual Brakes	X	X	N/A
Brake Neutral Auto-Return	X	X	N/A
Duraluminum Race Chassis	X(1)	X	N/A
Extra-Heavy Duty Chassis	N/A	N/A	X
Duraluminum Upper Pate	X(1)	X	N/A
Quick Maintenance Diff.	X	X	N/A
3-Piece Racing Clutch	X	X	X
Double Ball Bearing Clutch	X	X	X
Light Weight Race Flywheel	X	X	X
Body/Wing or Body Included	X	X	Body
Heavy Duty Race Tires	X	X	X
Foam Tire Inserts	X	X	Opt.
Front Anti-Roll Bar	X	N/A	N/A
Rear Anti-Roll Bar	X	N/A	X
Waterproof Batt/Receiver Box	X	N/A	N/A
Adjustable Rear Wing	X	X	N/A
Adjustable Toe and Caster	X	X	Toe
Adjustable Camber	X	X	N/A
Heavy Duty Upper Arms	X	X	X
Heavy Duty Lower Arms	X	X	X
Steel Bushing Diff Case (2)	X	X	N/A
Torsen Differentials Optional	X	X	N/A
Arch Lower Rear Arms (3)	X	X	N/A
Competitively Priced? (4)	Yes	Yes	Yes

(1) Jet Probe has Anodized Shocks, Chassis & Upper Plate.
(2) Steel Bushing Diff Case Is More Durable than Alloy Case.
(3) Arch Design is for Strength and Smooth Jumping.
(4) We invite you to Compare Flying Point's many Features Verses Price to any other Gas Car Kits on the Market!

Thinking About Buying Your First Gas Car?

Flying Point's Gas Buggies & Trucks Give You
More Fun, ***More*** Speed, ***More*** Realism and ***More*** Running Time!

Speedline Distributing
6606 Cypress Point North, Austin, TX. 78746
(512) 327-8485

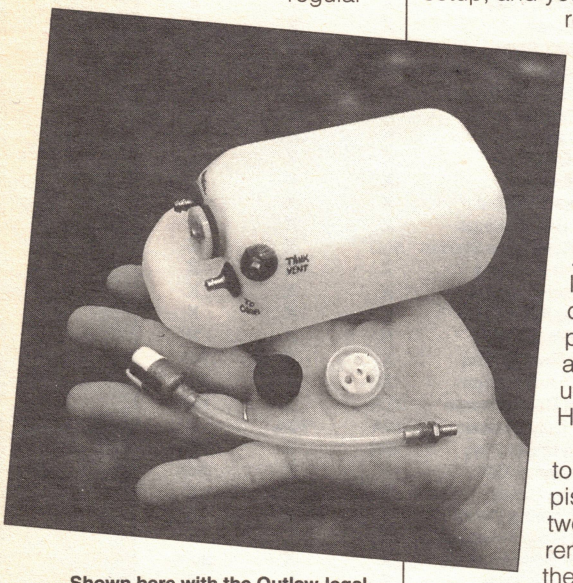
Great Planes Model Distributors
1608 Interstate Drive, Champaign, IL. 61820
(217) 398-3630

Flying Point America's
P.O. Box 405, Medinah, IL. 60157
(708) 980-4863

ZENOAH BIG BORE OVERVIEW

BY RICK EYRICH

In the past year there has been an increase in the popularity of QSAC's Outlaw stock car class. These Q-scale RC cars differ from the regular Grand National cars mainly in the body style and motor departments. Wedge-shaped bodies with large Lexan rear wrap-around spoilers provide additional downforce, which you need for the stronger two-horsepower Zenoah. This month's two main topics will be an overview of the two-HP Zenoah and a buildup of a 16-ounce fuel tank along with the usual stuff you except each month.



Shown here with the Outlaw-legal 16-ounce Du-Bro tank are all the pieces needed for its assembly. Besides the regular tank cap, a Walbro in-tank filter, Tygon fuel line, and three fuel hookups complete the job. The finished tank is then mounted low and flat in the chassis, with the fittings facing towards the left-hand side of the car for proper fuel pickup.

THE ZENOAH OUTLAW CLASS ENGINE

Although this Outlaw-legal powerplant puts out two horsepower, it's still a G2-D Zenoah—though with changes. To alter a standard G2-D to Outlaw class specs, you'd need the following: cylinder, fiber intake block and the larger 5/8-inch bore Walbro carb (model WYK-4). Other modifications needed include a larger bore air filter setup, and you may need to re-configure your tuned pipe to get the proper power curve for your particular Q-scale car.

The regular Zenoah G2-D lower cases, crankshaft, piston and rings and ignition are used on the two-HP engine.

You will have to reverse the piston so the two rings remain out of the ports, and grind a notch in the flywheel cover to allow access to the Walbro carb screw. Beyond that, you have the two-horsepower version of the Zenoah.

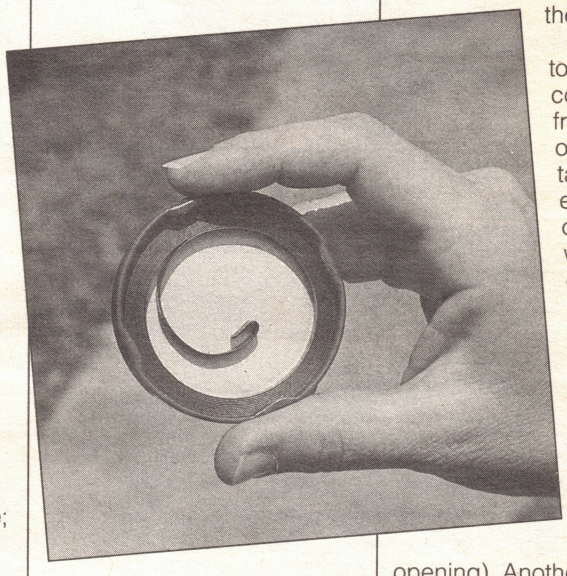
Of course you'll need to decide whether to run alcohol or gasoline in the engine (Outlaw class legal), though most now run gasoline in the 16-ounce outlaw tank. Outwardly the two versions of the popular Q-scale motor look the same; but out on the track, things change quickly! Properly tuned, the two-HP version has much more torque off the corners and acceleration than the smaller powerplant, especially on alcohol fuel.

All of the pieces/parts needed to convert to two horsepower are available from several sources, including RACO and WCM. Along with the parts, they can help with engine/fuel setups as well. And as noted earlier, many QSAC Outlaw racers run gasoline fuel in their 16-ounce tanks. And that's the second part of the two HP story—a quick buildup of an Outlaw fuel tank.

16-OUNCE JUICE CAN

For the Outlaw tank job, you'll need the following pieces; a Du-Bro 5-16 tank kit, a Du-Bro #192 fuel tank fitting kit, two Du-Bro 10-32 pressure fittings, a small Walbro in-tank fuel filter, an Echo PB-210E blower tank grommet, and some Tygon-type 1/8-inch inside diameter fuel line.

After spreading out your parts, you'll need to drill and tap two 10-32 holes, one on the left side, one slightly up and right of the 16-ounce tank's single opening. These two holes will be for the refill and vent hookups. The Du-Bro 10-32 fittings used are also drilled out to 1/8-inch inside bore (QSAC limit) prior to mounting. A drop or two of thick CA glue is placed on the fitting gaskets before screwing them in place, and either JB epoxy or Zap-brand goop is spread over the outer fitting surfaces to seal them from fuel leaks.



You can avoid having a spare Zenoah recoil spring from unwinding on you by storing it inside a metal bottle lid. The rounded-in edge of the cap keeps the small spring snug inside the metal lid. Plus the cap reduces the chances of the spring popping out from inside your toolbox!

Now take the threaded #192 Du-Bro tank fitting and Loctite (I use #242) one brass nut to one end of the threaded nipple. Drill the tank for the threaded part just to the right of the tank opening. At this point, you'll need to make up the inner-tank fuel pickup line prior to installation. I used Tygon fuel line with a 1/8-inch inside diameter to connect the threaded nipple to the small Walbro fuel tank filter and made sure the installed filter was located to the right-rear lower part of the tank.

You'll need to install the completed line from the inside out of the tank. Use either a piece of mechanic's wire or a pipe cleaner pushed inside the nipple opening to route the line unit through the drilled hole (right of the center tank opening). Another brass nut from the #192 kit holds the pickup line fitting to the tank itself and again it's sealed with either epoxy or Goo or both.

The last bit to do is to seal up the tank's original fitting hole which isn't used on this Outlaw tank. The same single-hole rubber grommet from a Echo Blower tank as was used on the eight ounce Grand National tank (Big Tips, August '93 *RC Model*

Cars) buildup is used on the Outlaw tank as well. The regular Du-Bro tank nylon "squeeze plates" hold the grommet in place, and the job's finished except for installation in the chassis. Mounted flat in the lower frame, usually just forward of the engine, the tank fittings should face towards the left-hand side of the car. This is done to push all of the fuel towards the inner pickup filter—thus using all available fuel in the tank.

With that, you've now got some basic info on the two-HP Zenoah and the legal 16-ounce fuel tank used on the QSAC Outlaw Q-scale stock cars. Look for additional information on the wedge cars and the big motor in future Big Tips columns.

TRICK OF THE MONTH

Let's say you're a smart Q-scale racer and you keep plenty of spare parts handy at all times. In that collection of parts is a Zenoah recoil spring. Tightly wound, this small spring can, shall we say, become quickly unwound should it slip out of the tiny retaining wrapper. So to avoid having a recoil spring pop on you, try this: a metal bottle cap (2-1/2 to 3 inches in diameter) will hold the Zenoah spring in place safely inside your toolbox. The cap's rounded outer edge will keep the spring inside the cap, and you can also cover the bottle cap with tape, thus ensuring that under no circumstances will you have a spring "escape."

TIP OF THE MONTH

If you're in the process of detailing a freshly painted Q-scale body, Autographics has some help for you. Besides their sponsor cluster sheet (#451), there's also a pair of Goodyear sheets (black: #453, white: #454) and a detail sheet (#455) that contains hood pins, exhaust pipes, gas hookup and other needed stickers for Q-scale bodies. Check them out.

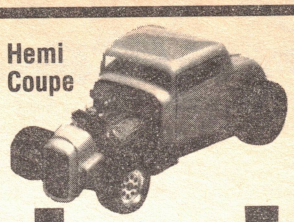
UPDATE OF THE MONTH

Back in the October '94 issue of *RC Model Cars*, there was an Answerman letter concerning a reader who'd just purchased a used WCM GN Q-scale car. The letter asked about basic car information; and since then, the magazine received a letter from Susan Scott of West Coast WCM Distributions. In that correspondence Susan said that any current WCM car owner needing info or parts should feel free to contact their outfit. Included with her letter were some WCM setup sheets (which were sent along to the reader) plus a full parts listing for WCM cars. Q-scale racers with WCM questions can contact Susan and her husband at 12432 Fairchild, Garden Grove, California, 92645, or call them at (714) 890-0409.

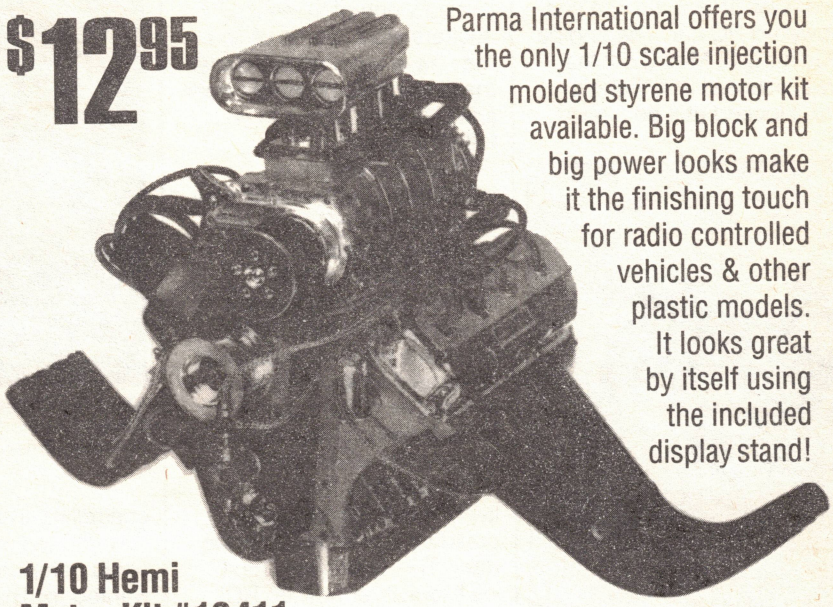
FINAL THOUGHTS

Since I've teased you with the bigger displacement Q-scale engine this month, the next Big Tips will show you some ideas to try when you're rebuilding your Zenoah powerplant. We'll discuss some simple tools to aid you with the process and also cover the usual stuff you're used to seeing in this part of *RC Model Cars* Magazine. ●

Build a Hemi Motor!



$12.95



Parma International offers you the only 1/10 scale injection molded styrene motor kit available. Big block and big power looks make it the finishing touch for radio controlled vehicles & other plastic models. It looks great by itself using the included display stand!

1/10 Hemi Motor Kit #10411

Shown with Optional Wiring Kit **#10411A**

America's Choice!

PARMA INTERNATIONAL INC.

Parma also has 1/10 scale R/C kits that include the hemi motor.

Hemi Coupe #15080
Hemi Vette #15090

Try a "New Model Look" today and build one of these kits just for the awesome detail!

Send $2 for a Catalog.

13927 Progress Parkway • North Royalton, Ohio 44133 (216) 237-8650

THE T.D. PROTECTOR™

THE *BEST* BUMPER FOR ON-ROAD CARS !



"GET THE *T.D. PROTECTOR* AND KISS GOODBYE THE BROKEN PARTS AND CRACKED BODIES OF YESTERYEAR"
Leo Hill / R/C Model Car

- Lighter and stronger than conventional bumpers
- Bodies last more than twice as long
- Raises the durability of on-road cars to a new level
- Over-sized for trimming to fit any on-road car

1:12 - $5.95 1:10 or 1:10ss - $6.95 1:8 - $7.95

...ALSO AVAILABLE THE PROTECTOR/PT™
Pre-Trimmed to fit any 1:10 NASCAR body.
Trim only the rear of the bumper to fit any chassis.
1:10 or 1:10ss - $6.95

DEALER /DISTRIBUTOR INQUIRIES INVITED! Free shpng. contntl. USA, no C.O.D.'s

TO ORDER CALL: 800-253-7229
VISA/ MSTRCRD ONLY
Or send chk or MO to:
TD Enterprises, Box 3301
Lexington, OH 44904
FREE SHIPPING!
For info call: 419-884-2004

RC CARS DECALS!

RADIO CONTROL MODEL CARS

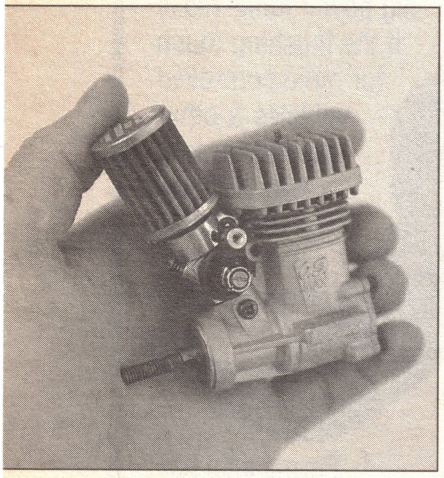
FULL-COLOR FOR YOUR CAR, ONLY $2.50

RC Model Cars
34249 Camino Capistrano
Capistrano Beach, CA 92624

INSIDE GAS ENGINES

BY JOSEPH RINGEISEN

I remember the first time I ever saw an engine in a gas-powered RC car. The engine was an O.S. Max CZ-2 that was mounted in a friend's car. I looked at it and said,



The modern RC car gas engine is a real powerhouse in a tiny package.

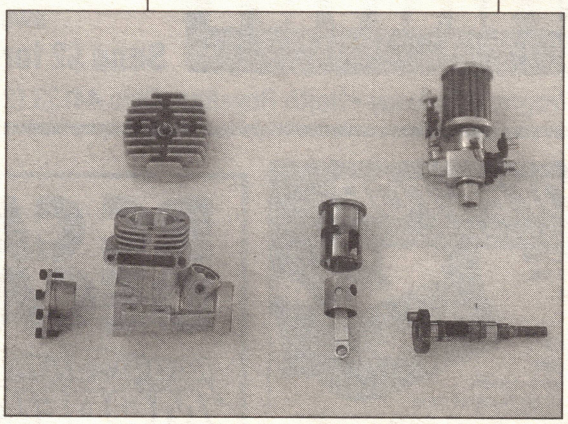
"How cute. A toy engine." After giving me a look of disgust, my friend suggested that he race his gas car against my RC10. After firing up his gas car, it proceeded to eat my RC10 for lunch.

I'm sure most of you who have been involved with the RC hobby for at least a couple of months have noticed the popularity of gas-powered cars. Their popularity has been increasing steadily in the last couple of years. You've probably seen these little engines that are in gas-powered RC cars yourself, and if you're like I was, wondered how something so small could produce so much power and speed. You also might have wondered just how one of these little suckers work. Some of you may have even decided that these engines probably work just like the engines in your full-size car.

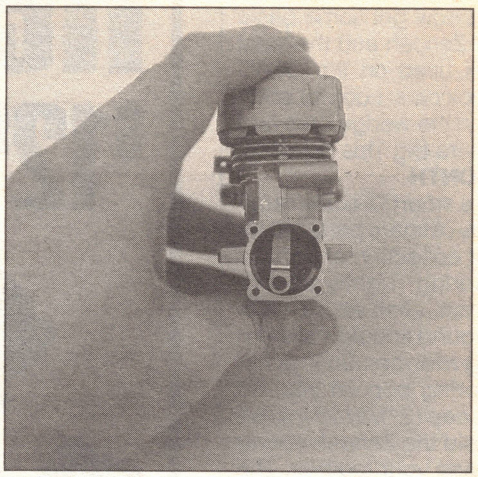
There's a wealth of information out there on how to make your RC car's gas engine run faster and/or better, but few actually explain how one of these gas engines works. Unless you have prior knowledge of the actual functioning of a two-stroke engine, from disassembling your father's lawnmower when you were a kid to see how the lawnmower worked, you could very well be left in the dark. This month and next, we'll look over how an RC gas engine is assembled and how it actually works.

GENERAL ASSEMBLY

Generally speaking, all gas engines have about four basic parts: the piston, the cylinder, the crankshaft and some source of fuel ignition, such as a spark plug or glow plug. Any gas engine is going to have more parts than that, but these are the basics. You could also include some means of controlling the amount of fuel flow into the engine as a basic component if you wanted to. The means of controlling the amount of fuel flowing into an engine (i.e., the carburetor) is the engine's throttle control. The reason why I didn't include that in the basics list is because that's a whole story in its own right. Not only that, believe it or not, some engines don't really have any means of fuel control. The means of "fuel control" on an engine like that is how fast fuel can flow into the cylinder. In other words, they run full blast all the time. These engines are designed to be used in airplanes, not cars.



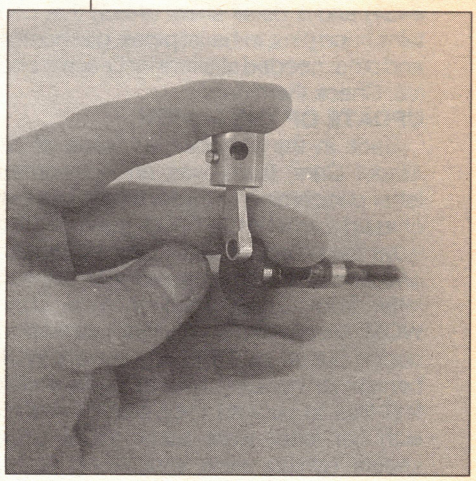
A disassembled O.S. Max CZ-R engine. The parts are (L-R): the backplate, the cylinder head (top), the crankcase, the sleeve (top), the piston and connecting rod, the carburetor and air cleaner (top) and the crankshaft.



When the engine operates, the crankshaft turns when the piston and connecting rod assembly moves up, and then back down.

First, let's look at the cylinder itself. The cylinder is just that: a cylinder in the engine's crankcase. The surface of the cylinder has been machined to make it almost perfectly smooth. The engine in a full-size car will have the cylinder bored right in the engine block. An RC car, on the other hand, has a "sleeve" that fits in the engine's crankcase. This sleeve is the actual cylinder.

Next we come to the piston. The piston fits inside of the cylinder, and as would make the most sense, the piston moves up and down in the cylinder when the engine is operating. The surfaces of the piston have, as with the cylinder, been machined to make them almost perfectly smooth. A piston is pretty much the same, no matter what the type of engine. You may have heard of gas racers saying that they need to buy a new piston and sleeve. Why would they need to buy a new piston and a new



A more detailed look at how the piston (top), connecting rod and crankshaft (bottom) go together.

sleeve? Due to the very tight fit that a piston should have inside a sleeve, the piston and sleeve in a gas engine are made in pairs and are designed to be used together. If you went out and just bought a new sleeve, and then tried to use your old piston, the old piston and the new sleeve might not fit together correctly; therefore you must replace a piston and sleeve together as a set. I'll explain the reason for the tight fit between the piston and sleeve later on.

Next we come to the crankshaft. The crankshaft on a gas engine is the part that actually rotates as the engine operates. The crankshaft in an RC car engine is simple to describe. Try thinking of it as being similar to the "Z" bend linkages found in the steering systems of some RC car kits. It's basically a metal rod that has one end somewhat offset from the other end. In truth, it's probably more accurate to say that it's a metal rod that's threaded at one end. At the other end is a disc of sorts, with a small pin that's offset and projecting out of the surface of the disc.

The last "basic" part of a gas engine is some means of ignition of the fuel. In a full-size car, this is accomplished with the spark plug. Is there a spark plug in an RC car's engine? In essence, yes. What's actually found in an RC car engine is called a glow plug. It looks like a spark plug, but it actually has a tiny metal coil inside of it. This coil glows bright orange (hence the name "glow plug") when a glow plug igniter is hooked to it. Diesel engines, like those found in school buses, 18-wheelers, etc., have glow plugs.

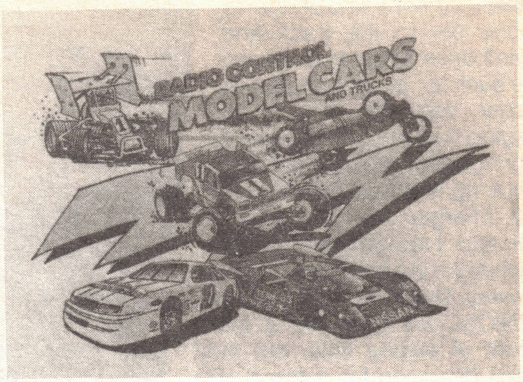
Now how do all these parts go together to make an RC car engine? It's pretty simple, really. As I said before, the piston fits, and moves up and down, inside of the cylinder. The up-and-down movement of the cylinder is where the engine initially gets its power to do work. If you think about this, however, it might seem kind of strange that the piston's motion is linear, yet the crankshaft, which is the "power output" for the engine, has rotational motion. This leads to the question of how the engine converts linear motion into rotational motion. Here's how: connected to the bottom of the piston is a metal rod, called the connecting rod. Remember that little offset pin that I said was on the one end of an RC car engine's crankshaft? One end of the connecting rod is connected to the piston, and the other end is connected to that offset pin on the crankshaft. As the piston moves from its lowest point to its highest point inside the cylinder, the connecting rod pulls the crankshaft through one-half of a rotation. Then, as the piston moves back down from its highest point in the cylinder to its lowest point in the cylinder, the connecting rod pushes the crankshaft through the other half of a full rotation, making one full rotation per up-down movement of the piston.

That pretty much takes care of how the cylinder, piston and crankshaft go together, but that still leaves one basic part: the glow plug. The glow plug is mounted in the cylinder head, which fits on top of the cylinder. The glow plug's coil is ignited by an external battery for the initial start-up of the engine, but once the engine is running, the heat from the engine's operation keeps the coil glowing.

UNTIL NEXT MONTH

That just about wraps it up for this month. Tune in next month, when we'll cover how one of these little gas engines actually works. If you've got a question or comment for this column, give me a shout. The address is Starting Out, Box 2459, Capistrano Beach, California 92624. Until next month . . . •

Get off to a quick start with our HOT new tees!



The eye-catching logo and bright colors on a white background will be a sure way to let everyone know that you are a radio control model car hobbyist!

Super quality 50% cotton/50% polyester to maintain their true colors and shape.

To Order: Send cash, check or money order for $14.95 plus $1.50 shipping to:

RADIO CONTROL MODEL CARS TEES
34249 Camino Capistrano, Capistrano Beach, CA 92624
CA residents add $1.27 sales tax
Be sure to specify shirt size: L, XL, XXL

SUBSCRIBE! SEE PAGE 75

RC CARS DECALS!
RADIO CONTROL MODEL CARS
FULL-COLOR FOR YOUR CAR, ONLY $2.50
RC Model Cars
34249 Camino Capistrano
Capistrano Beach, CA 92624

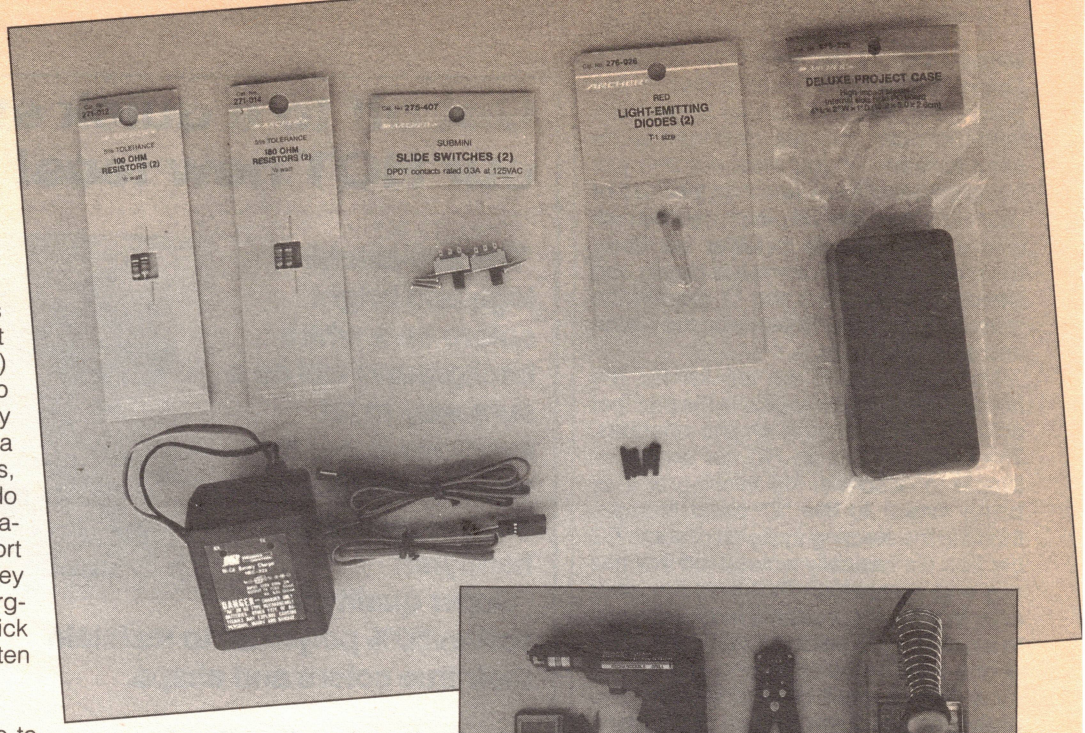
MAKING AN INEXPENSIVE TRICKLE SWITCH FOR YOUR RADIO CHARGER

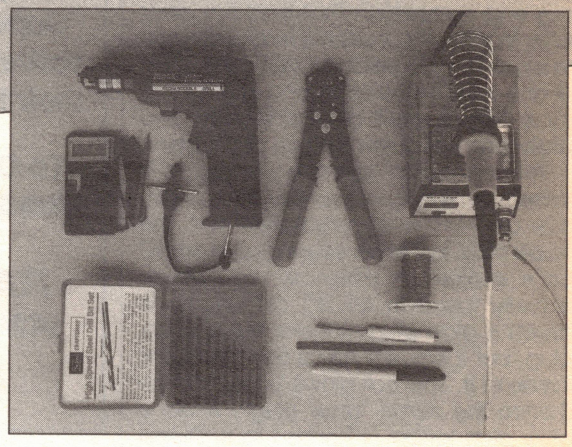
BY BEN CHIU

Have you ever packed up all of your gear and gone out to the track only to find that you forgot to charge your radio NiCds the night before? Well, I'll admit that I've done that more than once. Rather than be called a "track queen" (someone who brings his pristine car to the track and doesn't drive it due to some excuse such as: a) not bringing his charger, batteries, etc.; b) not charging his radio batteries; c) not bringing his radio). What I'd do is hook up my radio NiCds to my quick charger and give them a quick zap. I really hate to do this, but when I'm in a jam like that, I'll do it anyway. Quick-charging your radio NiCds will give you a short amount of driving time, but they weren't designed for quick charging and if you continue to quick charge them you will greatly shorten their overall life.

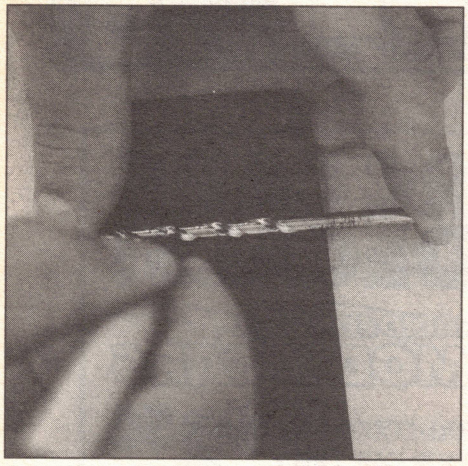
THE SOLUTION

If you're tired of being a slave to your radio NiCds, you'll be interested in this inexpensive—why mince words, *really cheap*— trickle switch conversion for your radio charger. What this handy device will do is allow you to charge your radio at the regular overnight charge rate





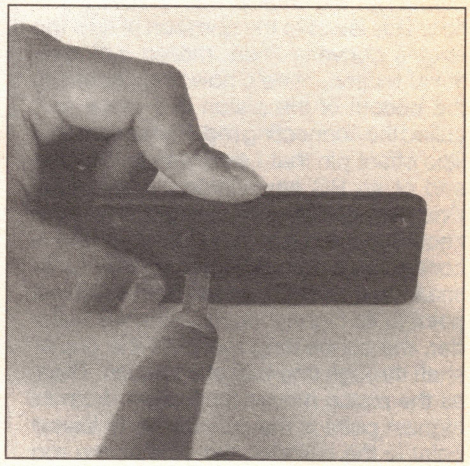
■ **ABOVE: All of the parts that you'll need. The charger usually comes with your radio and you probably have the shrink tubing left over from other projects. I purchased the rest at Radio Shack, but any equivalent generic electronic parts will work. ■ RIGHT: The tools for this project. You probably have everything except the small flat file. They don't cost much and once you have one, you'll find many uses for it.**



Hold the 5/32-inch drill bit where you want to mount the switches vertically and make two sets of two marks (two switches, two per switch) on both sides of the bit where you want to mount the switches horizontally.



What you'll want after you drill the holes is two sets of two holes that are so close together that they connect like a figure eight. I find that by using the same drill bit to both drill the holes and use as a guide, you'll line up the two holes perfectly.



Use the small flat file to square off the edges of the holes so the switch knobs would fit through and operate properly.



Does Your Wiring Have A Weak Link? Not if you are using **DEANS ULTRA PLUG.**

What a combination! DEANS ULTRA PLUG, the most efficient connector available for R/C power connections.

With, DEANS massive 12 gauge ULTRA WIRE, pure copper, pre-tinned for easy soldering, very flexible.

deans
Quality R/C Products Since 1957

W.S. Deans Co. Inc. • 7628 Jackson Street, Paramount, CA 90723 • 310-634-9401

WCM CORP.

CHECK OUR LOW 1/4 SCALE PRICES

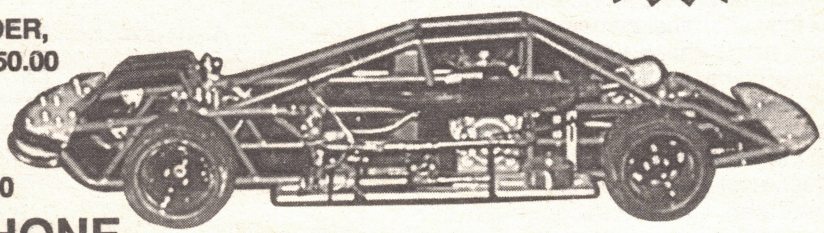
ZENOAH G2D PARTS
PISTON RINGS $3.00 ea.
GASKET SET $7.50
WYK 4 CARB 5/8 BORE $56.00
PISTON $12.35
CARBURETOR $33.00
BIG MANIFOLD $20.00
CYLINDER $45.18
2HP CYLINDER $58.00
28 GRAM CLUTCH $30.00
ALCOHOL CONVERSION FOR 2HP ENGINE (CARB AND MAINFOLD) $95.00

RIGHT & LEFT HAND METAL ROD ENDS $4.65
3" FIRM HOST TIRE $19.95
3" FIRM STAG TIRE $19.95
QUICKFILL FUEL BOTTLE $7.00
3" SOFT HOST TIRE $19.95

GRAND NATIONAL (TOP QUALIFIER AT QSAC NATIONALS)
COMPLETE STOCK CAR PACKAGE (ASSEMBLED READY FOR RADIO) $895.00
4-WHEEL INDEPENDENT SUSPENSION ADD $100.00

QSAC APPROVED

OUTLAW STOCK CAR
COMES COMPLETE WITH A 2HP CYLINDER,
BIG CARBURETOR AND TUNE PIPE $1450.00
(THIS BABY IS BAD)



LIMITED SPRINT CAR
ASSEMBLED READY FOR RADIO $895.00

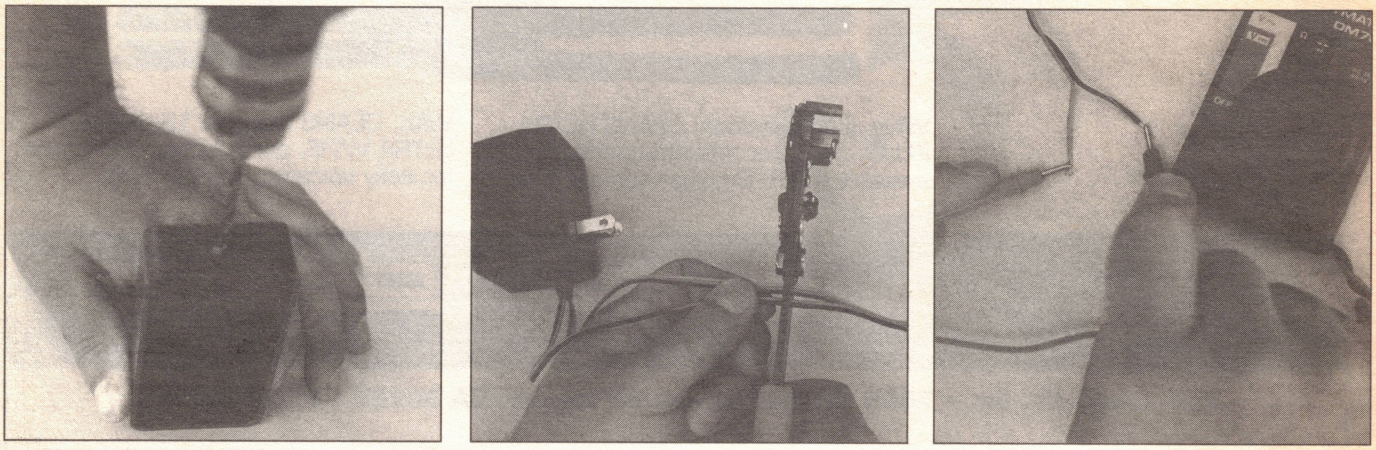
(903) 322-4869 TELEPHONE
(903) 322-3643 FAX

GENUINE Mini-Z PARTS WCM INC.

RT. 2 BOX 207A, BUFFALO, TEXAS 75831



■ **LEFT: Set a switch in each hole and use a 1/16-inch drill bit to mark the screw mounting holes by placing it in the switch holes and twisting the drill with your fingers. ■ CENTER: Drill out the holes in the marks you just made with a 5/64-inch drill bit. ■ RIGHT: Next drill 1/8-inch holes near the end of the switch to mount the LEDs. To find the exact spot to drill these LED holes, temporarily mount the switch to make sure the LED will clear the switch mounting bracket. You want to mount the LED as close as possible to the switch mounting bracket because the LED leads are pretty short.**



■ **LEFT: Drill 1/4-inch holes in the ends of the project box to provide access for the charger leads. ■ CENTER: If all of your charger cords are the same color, mark which wires go to the radio and which goes to the receiver by writing on pieces of tape and placing them on the leads near the transformer. Next, when your charger is *not plugged in*, cut the charger leads approximately six inches from the transformer. ■ RIGHT: Use the wire strippers and strip the ends of the wires. Before proceeding any further, make sure none of the bare wires are touching each other and cannot short out by touching something metallic nearby. Now plug in the charger and use your voltmeter to determine which wire is positive and which is negative. If you have a dual charger, you'll need to do the same thing on the other lead. After you've noted the polarity of each lead, unplug the charger.**

TRICKLE SWITCH

and then flip a switch to charge at a trickle rate. This trickle rate is high enough to keep your radio NiCds peaked, but low enough to keep it attached for long periods of time. You can't keep your batteries attached to an overnight charger for long periods of time because you'll overcharge them, and as you know, overcharging will kill them. Essentially, if you build this project, what you'll end up with is a way to keep your radio NiCd battery in a state that is always ready to be used. Sound good? Read on.

THE LIST

Here is a list of parts that you'll need. All of the parts, other than your radio charger and some shrink tubing (you probably have some of this already), were purchased from Radio Shack. I listed the part number next to each item in case you want to use them also. If you like, you can buy equivalent generic parts for the ones I used at any electronics supply store. These are all common parts so you shouldn't have any problem finding all of them. I built my trickle switch for under $5, tax and all. Now that is cheap!

MATERIALS LIST

4" L x 2" W x 1" D deluxe project case #270-220

Sub-mini slide switches DPDT contact rated 0.3A@125VAC #275-407

1/2 watt 5% 100 ohm resistors #271-012

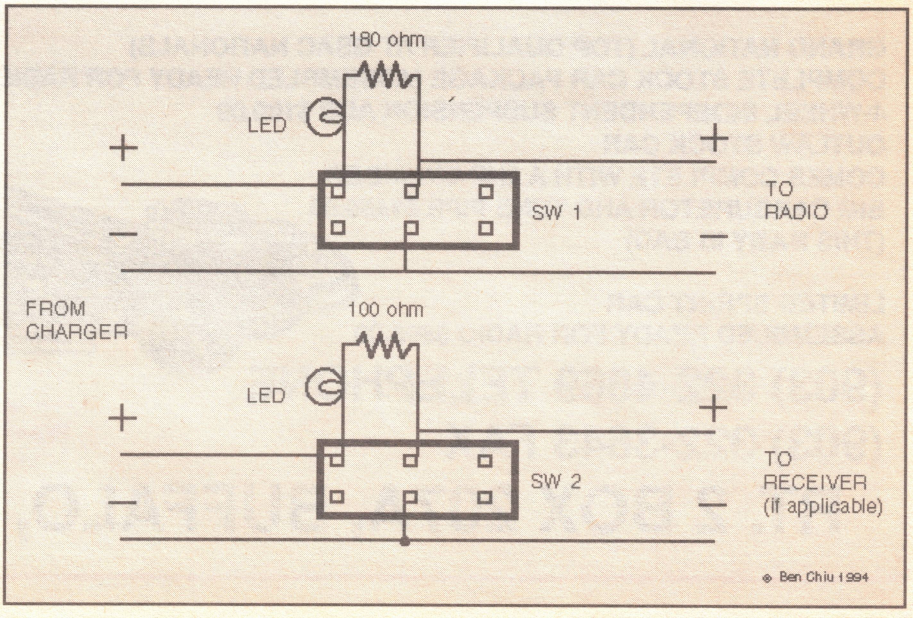
1/2 watt 5% 180 ohm resistors #271-014

Red light-emitting diodes (LED) T-1 size 2.0v. 6.3 mcd #276-026

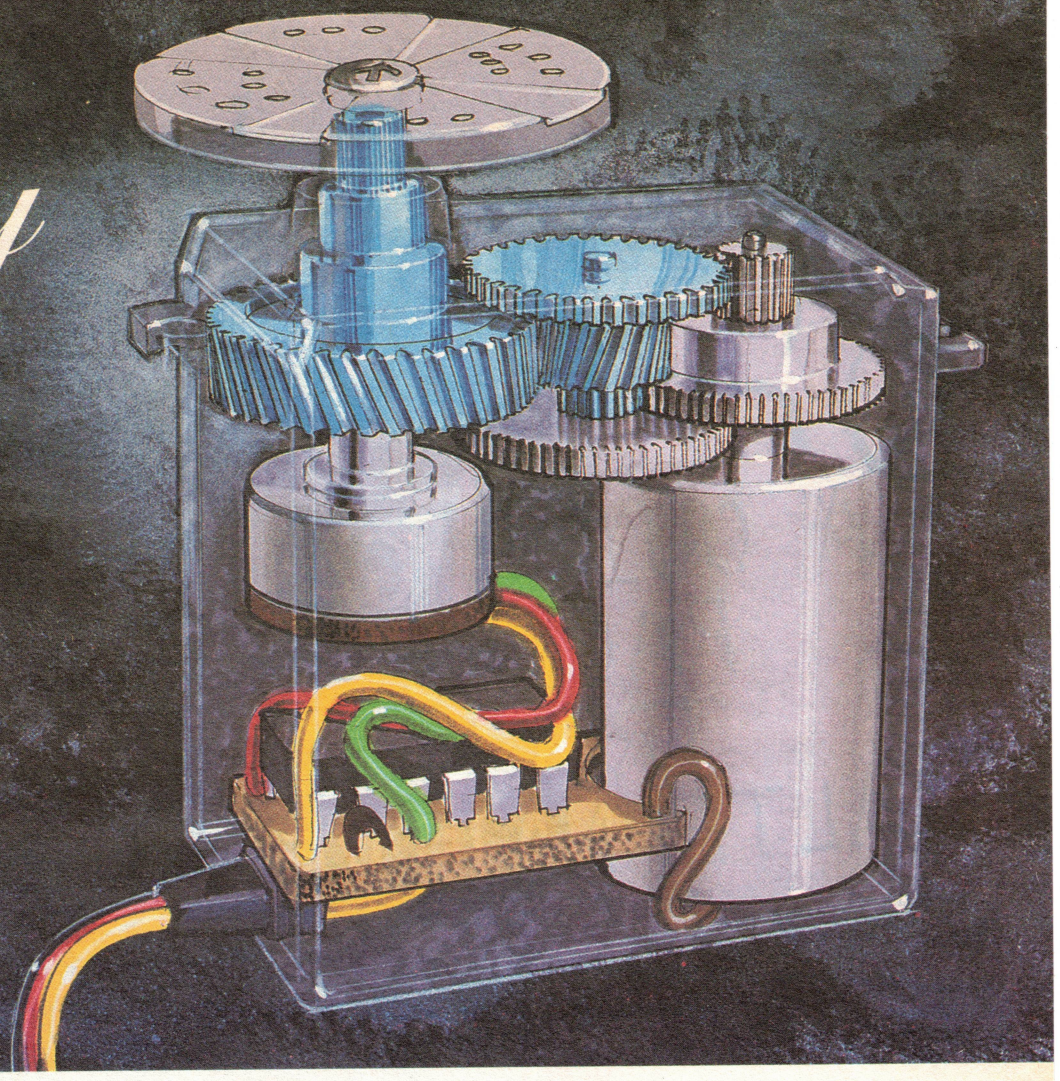
Shrink tubing for above LED lead

Don't sweat it if you can't find any of the exact parts I listed above. Just get an equivalent and you'll be fine as long as you keep in mind that everything has to fit into the project box. If you want to use another project box other than the one I

continued on page 31



Beauty in the Beast



Let's face it. Servos are not exactly eye-catching beauties. They are used and abused with scarcely a second thought. Nothing more than a beast of burden.

But when you realize that a servo is the last link between you and your model, beauty takes on a whole new meaning. That's why every Hitec servo comes with our own custom-designed I.C. to provide strong standing torque, a very narrow dead band and improved stability under low voltage conditions. Precise, heavy duty gears are used throughout the gear train to improve the neutral position with minimal backlash. When you combine all this with the latest in SMT circuitry, you have a servo that won't cut out on you when the going gets a little rough.

In the eye of the beholder, beauty takes on many forms. We think you'll find our entire line of quality servos a sight for sore eyes.

Most Hitec servos are available either individually or in packs with other popular connector types that cover the spectrum of R/C applications. See your dealer today and ask to see the complete line of Hitec servos.

HITEC #	DESCRIPTION	TORQUE@ 4.8 volts	SPEED@ 4.8 volts	BEARING	SIZE LxWxH	WEIGHT	AVAILABLE PACKS
HS-80 HS-80MG	Sub micro Metal gear	31 oz/in 31 oz/in	.15 sec .15 sec	NONE	1.1x0.6x1.1	.62 oz .76oz	RCD924 3 servos
HS-101 HS-101MG*	Mini servo Metal gear	24 oz/in 24 oz/in	.20 sec .20 sec	NONE	1.3x0.6x1.2	.93 oz 1.07 oz	RCD920 3 servos
HS-205BB HS-205MG	Super mini Metal gear	44 oz/in 44 oz/in	.20 sec .20 sec	TOP BALL BEARING	1.3x0.6x1.3	1.1 oz 1.3 oz	none
HS-300	Std. Sport	42 oz/in	.19 sec	TOP NYLON	1.6x0.8x1.4	1.57 oz	RCD905 4 servos
HS-422 HS-425BB*	Std. Pro Ball Bearing	43 oz/in 43 oz/in	.20 sec .20 sec	DUAL OILITE DUAL BB	1.6x0.8x1.4	1.55 oz	RCD910 4 servos
HS-605BB HS-605MG	Ultra Torque Metal gear	77 oz/in 77 oz/in	.16 sec .16 sec	DUAL BALL BEARING	1.6x0.8x1.5	1.73 oz 2.12 oz	RCD605 3 servos
HS-615MG	Super Torque Metal gear	107 oz/in	.21 sec	DUAL BALL BEARING	1.6x0.8x1.5	2.12 oz	none
HS-700BB HS-705MG	Giant scale Metal gear	133 oz/in 161 oz/in	.22 sec .27 sec	TOP BALL BEARING	2.3x1.1x2.0	3.5 oz 4.0 oz	RCD915 3+1 servos
HS-75BB	Retract servo	90 oz/in	.50 sec	TOP BB	1.7x0.9x1.0	1.3 oz	none
HS-725BB	Sail Winch 4 Turns	161 oz/in	1.62 sec 360 deg	TOP BALL BEARING	2.3x1.1x2.0	3.8 oz	none

*Denotes servo only available with Hitec/JR connector. All other servos available with FUT "J", AIRT and Hitec/JR connectors. Please specify connector type when ordering. All servo packs come with switch harness.

hitec®

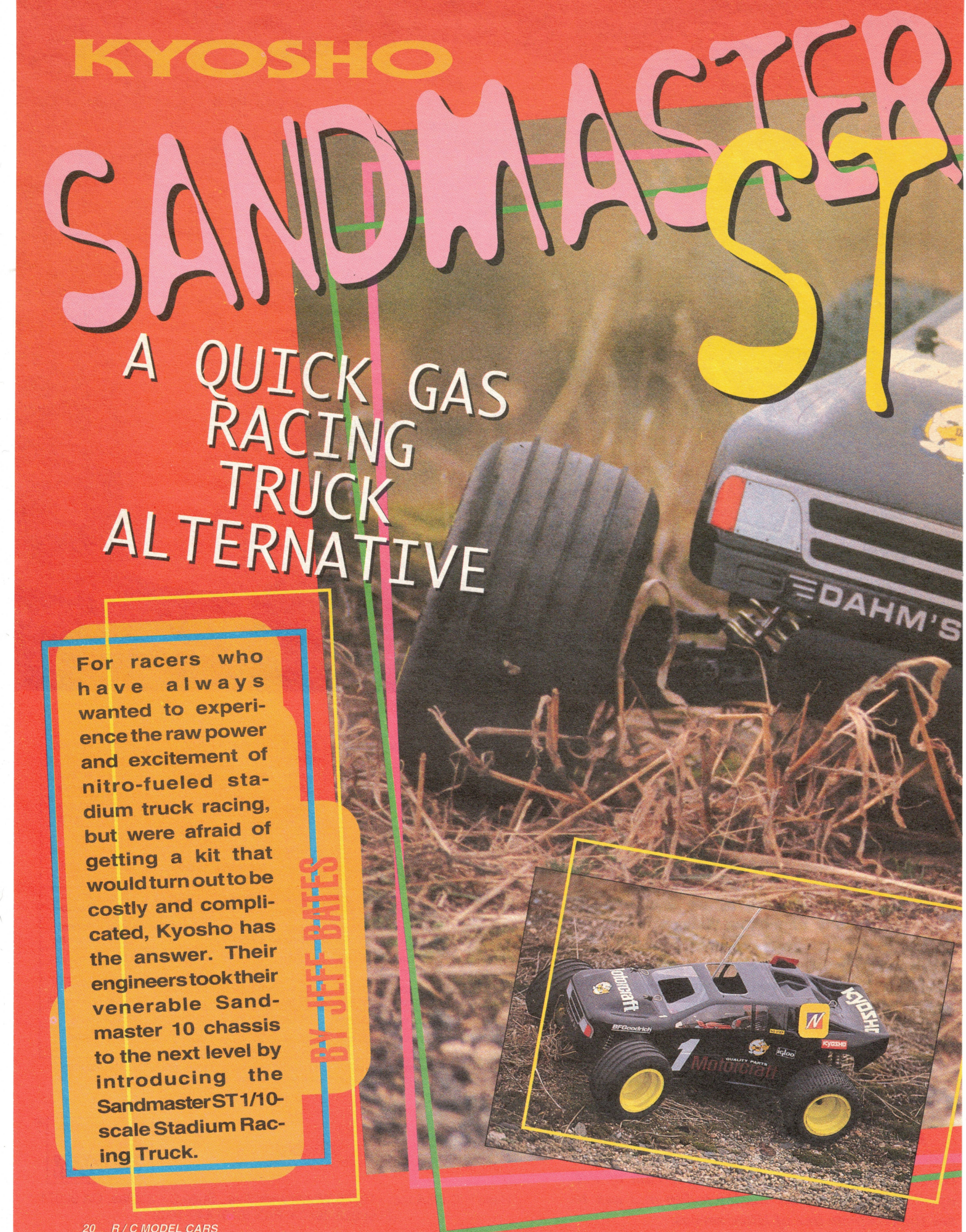
RCD®

Hitec R/C USA Inc. • 10729 Wheatlands Ave., Suite C • Santee, CA 92071
(619) 258-4940 • FAX (619) 449-1002

KYOSHO

SANDMASTER ST

A QUICK GAS RACING TRUCK ALTERNATIVE



For racers who have always wanted to experience the raw power and excitement of nitro-fueled stadium truck racing, but were afraid of getting a kit that would turn out to be costly and complicated, Kyosho has the answer. Their engineers took their venerable Sandmaster 10 chassis to the next level by introducing the Sandmaster ST 1/10-scale Stadium Racing Truck.

BY JEFF BATES

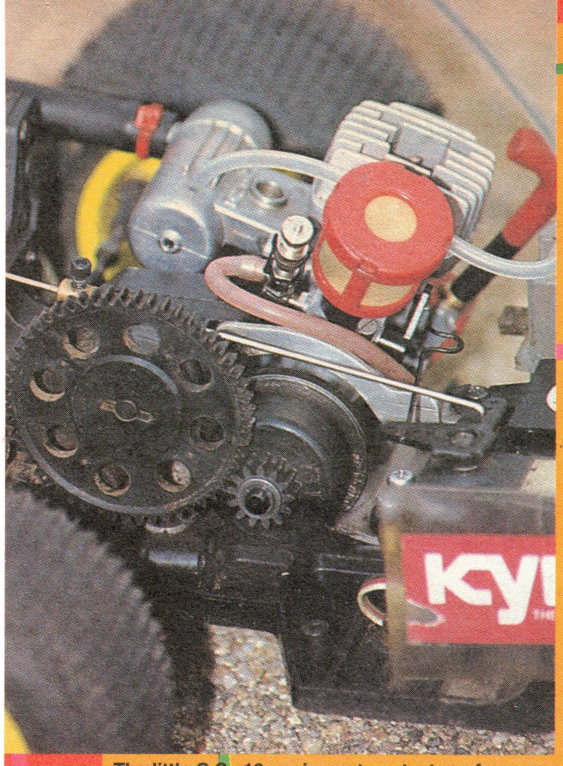


OPTIONS

Kyosho Bearing Kit
Kyosho Adjustable Tie-Rod Set
Kyosho Universal Swing Shaft
Kyosho Ball Differential
GPM Servo Mounts
Futaba S-148, S-132 Servos
Dahm's truck body

SPECIFICATIONS

Length	15.4 in.
Width	11.4 in.
Height	6.3 in.
Weight	3.7 lbs.
Wheelbase	10.4 in.
Engine	O.S..10 FP-BX



The little O.S. .10 engine puts out a ton of pony power for such a small displacement engine. Maintenance is next to nil, plus it usually starts on the first pull. The heavy-duty starter is nearly bulletproof.

article by Rick Eyrich that takes a good look at the ST's buggy brother, the Sandmaster 10. Since both the buggy and truck are based on the same chassis, there's not much I can add to Rick's great job of reviewing the standard chassis, but I will point out a number of changes required for stadium truck racing.

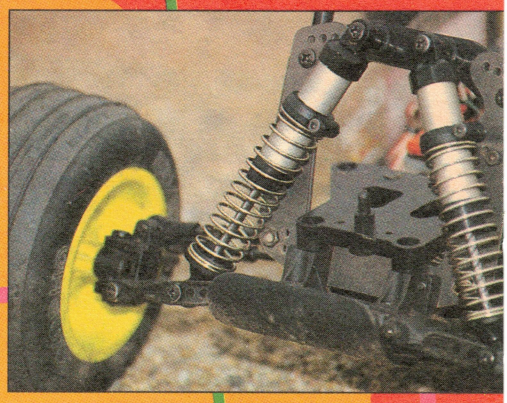
You have to hand it to the Kyosho engineers for doing their homework. Once they find a design that works, they take it the max!

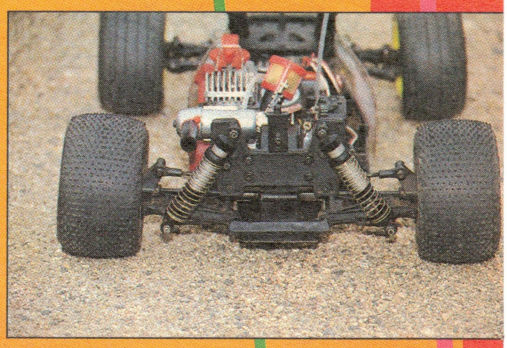
Aside from taller shock towers, longer shocks, bigger tires and a mean-looking truck body, both kits are essentially the same. Having reviewed a large number of Kyosho products throughout the years, I'm always impressed by the fit and finish, as well the great instructions I've come to expect from the undisputed leaders in gas offroad racing.

OPTIONS

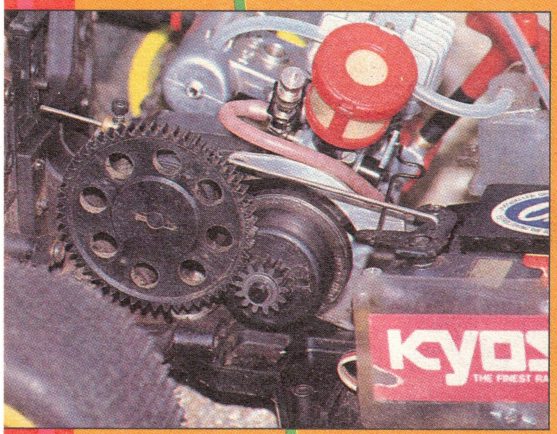
I was never much for leaving things alone, so during the final construction stage, I took advantage of replacing some of the stock components with a bunch of cool aftermarket components from the optional parts list. Full bearings, ball diff (improved cornering and traction control), adjustable tie-rods (a must) and universal

continued on page 24





Equalizer shocks are a major improvement over the stock units. Ride height, setup, wheel travel and handling are easily adjusted. They are worth every penny!



The stock diff was replaced with an aftermarket Kyosho ball diff. Power transfer is quite smooth and predictable. The two-stage air filter does a great job of keeping out harmful dirt and dust from the motor.



Aside from taller shock towers, longer shocks, bigger tires and a mean-looking truck body, both the Sandmaster 10 buggy and the truck version are essentially the same.

Modelers who are anxious to be racing instead of building will find the Sandmaster ST a blast to work on. The truck comes 90% preassembled, meaning the engine, gearbox and suspension are all factory installed, so getting on the track should only take an evening to install the radio gear, tires, shocks and body. Outfitted with the powerful O.S. .10 FP-BX engine with recoil starter, the ST makes it perfect for RCers of any level.

If you look back to the July issue of Radio Control Model Cars , you'll find an



The truck comes 90% preassembled, meaning the engine, gearbox and suspension are all factory installed, so getting on the track should only take an evening to install the radio gear, tires, shocks and body.

NO WAY.



WAY!



What do you get when you upgrade an easy "first-timer's" truck for higher torque, firmer handling and faster speeds?

TRACKER™

You get the Tracker 2WD—and the power to lay tracks almost anywhere. The Tracker's secret? Competition-proven off-road engineering, beefed up for a crash course in unstoppable monster mayhem.

It's priced lower than many lesser-equipped electric crushers. And the Tracker is even EASIER to build and run.

A protective, molded Kelron™ chassis puts the center of gravity low. That helps you stay on all fours, even over roller-coaster routes. With the Tracker's adjustable gearing, high-grip tires and stabilizing independent suspension, you'll easily blaze trails through the toughest off-road frontiers.

Just compare its list of features to any other "entry-level" electric truck. Kyosho's Tracker 2WD gives you the most monster for your money.

Here's how the affordable Tracker breaks new ground.

1. Efficient engineering minimizes weight—increasing run time and leaving more motor power for SPEED.
2. Included 550 motor supplies high torque for unstoppable climbing ability.
3. Proven, heavy-duty transmission permits easy pinion gear changes for optimum performance on any track.
4. Kyosho Heavy-Duty Mark II speed control delivers long-lasting, totally reliable performance.
5. Oil-filled shocks absorb bumps and jolts better than the typical "economy" truck's friction dampers.
6. Lightweight, clear Lexan® body is easier to paint and more durable than heavy, white plastic styles.
7. Tracker is easy to upgrade with affordable, widely available hop-ups.



Length: 18.1 in (460mm)
Height: 9.8 in (250mm)
Width: 11.6 in (295mm)
Weight: 3.9 lb (1770g)
Motor: 550-size (included)

KYOSHO®
THE FINEST RADIO CONTROL MODELS

For a free brochure and the location of the dealer nearest you, please call **1-800-682-8948, ext. 092H.**

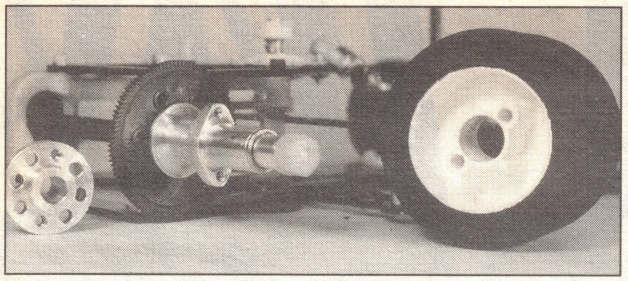
Distributed Exclusively Through

GREAT PLANES®
GREAT PLANES MODEL DISTRIBUTORS COMPANY
P.O. BOX 9021, CHAMPAIGN, IL 61826-9021

© Copyright 1993—3070340

PHASE II 12-SCALE WHEELS AND HUBS

T.M. R/C RACING COMPONENTS introduces its new Phase II 12-scale rear wheel and hub system (patent pending) that allows you to change the rear wheels without taking the differential apart. Keep your diff the way you like; just slip the new Phase II wheels over the new hub and hold them in place with two 4-40 screws. Now you can make your diff more consistent because all the bearings are mounted in the aluminum hub. When you tighten your diff, you don't have to squeeze the bearing against a plastic wheel; this can make your diff inconsistent. The new Phase II wheels and hubs don't add weight to your car. They're now available at hobby stores.



T.M. R/C Racing Components

49679 LEONA, CHESTERFIELD, MI 48051 (313) 949-3506; FAX (313) 949-3506

SANDMASTER ST CONTINUED FROM PAGE 22

shafts (smoother operation, efficient power transfer) were part of the final conversion. I also noted that when I mounted the radio gear (Futaba servos), the stock servo stand-offs flexed a bit too much for my liking. Since this can lead to inconsistent throttle and steering control, I opted for a pair of aluminum ones from GPM. Not only do they keep the servos rock solid on the chassis plate, they look pretty cool doing it! While I was at it, I replaced the front shock mount (again, too much flex for my taste) with graphite.

Although the shock bodies are plastic, they do offer a number of different dampener disks and ride height adjusters. They are easy to build and seem to work okay, so save your money and get some seat time behind the ST before upgrading to their killer Equalizer shocks.

The only thing left to do before hitting the track was to mount the tires and finish off the body. I added foam liners to the tires before sealing them to the rim with a small bead of CA glue. Also, don't forget to put a couple of small holes in the tires in order to let them breath (it helps them retain their shape). I'm not sure of the body design (you'll have to use your imagination), but as usual, Kyosho took care of all the trimming and holes for mounting. The decal sheet is pretty intense, so take your time and have some fun with the design.

CRANK 'ER UP

For first-time gassers, the instruction manual is the only way to go. There are two full pages on "How to operate the O.S. .10 FP-B ABC Engine." Take my advice, do your homework before cranking the .10 over. It will go a long way in promoting engine life and will significantly add to the fun factor. There is nothing worse than abusing gas engines!

Now that the lecture is over, let's have some fun. I've done a number of gas projects in the past, but I wasn't too sure

continued on page 69

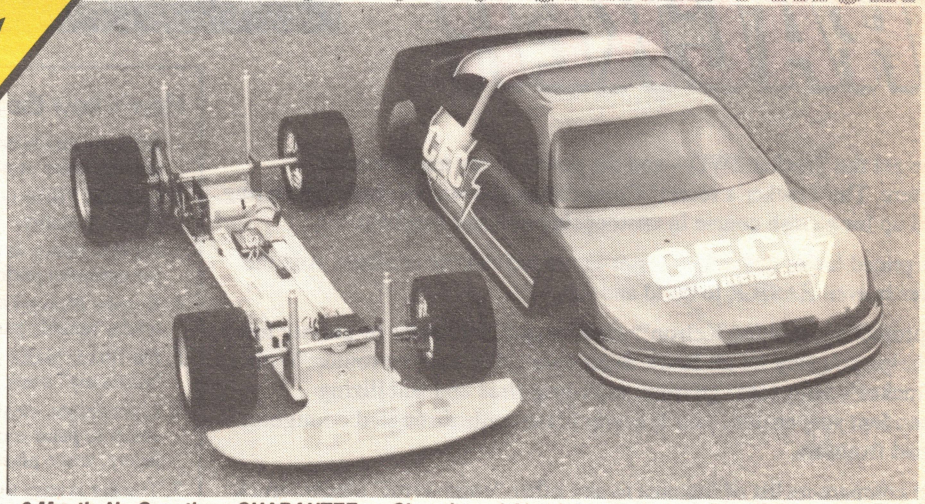
CEC

CUSTOM ELECTRIC CARS

CEC's QUARTER-SCALE ELECTRIC CARS!

FEATURES: *98% Assembled from factory • All aluminum parts Gold or Blue Anodized (Purple at an add. cost) • Full Ball Bearings • ABS Body, Lexan upgradeable • Machined Aluminum Dual Motor Command Trans. w/over 100 available Ratios • 48-pitch gears • V-Belt Final Drive • 7075 T-6 Rear Axle • Trued & Mounted Racing Lime Dot Foam Tires, 3 1/4" by 6"• Super-strong Front Bumper • Split-Beam Front Axle • Coil-Over Front Susp. • Pure-Tech Battery Straps • Massive Fan-Cooled Motor w/bearings • Speed Control w/reverse ...and MORE!*

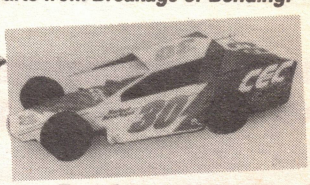
BIG FUN at a SMALL PRICE!



6-Month, No Questions GUARANTEE on Chassis and Aluminum Parts from Breakage or Bending!







•NASCAR Models ***•PRO-STOCK Models*** ***•East Coast MODIFIEDS!***

Send $4.95 for Color Catalog, get coupon for $50 OFF the price of a CAR!

CUSTOM ELECTRIC CARS • Box 2151, Route 52 • Pine Bush, NY 12566 • (914) 342-8697

Schumacher USA

COUGAR 2000
THE NEXT GENERATION
"95" SPEC



2WD COMPETITION OFF ROAD ELECTRIC

Full competition specification 1/10th scale electric 2WD off road racer. Winner of numerous international race meetings, 2rd at 1994 Euros. 1st 94 EFRA French and Belgian Grand Prix. Kit now includes revolutionary Schumacher Active Caster System (SACS)

U474	COUGAR 2000/95 SPEC	SALE PRICE	$209.70
U1617	Schumacher Active Caster System RC10		$ 34.95
U1618	Schumacher Active Caster System Losi XX		$ 34.95



CAT 2000
THE NEXT GENERATION

4WD COMPETITION OFF ROAD ELECTRIC

The CAT 2000 has dominated electric 4WD off road racing world wide since it's 2nd and 3rd place debut at the 93 World Championship. Full competition specification 1/10th scale kit that is a winner straight out of the box.

U460	CAT 2000 4WD OFF ROAD RACER	SALE PRICE	$317.70
U496	CAT 2000 4WD OPEL CALIBRA TOURING	SALE PRICE	$289.70

STORM 2000
THE NEXT GENERATION

COMPETITION RACING TRUCKS



Low, mean, aggressive 1/10th scale racing truck ready to take on the strongest of competition. Two versions, electric and gas for serious racing.

U461	ELECTRIC STORM 2000	SALE PRICE	$215.70
U466	NITRO STORM 2000	SALE PRICE	$221.70

(Engine & installation kit not included)



BossCat
4WD SPORT ELECTRIC

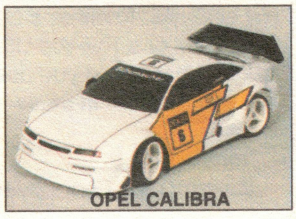
1/10th scale kit includes motor and mechanical speed controller independant wishbone suspension, black WFE chassis, coil springs over oil filled shocks, telescopic twin UJ driveshafts, tuftrided steel bushings plus a full range of optional parts to upgrade this special breed of CAT.

U471	BOSSCAT - SPORT 4WD BUGGY OFF ROAD
U473	BOSSCAT - TOURING 4WD - 'ESCORT COSWORTH'
U483	BOSSCAT - TOURING 4WD - 'ALFA 155'
U484	BOSSCAT - TOURING 4WD - 'OPEL CALIBRA'
U485	BOSSCAT - TOURING 4WD - 'MERCEDES C-CLASS'
U486	BOSSCAT - TOURING 4WD - 'FORD MONDEO'

SALE PRICE $149.70

club 10
First time racing

SERIES OF KITS



2WD Electric kits, 1/10th scale at affordable prices. Strong fast and reliable. Easy to build and maintain. Kit includes motor and mechanical speed controller.

U441	'COUGAR' OFF ROAD	SALE PRICE $107.70
U443	'STORM' TRUCK OFF ROAD	SALE PRICE $113.70
U439	'ESCORT COSWORTH' TOURING	SALE PRICE $107.70
U476	'OPEL CALIBRA' TOURING	SALE PRICE $107.70
U477	'MERCEDES' TOURING	SALE PRICE $107.70
U478	'FORD MONDEO' TOURING	SALE PRICE $107.70
U475	'ALFA 155' TOURING	SALE PRICE $107.70

FIRST TIME RACING!

Nitro 10

MK3 SERIES

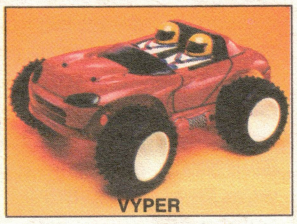
SALE PRICE $119.70

2WD Gas kits 1/10th scale powered by engine of your choice. Requires mounting kit for engine, kits also available with motor and mount kit included.

U463	NITRO MK3 - 'STORM' RACING TRUCK	
U464	NITRO MK3 - 'PANTHER' - MONSTER BUGGY	
U465	NITRO MK3 - 'ESCORT' TOURING	
U479	NITRO MK3 - 'ALFA 155' TOURING	
U480	NITRO MK3 - 'OPEL CALIBRA' TOURING	
U481	NITRO MK3 - 'MERCEDES' TOURING	
U482	NITRO MK3 - 'FORD MONDEO' TOURING	
	INSTALLATION KIT FOR ENGINE	$ 68.95

Nitro 10 kits complete with 12 pullstart pro engine, installation kit and silencer **SALE PRICE $239.70**

WILDCAT



Fun for everyone! For the money this is the ultimate 1/10th scale radio controlled car. It is tough, reliable and takes less than one (1) hour to assemble. Kit includes motor and mechanical speed controller.

U491	WILDCAT "VYPER" - Super Wheelie fun machine	SALE PRICE $77.70
U492	WILDCAT "ALFA 155"	SALE PRICE $83.70
U493	WILDCAT "OPEL CALIBRA"	SALE PRICE $83.70
U494	WILDCAT "MERCEDES SEDAN"	SALE PRICE $83.70
U495	WILDCAT "FORD MONDEO - Super Scale Exotic Racers	SALE PRICE $83.70

SALE ** SALE ** SALE
BUY DIRECT
40% OFF LIST PRICE

CALL NOW: SCHUMACHER USA

PH: (813) 889-9691 OR 889-9489

FAX: (813) 889-9593

WE ACCEPT VISA AND MASTERCARD

ORDERS RECEIVED BY NOON, SHIPPED SAME DAY

Answerman

DEAR ANSWERMAN,

I am a new subscriber and find that *RC Model Cars* really cares about their readers and also provides good usable info as well. I'm a nineteen-year-old dirt oval fan (and an aspiring mechanical engineer/transportation designer) and am planning to get into RC car racing in a big way. My goal is to build (or have built) an 1/10-scale, gas-powered dirt late model car. Do you know of anyone who can fabricate a tube chassis (replicating a full-sized late model car) like the current wedge-shaped dirt racers? I've contacted several full-sized chassis builders (with little results) and I hope you can help me. Besides the tube frame, does anyone manufacture a 1/10-scale quick-change rear end (or nine-inch Ford) that would work in this type RC car? I want to mount a .12 diesel engine in the front of the frame, and connect to a rear axle like those used in the real late models (via a driveshaft). Thanks for your time and a tremendous magazine.

Marcus Mackey
Lyons, Illinois

A: After doing some research here's what I came across for you Marcus; B&B Models, out of Albuquerque, New Mexico may be able to help out with the tube chassis. They make a 1/10 scale tube-frame super-modified RC car; and although it uses a rear motor/axle setup, perhaps B&B can either build a suitable chassis or supply you with the parts to do it yourself. As for a suitable rear axle assembly, I only came up with one idea: the rear axle out of a Tamiya 4WD Mountaineer RC truck. Outwardly, it looks similar to the NASCAR-type Ford rear end, and should be tough enough internally for your choice of a .12 diesel engine. You could also use the Tamiya driveline shaft to connect the powerplant to the rear axle as well. As I mentioned before, this project will take some serious tinkering to complete, but from your letter I think your more than up to the task. And once you do finish the late model, be sure to send us some photos—it should be quite an unique RC racer!

DEAR ANSWERMAN,

I have a Traxxas Hawk 2 and am having a hard time finding setup and adjusting information for the truck. Also, where I live it's 100 miles to the closest hobby shop. I don't know a lot about RC modeling; but the Hawk 2 seems to do well on my homemade obstacle course, and now I'm in need of a new body and tires, and would like a new motor and diff. I hope you can help me get in touch with a good catalog company or with a RC club close enough to help.

Thank you
Jack H. Pelon
Herlong, California

A: Jack, from the postmark on your letter, I doubt you had yet seen yet seen the November '94 issue of *RCMC* which contained Matt Verrochi's in-depth and full-blown review of the Traxxas Hawk 2. If not, contact the magazine and get this issue. It will cover most of your questions on setup information for the RC truck. For new bodies, Dahm's Racing Bodies (see their ad) has several shells that will fit your chassis. Pro-Line tires, Thorp diff and any of the major motor companies (Quarter Flash, Associated, etc.) can supply you with suitable powerplants for the Hawk. As for a local club, I found one source; check with RC Race World, 905 So. Rock Blvd., Sparks, Nevada 89431 (702) 356-2882 for your parts needs.

DEAR ANSWERMAN,

I'm thinking of buying either a RC monster truck or stadium truck and wanted to ask about steering servos for these type of RC vehicles. I already have a Futaba AM pistol radio (on 75 band) and a S132 and S148 servo. I've been told by friends that my standard servos will work, but my hobby shop says you need a heavy-duty, steel-gear servo for the larger wheels and tires used on the trucks. I've narrowed down my selection to either a Losi XXT truck or a Kyosho USA-I truck. What would you use for a steering servo in these trucks?

Tom Boyce
Beach Lake, Pennsylvania

A: Tom, the two trucks you've mentioned (the Losi and Kyosho) would both benefit from a good high-torque steering servo. As for steel gears, I'd only consider those types if you're planning on racing either one of (or doing big-time air stunts) the trucks. Good choices would be either a Futaba model # 9301 coreless, ball bearing-equipped servo which has 69.5 oz./in. of torque. If you want steel gears, the Futaba #9303 unit with 100 oz./in. of torque and a quick 0.19 transit time would also work on the two RC trucks. If you decide to go with the steel gear-equipped servo use a Kimbrough metal gear servo saver. The stiffer spring on the saver will reduce slop in your truck's steering linkage. Thanks for writing *RC Model Cars.*

DEAR ANSWERMAN,

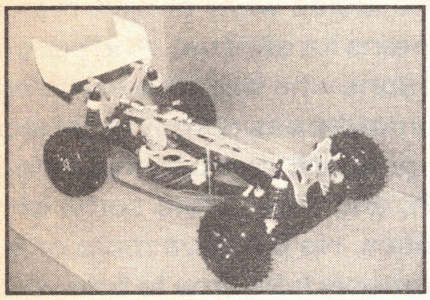
I recently purchased an Associated RClOGT gas truck. The truck runs great, but I've had two small problems with it: the clutch spring keeps breaking every three to five tanks of fuel and I've noticed a lot of noise coming from the ball bearings used on the rear wheel carriers. My local hobby shop told me that both of these problems comes from running in the dirt; but it is an offroad truck. Can you help me?

Drew Kampion
Langley, Washington

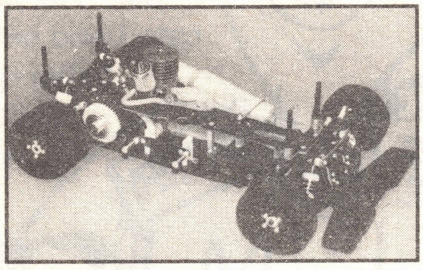
A: The hobby shop is partly right on this one. Both the clutch and bearings need to be cleaned regularly. Some motor spray and low-pressure air does a good cleaning job as will a stiff paint brush. Either way, you must keep the whole truck good and clean to ensure that the GT keeps running to your satisfaction. Recently, Associated has gone to a new design on the clutch (a four-shoe clutch over the two- shoe unit) which should help out, though you must switch flywheels. MIP also has a RC10GT clutch for sale, but it uses a wraparound spring to hold the shoes together and uses the stock two-hole Associated flywheel. As for the rear axle bearings, you can try RPM's new carrier bearing kit for the truck. The kit contains both rear carriers and four over-size, heavy-duty ball bearings which should reduce your noise factor greatly. •

YOKOMO

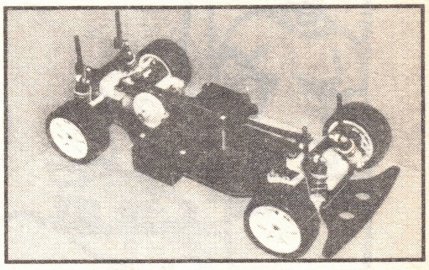
IS BACK STRONGER THAN EVER !



YZ—10N
1/10 4WD OFF-ROAD BUGGY
1993-94 1/10 IFMAR WORLD CHAMPION
1994 REEDY RACE OF CHAMPION
1994 CACTUS CLASSIC CHAMPION
1994 ROAR NATIONAL MODIFIED CHAMPION

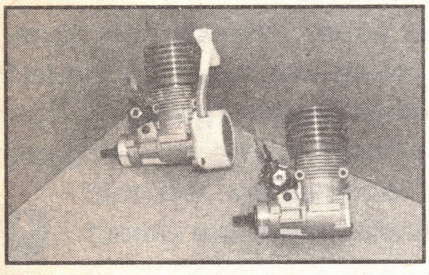


YR-10GP
1/10 4WD GAS 2-SPEED ONROAD KIT



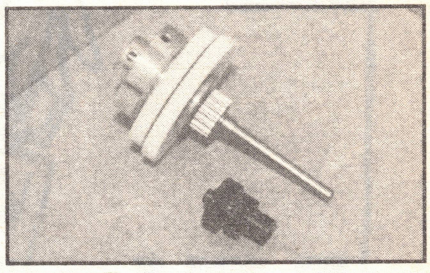
YR-4K
1/10 4WD NARROW ON-ROAD SEDAN

YR-4GTS
1/10 4WD WIDE ON-ROAD SEDAN
1994 NORRCA NATIONAL CHAMPION
1994 NORRCA CALIFORNIA STATE STOCK CHAMPION
1994 NORRCA CALIFORNIA STATE MODIFIED CHAMPION



RX-12C
RX-12CS
.12 GAS ENGINES WITH OR WITHOUT PULL START

NEW!
YR-X 1/10 ON-ROAD KIT
WINNER OF THE 1994 1/10 IFMAR ON-ROAD WORLD CHAMPIONSHIPS
YZ-10GP 1/10 4WD GAS 2-SPEED OFF-ROAD BUGGY



ZR-0010
2-SPEED ELECTRIC TRANSMISSION FOR YR-4K

YOKOMO
DEALER LIST

Hi-Tech Hobbies & Raceway	Raynham, MA	(508) 880-5373
Hobby Etc.	Nashua, NH	(603) 595-8549
Andy's Hobbies	Elmsford, NY	(914) 592-5176
Brownie's Pro & Sports	Staten Island, NY	(718) 727-2194
R/C World	Queens, NY	(718) 326-0002
First Place Hobbies	W.Hampton Beach, NY	(516) 288-3030
P.R.O. Speedway	Cattaraugus, NY	(716) 257-3101
Marshall's Hilltop Hobbies	Honesdale, PA	(717) 729-7458
JC R/C Hobbies	Warminster, PA	(215) 672-5200
Pit Stop Hobbies	Mount Joy, PA	(717) 653-6222
Mitchell's	Wilmington, DE	(302) 652-3256
Hobbytron	Apopka, FL	(407) 682-3633
City Hobbies of America	Tampa, FL	(813) 282-8099
Hobbie Warehouse	Naples, FL	(813) 262-2701
Grandview Hobbies	Columbus, OH	(614) 486-3532
Washington Drugs	Gary, IN	(219) 886-3674
Rider Hobby Shop	Canton,MI	(313) 981-8700
R/C Workshop	Peoria, IL	(309) 673-4860
Checkered Flag Hobby Country	St. Louis, MO	(314) 892-5353
R/C Motorsports	Overland Park, KS	(913) 383-9481
Cajun Hobbies & Raceway	Lafayette, LA	(318) 988-6270
MHOR R/C Raceway	Aurora, CO	(303) 343-0151
Hansen's Intermountain R/C Raceway	Magna, UT	(801) 250-8303
Scottsdale R/C Speedway	Scottsdale, AZ	(602) 829-9117
Nice Twice Hobbies	Las Vegas, NV	(702) 876-2280
Competition Cars & Boats	Las Vegas, NV	(702) 259-6822
K&M Raceway	Grand Terrace, CA	(909) 783-0899
Ultimate Hobbies	Orange, CA	(714) 921-0424
Gyro Hobbies	Laguna Hills, CA	(714) 583-1775
Dynamic Hobbies	Hemet, CA	(909) 925-9331
Messie's Hobbies	Temple City, CA	(818) 285-7111
Pegasus Hobbies	Montclair, CA	(909) 982-6507
Hobbytown USA	Milpitas, CA	(408) 945-6524
Radio Control Headquarters	Aiea, HI	(808) 487-5155
Sandy Fleming's Fast ElecTrick	Pearl City, HI	(808) 456-7272
Tritech	Wailuku, H	(808) 244-0526
Hobbietat	Honolulu, HI	(808) 737-9582
Tammie's Hobbies	Beaverton, OR	(503) 644-4535
Tim's Bike & Hobby	Everett, WA	(206) 259-5929
Graham's Hobby Hive	Bellingham, WA	(206) 734-4090

For Dealer Inquiries call (714) 921-0322

G H I



MY FIRST TIME

BY ERIC SANDS

It's all Barry's fault. He's the one who got me interested in all this. He is the one who set me on the road to open my own hobby store and led me, ultimately to my current position as event coordinator at Tamiya America.

Barry and I had a couple of things in common: First, we had wives who were close friends. This meant, like it or not, we were going to see each other once in a while (the ladies were always making dinner plans for all of us). And second, we had sons who were the same age. Barry was not the easiest guy to get along with. He was petulant, overbearing, uneducated and selfish; and those were some of his better qualities. He did have more or less lucid moments from time to time where he could be entertaining and on occasion almost charming. What he liked the most about himself was that he had money for toys. Barry loved to indulge himself with toys.

The usual after-dinner ritual at Barry's house was a summons to the appropriate room (garage, hobby room, or den) for the unveiling of the latest acquisition. On this particular night the object that I was supposed to be envious of was a Tamiya Frog.

This was pretty cool. I had never actually seen an RC car before. It looked like a single-seat Baja buggy, and the chassis actually was made like a full-size tube frame Baja chassis. The rear suspension featured independent trailing arms with actual oil-filled coil-over shocks. Geez, look how sophisticated this is! This was a lot more impressive than the motorized 24th-scale Honda I had

just built. Barry hadn't actually finished it yet (unusual because he had no patience; he always rushed through everything and his workmanship was awful), but it was finished enough to drive.

We took the car and twin-stick radio out into the night to try it out. Barry had a battery cooking on the charger so we plugged it in and turned it on. Without the body on it looked like some sort of futuristic spaceship. Barry floored it in his driveway. Hey, this thing really moved! It shot out into the street in front of Barry's house just as some kid in a Chevelle came blasting up the road. The 10th-scale car actually drove under the Chevelle as it went by at about 45 mph, narrowly missing the rear tires and an early end.

Well, as you can imagine, we were howling, and before we were done we were jumping the car off curbs and doing 360s. We were having a ball.

When we came back into the light I took a closer look at the car. I was amazed by the detail and design. The front suspension with its single horizontal spring was just like a Citroen 2CV, and the tires were semi-pneumatic. The rear tires, which had been worn down during our one battery pack orgy of bad boy driving techniques were especially neat.

It took me about a week before I made my pitch to my wife. This would be a great father-son hobby. Could she imagine my six-year-old and I out at the local track (I had since found out that they actually raced these things on dirt tracks) cementing that lifelong bond of shared experience? Could she imagine Dad tutoring the youngster in mechanics, responsibility and sportsmanship? Weren't these worthy ideals? And wouldn't this be an inexpensive way for me to get involved in "racing?" Something I've wanted to do since high school. Amazingly, she bought it. At the least she acquiesced.

The car took me about two or three after-dinner evenings to complete. Wade, my son, tried to help me but couldn't do a lot. Mostly he was excited and gave me moral support. The assembly was straightforward as the kit went together with screws and nuts, and the instructions were great. I took my time to make sure didn't make any mistakes. Topped off with a shiny red body with yellow striping, it looked for all the world like an actual Baja racer. Barry and made arrangements for a showdown at the local high school parking lot.

High noon at the high school; I got their first and unpacked my stuff. I hooked up the 12-volt charger to my car's battery and plugged in my extra battery pack. My—I mean our—red frog looked resplendent in the sun. Light glinted off the unscratched Lexan, contrasting with the deep black shininess of the virgin tires, as it sat on the hood of my beloved black Saab Turbo. Nothing had ever sat on the hood of my car—

continued on page 31

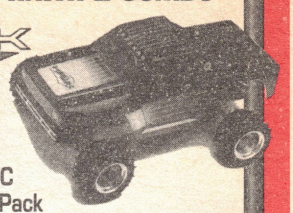
TRAXXAS-RAD-2 COMBO



INCLUDES: Car Kit-Magnum Sport w/E.S.C. AC/DC Charger - 7.2v Pack

TRX001– $ 240.28

TRAXXAS-HAWK-2 COMBO



INCLUDES: Truck Kit- Magnum Sport w/E.S.C. AC/DC Charger - 7.2v Pack

TRX002– $ 258.90

TAMIYA- SUPER BLACKFOOT COMBO



INCLUDES: Truck Kit – Magnum Sport w/E.S.C. AC/DC Charger – 7.2v Pack

TAM001– $ 269.99

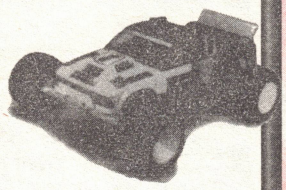
TAMIYA STADIUM BLITZER COMBO



INCLUDES: Truck Kit – Mag-Sport W/E.S.C. AC/DC Quick Charger – 7.2v Pack

TAM-002 – $ 248.99

ASSOCIATED RC10GT COMBO



INCLUDES: Truck Kit – Magnum Jr. Royal .12 Pull Start Engine

ASC-001– $ 315.88

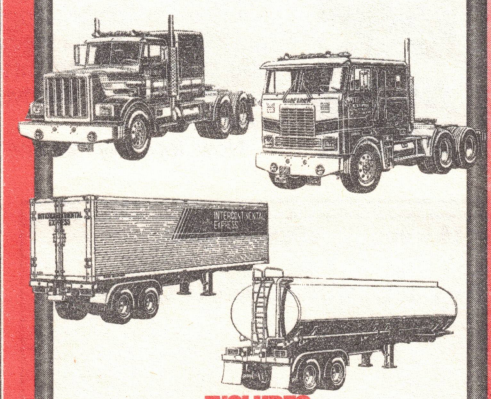
ASSOCIATED RC-10 CHAMP COMBO



INCLUDES: Car Kit – Mag-Sport W/E.S.C. AC/DC Quick Charger – 7.2v Pack

ASC-002 – $ 283.27

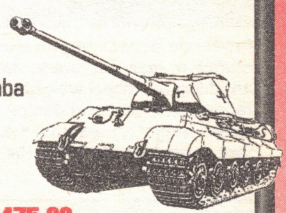
TAMIYA 18 WHEELER COMBO



INCLUDES: Your Choice of Tractor & Trailer + 4-channel Futaba Radio1/16th Scale – 3-speed Trans. Metal Frame

TAM003 - $ 775.99

TAMIYA-KING TIGER COMBO



INCLUDES: Tank Kit – Futaba 4-channel ABSOLUTE REALISM!!!

TAM-005 – $ 475.99

TO ORDER CALL TOLL FREE

1-800-962-2010

VISA MasterCard DISCOVER

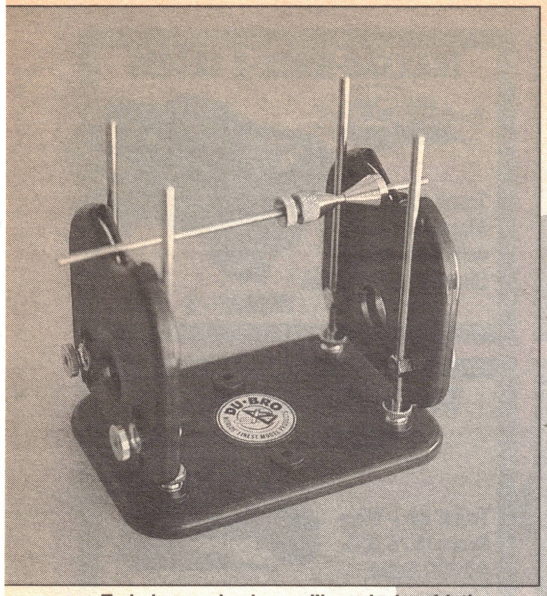
CMM CENTRAL MODEL MARKETING

P.O. Box 772 • Aurora, CO 80040

HOURS: 8:00 AM - 5:00 PM MST MON-FRI
9:00 AM - 4:00 PM MST SAT
CLOSED SUNDAY

SHIPPING + HANDLING ADD $5.50
C.O.D. ADD $4.00

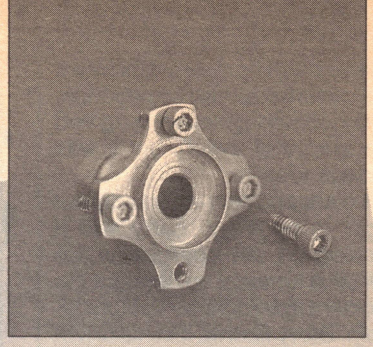
how to BALANCE WHEELS



To balance wheels, you'll need a low-friction, dynamic (as opposed to the static type) hobby propeller balancer. A disk-type prop balancer seems to be the best type of unit for wheel balancing. This unit is available from Du-Bro.



Pre-made wheel weights are available from a couple of manufacturers. You can use just about anything for wheel weights, but I don't recommend it. If you decide to use pre-made wheel weights, pick up a roll of double-stick tape (not servo tape) to make the job easier.



Some wheels will require the use of a hub to mount them on the balancer. Other wheels may require bearings or bushings for the same purpose. This titanium hub is from T&A Machining. The aluminum Allen screws are from Team Associated. The lighter the hub assembly, the less balancing it'll need.

BY BEN CHIU

Better performance is the main reason to balance your wheels. If your wheels are balanced, you'll realize performance gains in efficiency which translates into more speed, more power, less tire wear and better handling. While you don't need to be a rocket scientist to balance wheels, it does take some skill and patience. But before we go on to that, let's discuss why balancing your wheels will increase your efficiency. (For those of you who fall asleep or have fallen asleep during math class, you can skip the next few paragraphs.)

PHYSICS: NEWTONS FIGURES

We'll use a 1/10-scale SS (Super Speedway) car for our example because it is in the SS racing class that you'll find the most hardcore wheel-balancing racers. This fact is not a mere coincidence either. As you're about to see, there is good reason for it.

Okay, a decent average stock motor will do about 18,000 rpm under load at a rate of 20 amp with a 7.2 volt six-cell battery pack. On a track the size of the Velodrome (1,123 feet), in order to get competitive lap times of 14.9 seconds, with 2.45-inch diameter tires, you'd need a gear ratio of 2.55 to achieve the speed of 4,522.15 ft. per min (approx. 51.39 mph) required to make those lap times. This means your poor little 1/10-scale tires will rotate at an incredible 7,054 rpm (See figure A). (Note: T.D. Enterprises makes nifty' "Groove Charts" for 1/10- and 11/12-scale cars that can give you a ballpark gear ratio to achieve a given top speed. You'll still have to figure out how fast it is you want to go, but it will save you some math computations. There are a couple of computer programs out there that will compute all of this for you, but if you don't want to lug your computer to the track with you, the T.D. Groove Charts and a calculator is the next best thing.)

Now, let's say that one of your wheels is off balance a

continued on page 70

Track= 1,123 ft. Desired Lap time= 14.9 sec. 60sec. = 1min.

1,123 ÷ 14.9 = 75.36912751678fps x 60 = 4,522.147651007fpm (4,522.15fpm)

1ft. = 12in. Tire dia.= 2.45"

4,522.15 x 12 = 54,265.8ipm ÷ (2.45π) = 7,053.919147277rpm (7,054rpm)

Motor RPM= 18,000

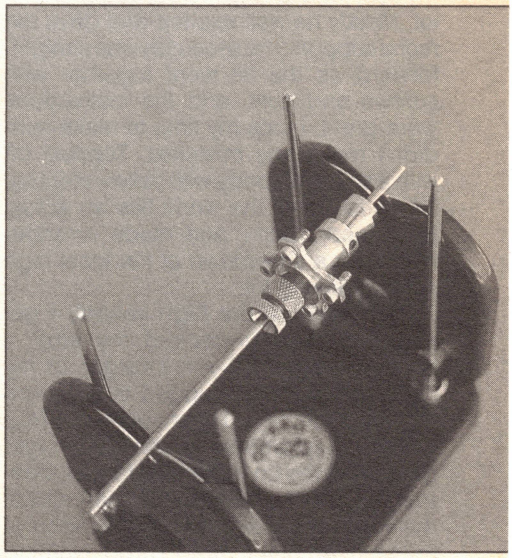
18,000 ÷ 7,054 = 2.551743691523 (2.55 gear ratio)

...and just for fun

60min. = 1hr. 5,280 ft. = mile

4522.15 x 60 = 271,320fph ÷ 5,280 = 51.38636363636 (51.39mph)

<figure A>



If your wheel will require a hub, you'll need to balance it first. Do your balancing with the mounting screws in it.

MY FIRST TIME CONTINUED FROM PAGE 29

ever (with the possible exception of my cat when I wasn't looking). I stepped back to look at it from a better angle to admire my handiwork. I imagined myself at the wheel blasting down worn-out old cart paths deep in Baja. Dirt blowing up from behind the sleek red racer, the four-cylinder engine screaming with the pleasure of the race, as I edged past a lesser car at a wide spot in the road. My body slammed against the five-point harness as I crested a rise, then, all I heard was the sound of the engine holding a steady note. The car was airborne for a moment, then rejoined the Earth and found the glorious din of a racing machine working at a fever pitch...Blub, Blub, Blub...Huh? My reverie was broken by the burbling exhaust of a fire-engine red Trans Am. Barry was here. Barry threw open the door and lumbered out, muttered an incoherent greeting and collected his equipment from his car. I wandered over to check out his Frog with the newly painted body.

I was shocked. Even Barry's reputation for shoddy work hadn't prepared me for this. It was the ugliest car I had ever seen.

The artwork on the oversized Frog box showed the car with a pink and white body. Barry had tried to duplicate this. Somewhere between the box art and Barry's brain something went awry. The car looked like a pink and white blotchy swirl, the stickers were on crooked and the body looked as if it had been cut out with pinking shears. To this day I still can't figure out how to duplicate the effect Barry achieved with the paint on his car. Barry's son William looked sheepishly from behind the box he was holding containing the car. "Cool color," I said. William brightened up a bit.

Barry and I lined up the cars, freshly stocked with warm battery packs. I squinted into the sun to take the measure of the man that opposed me. He stared back, unblinking. I flipped back my serape to expose the radio and bit down hard on the thin crooked cigar that flared briefly in my tense lips. With one hand I adjusted the black flat-brimmed hat slightly to shade my steel blue eyes. The theme from "The Good, The Bad and The Ugly" swelled from somewhere distant, overpowering the sound of kids and exploding dirt clods as I rested my hand, gently, on my faithful twinstick.

As of that day my life had been subverted. there was no revelation, or bolt from the blue, but RC cars got under my skin. I have never been a great driver, or a hard-core techie, but I have always had one or two cars available to tinker with and race. Now my job enables me to travel around the country, meet with other enthusiasts, and run the Tamiya RC championship Series. (Barry went on to open another shoe store). •

THE WORLDS
WILL NEVER BE THE SAME AGAIN



JULY 19-24, 1994
SONNEBERG, GERMANY
IFMAR 1/10 PRO 10 WORLD CHAMPIONSHIP

MASAMI
WINNER • TOP QUALIFIER • CONCOURS

JON ORR
THIRD OVERALL

PARIS, FRANCE
1994 IFMAR 1/12 WORLDS:
6 out of 10 A-Main drivers
chose Protoform Race Bodies!

Nissan P-35.....#1402
Narrow Version.....#1402N
1/12 Scale.....#1603
Lite Version.....#1603L

SIMPLY THE BEST. PROTOform

SWITCH CONTINUED FROM PAGE 18

listed, keep in mind that you'll be around batteries, so it'll be best if you use a plastic one. It'll prevent shorts and exploding cells.

The charger I used here for an example is a dual charger that charges both a radio and receiver batteries at once. If you have one of these, you'll need all of the parts listed. If your charger is your radio only, you won't need to get the 100-ohm resistors.

The tools you'll need to complete the project are a wire stripper, a drill, drill bits, a voltmeter (digital or analog), a screwdriver (the type depends on the screws that come in the project box), small flat file, a pen or pencil that will write on the plastic of the project box, a soldering iron and solder.

THE INSTRUCTIONS

The first step is to make the holes to mount the components. I started with the switches since they are the most difficult and messy. I used a 5/32-inch drill bit (of course if you use parts other than the Radio Shack parts I used, your drill sizes may need to be different) because it was a little bigger than the width of the switch knob. I held the drill bit where I wanted to mount the switches vertically and made two sets of two marks (two switches —two

continued on page 33

Q-Scale Notebook

BY RICK EYRICH

What you see here is the first of what will be a quarterly column in *RC Model Cars*. The main focus on these pages will be a quarter-scale products, competition and the people involved in the world of large-scale RC cars. In this first report, we'll give you results for the 1994 QSAC championships and details on the 1995 events, inform you on new Q-scale tracks opening soon, and outline a few new products and a change in the bodies used on the Outlaw/Late Model class cars in QSAC.

RACE RESULTS AND UPCOMING EVENTS

Following the Las Vegas, Nevada QSAC finale, the 1994 National Champions were crowned in the following classes Terry Rae; Grand National stock cars, Bob Moore; Outlaw/Late Model, Mark Beasely; Sportsman stock car and John Talbert; Sprint cars. Each received an engraved plaque and jacket after the Vegas race. The winners in the manufacturers' points tally: Thunderbolt, Grand National; Sprint car, Phoenix Arrow.

As for the 1995 edition of the QSAC series, the opening date (at this writing) is February 24, and the first championship race will run at Perris, California. The Perris track was recently featured on the Nashville Network's "The Exciting world of Speed and Beauty" TV program. Filmed in early '94, the ten-minute segment included racer and manufacturers' interviews and racing footage. If you don't receive TNN, a copy of the video tape (which includes over 1-1/2 hours of the Comserco 400 race) of the segment can be purchased for $15.00, including postage. Send a check to: Larry R. Cross, 7563 Klueman Avenue, Rancho Cucamonga, California 91730. In the next column I'll detail how you can get a video shot at the 1994 Las Vegas QSAC race, which should include in-car footage.

NEW RACETRACKS AND EVENTS FOR 1995

Come the Summer of '95, at least two (if not three) new quarter- scale speedways will open to the racing public. Ovals are already being built in Montgomery, Alabama and Cooksville, Tennessee, and a new racing complex is also being developed in the Vegas area.

At presstime, the remaining three QSAC Championship race sites (no firm dates set as yet) will be Darlington, South Carolina; Knoxville, Iowa; and Las Vegas.

NEW CARS AND PRODUCTS

New Era Models of Nashua, New Hampshire has a new half-scale go-kart available. The kart was built with a computer-designed Chrome-moly tube chassis, full ball bearings and hollow steel rear axle. Power comes from a 23cc Echo two-cycle engine with a Zama carb and centrifugal clutch.

The go kart will run a half-hour on a tank of fuel and weighs in at twenty pounds, (with radio gear) ready to go. New Era is also close to introducing (most likely out by this column is run) a Q-scale monster truck. So, if you're interested in either vehicle, give them a call at (603) 888-4453.

Custom Electric Cars (Chris Fine's company in Pine Bush, New York) has a new Yankee large-scale RC car available: the Formula One Benetton Ford open-wheel racer. At presstime few details were available on the latest Yankee RC car; but, it should have all the unique features seen on their GTP Jag racer reviewed in the July, 1994 issue of *RC Model Cars*. Look for a full report in the near future.

A NEW LOOK IN THE QSAC OUTLAW CLASS

In the latter part of 1994, a different style of body appeared on the high-powered late model stock cars that run in QSAC. Rather than the one-piece, Lexan semi-wedge look, competitors began to use full-wedge, assembled sheet Lexan bodies on their two-horse-power vehicles. Most are made from either 030- or 040-inch thick clear polycarbonate and are held together with pop rivets. Of course, the usual rear wing/spoilers are retained; but, an 1/2-inch side dam down the squared-sides is now legal, as is a rear spoiler sidedam.

Rules also state that a five-inch square cockpit roofed section, not including the required front/rear windows, must be used and the roof itself must be a minimum of 2-3/4-inch high. These hand-crafted wedge bodies look just like most full-sized dirt oval late models and should reduce cost of maintaining a fresh-looking Outlaw Q-scale racer.

AND FINALLY

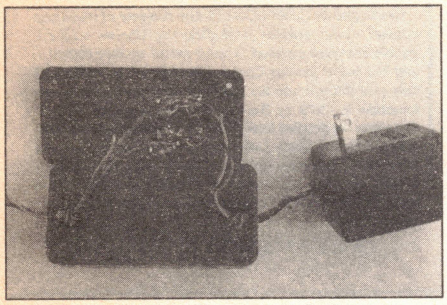
As stated, this column is for the large-scale RC owner; any information on tracks, cars, products and the racers themselves will be showcased on these pages. If you have any of the above subjects (or just want to make a comment or ask a question) please feel free to write: Quarter Scale Notebook, c/o *RC Model Cars*, Box 2459, Capistrano Beach, California 92624-0459.

LATE NEWS FLASH!

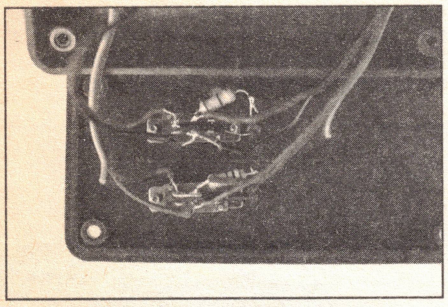
Just as this column was about to go in the mail, I received more information on the '94 Vegas race video. Available through Acrostar Productions (22841 Belquest Drive, Lake Forest, California 92630) the tape has pit action, wrenching, in-car shots and action from the heats and features run under the lights. Producer Sam Wright has raced Q-scale sprint cars so he knows the ins and outs of racing. He's also done videos on RC jets, air racing and scale aircraft events as well. Cost is $25.00 (plus $3.50 handling and shipping, California folks add 7.75% sales tax) and can be ordered by mail or phone (714) 770-0600, or FAX (714) 587-0980 on Visa or M/C. •

SWITCH *CONTINUED FROM PAGE 31*

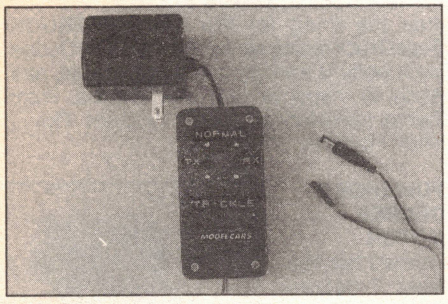
per switch) on both sides of the bit where I wanted to mount the switches horizontally. What you'll want after you drill the holes is two sets of two holes that are so close together that they connect like a figure eight. I find that by using the same drill bit to both drill the holes and use as a guide, you'll line up the two holes perfectly. Using the point of my Phillips screw driver as a punch to mark my starting



Mount the switches and pull the charger leads through the holes in the case. Tie knots in the leads inside the case to prevent them from pulling out.



Using the wiring diagram, solder the components in. Note that the LED is polarity sensitive. The short lead must be connected to the transformer/charger side positive lead or it won't work. Also don't forget the piece of shrink tube on the LED lead that crosses over the switch. (Note the bottom switch has the shrink tube pulled back to illustrate the wiring better.)



Be prepared! Build a trickle switch for your radio charger and always have a charged radio battery.

position, I drilled pilot holes through the cover. I then proceeded to drill out the switch mounting holes to their proper sizes.

With the holes drilled, I used a small flat file to square off the edges of the holes so the switch knobs would fit through and operate properly. I then set a switch in each hole and used a 1/16-inch drill bit to mark the screw mounting holes by placing it in the switch holes and twisting the drill with my fingers. I drilled out the holes in the marks I just made with a 5/64-inch drill bit.

Next I drilled 1/8-inch holes near the end of the switch to mount the LEDs. To find the exact spot to drill these LED holes, temporarily mount the switch to make sure the LED will clear the switch mounting bracket. You want to mount the LED as close as possible to the switch mounting bracket because the LED leads are pretty short. To provide access for the charger leads, I drilled 1/4-inch holes in the ends of the project box.

My charger had different colors for each lead (one for the radio and one for the receiver). Your charger may use one color or only have one lead. If yours has two leads and only one color, you'll have to mark which is which by writing on pieces of tape and placing them on the leads near the transformer. Next, when your charger is *not plugged in*, cut the charger leads approximately six inches from the transformer.

Use the wire strippers and strip the ends of the wires. Before proceeding any further, make sure none of the bare wires are touching each other and cannot short out by touching something metal near by. Now plug in the charger and use your voltmeter to determine which wire is positive and which is negative. If you have a dual charger, you'll need to do the same thing on the other lead. After you've noted the polarity of each lead, unplug the charger.

Mount the switches and pull the charger leads through the holes in the case. Tie knots in the leads inside the case to prevent them from pulling out. Using the wiring diagram, solder the components in. Note that the LED is polarity sensitive. The short lead must be connected to the transformer/charger side positive lead or it won't work. Also don't forget the piece of shrink tube on the LED lead that crosses over the switch. When you're done, you can push the LED so it fits into the LED hole and push the shrink tube down so it covers the lead over the switch. All that's left is to close up the box.

USING THE TRICKLE SWITCH

Plug in the charger and plug in your radio. When the trickle switch is set to the trickle position, the LED will light up. You are now in trickle mode. When you flip the switch to the normal position, the trickle LED will go off and the LED on your charger will go on (if yours has one). After a day of racing, charge your radio in the normal mode overnight, then flip the trickle switch to the trickle position when it's done.

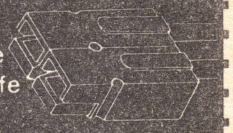
That's it! While trickle mode will charge your battery completely, I find that I get a better charge if I charge in normal mode and just maintain the charge in trickle mode. You can leave your radio on trickle mode indefinitely, so with the trickle switch, your radio will always be ready for action. No more excuses! Well, except the one about leaving your radio at home. I can't help you with that one. . .

Have fun and be fast! ●

FORGET ABOUT HARDWIRING & USE *THE ORIGINAL*
POWERPOLE CONNECTORS
you've seen them before: now you can have your own at a fraction of the price others charge for the same connector!!

THESE CONNECTORS OFFER THE LOWEST RESISTANCE OF ***ANY*** CONNECTOR ON THE MARKET WHICH MEANS YOU:

-increase speed
-increase run time
-increase motor life
-decrease heat

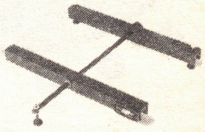


THE HARD FACTS: tests show other connectors have far more power robbing resistance than POWERPOLE connectors: "Zero-Loss" connectors: 125% more, Deans Plugs: 350% more, Trinity Power Plugs: 475% more, Race Prep Pro connectors: 675% more, and Tamiya style connectors: over 1000% more!

total price delivered to your door:
2 pair: $2.00 50 pair: $38.00
10 pair: $8.00 100 pair: $75.00
includes FREE SHIPPING AND TAX IN THE U.S.

for fast delivery, please send your name, address, #of connectors needed, and money order (for fastest delivery) or check to
Plus Co. International
P.O. Box 94
Santa Monica, CA 90406

Niftech
PRECISION RACING PRODUCTS
Precision Tweak Board for 1/12, 1/10, 1/8 Cars
FEATURES:
- **3 to 5 grams sensitivity**
- **Easy to disassemble - one thumbscrew**
- **Easy storage**
- **Completely visual - no guesswork**



#3002 Only $49.95
NEW!
95 CUTTING EDGE ITEMS FOR THE SERIOUS RACER. HUBS, AXLES, SPECIAL TOOLS, ETC.
SEND $3.00 FOR COMPLETE CATALOG OR FREE WITH YOUR FIRST ORDER
SEND CHECK OR MONEY ORDER (PLUS $5.00 SHIPPING & HANDLING) TO
NIFTECH INC.
5565 WILSON DR. ● MENTOR, OH 44060 ● (216)257-6018
FAX (216)257-4281 ● DEALER INQUIRIES WELCOMED

SHOP - TASK
MILL · LATHE · DRILL
The Original Home Machine Shop Designed in USA by Shoptask

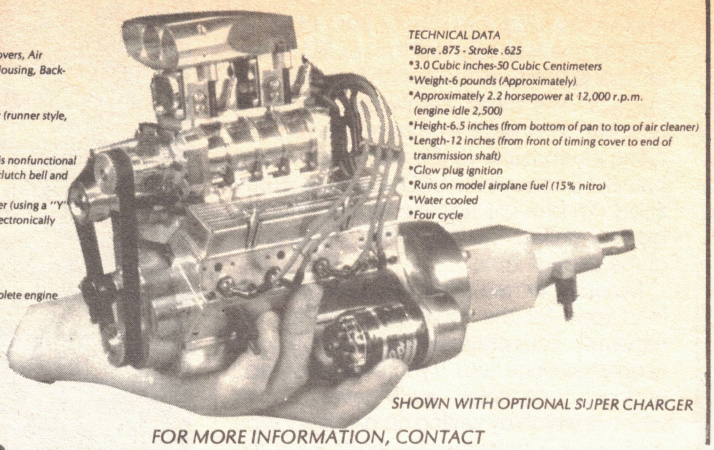


3 Models to Choose
Best quality, best price
3 Axis Power Feed Available
12 Month Warranty
100% Parts Supply
All Tooling Available
17" Swing
11 x 18 Mill Table
1-800-343-5775 FREE CATALOGUE
DEMAND THE BEST
SHOPTASK P.O. BOX 186, ABERDEEN, WA 98520
SINCE 1981

THE ULTIMATE MODEL ENGINE KIT

The Conley-Small Block-V8 Engine
BASE PRICED $2395.00

FEATURES
*All new Die Cast Parts (Pan Heads, Valve Covers, Air Cleaner top and base, Timing Cover, Bell Housing, Backplate, Wing Nuts, Wire Separators)
*All parts fully machined.
*Intake manifold & Walbro Carb/Air Cleaner (runner style, cast and cored)
*Centrifugal clutch
*Replica 4 speed transmission (transmission is nonfunctional but serves as a ball bearing support for the clutch bell and universal joint)
*Custom designed electronic glow plug driver (using a "Y" harness from the receiver the transmitter electronically turns the glow plugs on and off)
*Rubber mounts
*Water pump
*Ball bearings
*All screws, nuts and necessary parts to complete engine
*Instruction manual
*Only hand tools required for assembly
*Crankshaft pre-installed
*Cylinder linders installed and decks ground



TECHNICAL DATA
*Bore .875 - Stroke .625
*3.0 Cubic inches-50 Cubic Centimeters
*Weight-6 pounds (Approximately)
*Approximately 2.2 horsepower at 12,000 r.p.m. (engine idle 2,500)
*Height-6.5 inches (from bottom of pan to top of air cleaner)
*Length-12 inches (from front of timing cover to end of transmission shaft)
*Glow plug ignition
*Runs on model airplane fuel (15% nitro)
*Water cooled
*Four cycle

SHOWN WITH OPTIONAL SUPER CHARGER

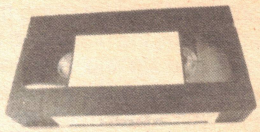
FOR MORE INFORMATION, CONTACT

Conley PRECISION ENGINES, INC.
825 Duane Street * Glen Ellyn, Ill. 60137 * (708) 858-3190
"World Class Performance - Made in the U.S.A."
Prices subject to change without notice.

KEY CHAINS



$5.00 $6.00 $10.00



If the $2,195.00 is not in your budget at the present time, enjoy the next best thing...a video tape for only $24.95.

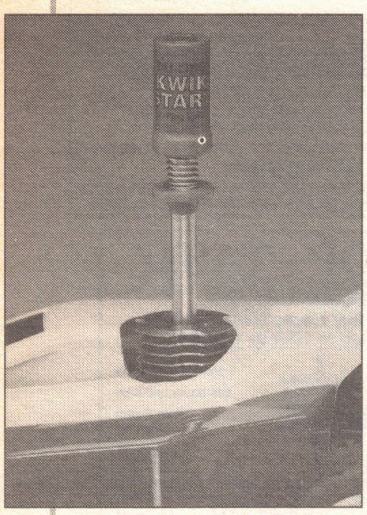
Developed by GARY CONLEY (the designer of numerous original model engines, including the Conley 1.20 c.i. double over head camshaft 4 valve model airplane engine and the world famous Conley V-8 engine) this video will take you through various stages of development, from its inseption in 1979 to the all new supercharged version. The video is a detailed look at the 32' Ford highboy roadster, 1/4 scale Cobra, Butch Leal's pro stock Pontiac Firebird and the original Pacesetter sprint car. For the avid model engine builder you will see complete step-by-step construction techniques and hints. A must for even the most experienced engine builder.

ONLY ***$24.95 *** VHS Only

WHAT'S NEW '95 AWESOME PRODUCTS



senses that the battery has been charged. With the convenience of AC power for trackside and home use, the Model 800 should find a place in your pit equipment. From Hobbico, 2904 Research Rd., Champaign, Illinois 61826.

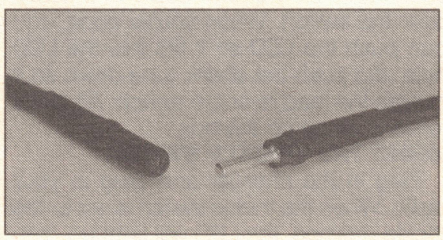


DU-BRO KWIK START XL

Designed to attach to hard-to-reach glow plugs in gas engines, Du-Bro's Kwik-Start XL comes with a Sanyo Sub-C Nicad battery, charger and free Kwik-Mount storage clip. From Du-Bro Products, Box 815, Wauconda, Illinois 60084.

HOBBICO QUICK CHARGER

For safe, economical charging in about 30 minutes, the Hobbico Model 800 AC/DC charger is just what you've been looking for. A built-in electronic timer will switch to trickle once it

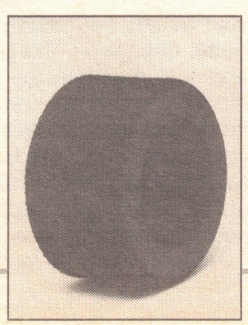


LIGHTZ CONNECTORS

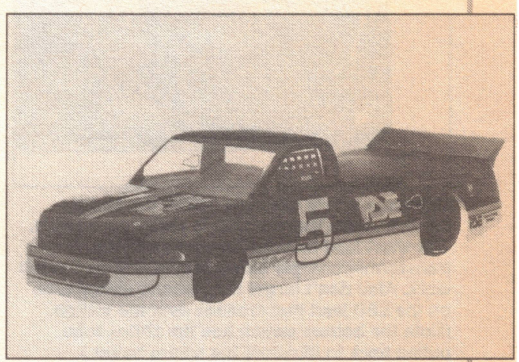
Lightz Products' gold-plated 12-gauge connectors are made to military specifications and can handle 50 amps or more with low voltage loss. Each pair is packaged with color-coded shrink tube instructions. From Lightz Products, Box 24910, Tempe, Arizona 85285.

PRO-LINE F1 TRUED DONUTS

Pro-Line/Jaco has produced a series of trued donut tires expressly made for the F1 and Indycar series. They are available in pink, purple and white



compounds for unsurpassed traction and control. Jaco foams from Pro-Line, available at a hobby shop near you. Pro-Line, Box 456, Beaumont, California 92223. (909) 849-9781.



PARMA DODGE TRUCK BODY

Just the thing for the new NASTRUCK SuperTruck racing series, Parma's new Dodge truck body is swoopy and aerodynamic, and ready to mount to your oval chassis. From Parma International, 13927 Progress Pkwy., North Royalton, Ohio 44133.

PUNISHER 7-DEGREE MOTOR

Parma's hot Punisher 7-degree, 23-turn single motor has fixed timing and a trued armature, and comes in a wet magnet can. Available now at your Parma dealer. Parma International, 13927 Progress Pkwy., North Royalton, Ohio 44133.

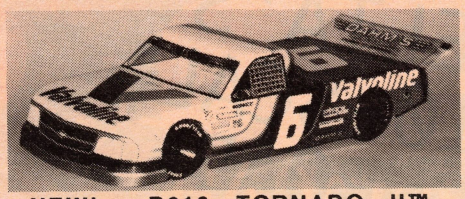


DAHM'S™

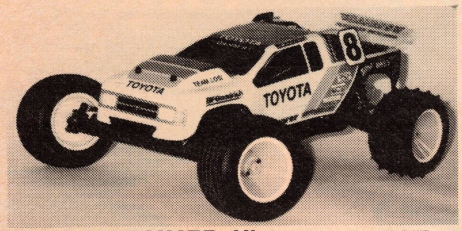
CLEAR LEXAN RACING BODIES

NASTRUCKS

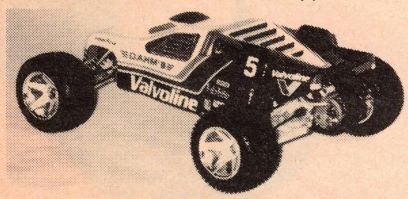
AS SEEN ON T.V. THE NEWEST AND MOST EXCITING FORM OF R/C RACING. INTENSE, HIGH-SPEED OVAL COMPETITION OR PARKING LOT FUN! DAHM'S HAS THE RIGHT NASTRUCK BODY FOR YOUR CAR!



NEW! D016 TORNADO II™ Racing Truck Body for Narrow Super Speedway Cars. Super Aerodynamics! Flat Bed, 2" Spoiler, & Grill Decal! Also fits **Tamiya Toyota Prerunner, Chevy S-10, Clodbuster, Parma Hemi Vette & Coupe!**



D040 SLAMMER XL™ Fits the **LXT, Blue Eagle, LSII, Nitro Hawk, Ultima Outlaw, RC10T & Stadium Blitzer.** Excellent Motor Cooling, Superior Aerodynamics, Excellent Handling, & Truck Grill Decal! ROAR & NORRCA Approved!



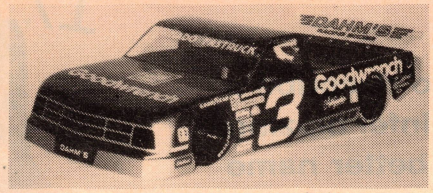
D046 SLAMMER™ Fits **RC10T & Stadium Blitzer!** Super Low, Narrow, Light Weight, High-Performance Body! Spoiler & Truck Grill Decal. ROAR Approved.



D049 COMMANDO EXP™ Fits the **Stadium Blitzer, LXT, Tamiya Toyota Prerunner, Outlaw Ultima, RC10T, Nitro Hawk, RC10GT,** & Others! Can be painted to look like trucks from Jurassic Park, the Movie! **ROAR Approved!**

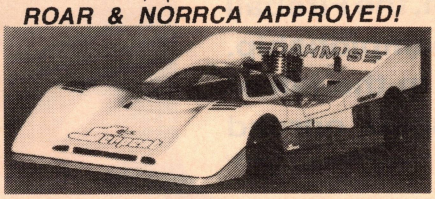


NEW! D023 PHANTOM™ 1932 Chopped-Top Coupe. Fits Tamiya & Kyosho F-1 & Indy Cars, Hemi Coupe, & Lightz Pro Stock. Turn Your Formula-1 Car into a Hot Rod!

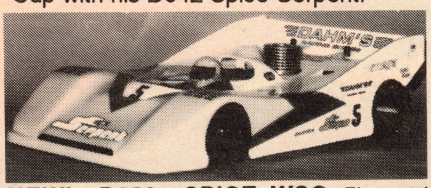


NEW! D022 TORNADO™ Racing Body for Narrow Width Cars like the **RC10LSS.** Excellent Handling Body! Recessed Bed, Spoiler & Grill Decal!

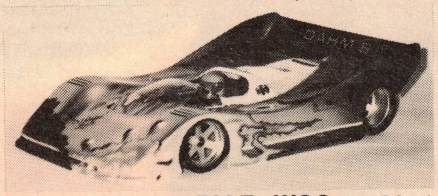
ROAR & NORRCA APPROVED!



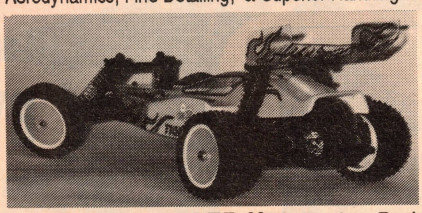
'94 ROAR NATIONALS WINNER! Dave Campbell TQ's & Wins the Nationals with his D042 Spice Bodied Delta Car. Donnie Cooper takes 2nd with his Spice-Delta. IFMAR World Champ Art Carbonell TQ's & Wins Portland's Rose Cup with his D042 Spice-Serpent!



NEW! D029 SPICE WSC Fits 10th Scale Gas Cars. ROAR APPROVED! Mike Queller TQ'ed & Won the " '94 Enchantment 100" with His D029 Spice WSC/BMT. - a Winner the First Time Out! No. D030 Driver - Sold Separately.

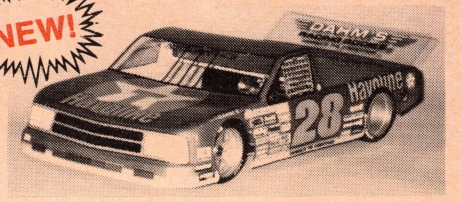


NEW! D025 SPICE WSC fits RC10L, Evolution 10, & Most 10th Scale Cars. Great Aerodynamics, Fine Detailing, & Superior Handling.



NEW! D019 TIGER X™ Racing Body for the TEAM LOSI XX. Features Motor Cooling, Rear Spoiler, Stabilization Fins, Body Mount Reinforcement, & Wing.

NEW!



NEW! D017 TORNADO II™ High Performance Racing Truck Body for Standard Width Cars like the **RC10L.** Features Flat Bed, 2" Rear Spoiler & Truck Grill Decal!



NEW D021 M3 EXTREME™ Super Handling Touring Sedan Body with Rear Wing for 10th Scale Gas Cars like the **Serpent Impact, BMT 931, Parsec,** & **Delta!**

NEW! D020 M3 EXTREME™ Fits **Tamiya** 10th Scale 4WD Sedans!



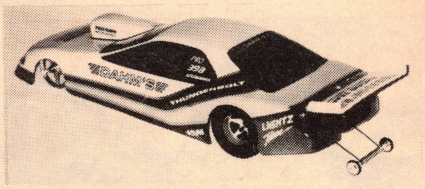
D054 LOLA - Long Tail For the **RC10L, Evolution 10,** & Most Others. Low Profile Design Improves Handling & Increases Top Speed! ROAR and NORRCA Approved.
D041 LOLA - Long Tail - 12th Scale.



D050 LOLA GT Short Tail W/Wing Fits **RC10L, Evolution 10** & Others.



D199 CAMINO 2000™ Futuristic Oval Racing Truck Body. Fits RC10L & Clodbuster.



NEW! D018 THUNDERBOLT™ Striking New Super-Narrow, Aerodynamic Racing Body for Ultimate Straight-Line Handling. Fits **Trinity & Lightz Pro Stock** Cars. Molded-in Hood Scoop. Adjustable Wing & Dual Parachutes.

THE MOST IMPORTANT, & LEAST EXPENSIVE CHANGE YOU CAN MAKE TO YOUR CAR TO IMPROVE PERFORMANCE & APPEARANCE, IS TO PUT ON A NEW DAHM'S BODY. DAHM'S RACING BODIES ARE WORLD FAMOUS FOR THEIR LOW, SLEEK STYLING, & SUPERIOR AERODYNAMIC CHARACTERISTICS. YOU CAN COUNT ON DAHM'S RACING BODIES FOR THE HIGHEST QUALITY, EXCELLENT HANDLING, & RACE-WINNING PERFORMANCE!!!

WANT TO KNOW WHICH BODIES FIT YOUR CAR? **CALL US AT: 707-792-1316 FAX: 707-792-0137**

SEND $2.00 FOR DAHM'S LATEST CATALOG, OR SEND $4.00 FOR CATALOG & DECALS TO:

DAHM'S RACING BODIES (Dept. C) P.O. BOX 360, COTATI, CA 94931 USA

FIREBALL

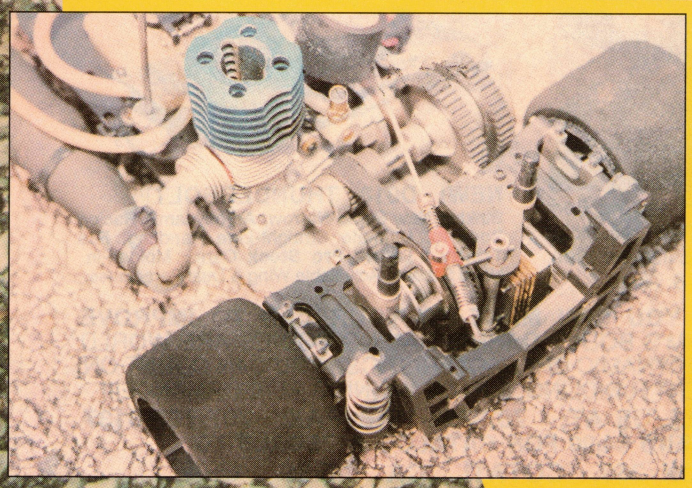
DELTA'S 1/10-SCALE ONROAD RACER

The name Fireball as used to describe a competition machine would infer blazing speed; I couldn't think of a better name for Delta Manufacturing to give to their latest onroad nitro-powered race car. In its first full year of production, the Fireball won the ROAR National Championship. This new entry (introduced in the fall of 1993) in the field of 1/10-scale onroad

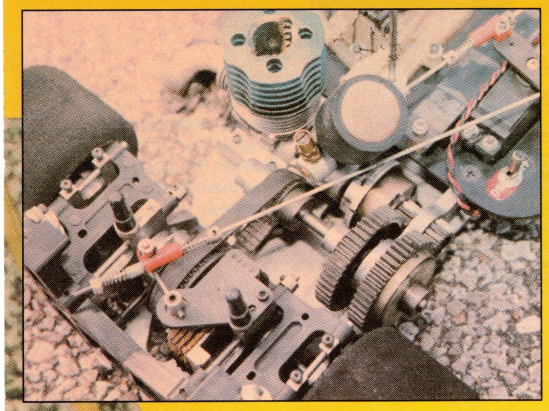
continued on page 52

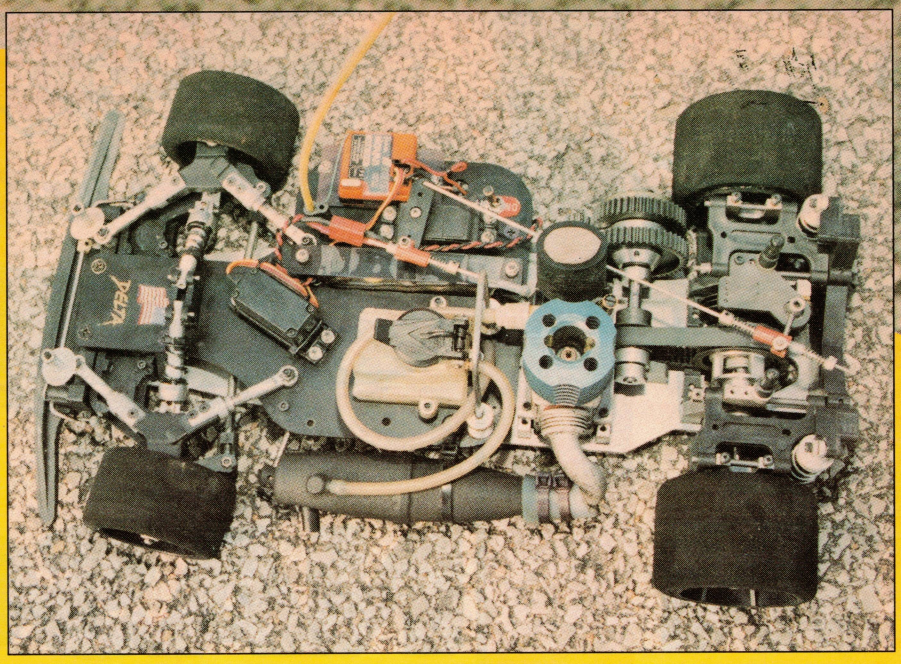
BY CHRIS KOVACHEVICH

PHOTOS BY JIM ROSE



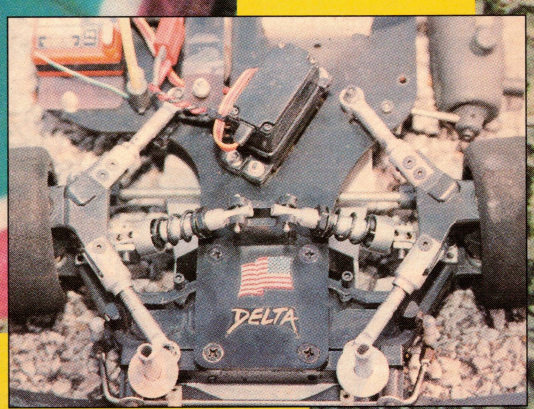
Delta's standard 1/8-scale differential is used in the Fireball and is extremely strong and durable in this application. Believe it or not, I haven't rebuilt this diff in an entire season of racing! It doesn't feel new but it's a lot better than many that I've noticed on other brands of cars with a lot less time on them.





The clean layout of the Fireball is evident from this picture. Lots of space allowed on the radio tray for easy mounting of the electronics. Note that the Fireball is equipped with the same heavy-duty triple disk brake as the 1/8-scale P2/G. The entire drive train is comprised of the same parts as Delta's 1/8-scale car with the exception of a narrower jackshaft. The Nova Rossi header and pipe have proven to be an excellent combination as used on our test vehicle. Good fuel mileage and power is a rare combination in the world of gas racing.

For the purposes of our test, the Dahm's Spice WSC body was chosen. This body contributes to the good handling characteristics of the car and allows good air flow to the engine head for better cooling.



The front end is comprised of double A-Arms with the top pair being adjustable. A heavy-duty front sway bar is supplied as standard equipment.

7 IN 1 NASCAR BODY



The sponsor decals were cut to give the illusion the body is broken into sections.

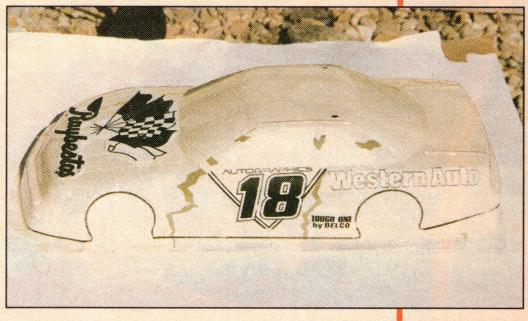
BY KEVIN MEYER

It's not uncommon for an RC hobbyist to hurry to finish a project in anticipation of getting to the track as soon as possible. This is understandable; after all, the RC vehicle was built with fun in mind, no? Why bother spending a lot of time painting the body?



Autographics decals are used to make each section of the car as authentic as possible. Several trim accessory packages are also available. Autographics

Blueprint series includes a detailed layout of paint schemes and correct decal placement.



Copies of the decals are placed on the car to get the masking the correct size.

Just spray some paint, then cut and trim it out. Who cares how it looks, right? Not necessarily so. You spent time completing the assembly of the kit, making sure every detail is correct, why not take the little extra effort to finish off that body? After all,

A nice '92 Chevy Lumina SS body by Protoform was used on this project. Excellent aerodynamics and detail. I won't settle for anything less on my pan car. A separate rear spoiler is included.



WIN AN MRC WORLD SCALE TRUCK FREE!

ENTER NOW!



MRC and RADIO CONTROL MODEL CARS bring you a World-Class offer!

Each month for a year, RADIO CONTROL MODEL CARS will award a FREE Thunder King Monster Truck to a lucky subscriber. It could be YOU! Simply by subscribing or renewing your present subscription to RADIO CONTROL MODEL CARS, you will be entered in our monthly drawing. Only coupons received that month will be considered in each drawing— so your chances of winning are great!

HERE'S ALL YOU DO

Renew your present subscription or take out a new subscription to RADIO CONTROL MODEL CARS using the special coupon below. You will be automatically entered into that month's contest. At the end of the month, we draw a name and that lucky person will win a FREE MRC World Scale Thunder King truck! This truck is big, powerful and durable enough to take the hardest knocks without damage. Its large size makes detailing and custom work easy!

You must use the coupon below and only one entry per individual per month. (No purchase necessary.)

SUBSCRIBE TODAY!

❑ Yes! Enter my name in the drawing ❑ Send me a subscription to RADIO CONTROL MODEL CARS for:

❑ 1-year (12 issues at $25), or ❑ 2-years (24 issues at $47) ❑ New ❑ Renewal

PAYMENT ENCLOSED AS: ❑ Cash ❑ Check ❑ Money Order, or:

❑ Charge to my: ❑ Visa ❑ MasterCard.

Card # _____

Expires: _____ Phone: _____

Signature: _____

FOR FASTER SERVICE , CALL TOLL-FREE 1-800-243-9593 TO CHARGE & ENTER!

NAME _____

ADDRESS _____

CITY _____ STATE ____ ZIP _____

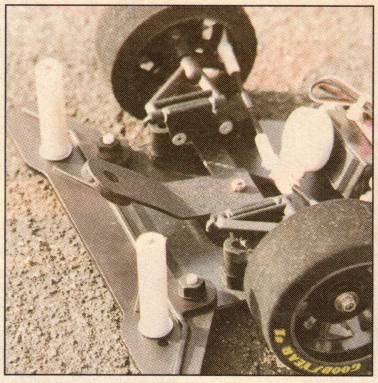
Canada and foreign orders must remit in money order form, payable U.S. dollars, at the following rates: Canada 1-year, $35; 2 years, $66. Foreign 1-year, $33; 2 years, $63. First issue in 4 weeks.

RADIO CONTROL MODEL CARS • Box 2459, Capistrano Beach, CA 92624

7 IN 1



Only the top part of the spoiler was painted so you can see the sponsor graphics on the rear panel. #4-40 button head screws and nuts are used to attach the spoiler for easy removal.



No holes will be drilled for body mounting so modified posts will be used. These will let the body sit at normal ride height.



Metallic Blue is semi-transparent and should be backed with silver to accent the metal flake. Black can be used but the end result will be a darker shade of blue. Pearl White is also semi-transparent and should be backed with white. The final color will look like metalflake white.

the body is the first thing people will see. It's how fellow racers (and spectators) will connect you to your ride. They will most likely remember that trick paint job long after they forget your name or face.

Now, many of you will use the excuse that you don't have any good ideas, or it's too hard or you're afraid you might mess up the body. I believe anyone who has the time and patience to finish an RC project can also produce a great paint job.

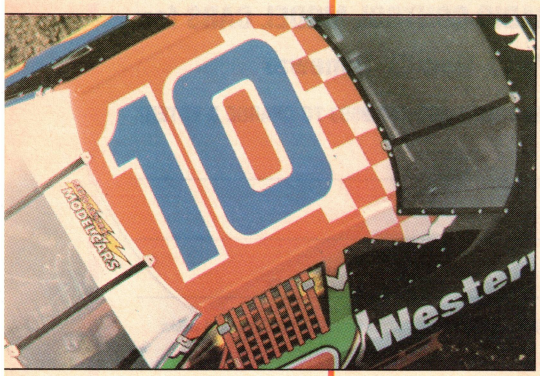
The really cool thing about painting Lexan bodies is that because they are painted on the inside, the outside finish is always perfect. It's pretty hard to make a paint run that's visible from the outside.

It's important not to be intimidated by some of the work you may have seen in *RCMC* or other RC maga-

continued on page 55

A Parma pen was used to do the line work for more definition of each section. Use a small flexible straight edge to help in laying down the hood lines. A credit card or video club card works great. Everyone has one or the other. Right?





1/8-inch strips of Coverite are used for the window straps also for the trim around the windows. Rivets are added for extra realism. Each rivet is individually cut so I had to try to keep the spacing even.

SPEED SECRETS 1995

1995 TEAM ASSOCIATED



ALLEN WRENCHES. Precision-ground replaceable tip with color-coded aluminum hex handle. .050" (#6964), 1/16" (#6965), 5/64" (#6966), 3/32" (#6967), 2.5mm (#6968), 1.5mm (#6969). Replaceable tips available now.







RACING SILICONE SHOCK OIL. This 100% pure silicone oil has reliably proven not to thin out in hot weather or thicken in cold. 2 oz. bottles, 15 wt. (#5427), 25 wt. (#5428), 35 wt. (#5429).

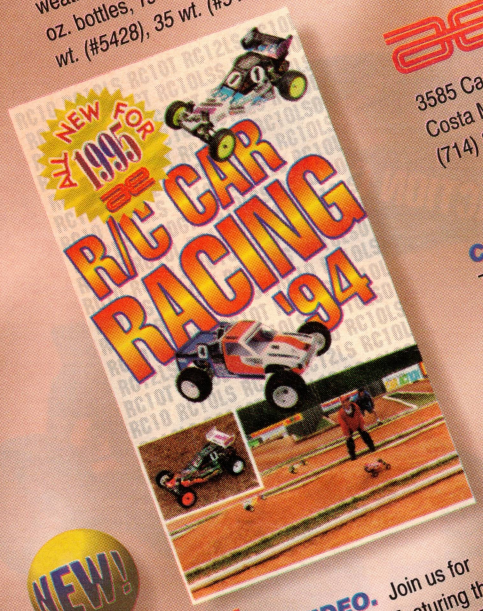
RC10GT GAS TRUCK. It's the most advanced 1:10 gas off road truck available anywhere. Racers can make adjustments for Ackerman steering, there is a totally new lay-down transmission with a drive ratio of 2.60:1 for gas engines, a new HTC (high torque capacity) differential, and the truck accomodates most of the .12 and .15 gas R/C engines. (#7050 *with bushings*, #7060 *with bearings*.)

REEDY MOTORS. Turbo-Cooling with "M" wet magnets in the Mach I and II stock motors and Sonic series introduces consistency, economy, long life and speed: stock and modifieds as they were meant to be!



TEAM ASSOCIATED

3585 Cadillac Ave.
Costa Mesa, CA 92626
(714) 850-9342 fax (714) 850-1744



COLOR MUFFLERS AND MANIFOLDS. These great colors help the racer to customize his RC10GT. Polished and anodized, these mufflers and manifolds (pull start and non-pull start available) provide that finished look! *Muffler, black* (#7740), *silver* (#7741), *blue* (#7742), *purple* (#7743).

IFMAR WORLD CHAMPIONSHIPS TWELVE



NEW!

New for 1995! R/C CAR RACING '94 VIDEO. Join us for some of the most exciting races of 1994! Featuring the highlights of such races as the Reedy International Race of Champions, the ROAR Off Road and &Truck Nationals, the IFMAR 1:12 World Championships in Paris, the IFMAR 1:10 World Championships in Germany, and the first ever NORRCA Electric and Gas Truck World Cup. (#6976.)

NEW!

NEW 1:12 STEALTH DIF. This diff (#4455) for the 12L series cars reduces the overall weight of the rear axle and reduces the rotating mass of the diff and axle assembly. The improved diff action gives you quicker acceleration. The new bolt-on rear wheels (specially designed for this axle) can be changed without readjusting the diff. The axle uses the diff technology developed for the legendary Stealth transmission. *Rear wheel, white* (#3609), *black* (#3609B), *florescent yellow* (#3609Y).

TEAM ASSOCIATED

STILL

THE TOP NAME IN 1/10 OFF ROAD RACING

and 1/10 on road . . . and 1/12 on road . . . and 1/10 gas



R/C CAR ACTION TRUCK OF THE YEAR!

RC10T

A technological breakthrough! This truck's design is similar to the RC10, which has made it the dominat electric truck since its release. Winners race RC10T's.

IFMAR WORLD CHAMPIONSHIPS TWELVE



R/C CAR ACTION CAR OF THE YEAR!

RC10

The RC10 has won 4 IFMAR World Championships, and was voted as Car of the Year by the readers of *RC Car Action Magazine.*

RC10L

On road racers have made our National Champion RC10L car the most popular on road car, and our RC10LSS has revolutionized high banked oval racing, shattering the speed record with an *85 mph run!*



R/C CAR ACTION CAR OF THE YEAR!



R/C CAR ACTION CAR OF THE YEAR!

RC12LW

Our family of RC12 cars have won 6 IFMAR World Championships. They're tough to beat!



RC10GT

The most advanced 1/10 gas truck available anywhere, setting new track records everywhere.

TEAM ASSOCIATED

3585 Cadillac Ave. Costa Mesa, CA 92626

714-850-9342 fax 714-850-1744

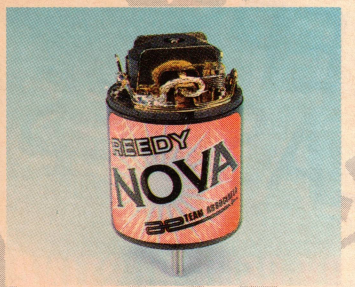
REEDY

12 IFMAR WORLD CHAMPIONSHIPS

WORLD CHAMPIONS TOOLBOX

ASSOCIATED ELECTRICS, INC., 3585 Cadillac Ave., Costa Mesa, CA 92626
(714) 850-9342 FAX (714) 850-1744

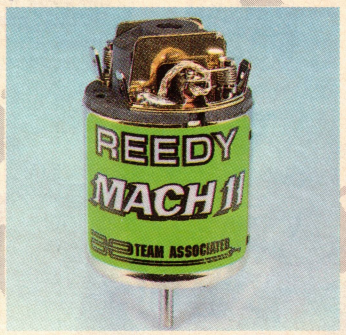
Nova Motors



Designed specifically for off road racing, Nova motors give you winning performance and long life at an inexpensive price. Hand wound. Custom assembled. Diamond trued armature. Dynamically balanced. Dual ball bearings. Adjustable timing. Heat sink holder. Three winds available.

#575, 14 turn double #576, 13 turn double #577, 12 turn double

Mach I & II Stock Motors



Turbo Cooling feature creates a path of cooling air over the brush and commutator assembly, giving you a cooler and more efficient motor. 4.95 "M" wet magnets. 27 turn armature with Turbo Cooling. New can with cooling vents, and more! Mach I is a ROAR legal 24° motor. The Mach II is a NORCCA legal 36° motor.

#556, Mach I #557, Mach II

Sonic Series Modifieds

TORQUE!

Newest in the line of Reedy motors is the Sonic, with Turbo Cooling features adding to the life and performance of the motor. A new can/magnet setup combined with an all-new large commutator and lay-down brush system provides the torque and power needed for today's racing. Hand wound and precision assembled.

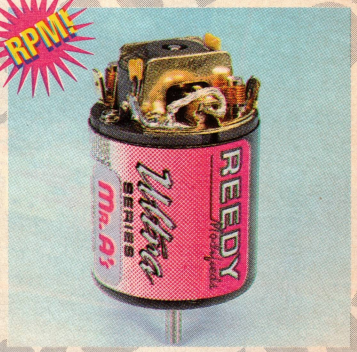
#525-540



Ultra Series Modifieds

RPM!

World Championship-winning MR. Series motors provide the RPM and performance necessary to win 1:12 on road and 1:10 off road IFMAR World Championships. Each MR. Series motor contains the Ultra Torque Magnet for broader power band. It is resistant to high temperatures, providing a consistent, stronger-running motor during the second half of the race when other magnets start to fade due to heat.



Nova Battery Pack

OFF ROAD!



Nova batteries are developed around the race-proven Sanyo SCRC battery. Cycled and matched, Nova batteries give you the punch you need for high current, four minute off road racing. Sanyo SCRC-SP. Cycled and capacity checked. Matched by capacity. Available in both 6-cell and 7-cell.

#636, 6-cell SCRC #637, 7-cell SCRC

Reedy Ultra Pack

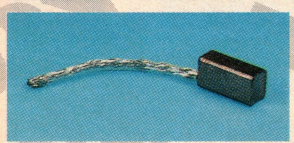


Today's on road racing requires top of the line batteries. The Ultra series SCRC and SCR are matched both for capacity and voltage to give you the power to win. Available in both 6-cell and 7-cell.

#606, 6-cell 1400 SCR
#607, 7-cell 1400 SCR
#634, 6-cell 1700 SCRC
#635, 7-cell 1700 SCRC

MR. Series Brushes

Fit all standard upright Yokomo-type brush systems.



#730, Silver On Road Brush
#732, Competition On Road Brush, Modified and Stock
#737, Competition Off Road Brush
#738, Stock Motor Brush

Sonic Series Brushes

For use in motors with lay-down brush systems.



#760, Competition Off Road
#761, Competition On Road and Stock Motor Brush
#762, Silver On Road Brush

LAY DOWN!

Reedy Modifieds

Reedy Modifieds technology is responsible for winnning 12 IFMAR World Championships, more Championships than all the others combined.

REEDY Modifieds

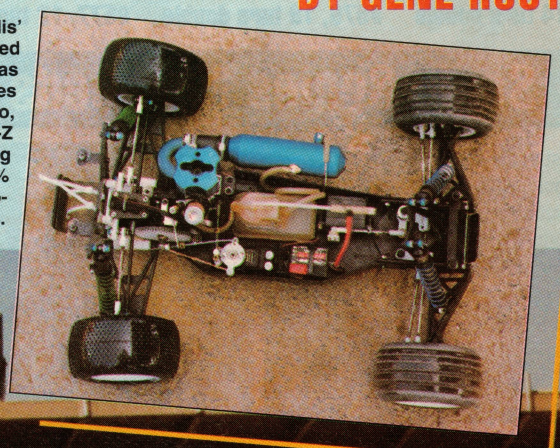
NORRCA

PAVIDIS SWEEPS BOTH CLASSES

BY GENE HUSTING



The first-ever NORRCA Truck World Cup Championships was held at the Ranch Pit Shop in Pomona, California. Mark Pavidis dominated the event, taking Top Qualifier honors in both the electric and gas classes. Mark then won the electric class with his Reedy-powered RC10T truck, and followed that up by winning the gas class with his RC10GT gas truck.



Mark Pavidis' Associated RC10GT gas truck features Airtronics radio, O.S. Max CZ-Z engine running O'Donnell 10% fuel and Pro-Line tires.

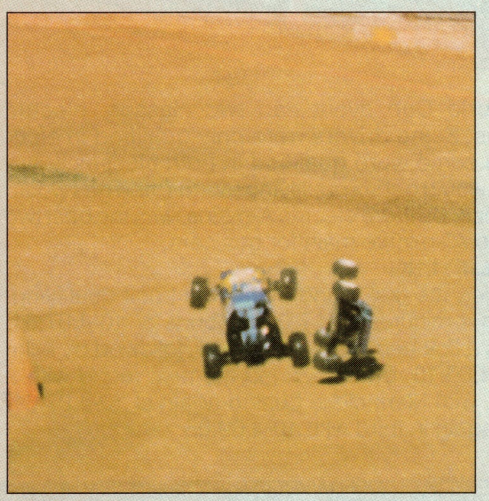
TRUCK WORLD CUP

It was fitting that J.R. Sitman chose the Ranch Pit Shop to hold its first-ever Truck World Cup, NORRCA's premier event of the year. The track, then owned by John Thorp, was the site of the first-ever World Championship, which was held for 1/8-scale gas cars. Two years ago the Ranch Pit Shop was host to the first IFMAR 1/10 Onroad World Championships. J.R. and his staff ran a very professional world-class event, and track manager and referee Jim Halsey was very fair and impartial with his decisions. Team Associated and Team Losi were the major event sponsors.

The Ranch's track is quite large, requiring 25-second lap times, and is quite a busy track, filled with jumps. The track was kept lightly watered for qualifying, and was in very good shape for such a large track. There



Mark Pavidis, center, won the first NORRCA Electric World Cup Championships. Jeremy Kortz, right, took a hard-fought second place, while Brian Kinwald finished third. Miss NORRCA, Carla Scott presented the awards.





■ OPPOSITE: This is the big jump, right in the middle of the track. It's actually three jumps, but if you take the big jump correctly, and get enough air time, you can make all three jumps. That's easier said than done. ■ ABOVE LEFT: Most of the time the cars came off big jump looking like these two cars. ■ ABOVE RIGHT: The trucks were in the air so much time the racers needed a pilot's license as well as a driver's license. ■ BELOW RIGHT: Most drivers take the quad jump in a 3+1 sequence, but even that's hard to do.





■ ABOVE: Everyone's favorite part of the track, the big jump. The lead truck here is heading straight for the red cone, which is immovable. ■ BELOW: The double-doubles jumps get you all set up to make the quads. NOT!



Mark Pavidis' second big win at the inaugural NORRCA Truck World Cup Championships came in the gas category. Brian Kinwald, left, finished second, while Richard Saxton was third.



was an unusual cool, clear weather condition, which was appreciated by everyone.

There were drivers from across the country, who had to qualify at regional events to be able to attend this event. Drivers from Canada and Mexico as well as the Schumacher team from England, including one of the best drivers in England, Jamie Booth, and a former 1/8 gas IFMAR World Champion, Phil Booth (no relation) competing.

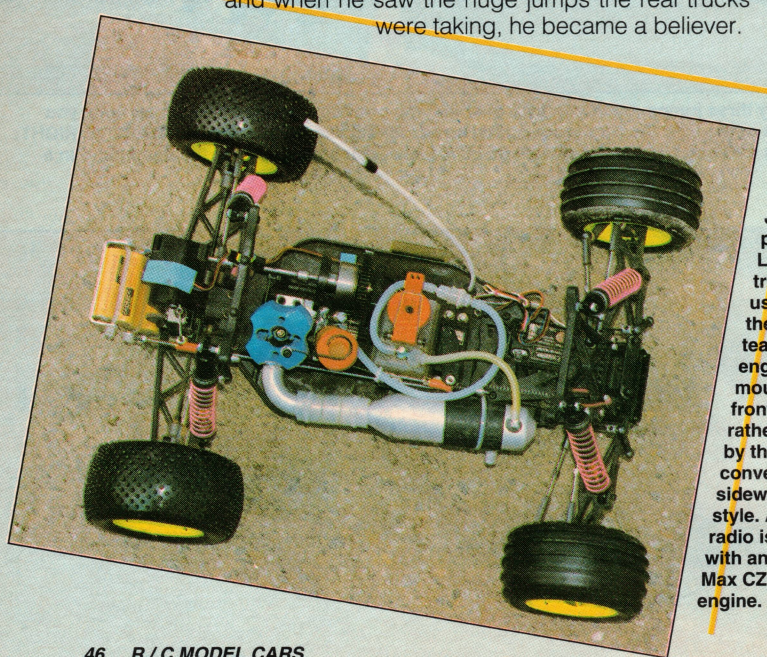
I remember when Phil Booth first came to an offroad race in the U.S. He was heard commenting that we shouldn't have such big jumps, because real cars didn't have jumps like that. So, some of the guys invited him to go to a Mickey Thompson stadium truck race, and when he saw the huge jumps the real trucks were taking, he became a believer.

This Truck World Cup event had two classes, electric modified and gas. Some drivers were only qualified in electric or gas, while some were qualified in both classes.

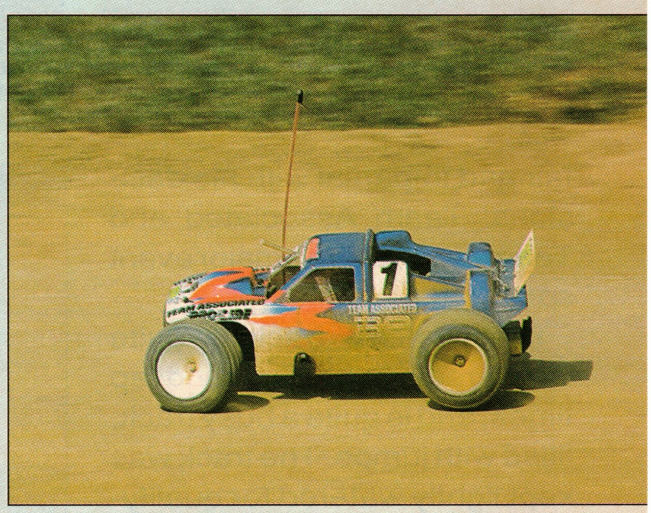
Electric drivers would get six qualifying rounds, and gas would get four. There would be three electric A-mains, with the best two counting, and one 45-minute main for gas cars.

ELECTRIC QUALIFYLNG

Brian Kinwald led the first round of electric truck qualifying, turning 10 laps in 4 minutes and 7.31 seconds or 10-4.07.31. Mark Pavidis was a tick behind at 10-4.07.41, followed by Mike Weed with a 10-4.09.18. Brian then led the next round with a quick 10-4.07.38, with Mark close behind again at 10-4.07.61. Mike Weed was again in third with 10-4.09.05.



This is Gil Losi Jr.'s prototype Losi gas truck, as used by the Losi team. The engine is mounted front to back, rather than by the conventional sidewinder style. A Futaba radio is used with an O.S. Max CZ-Z engine.



Mark Pavidis' RC10GT gas truck TQ'd and won the class at the World Cup. Mark also took the top trophy in electric class.

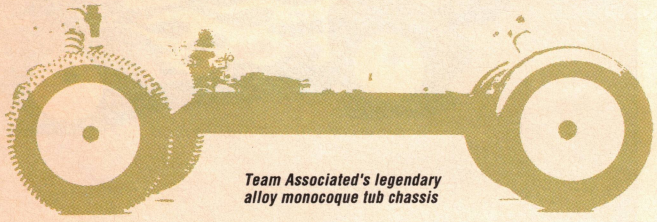


NOBODY KNOWS GAS RACING LIKE THE TEAM.

A lot of people would like you to think they created the whole concept of RC gas racing.

But with over 25 years of experience racing RC gas cars and winning two IFMAR Gas World Championships, Team Associated knows gas racing.

That's why the Team built the RC10GT.



Team Associated's legendary alloy monocoque tub chassis

Our RC10GT is the real thing, designed and engineered by the same racers that brought you the original RC10 and the RC10T.

While it might be enough for some to simply drop an engine and a fuel tank into an electric truck, the Team takes this kind of powertrain transfusion seriously. The RC10GT is a completely integrated package created to take maximum advantage of gas power yet versatile enough to accommodate all popular .12 and .15 size engines.

The most advanced, high performance vehicle of its kind, the RC10GT features competition proven, four wheel suspension with precision, coil-over shock dampening. Our World Famous Team Associated Stealth ATC gearbox is also adapted to the RC10GT, to get all that nitro power to the ground and our race-ready disc brake gets it all slowed down in a hurry.



IFMAR World Champion factory drivers Brian Kinwald and Cliff Lett teamed with Curtis Husting in designing, track testing and racing our RC10GT prototypes.

Like all our kits, hardware and materials are nothing but the best. And because Team Associated understands RC racers, and their budgets, the RC10GT is available with either bushings or ball bearings and for both pull and non-pull start engines.

Enjoy the sound and power that makes gas RC racing come alive. The RC10GT is the ONLY RC gas truck with Team Associated's proven performance and reliability. Because no one knows RC gas racing like the Team.

Quick-fill 75cc fuel tank lets you race as long as you want with simple 2 second pit stops.

All terrain tires developed by Pro-Line specifically for the RC10GT

Wide track, long throw suspension, molded from durable, dyeable virgin nylon



The RC10GT is available in several Sport and Competition versions for most .12 or .15 engines. We highly recommend the .12 size for scale performance and reliability.

RC10GT

Associated Electrics 3585 Cadillac Avenue, Costa Mesa, CA 92626

© 1994 Associated Electrics



The top dogs in gas truck racing show their hardware after an exciting A-main.

B.J. Christenson took the gas B-main with this RC10GT. B.J., sponsored by MIP and Associated, held off a gallant charge by eventual second-place finisher Austin Dvorak for the win.



Mark Pavidis took over the top spot in the third round with a quick 10-4.05.72, followed by Brian's 10-4.08.51. Then, in the fourth round Mark took the Top Qualifier honors with a super run of 10-4.04.87. Brian was close with a 10-4.05.68 for second place, while Jeremy Kortz got his best run of 10-4.07.63 for third spot. Jason Ruona wasn't far behind with 10-4.08.68.

GAS QUALIFYING

Mark Pavidis took the Top Qualifier honors on his first run with a smooth run of 17-7.02.18, and then on his next run he had the second-best overall time with 17-4.05.87. Brian Kinwald qualified second with 17-7.08.74 followed by Scott Hughes with 17-7.10.62 for third, with Jack Johnson 17-7.15.32 in fourth and Tim Bump 7-7.16.94 in fifth.

FIRST ELECTRIC A-MAIN

The trucks were lined up two by two, according to their qualifying positions, toward the end of the straightaway, so they wouldn't reach too much speed on the first lap, going into the tight slow right-hand turn.

The horn sounded, and Mark Pavidis took off in the lead, down the middle of the track, with Brian Kinwald going to the outside and Jeremy Kortz going to the inside. Jeremy got a little too low and was caught by a ridge and ended up in the grass infield. Meanwhile, Brian turned a little too soon before the end of the straightaway, and was also in the grass with Jeremy.

Jeremy got back on the track first, while Jason Ruona got by Brian before Brian could get back on the track. Mark had a 10-foot lead over Jeremy, who had a 10-foot lead over Jason, with Brian another 10 feet back. It took Brian two laps to close up on Jason, and then with Brian right on his rear bumper, Jason went a little wide and Brian moved into third.

Mark was steadily pulling away from Jeremy, while Brian was trying to close the gap on Jeremy. He got close, but Jeremy held on, with Mark taking the win, Jeremy second, Brian third, Jason fourth and Derek Furutani fifth.

SECOND ELECTRIC A-MAIN

Mark and Brian got through the first corner clean, with Jason Ruona and Greg Hodapp following. Mark and Brian were slowly pulling away from Jason while Greg was slowly closing on Jason.

continued on page 52



Jack Johnson's prototype Losi gas truck finished tenth in the A-main in its first outing.



Street Smart

It's Tamiya's newest Indy car — the Rahal Hogan Motorola Lola T94/00 Honda. An R/C version of the Long Beach Grand Prix street circuit racer.

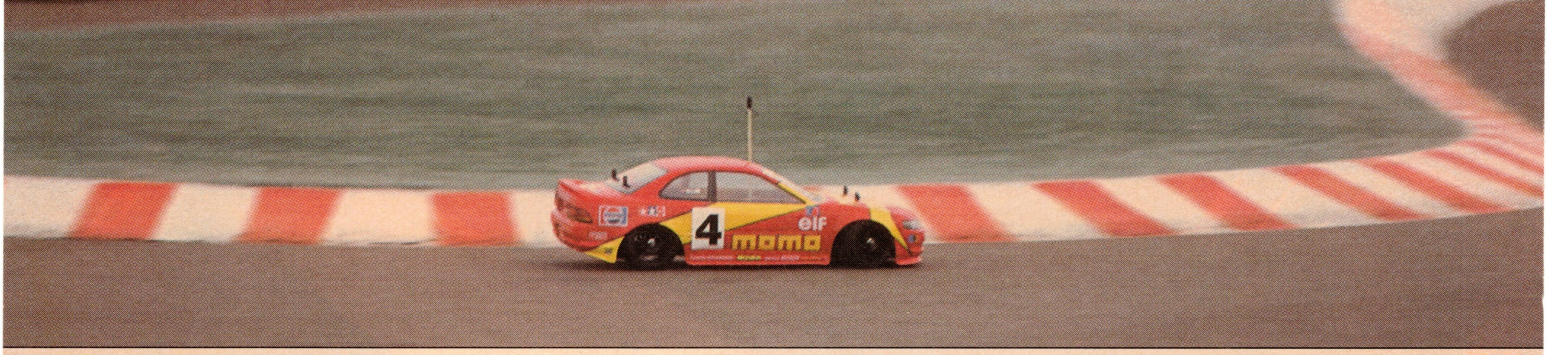
Created from an entirely new mold, this car features large, high down-force front and rear wings plus all the other design characteristics unique to the full-size Rahal Hogan. Adding to the realism is a helmeted driver figure; the red, white and blue racing livery of car #10 driven by Mike Groff; and "Grand Prix" caliber performance in 1:10th scale.

Like the Newman Haas before it, this is one mean machine! It rides on a high-tech, double deck F103L chassis with friction disc damping for great pitch-and-roll control. With its long wheelbase and super low ride height, it slices through the wind to achieve super fast speed in the straights. Add to this a sophisticated 3-point suspension system; a powerful, center-mounted 540-type stock motor; ball type precision differential gearing; adjustable steering tie rods; quick-release battery retainer with skid plates, plus other advanced features, and you have yourself a street fighter that can't be beat for agility, durability and speed.

TAMIYA



© 1994 TAMIYA AMERICA, INC., 2 Orion, Aliso Viejo, CA 92656-4200; 1-800-TAMIYA-A



The 2WD Honda at speed on the Tamiya track. The new body performed well in tests, and under actually racing conditions, as seen here.

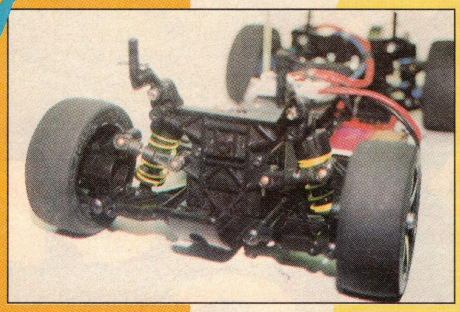
TAMIYA 2WD HONDA

Getting The Fire

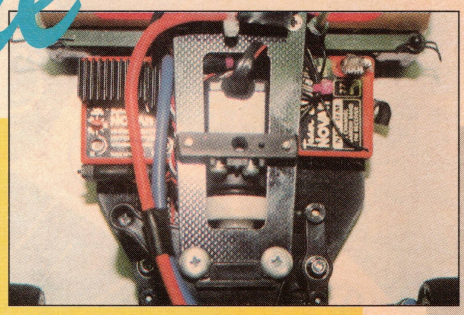
In the December, 1994 issue of *RC Model Cars*, we completed the assembly of our two Honda Civics, one stock, the other modified. The Stock class car has changed little since it was put together, but the modified version has had a major metamorphosis and will be the focus of this installment.

Being the competitive type, RC car people have the mindset to win or be capable of winning each time we put the car on the track. In keeping with our original plan of running a car that is legal for Tamiya's Championship Series, our modified car was equipped with Tamiya factory parts only. The modified version was constructed to compete primarily at the Tamiya track in Southern California. To prepare for the upcoming Tamiya Series, we took in a "club race" at the track in early October. The outing went well; we qualified second with an 18-lap, 5:03 time, and won the main event with the fastest time of the day (18-5:00.04). We also had the distinction of being the first front-wheel drive car to win a main at the factory track.

The car that ran in that race was completely legal for the Tamiya Series, which made it acceptable for the big Series finale at the end of the month. We'll give you the results of that contest next issue.

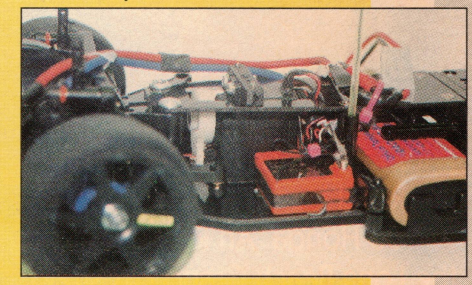


Our all-Tamiya-equipped Civic sports stock shocks, 80-weight oil, medium (yellow) springs, adjustable upper arms (camber was set at 3 degrees). The super slicks were mounted on Tamiya's Alfa wheels.



To help move all the weight closer to the car's centerline, the steering servo was mounted on its end with the Kimbrough servo saver arm down. The top servo mount is just a scrap block of nylon.

With the servo on end, the receiver and speed control are placed to each side of the servo.



PART III BY FRANK KILLAM

PRODUCT SOURCES:

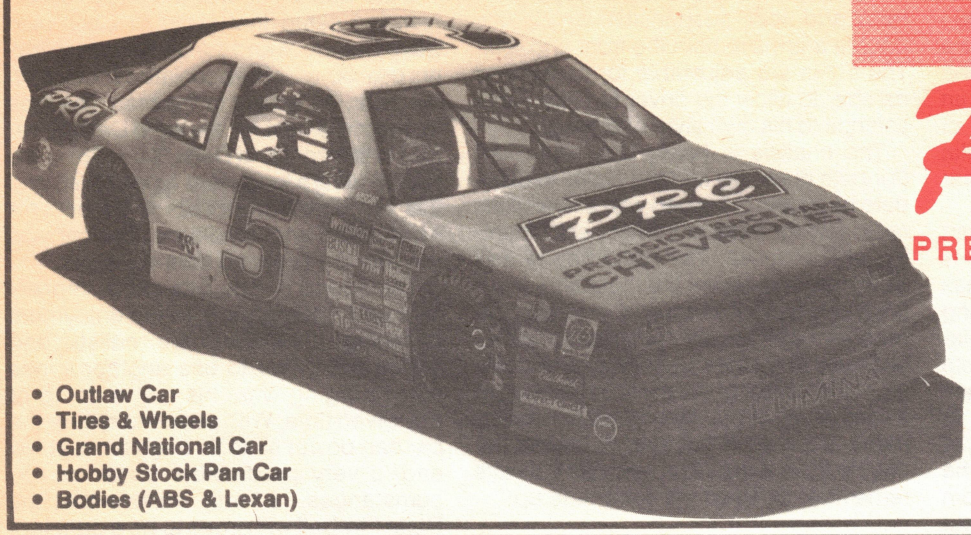
Tamiya America, 2 Orion, Aliso Viejo, California 92656. (714) 362-2240.

HPI, 22600 'C' Lambert St., Suite 904, El Toro, California 92630.

Protoform, Box 456, Beaumont, California 92223. ●

To help lower the car's CG a little more, the kit's Honda body was replaced with Tamiya's Toyota (#50526). The yellow markings on the wheels identify the tire compound and mounting type—in this case, "SSGLF" means Super Slick, Glued Foam (the foam inner liner is glued inside the tire casing).

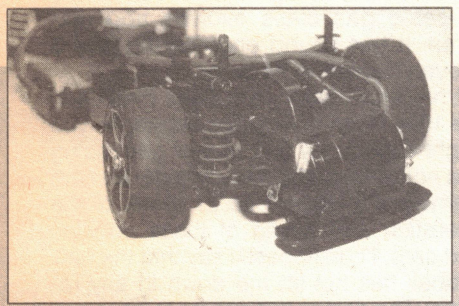
QUARTER-SCALE CARS • PARTS • ACCESSORIES



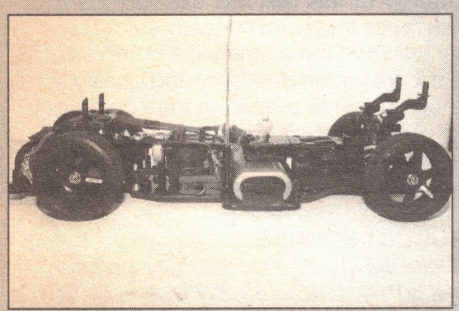
Loves
PRC
PRECISION RACE CARS

- Outlaw Car
- Tires & Wheels
- Grand National Car
- Hobby Stock Pan Car
- Bodies (ABS & Lexan)

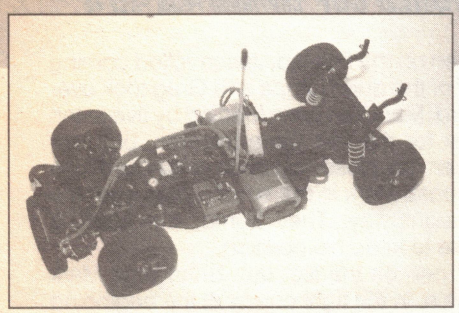
Love's
PRECISION RACE CARS
Box 251
Nuevo, CA 92567
Phone (909) 928-1518
FAX (909) 928-2268



Again, trying to keep the weight as low as possible, a trick transponder holder was made from 1/16-inch Kydex, then mounted up front to balance the motor's weight.



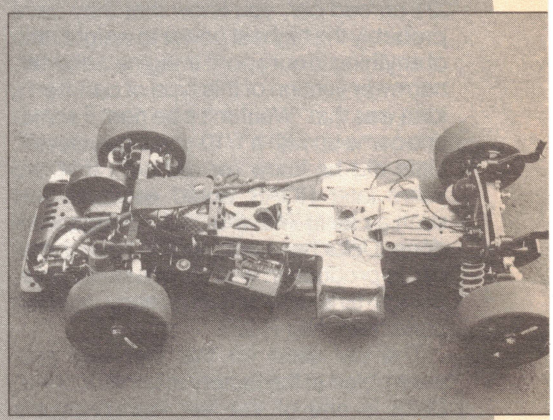
The finished chassis with ground clearance set at 1/4 inch.



Another view shows the completed car, Tamiya battery plugs and all. Motor is a "Big Jim" 16-turn, geared at 23-71. Note second transponder mount at the rear as a test location.

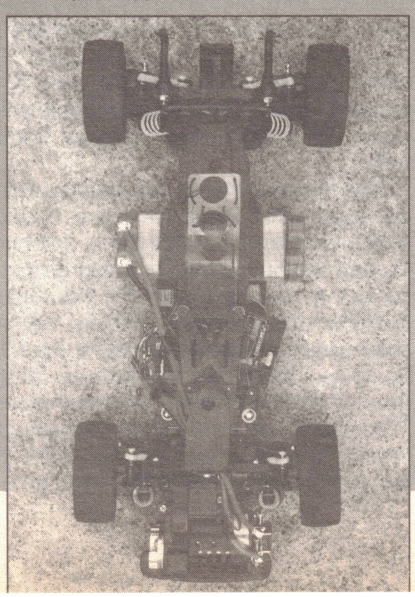
The HPI Super Car is the state of the art for front-wheel drive cars, using all of Tamiya's hop-ups and HPI's graphite chassis kit. Note the two transponder mounting locations, one up front, the other in the back ahead of the rear shock mounts. This way a fine-tuning of the car's balance can be done.

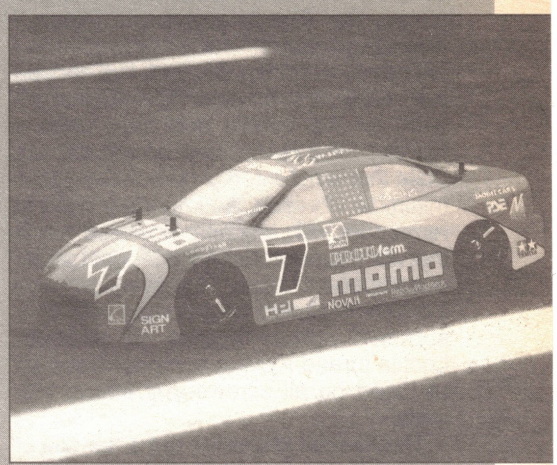
THE SUPERCAR



To see how far a front-wheel drive car can go, a "Super Car" is now undergoing testing. The car, which began as a Honda Civic, has mutated into the ultimate front driver. HPI graphite chassis kit, Tamiya Hop-up shocks, aluminum diff parts, 80-weight oil, sway bars and Protoform's Saturn Coupe body are just the beginning. —*FK.*

Hot off the track at the NORRCA Nats in Vegas. Team Smooth 1400 batteries and Airtronics servo and FM receiver. Associated rod ends make up the upper arms.





Protoform's new Saturn Coupe body was designed exclusively for Tamiya's front-wheel drive chassis. It's the fastest body available for this class.

FIREBALL CONTINUED FROM PAGE 37

competition truly lives up to its name in the real world of onroad racing! The Delta Fireball has totally dominated the 1994 Heart of America series' 1/10-scale class and has won every event entered in the 1994 Midwest Series races. This is an impressive start for the first full year of competition for a new car. The Delta Fireball is truly a professional-level car that is available to every racer.

Before we get into the details of the car, a little history lesson might be in order. As many are aware, Delta Manufacturing has been involved in 1/8-scale gas racing from the very beginning. With many National and Regional Championships in both two- and four-wheel drive there is no lack of experience in gas racing at Delta. In 1991, at a dirt oval race held in Kansas City, Ken Campbell showed up with the prototype Fireball which he had built from an 1/8-scale P-2. This car was nothing but a shortened, narrowed P-2 with a .21 engine. If you've ever driven an 1/8-scale .21 onroad car, you know that they have probably the highest power to weight ratio of anything in our sport! Imagine a shorter, narrower version of this type of car! Ken's idea was that "Wouldn't it be neat if someone came up with a 1/10-scale gas class?" Little did he know (or did he?) that two years later ROAR would establish just such a class! With the basic design work done, Delta has been able to have a new car in production with an unusually short design time and utilizing many existing parts from their P-2/G.

The car used for this test was preassembled at the factory in Lorimor, Iowa. Delta is one of the few manufacturers around that will pre-assemble their products (for an additional charge). The assembly of the car appears to be straightforward and all components are accessible. The only things that I had to do to make the car "race ready" was install the electronics and pipe. With the help of a couple of our most experienced local gas racers, Dan Dowdy and Arlynn Simon, I was able to have the car ready to go in one full day of work! For this test, I've chosen a JR 4735 servo for steering and Futaba's 9101 for the throttle and have used a Novak NER 3 FM receiver on a fiberglass plate that is mounted on shock O-rings to minimize vibration. An important point to remember with any nitro-powered car is that vibration is probably the biggest cause of component failure. To prevent damage the servos should be mounted with their supplied rubber mounts. In addition, Loctite thread-locking compound should be used on all screws that thread into metal.

The Fireball shares all but a handful of parts with its larger relative, the 1/8th-scale P-2/G. This is probably the major advantage that this car has over some of its competition because it is comprised of proven components and a parts network that is already in place. The car uses the Delta's own .240-diameter shocks on the front and the .470 series on the rear. These shocks damp a fully independent front and rear suspension which use double a-arms in both the front and rear. The fronts are adjustable for caster and camber to allow the driver to tailor these settings to his own style of driving.

The chassis is heavy-duty aluminum (for both durability and the ability to dissipate heat) and is topped with a fiberglass radio tray for ease of component mounting and stiffness. The radio tray is well designed and allows the mounting of virtually any type of servo and receiver. The receiver batteries are mounted in rubber vertically and sideways across the chassis at the center of the car contributing to a low center of gravity and polar rotating mass. A rollbar is included to protect the engine from those of us who can't always remember to "keep the shiny side up!"

With many National and Regional Championships in both two- and four-wheel drive there is no lack of experience in gas racing at Delta.

Our test vehicle is equipped with a Nova Rossi engine and pipe. The Nova Rossi engine has proven to be quite reliable and was the winning engine for 1994 in this class. As the 1994 season has unfolded, the issue of fuel mileage has become probably the most talked about subject among 1/10-scale racers with many having trouble making run time during a five-minute qualifier using the required 75cc of fuel. This has not been a problem for me and I attribute this to two factors; I normally run 20% Delta fuel and am using the standard (small diameter) header on my car. This combination of factors has allowed me to finish every qualifier this year without running out of fuel! As for the performance of this engine pipe combination, all I can say is that they do their intended job very quickly! The Delta 2 speed shifts smoothly, and once properly adjusted provided reliable shifts every lap without needing to be fiddled with.

Heavy-duty is the key word(s) that should be used when describing the Fireball. Every component of this car is designed around the philosophy that you can't win races that you don't finish! For this reason, the Fireball is somewhat heavier than the other cars currently available for the 1/10-scale gas class. For my style of driving (yup, I admit to making "operator errors." The Fireball has very good track manners. When set up to suit my driving style (I like just a little push in the turns) I was able to maneuver the car around the track as confidently as though I was driving my 1/10-scale Super Villain (only much faster!). The car was set up with the basic recommended setup that National Champion Dave Campbell and the other factory drivers use: 80-weight Associated shock oil in the front, 40 weight in the rear. The tires that worked best for me were Delta Silver (35) in the front and Delta Gold (28) in the rear. Both are long-wear type of tires and this combination appears to be best for most tracks and conditions. The car was run with the supplied front sway bar.

The sound of any gas car is impressive and adds greatly to the enjoyment of racing. It's much more realistic and allows the driver to use another sense when judging what his car is doing at any given time. With power to spare, the car can power slide through turns at will and is very predictable under all circumstances. I firmly believe that the Delta Fireball will prove to be a constant force to be reckoned with as the new 1/10-scale gas class evolves and matures. It has sound engineering and a proven design in its favor.

I have campaigned a Delta Fireball in the 1994 Heart of America Series. As you might expect, my first year of gas racing has not been particularly smooth as I am learning the "ropes" so to speak of the operation and tuning of these engines and cars. I can honestly say that the new Fireball has not let me down in any respect. The design has proven to be excellent and routine maintenance can be performed easily and quickly between races. In addition to these facts, the fundamental durability of this car has allowed me to finish races that I can honestly say I probably wouldn't have otherwise completed were it not for the durability and quality of the components utilized in the construction of the Fireball. I highly recommend this car to anyone with the desire to be competitive in the new and exciting world of 1/10-scale gas racing!

PRODUCT SOURCE

Delta MFG., 27 Racecar Ct., Lorimor, Iowa 50149, (515) 763-2271. •

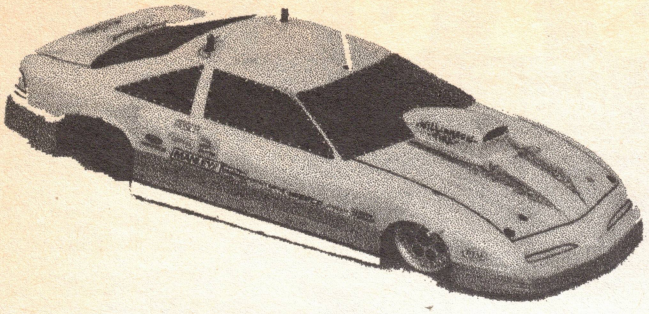
WORLD CUP CONTINUED FROM PAGE 48

Then on the fifth lap, Jason rolled coming off of the quad jumps and Greg took over third. Mark has been leading by five to ten feet for the first three minutes, but now Brian has closed up even closer and tries to pass Mark in the small jumps after the straightaway. They bump, but Mark is able to keep his position.

Then on the last lap, Brian tags Mark again, in the tight corner at the beginning of the straightaway, spinning Mark out. Brian now has the lead with Mark right behind him. They're now approaching the quad jump, with just one corner after that

continued on page 55

Northern California RC Drag Racing Association
PRESENTS THE 1st ANNUAL



WEST COAST SPRING NATIONALS

Sponsored by

Astro Flight, Inc.

March 11 & 12, 1995

Awards for 1st place, 2nd place & Consolation in each Class

RACE TIMMING BY RACE AMERICA™

LOCATION: NCDA SPEEDWAY
Caspian Court
Sunnyvale, CA

Pre Race Entry: (by 3/01)
1st Entry $20
Each Addtl $10
Entry Race Day:
1st Entry $25
Each Addtl $10

For more information contact: Mitch Williamson
(415) 966-1681

CUT ALONG THIS LINE

IEDA RULES APPLY, NO MEMBERSHIP REQUIRED

ENTRY FORM

Make checks payable to: Mitch Williamson - NCDA President
Mail to: NCDA, 854-C Stevens Rd.
Mountain View, CA 94043

Name _____
Address _____
City/State/Zip _____
Telephone _____
Amount Enclosed $ _____

CLASS
1st _____
2nd _____
3rd _____

FREQ
1st _____
2nd _____
3rd _____



CONGRATULATIONS 1994 MANUFACTURER'S CUP CHAMPIONS

OUTLAW LATE MODEL- THUNDERBOLT
GRAND NATIONAL- THUNDERBOLT
SPRINT- PHOENIX ARROW



CONGRATULATIONS! 1994 CHAMPIONS

OUTLAW LATE MODEL-
BOB MOORE-
from Bonaire, GA
GRAND NATIONAL-
TERRY REA-
from Bassett, VA
SPRINT-
JOHN TALBERT-
from Cortland, IL
SPORTSMAN G NATIONAL-
MARK BEASLEY-
from Smyrna, TN

1995 CHAMPIONSHIP SERIES SCHEDULE

February 25-26: Perris, CA
May 26-28: TBS Speedway, Darlington, SC
(Memorial Day Weekend)
August 16-19: Knoxville, IA
(Sprint Car Nationals)
October (Dates TBA): Las Vegas, NV Nationals

The Quarter Scale Auto Club packs more energy and realism into the sport and science of quarter-scale competition than any other class of radio-controlled racing. More than 600 drivers revel in the same excitement as their counterparts on the NASCAR circuit. QSAC, the governing body for quarter-scale racing, serves its members with all up-to-date information, results and other special items of interest in its regular newsletter.

Winning drivers can earn cash prizes and much, more more! QSAC enthusiastically says that the REAL victories belong to all those who share their talent, expertise and friendship in a program that promotes cooperation and involvement in this exciting and fast-growing sport!

DON'T MISS OUT! JOIN QSAC TODAY!

MEMBERSHIP APPLICATION

NAME: _____ **PHONE:** _____
ADDRESS: _____
STREET _____ **CITY** _____ **STATE** ___ **ZIP** _____
TYPE OF CHASSIS _____ **QSAC No.** _____
New [ ] Renewal [ ] Amount Enclosed: $ _____
Note: Expires Dec. 31, 1995 Date: _____
Make Checks Payable To QSAC
Mail To: 24625 W. 71, Shawnee, KS 66227
Received At: _____ **By** _____
Membership Fee Non-Refundable
Membership $50.00- 2nd Family $45.00 - Juniors $40.00 Includes QSAC Ins.
Subscription associate (newsletter only) $20.00 a year.

FOR MORE INFORMATION:
Write - **QSAC**
24625 West 71st
Shawnee, KS 66227

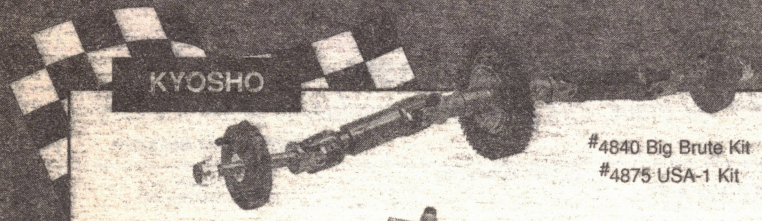
QSAC
Or Call - Judy Keith (913) 441-6440

TOUGH STUFF

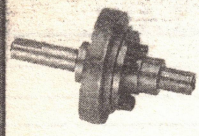
Whether you're pulling, racing or just having fun, THORP products give you more "TOUGH" for your money. You can count on Thorp's leading edge designs and high-quality machining to deliver long-lasting performance and reliablilty.

World famous Thorp Drivers Set the Standard for Quality

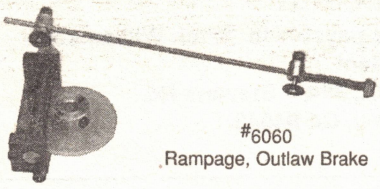
KYOSHO



#4840 Big Brute Kit
#4875 USA-1 Kit



#6050
Rampage Ball Differental



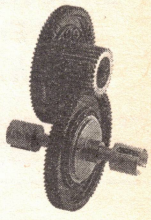
#6060
Rampage, Outlaw Brake

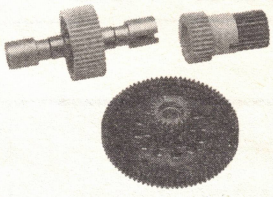
TAMIYA

#2000 Blackfoot Diiferential and Dog Bone Kit



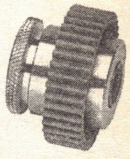
#2050 Super Blackfoot Differential Kit, 48 Pitch





#4985 King Cab
48 Pitch Gear Kit

#6000
Clodbuster
Differential

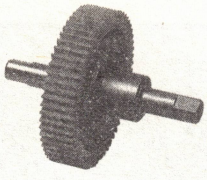


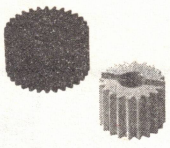
TRAXXAS



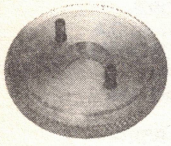
#5320 Adapter Kit

#5350 Blue Eagle/Nitro Hawk Ball Differential

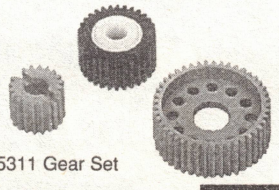




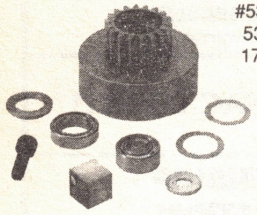
#5302 Idle Gear Set
#5309 3.0 Cheater Gear Set



#5361 Nitro Hawk
Aluminum Flywheel

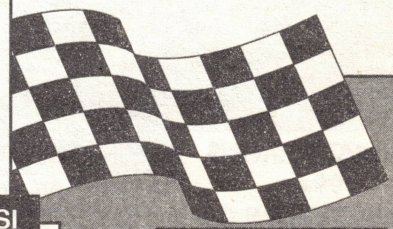


#5311 Gear Set



#5364, 5360
5363, 5362
17,18,19,20
Tooth
Clutch
Bells

#5370 Nitro Hawk
Adapter Kit
O.S. CZ-R



TEAM LOSI

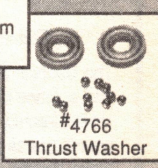


#5130 XX truck 64 pitch 2.62 ratio
#5140 XX car 64 pitch 2.22 ratio

ASSOCIATED



#4770 Gear Set
with Hard Aluminum
Top Gear

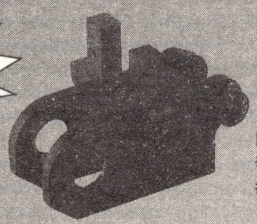


#4766
Thrust Washer

Dirt Burners!

THORP manufacturing

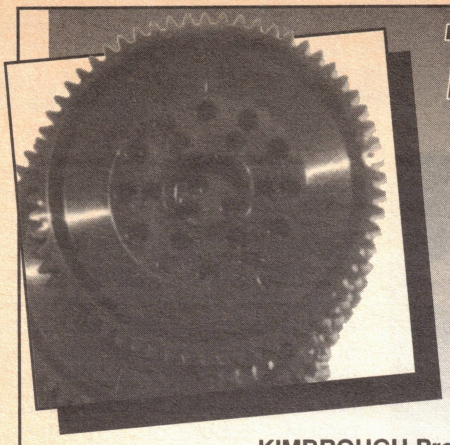
New Aluminum Gas Trans



Dealers Welcome!
Duratrax Gearbox Conversion
#4780 Associated Differential
#5120 Losi XX Differential

Send $2 for a catalog of these and Thorp's many other fine products

4054 E. Mission Blvd., Pomona, CA 91766 • Ph (909) 622-6518 • Fax (909) 622-2947



TOUGH GEARS for GAS TRUCKS!

FOR HYDRA-DRIVE....
#245- **64 T**, 32-Pitch for Losi HYDRA-DRIVE.....$3.00
#246- **66 T**, 32-Pitch for Losi HYDRA-DRIVE.....$3.00

FOR ASSOCIATED GT...
#247- **62 T** For Associated RC10-GT.....$3.00
#248- **64 T** For Associated RC10-GT.....$3.00
#249- **66 T** for Associated RC10-GT.....$3.00

High-powered gas trucks need a gear that's up to the task... and Kimbrough's 32-Pitch gears are the toughest! Made of super-strong 4/6 Nylon, these gears will withstand temperatures 50 to 100 degrees higher than other manufacturer's gears. Don't take chances... get Kimbrough Gears!

KIMBROUGH Products

KIMBROUGH Products • 1322 Bell Ave., Unit 1-C • Tustin, CA 92680 • FAX: (714) 258-7426

7 IN 1 NASCAR CONTINUED FROM PAGE 40

zines. These guys have been at it for many years. They have invested lots of money in equipment and possibly even more in time practicing. There is no reason your paint job can't be just as dazzling if you follow a few simple guidelines.

First, come up with an interesting idea. Second, research and plan that idea. Last, take your time, follow through with the execution of that idea and, most of all, have fun with it! Hopefully when you finish, the paint job will be the one you save for that concours contest.

ENOUGH TALK, LET'S GET STARTED

My paint project will cover several areas of painting and detailing. Granted, you won't want to copy my idea exactly, but hopefully this article will spark some creative concepts and you'll come away with some useful painting tips.

Let's start with the body prep work. I'll be using the stylin' Chevy Lumina SS from Protoform (I'm a Chevy lover). The body has great detail and an ultra-low profile.

Two versions are available: regular (.040) and lightweight (.030). There are several ways to trim and mount the body. Whether this is done before or after painting is your option. First, wash the body shell with warm water, soap (liquid dish soap works good) and a paper towel. Dry the body inside and out.

With the paint job I'm doing, it helps to place copies of the decals on the body to insure the correct mask size. I usually make several copies of all my decal sheets for later reference. With the masking complete, cover the entire outside of the car with plastic food wrap. Any areas missed by the plastic wrap should be covered with masking tape. Cleaning overspray off is my least favorite thing of all, so I make sure every inch of the outside body is covered. Don't spare the masking tape!

Because each section of the car is a different color, a plan must be made on which sequence to paint each area. Be sure to paint in a well-ventilated area and wear a paint mask to avoid inhaling airborne paint particles. Also, I wear plastic gloves, because I hold the body in my hand when I paint.

Make the first coat very light. This will help seal the edges of the masking tape and will prevent the next layer of paint from bleeding under the tape. When working on smaller sections, two or three even coats, about 15 minutes apart, should be good coverage, but when in doubt add another coat. To achieve a patchwork effect, the silver will be applied first between sections.

After finishing each color, check for paint that may have crept or bled under the mask. Small areas can be tidied up using a Q-tip. Larger areas require a cotton ball. Use a mixture of one part rubbing alcohol two parts fingernail polish remover (acetone). On some Lexan you can use straight acetone. Be sure to check first on a scrap piece.

The rear of the car will be "Goodwrench" and "Western Auto." This area gets painted first because it's black. Usually it's best to shoot the darkest colors first. Although I painted the silver first, there won't be a problem spraying black over silver. Here we'll use Pactra's Outlaw Black.

Blue Streak is next. This section will be the #24 DuPont car. After the first coat of Blue Streak was dry, I applied two coats of Metallic Blue to give it some metalflake background. Then spray two coats of Blue Streak again over the Metallic Blue.

I'll do the Metallic Blue and follow up with Indy Silver for the "Raybestos" left front quarter panel. The right lower rear quarter panel will also be silver. Competition Orange is next to complete the rear end. I'll use Rally Green to do the "Interstate" #18 driver's door. Now the Daytona Yellow is used for the "Kodak" right front quarter section of the body.

Final colors will be Pearl White, followed by Sprint White on the hood to complete the "Raybestos" section. With any luck, overspray clean up will be minimal.

The basic paint scheme of the car was based on decals from Autographics. Their quality and selection makes it easy to authentically replicate many of your favorite stockers on the NASCAR circuit.

DECALS OR STICKERS?

Before I go any further, I would like to comment on the terminology used for decals or stickers as some call them. My definition of stickers is something kids get out of cereal boxes. They peel off from a sheet and have adhesive backing.

Decals, if you remember from your plastic modeling days, are cut out and submerged in water to activate the adhesive on the back. This method also made placement easier and more exact. I tend to refer to them as decals. It seems like a more sophisticated word. What we generally use on our Lexan bodies are pressure-sensitive stickers, but just about everyone refers to them as decals. Call 'em what you will. . . .

Autographics has just introduced a new product called Sticker-On. When sprayed on the decal backing and on the mounting surface, it allows you to slide large decals into position with ease. Once the decal is in place, just blot out any air bubbles and excess fluid. The mixture dries to a permanent adhesion. As you can see by the size of the decals I used, this stuff really came in handy. Sticker-On is a modeler's dream.

With the decals in place the final step was to trim the sponsor logos so it appears the body is pieced together. With my trusty Parma pen in hand I finished up with detail work on hood lines and fine outlines of each body section. A small flexible straight edge is a great aid. It will conform to the contours of the body.

Starting with an interesting idea, a little time and patience can only lead to very satisfactory results. The end reward will be a sense of accomplishment along with all the positive comments from spectators and fellow racers.

The final judgment of my project was: disqualification in the concours contest. The reason: I was only allowed one body entry per chassis. Just kidding! My main goal was to create a very unique body and gained a little more experience along the way. I'd say it was a definite success! So until my next major brainstorm. Remember, it's a hobby. Experiment with it. Learn from it and most of all, have fun with it!

PRODUCT SOURCES:

Autographics, 7401-1 White Lane, Bakersfield, California 93309.

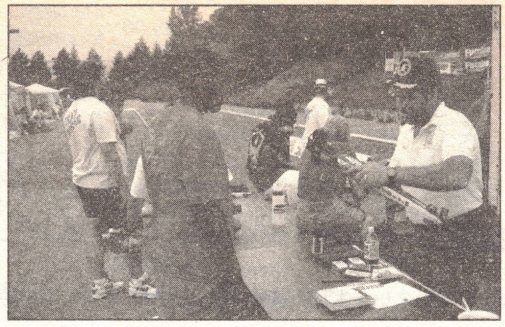
Protoform, Box 456, Beaumont, California 92333. ●

IEDA'S BEST FACE OFF AT KIM'S

IEDA GARDEN STATE NATIONALS

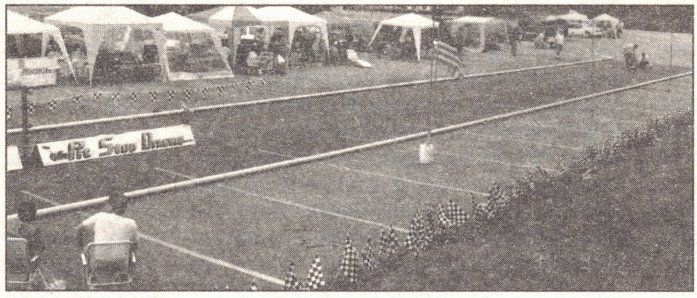


Jeff Dubiel and his national record-breaker Dragworks Super Stock car.

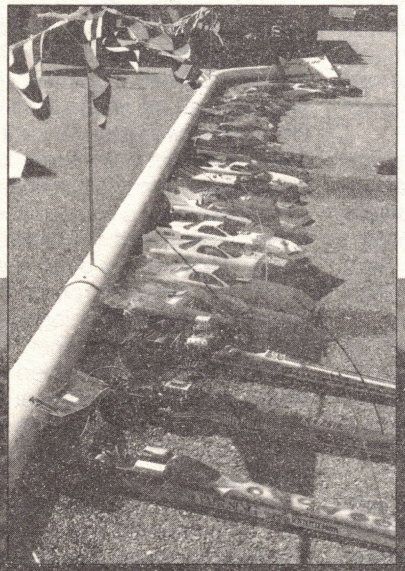


A.D. Rigmaiden's Alcohol Dragster being checked by Rich Roth after a record run.

The pits at the Nationals.



Concours competition.

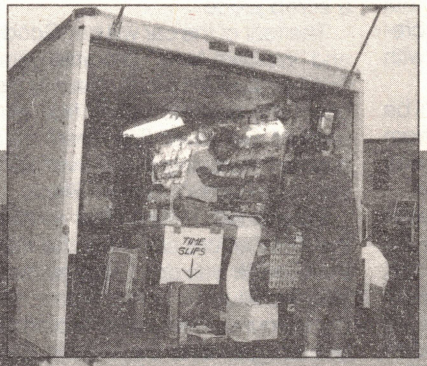


BY JEFF DUBIEL

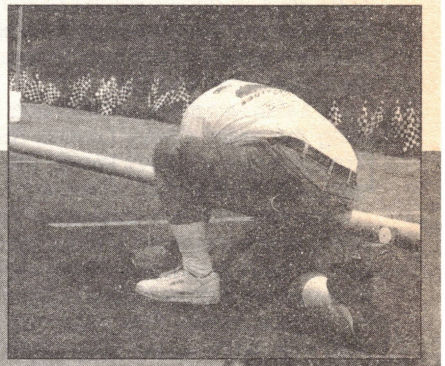
The third weekend in September is a busy one in beautiful Pennsylvania and neighboring states as the NHRA's Keystone's Nationals are held in Reading, Pennsylvania, the Big Indycar bash takes place in Nazareth, Pennsylvania and the annual Nascar Dover Budweiser 5OO, is run in nearby Dover, Del. But there is yet another race of equal importance that weekend contested in the beautiful suburb of neighboring New York city, Totowa, New Jersey, the IEDA's Garden State Nationals. Here over 60 of the nations top RC racers converge to test their skills on the 10th-scale quarter mile in the quickest and fastest of all RC Sports, drag racing, IEDA style!

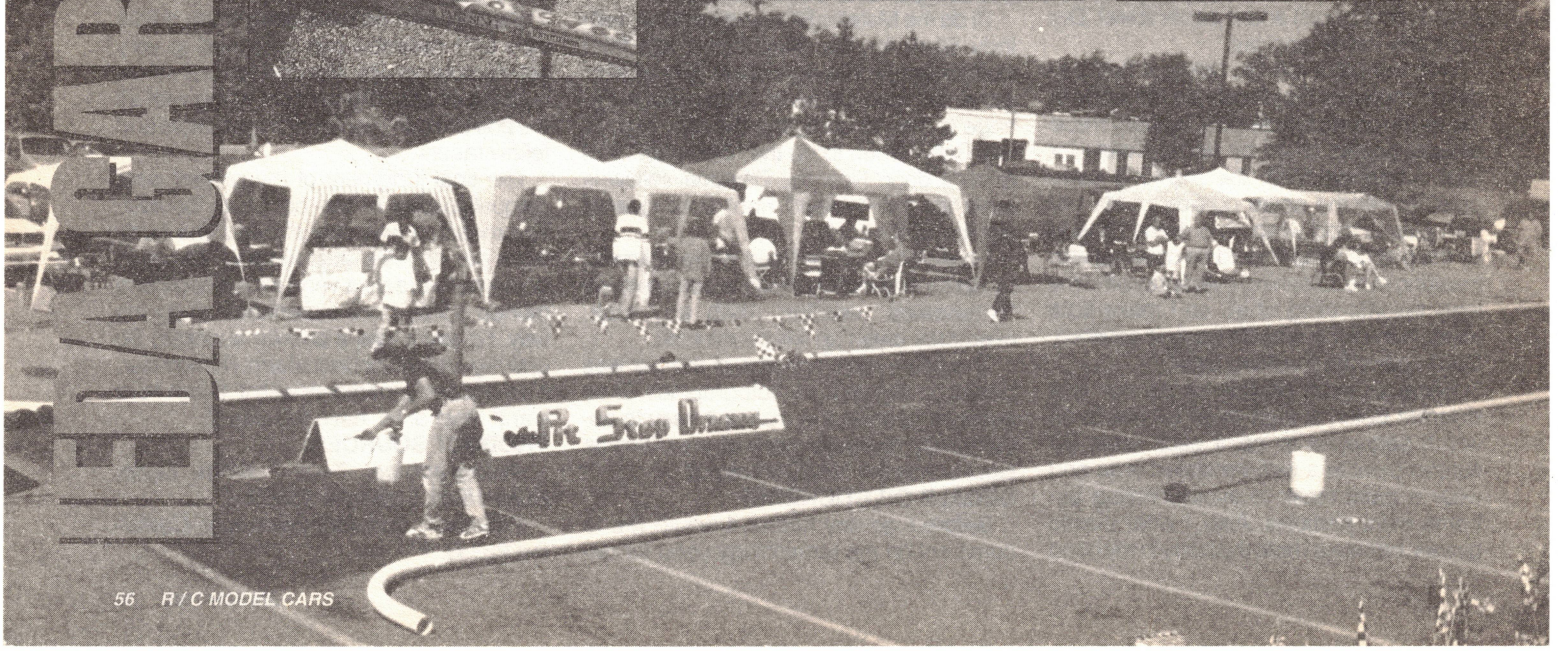
This year, the Garden State Nationals, formally the Big Buck Nationals, attracted drag racers from all over the U.S. with teams from Minnesota, Chicago, The Carolina's, Maryland, Virginia, New York, New Jersey and Pennsylvania attending the three-day showdown, at Kim's Pit Stop Dragway in Totowa, New Jersey. The track, one of the original IEDA facilities is set in a parking lot of a local corporate facility with 24-hour television surveillance, and super

Kim's timing tower and pit stop—it's mobile!



Bob Smith readies his Funny Car for a qualifying run.





BOCA BEARING
Miniature Bearings Specialists
For R/C cars, trucks, boats, planes & helicopters

Largest Inventories of Miniature Bearings for Remote Control Models

- 3 Complete Product Lines
  - Premium Ultra-Seal frictionless sealed maintenance-free bearings
  - Econo-Power bearings, precision engineered for strength and durability
  - High Speed, high heat engine bearings
- Huge Inventory of Standard U.S. and Metric Bearings
- Low Prices, Fast Delivery
- Toll-Free Number for Easy Ordering
- Dealer Programs Available

NEW
ULTRA SEALS
FRICTIONLESS SEALED MINIATURE BALL BEARINGS
Available in Metric & Inch sizes

Gives you the Winning Edge
"SECRET WEAPON"
A new line of miniature bearings built to the highest tolerances in the industry. Available in all the most popular inch sizes

FREE
$1.00 Trade Up Bearing Coupons
Trade in your worn out wheel bearings for $1.00 Coupons.
Coupons good towards purchase of ULTRA-SEAL or SECRET WEAPON 4 Pcs Wheel Kits.
Send us as many bearings as you like, along with $3.00 for catalogs and details for redemption.

QUALITY BEARINGS GREAT PRICES!
VISA MasterCard

BOCA BEARING
SEND $3.00 FOR CATALOGS
7040 W. Palmetto Park Road, Suite 2304MC, Boca Raton, FL 33433
407-998-0004 • Fax: 407-998-0119
Call Free • Canada • Mexico • USA • 1-800 -332-3256
FAX Free • Canada • Mexico • USA • 1-800-409-9191

smooth asphalt with a reputation for national record runs. This year would again prove that Kim's Pit Stop produces some of the IEDA's quickest and fastest runs.

Most of the racers got set up Friday evening. The track cannot be opened until the employees of the company that owns the lot have left for the weekend, as the racing surface itself is their regular parking lot. When we arrived Friday afternoon many of the company cars still covered the track. Once the track was cleared and pit facilities were set up, racers started testing the track, unfortunately discovering that the racing surface proved to be too damp to get traction down successfully. Attempts to dry the 133-foot racing surface by driving full-size cars onto it proved futile and meaningful practice runs would have to wait till Saturday morning when sunshine would aid in the drying process of the sugar water traction compound sprayed on the racing surface.

SATURDAY WE RACE

Saturday dawned a beautiful day and the breakfast canteen truck proved to be real popular stop for hot coffee, dougnnuts and a hearty breakfast enjoyed by many of the contestants. The truck stopped at the track three to four times a day at meal times and in-between to supply the many drag races with food for the long weekend battle. It was a nice touch and a welcome arrival each time it stopped. The Pit Stop is unique in that a converted rental truck is used as the control tower, and as a hobby shop for racers parts as well as a pit area for Tony Frank. On one side of the track was a big manufacturers' billboard, racing flags, Old Glory and portable lighting for the night qualifying session. The other side has a giant pit area covered with each team's colorful tents, banners and portable generators. Some racers charged their RC cars directly from their own full-size car batteries, electing not to rent the heavy, gas-guzzling, noisy generators. The car batteries are great for most applications unless you need lighting and power for soldering irons, etc. We found that our Team Pennsylvania generator used a little less than five gallons of gas for the 10-hour long day, and was definitely required for the lights, power supply, tire truers, soldering irons and chargers we used.

Tony Frank coats the track with sugar water from the motorized timing tower.



Dan Boyle with his Top Fuel Funny Car prepares for a nighttime qualifier.



Saturday qualifying saw a new national record set for Super Stock E.T. and mph as Jeff Dubiel pushed his beautiful new Andy's Super Stock Bodied Cutlass Dragworks car to a best of 3.067 E.T. at 40.80 mph on his last timed qualifying attempt under the lights Saturday night. The actual E.T record was a 3.101 as the quick 3.067 run was too quick to get the backup required. Jeff came back to try and set the record in the two-second range but his apparently super-quick run got a disappointing "No Time" from the tower, and Jeff had to wait for another day to try and lower the record. This was the first race for the new Dragworks car and it proved its potential using the trick new body and revolutionary chassis by Dragworks. The best time of the second-place qualifier, gave some indication of the cover Jeff had on the field as runner-up qualilier, Bob Smith could manage only a 3.24 time. The old national record was a 3.19 set in Minnesota by previous E.T. record holder and Carolina Dragway track owner Corbitt Marshburn, who ap-

Jeff Dubiel and his trophies for Super Stock and Econo Rail.



parently had problems with his Carolina Dragway Super Stock here this weekend.

Jeff Dubiel again was the Low Qualifier, this time in Econo Rail as he posted the quickest time of 2.80 over second-place national record holder Bobby Rackley from Clinton, North Carolina in this seven-cell, handout motor class. Jeff runs a LightZ Dragster in this class. This is the same model dragster that

continued on page 69

to the finish line. Brian takes the quad jump a little farther than usual, and gets sideways on the landing. Mark takes the quad jump in his normal manner, cuts the corner tight, and beats Brian to the finish line by one foot, winning the race and the World Cup Championship! The crowd went wild! Unbelievable!

THIRD ELECTRIC A-MAIN

The Race Director wanted Mark not to run the last A-main so he couldn't have any influence on its outcome. But, Mark had already decided not to run. It seems there's no love lost between Brian and Jeremy. This would be an interesting race.

Brian took the lead with Jeremy to his rear bumper. Brian went over the quad jumps okay, but turned a little tight for the next corner, got a little sideways and got tagged by Jeremy, who took the lead. But then Jeremy immediately rolled it over the big jump, giving the lead back to Brian.

Brian held off Jeremy the next three minutes with Hodapp third, and Derek Furutani passing Mike Weed to take over fourth. Brian then rolled it coming off of the big jump and Jeremy took the lead again. But then, on the same lap, Jeremy cut a corner too tight and got hung up on a cone marker, giving the lead back to Brian.

Jeremy closed back in on Brian, and as they started onto the straightaway, Brian got a little wide, with Jeremy taking the inside and passing Brian. Then they tangled in the corner off of the straightaway, and Hodapp took the lead. Jeremy got away in second, while Brian was on the grass hitting a cement block. Hodapp immediately rolled it on the big jump, with Jeremy going on by to take the lead and the win.

GAS A-MAIN

The Gas A-main would be 45 minutes long. Tire changes were not allowed, though one single tire could be changed during the 45 minutes, in case a tire got cut.

We were running the O.S. Max CZ-Z

continued on page 66

1994 NORRCA WORLD CUP TRUCK CHAMPIONSHIPS

GAS TRUCK A-MAIN RESULTS

PLACE	DRIVER	TRUCK	ENGINE
1	MARK PAVIDIS	RC10GT	OS MAX CZZ
2	BRIAN KINWALD	LOSI PROTOTYPE	
3	RICHARD SAXTON	RC10GT	
4	TIM BUMP	RC10GT	
5	GIL LOSI JR	LOSI PROTOTYPE	
6	DEREK FURUTANI	RC10GT	
7	JON ANDERSON	LOSI PROTOTYPE	
8	JASON RUONA	RC10GT	
9	SCOTT HUGHES	RC10GT	
10	JACK JOHNSON	LOSI PROTOTYPE	

GAS TRUCK B-MAIN

1	B J CHRISTENSEN
2	AUSTIN DVORAK
3	JAMIE BOOTH
4	DEREK LAMB
5	JENNY BUMP
6	MIKE BILLS
7	JAY HALSEY
8	EUSTACE MOORE
9	AARON TAYLOR
10	ROY POWELL

FIRST ELECTRIC A-MAIN

1	MARK PAVIDIS
2	JEREMY KORTZ
3	BRIAN KINWALD
4	JASON RUONA
5	DEREK FURUTANI
6	SCOTT BROWN
7	MIKE WEED
8	SCOTT ROBERTS
9	JIMMY BABCOCK
10	GREG HODAPP

2ND ELECTRIC A-MAIN

1	MARK PAVIDIS
2	BRIAN KINWALD
3	JASON RUONA
4	GREG HODAPP
5	JEREMY KORTZ
6	DEREK FURUTANI
7	SCOTT BROWN
8	JIMMY BABCOCK
9	SCOTT ROBERTS
10	MIKE WEED

THIRD ELECTRIC A-MAIN

1	JEREMY KORTZ
2	BRIAN KINWALD
3	GREG HODAPP
4	DEREK FURUTANI
5	SCOTT BROWN
6	JIMMY BABCOCK
7	MIKE WEED
8	SCOTT ROBERTS
9	JASON RUONA
10	MARK PAVIDIS

OVERALL RESULTS, 3 A-MAINS

PLACE	DRIVER	CAR	MOTOR
1	MARK PAVIDIS	RC10T	REEDY
2	JEREMY KORTZ	XXT	PEAK
3	BRIAN KINWALD	XXT	TRINITY
4	JASON RUONA	RC10T	REEDY
5	GREG HODAPP	XXT	PEAK
6	DEREK FURUTANI	RC10T	REEDY
7	SCOTT BROWN	XXT	PEAK
8	JIMMY BABCOCK	XXT	
9	MIKE WEED	XXT	PEAK
10	SCOTT ROBERTS	XXT	PEAK

GAS TRUCK A-MAIN RESULTS

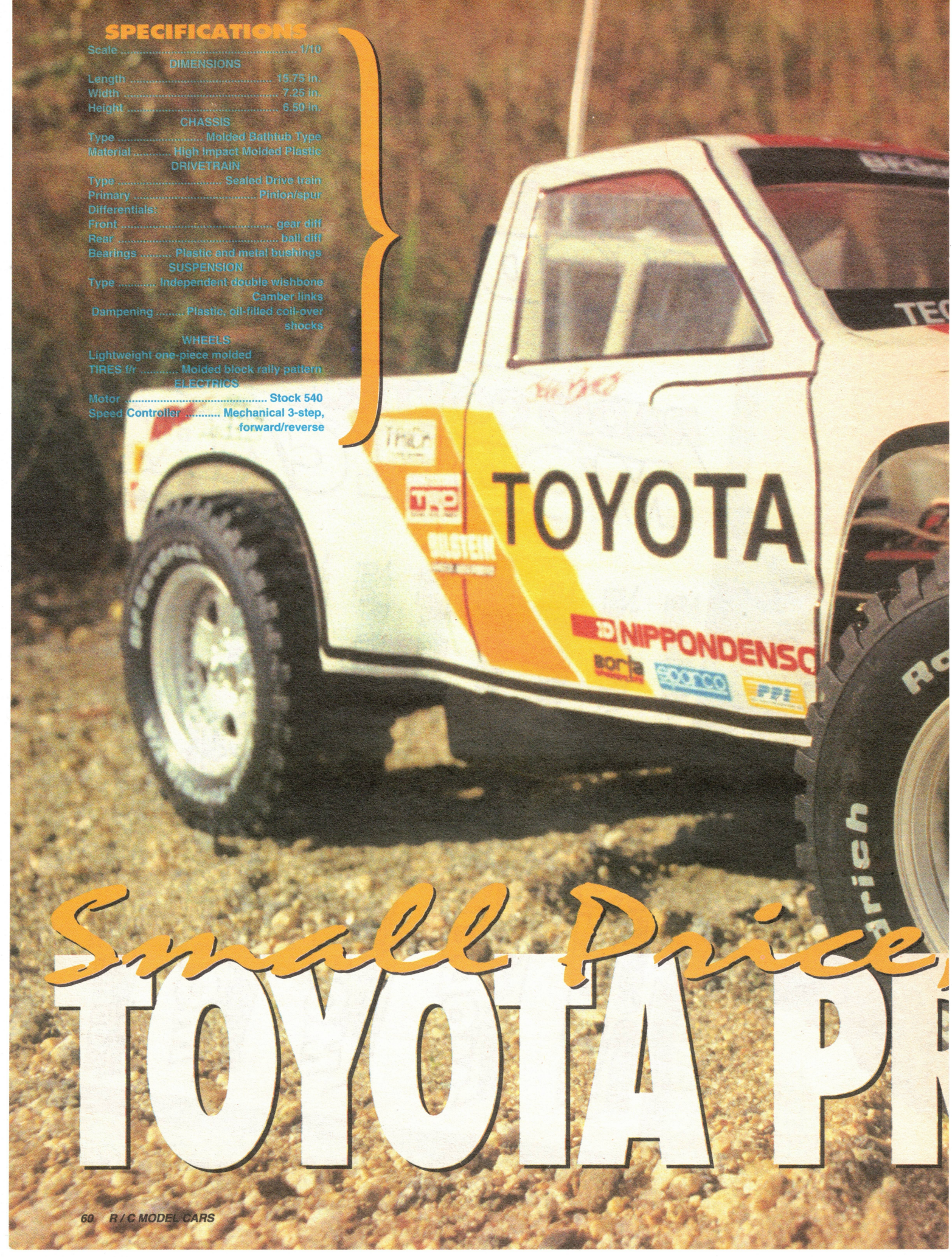
PLACE	DRIVER	TRUCK	ENGINE
1	MARK PAVIDIS	RC10GT	OS MAX CZZ
2	BRIAN KINWALD	LOSI PROTOTYPE	
3	RICHARD SAXTON	RC10GT	
4	TIM BUMP	RC10GT	
5	GIL LOSI JR.	LOSI PROTOTYPE	
6	DEREK FURUTANI	RC10GT	
7	JON ANDERSON	LOSI PROTOTYPE	
8	JASON RUONA	RC10GT	
9	SCOTT HUGHES	RC10GT	
10	JACK JOHNSON	LOSI PROTOTYPE	

R/C MODEL CARS DECALS ARE HERE!



Now you can show your true allegiance to the Number One R/C car magazine with these brilliant new pressure-sensitive decal sheets. Each large 7 x 10-inch sheet has four sizes of ***R/C Model Cars*** logos in full color, ready to stick on your car, truck, or toolbox. Get yours now! Only $2.50 a sheet, including postage and handling, direct from ***R/C Model Cars*** magazine.

Order now: Send $2.50 by check or money order to: Decal Deal, c/o *R/C Model Cars*, 34249 Camino Capistrano, Capistrano Beach, California 92624.



SPECIFICATIONS

Scale 1/10

DIMENSIONS

Length ..... 15.75 in.
Width ..... 7.25 in.
Height ..... 6.50 in.

CHASSIS

Type ..... Molded Bathtub Type
Material ..... High Impact Molded Plastic

DRIVETRAIN

Type ..... Sealed Drive train
Primary ..... Pinion/spur
Differentials:
Front ..... gear diff
Rear ..... ball diff
Bearings ..... Plastic and metal bushings

SUSPENSION

Type ..... Independent double wishbone
Camber links
Dampening ..... Plastic, oil-filled coil-over
shocks

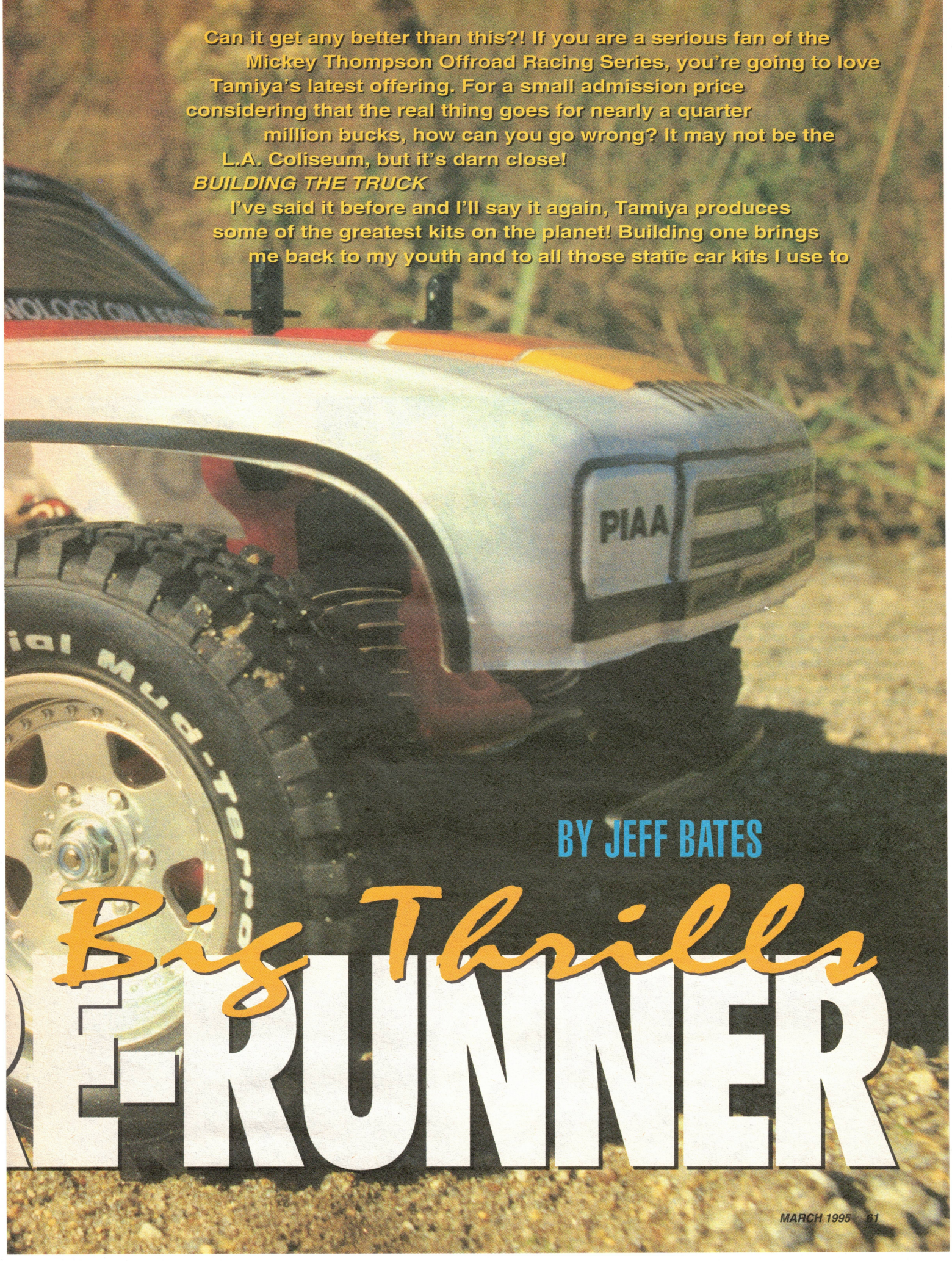
WHEELS

Lightweight one-piece molded
TIRES f/r ..... Molded block rally pattern

ELECTRICS

Motor ..... Stock 540
Speed Controller ..... Mechanical 3-step,
forward/reverse

Small Price TOYOTA PR



Can it get any better than this?! If you are a serious fan of the Mickey Thompson Offroad Racing Series, you're going to love Tamiya's latest offering. For a small admission price considering that the real thing goes for nearly a quarter million bucks, how can you go wrong? It may not be the L.A. Coliseum, but it's darn close!

BUILDING THE TRUCK

I've said it before and I'll say it again, Tamiya produces some of the greatest kits on the planet! Building one brings me back to my youth and to all those static car kits I use to

BY JEFF BATES

Big Thrills RE-RUNNER



The venerable TA02 chassis is the mainstay of the Tamiya four-wheel drive series. Much has been said of its solid design, plus there's a ton of aftermarket products for every budget.

build and try to figure out how to motorize. Let me clue you in on something: save yourself the aggravations and get yourself a Tamiya Kit! The versatility of the basic chassis layout and drivetrain makes for some pretty cool variations. One of their latest rides is based on the highly popular Toyota Grand National Racing Truck driven by Ivan Stewart in Mickey Thompson's Offroad Stadium Racing Series. There's no secret as to how to put one of these things together; the instructions, parts bags and building techniques are tops. If you've been to a hobby store lately (or better yet, reading up on the latest industry happenings in *R/C Model Cars!*) you'll see that Tamiya has introduced a ton of new two- and four-wheel products which coincidentally, fit right into their marketing scheme for their hugely successful Championship RC Racing Series. Since this is there first venture into the Stadium Truck arena, is a racing class far behind? Since the Toyota utilizes Tamiya's popular "TA02" 4-wheel drive chassis with independent suspension, there

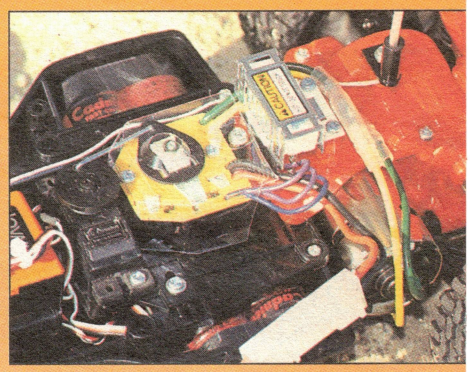
continued on page 69



Oil-filled coil-over plastic shock bodies are standard fare along with metal dogbones and output shafts. The front gearbox consists of a propeller joint and counter gear setup which is connected to the rear diff by a steel propeller shaft. Power transfer is smooth and consistent.



The rear gearbox houses a true ball diff that is adjustable through the output shaft. Power is supplied by a stock Mabuchi 540 motor which was surprisingly quick.



The three-step mechanical speed control was used for the road test but it would be good advice to upgrade to a budget electronic speed control (ESC) when funds permit. Be careful of the ceramic heatsink, it gets pretty hot!



Hot Rides to Hot Rods!

and everything in between!

Parma International is first when it comes to a total line of lexan bodies, radio control car kits and after market hobby & race components for the world's most popular radio controlled cars & trucks.



1/10 Dodge Ram Oval Racing Truck
Clear Body #99041

1/10 Dodge Ram Truck
Clear Body #10388

1/10 Dodge Ram Truck Kit
#15120

PARMA/PSE produces all types of racing bodies from Indy cars to Euro Sedans like this **BMW M3 GTR**.



1/10 BMW M3 GTR
Clear Body #10355

1/10 Hemi Coupe Kit
w/Hemi Motor #15080



1/10 '29 Roadster Kit
#15110

Our **Motors** range from stock to hand wound modifieds!



1/10 '95 S.S. Monte Carlo
Clear Body #99027



Custom Paint by Dale Douglas.

PSE Thor Dyno
#99050



Racers demand speed and performance.

The **PSE** line of racing products now includes the **PSE Thor Dyno**.

It is the first motor/chassis dyno available! It measures power output at the cars rear wheels, not just from the motor shaft. **Thor** factors in gear ratio and tire diameter at the same time. No more guess work finding gear ratio.

Prepare to Win!

PARMA/PSE offers a total selection of tires for the hobbiest to the full fledged racer, all of which are included in our **NEW** catalog.

National Champion
PSE Rocket Sprocket Spur Gears

- Injected from virgin nylon
- Lightest weight
- 48 & 64 pitch
- Totally affordable

National Champion
PSE Lightweight Pro Pinions:

- Machined from solid aircraft aluminum
- Advanced Polymer Coating: the hardest, longest wearing, lowest friction coating available
- 48 pitch - 12 to 35 tooth
- 64 pitch - 18 to 45 tooth



America's Choice!

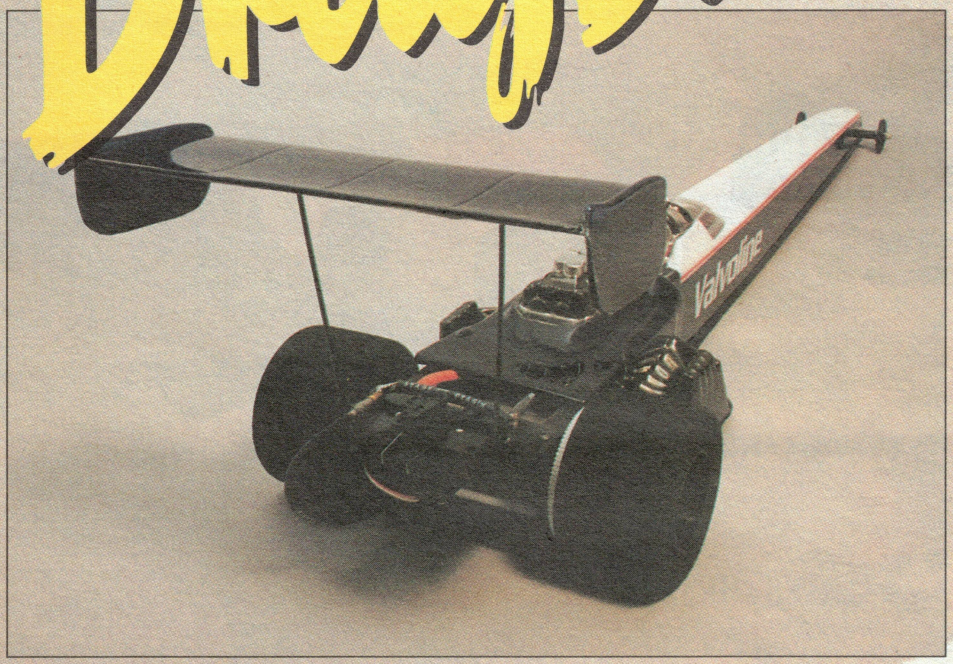
PARMA **PSE**

Send $2 for a NEW '95 Catalog to: Parma International Inc. 13927 Progress Parkway • North Royalton, Ohio 44133

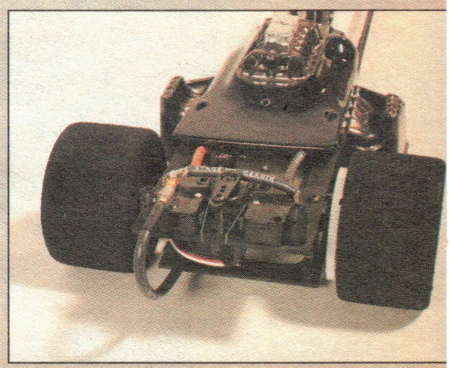
BUILDING LOCKMANN'S Top Fuel Dragster

In the world of RC drag racing, you don't find big companies making constant product announcements that will revolutionize the sport. In fact, very few cars have entered the market during its history. There is, however, continuing development. One innovative manufacturer, Lockmann Precision, hav-

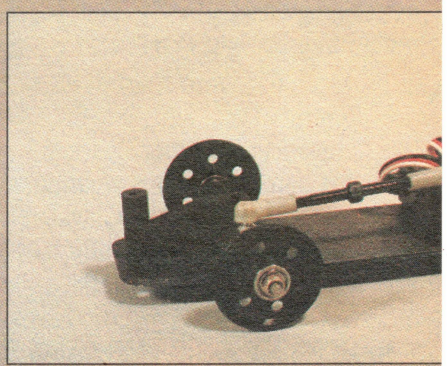
continued on page 66



Long and slender Protoform body mounted on the Lockmann Precision body.



Micro switch setup using a Futaba S133 servo.

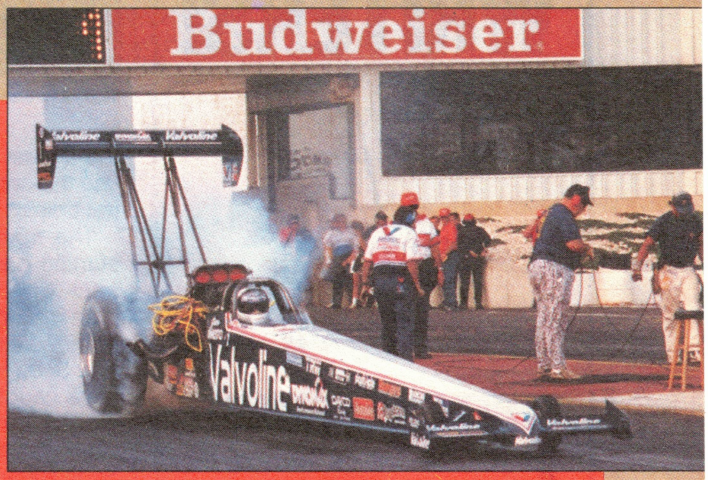




Lockmann Precision chassis race ready.

BY RICH LACHARITE

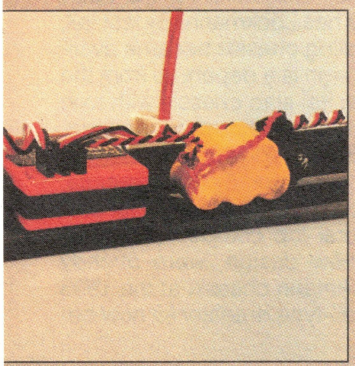
AMATO'S MACHINE



Joe Amato's Valvoline-sponsored Top Fuel car is familiar to anyone who follows drag racing. His first national event win came at the 1979 Gatornationals in Pro Comp. By 1981, Joe moved up to Top Alcohol and scored three national titles. Then, in 1983, he established himself as a serious competitor in Top Fuel with three national victories. Now, with 36 national event wins, Joe Amato remains as the only five-time (1984, 1988, 1990, 1991, 1992) NHRA Winston World Champion in Top Fuel.

To recover from the worst season (finishing seventh) in his 11-year Top Fuel career, Joe made several changes for 1994. Jimmy Prock, former crew chief for Cory McClenathan, joined the Valvoline team. Much of Jimmy's success was with a Hadman chassis, TFX block and Veney cylinder heads, so it was time to change the long-term combination of Amato's car. The changes have proven worthwhile. Improved performance and consistency put Joe's Valvoline racer in fifth place with 10,244 points at season's end.

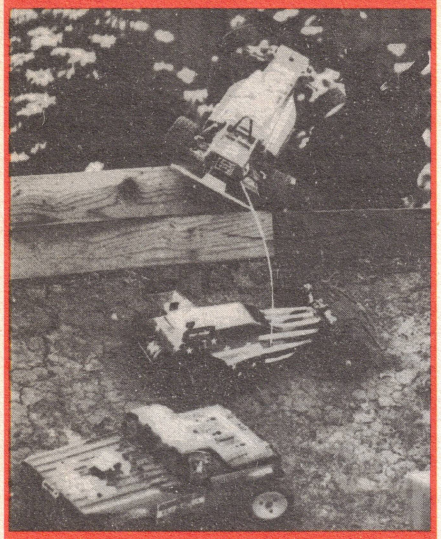
As successful cars leave their mark in racing history, many are reproduced in model form. Within the limitations of 1/10-scale RC racing, a reasonable copy is possible. As you can tell by the specifications, the cars are very similar—Not! —*R.L.*



Pivot steering utilizing Futaba S133 servo with Novak FM receiver and battery pack.

Design and Build Your Own
OnRoad or OffRoad Race Track
Indoor or Outdoor
Backyard or Hobby Shop

TrackPak II™ $18.95



RACE AMERICA
PO Box 3469
SANTA CLARA, CA 95055
(408) 927-6064

WRITERS!



PHOTOGRAPHERS!

If you are one or both of the above, we're looking for you! Requirements include a knowledge of RC cars with the ability to write feature reviews clearly and concisely. Photographic ability is a definite plus, as the ideal candidates will have the opportunity to supply excellent color and black and white photography to illustrate feature articles.

If you can fill the bill, contact the editor at RC Model Cars, 34249 Camino Capistrano, Capistrano Beach, California 92624.

WORLD CUP CONTINUED FROM PAGE 58

engines in our RC10GT trucks, and Curtis Husting had set up all our engines on the asphalt parking lot behind our building. They seemed to be running quite strong. When we got to the track, we found out they were too fast, making them hard to drive. We had made some carburetor inserts to cut down the carb throat intake area, and we kept putting smaller and smaller inserts in the carbs, until Mark said the truck was now good. He must have known what he was talking about. Mark's fastest lap in his gas truck, was now identical to his fastest lap in his electric truck. It's the same kind of power tuning you do with electric motors. We don't always use the fastest electric motors we have, we use the correct motor to give us the best lap times.

The trucks were lined up in LeMans starting positions along the straightaway back wall, the fuel tanks were filled, the horn sounded and we were underway. Mark took off in the lead with Brian second and Scott Hughes third. On the next lap, Mark caught the same cone that Jeremy caught earlier, and Brian and Mark got stuck as Scott Hughes took over the lead. Scott's lead was short-lived as his truck was too lean and died on the straightaway.

Mark went back into the lead with Brian second, Richard Saxton third, Jason Ruona fourth and Derek Furutani fifth. Mark started opening up a lead over Brian, while Brian was pulling away from the rest of the field. There seemed to be a number of trucks dying when they rolled over, so there were constant position changes behind Mark and Brian.

Mark pitted at 7-1/2 minutes while Brian pitted at 8 minutes, then 8-1/2 and then 9 minutes. Mark stayed on the 7-1/2 minute schedule, because we didn't want to chance running out of fuel. This was a very large track, and it would be easy to lose a lap or two if you ran out of fuel.

Mark had opened up about a five-second lead, and it was still growing. Their only chance was to make one less pit stop than Mark, so that's what they were planning on doing, even though the last pit stop would be 10 minutes. That was cutting it close, but it worked.

After Mark made the extra pit stop, Brian was now within striking range and pushing hard. But, Mark held him off and continued to pull away, opening up a straightaway lead at the end, taking the win, with Brian second, Richard Saxton third and Tim Bump fourth.

An interesting side note was that the tires not only lasted the whole 45 minutes, but that the trucks were still turning fast times at the end. It was also interesting to see these drivers that were used to running four minutes, after the 45-minute main. They said they lost all the feeling in their fingers and legs. •



Trying to sort out an electric class scramble.

DRAGSTER CONTINUED FROM PAGE 64

ing already established itself as a manufacturer of quality parts, has recently introduced its Top Fuel Rail Dragster.

Beginning over three years ago, Lockmann began producing lightweight front wheels for dragsters. As the sport has grown, so has Lockmann. By last fall, a complete rolling chassis became available. Their design is a departure from the more common flat slab chassis with axle blocks and square motor pod attached. Veteran RC dragster driver, Tim Smith, is given credit for major design features, while Lockmann made it practical for production. Several top competitors, confident in the new design, were already using the Lockmann chassis at the 1993 Worlds. The rail-type dragster kit now be-

ing offered includes a body and wing.

Anyone not familiar with drag cars will be surprised at how simple they are to build. Lacking a differential and suspension makes assembly and maintenance quick and easy. With only one-and-a-half pages of instructions, the Lockmann dragster is no exception; it's fast right out of the box.

GETTING IT TOGETHER

Assembly begins with the rear pod. Two aluminum motor mounts are attached to the main chassis, which is a similar material to that found on other quality RC race cars. Both pod uprights are identical, so there is no problem swapping the right one with the left. When using a larger-than-standard .05 motor, the uprights can be reversed to provide more room. Clearance is at a minimum in order to keep the motor centered and the wheel track as narrow as possible. Bottom screws are countersunk to prevent snagging on the track surface.

The pod is topped off with a switch plate. This unique design allows for a servo and micro switches to be mounted behind the motor. A proven method for maximum traction is to place the bulk of the weight (i.e., batteries) immediately in front of the rear wheels. Without this setup, these items would have to compete with the batteries for space, usually resulting in more forward weight. Also, this design helps keep wires short for less resistance. Of course, the rear deck provides a place for those who prefer to use a speed controller.

Next comes the axle. The lightweight carbon fiber shaft is supported by bearings and held by ride-height adjusters. To maintain minimum ground clearance with variable tires (due to truing and/or wear) height adjustment is a necessity. Some minor filing was required to fit the adjusters to motor pod. You must supply your own spur gear, since the motor you intend to run will determine gear size. Axle spacers are provided, so the room taken by spur can be duplicated on the other side. Matching T-6 aluminum clamping hubs are slid over the axle and secured by hex-head screws. Use of clamping hubs does not require filing and aligning a flat spot on the axle. The instructions warn that the hubs fit very tight and caution be used not to damage them or the axle.

The chassis stiffener is then attached. Unlike a flat slab chassis that sags from weight spanning the long wheelbase and usually depends on support from the battery pack or body, this design is much stronger. Chassis tweak can also be adjusted using the stiffener. An occasional check that everything is straight and tight will guard against any unwanted tweak, especially after a traditional crash and burn. Batteries can be well secured around the stiffener and held straight, to prevent side-to-side weight imbalance.

A pivoting Delrin front axle comes preassembled and is mounted with two screws. Although pivoting does not work well on other cars, it has been proven effective on narrow dragsters not requir-

DIRECTORY of DRAG RACING CLUBS AND ASSOCIATIONS

ARIZONA
G&S Hobbies
967 Hancock #17
Bullhead City, Arizona 86442
Bob Olsen (602) 758-1100

Hobbytown USA
1915 E. Baseline Rd.,
Gilbert, Arizona
Rob Zoeller (602) 598-5282

CALIFORNIA
Northern California Drag Assn.
Sunnyvale, California
Mitch Williamson (415) 966-1681

Penfield Raceway
Chatsworth, California
Al Herbst (818) 407-0633

COLORADO
Miracle RC Speedway
4206 Wadsworth Blvd.
Wheatridge, Colorado 80034

CONNECTICUT
K&N RC Speedway
55 W. Street
Box 35
Stafford Springs, Conn. 06076

FLORIDA
Drag Racing Club
Ft. Meyers, Florida
Steve Ralston (813) 369-8892

Southwest Florida RC Speedway
1920 Elsa
Naples, Florida 33942
(813) 597-6866

HAWAII
Windward Hobby
Kaneohe, Hawaii
(808) 247-7720

Hawaii Electric Drag Racing Club
Pearl City, Hawaii
Mark Silva (808) 455-4824

ILLINOIS
Windy City Drag Racers
David Goldstein
Lansing, Illinois
(708) 474-8120

IOWA
RC Dragway
Des Moines, Iowa
Bill Gorrell (515) 263-8581

LOUISIANA
The Hobby Shop
Sulphur, Louisiana
(318) 583-4082

MARYLAND
Maryland RC Dragway
7901 Poplar Hill Dr.
Clinton, Maryland 20735
(301) 856-8326

MINNESOTA
Northstar RC Dragway
14056 Junkite St. N.W.
Anoka, Minnesota 55303
(612) 427-8648

NEVADA
Taylor Motor Sports
1027 S. Rainbow #364
Las Vegas, Nevada 89128
(702) 878-4374

NEW JERSEY
Kim's RC Pit Stop
357A Union Blvd.
Totowa, NJ 07512
(201) 942-5955

NEW MEXICO
Four Corners RC Drag Racing
Farmington, New Mexico
Bob Clark (505) 310-0473

Hobbytown USA
Famington, New Mexico
(505) 325-5156

NEW YORK
Brooklyn Q-Scale Drag Assn.
Brooklyn, NY
Bob Curto (914) 668-0843

Northside RC Speedway
2550 Two Mile Creek Rd.
Tonawanda, NY 14150
(716) 875-3435

RC Drag Racing Assn.
Monticello, NY
Ronald Hodgson (914) 796-2277

NORTH CAROLINA
Carolina Dragway
907-C Warsaw Rd.
Clinton, NC 28328
(919) 592-9489

Winston RC Drag Assn.
Winston-Salem, North Carolina
(919) 983-9416

PENNSYLVANIA
Pro Challenge Raceways
23 S. Highland Ave.
Lansdowne, Pennsylvania 19050
(215) 622-7651

Tri-State Electric Drag Racing Club
138 So. Springfield Rd.
Clifton Heights, Pennsylvania 19023
(610) 586-4817 (after 5:00 p.m.)

PUERTO RICO
Juncos RC Dragway
Farjado RC
Bayamon RC Speedway
Caguas RC Drags
(Rotating Schedule)
Miguel Valentin
(809) 887-3723

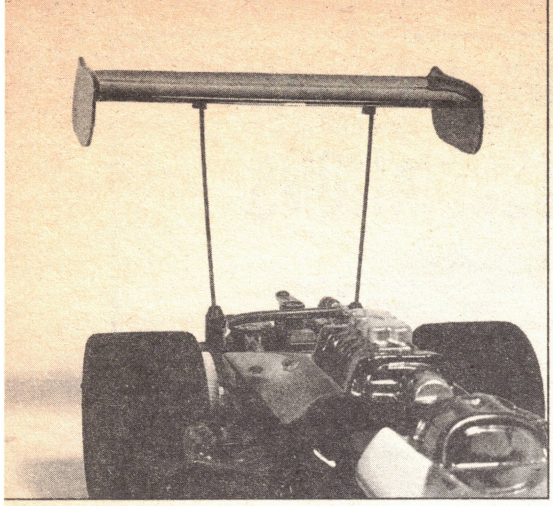
SOUTH CAROLINA
Hobbies and More
1570 S. Main St.
Darlington, South Carolina 29532
(803) 393-0355

Sidewinder's Raceway
North Charleston, South Carolina
Jimmy Closson (803) 863-9032

VIRGINIA
Tempest Productions
Fairfax, Virginia
Rick Blouin (703) 263-9464

CANADA
SOAR
Sudbury Organized Auto Racing
Hanmer, Ontario Canada
(705) 969-5044

Note: If you know of a drag club or track that should be listed here, send the information to the Editor at RCMC, Box 2459, Capistrano Beach, California 92624. If you sell drag racing-related parts and equipment, we'd like to hear from you too.



Protoform's Low Drag Wing.

ing much steering. Not only is the whole steering assembly light, but it allows the steering servo to be placed farther back without the added weight of a bellcrank. Due to its simplicity, maintenance is quicker and easier. The only drawback may be the total lack of suspension to absorb minor bumps or vibration from the racing surface.

Wheels are then added to get everything rolling. In the front are Lockmann's composite wheels with O-ring tires already mounted. The kit contains black wheels, but white ones are also available. Lockmann does not make their own rear wheels, but includes CKW foams mounted on HPI wheels with the standard (for drag racing) two-bolt pattern.

The new Protoform "Top Fuel I" body tops off the chassis, offering a good compromise between appearance and function. While meeting the IEDA requirements for an exposed scale motor, true-to-scale side air deflectors are molded-in, making the exhaust headers more aerodynamic. The body is slender and well proportioned but lacks an engine air scoop and decorative front wing.

ADDING THE BODY

There are three common methods for attachment of a body. The post and clip method is easy, but loses in both aesthetics and aerodynamics, while the Velcro method is hidden, but allows the body to break loose in a crash. Lockmann secures the body with two screws and claims there is less chance of crash damage when the body remains attached. Adding to the inconvenience, the screws are different sizes, requiring two different hex wrenches. The mounting method can easily be modified to suit individual preference.

A Losi wing finishes the kit. The polycarbonate unit comes complete with wing buttons and pre-bent wire and is attached to wing mounts at the rear of the switchplate.

The instructions, which include several photographs, are clear. A microswitch wiring diagram, parts list and tuning tips conclude the directions. It would have been nice to know in advance that the only tools necessary are four small hex wrenches. Although the rolling chassis is now complete, a novice could easily be intimidated by not knowing what else is needed to get racing. A list of additional items and several more photographs showing a typical setup would reduce any chance of confusion.

To complete the test car, typical items were used. Two Futaba S133 servos were chosen (one for steering and the other for micro switching) because of their micro size and weight. A Novak FM receiver, Novak five-cell receiver pack and a Paragon antenna handled the signals. Two high-amp micro switches were connected to the Twister 9-turn single motor and Sanyo 1000mAH cells using Stage III Dragin' wire. Robinson 64-pitch gears completed the setup. Paragon's Ultralon was used to lubricate the bearings.

Due to my joining the Strokers with their busy handicap racing schedule, I turned the driver's seat over Corbitt Marshburn, fellow racer and owner of Carolina Dragway. Since my painter, Michelangelo, retired suddenly, Corbitt used Lockmann's advertising body (the one shown in *RCMC* ads) while another painter was located. Testing was done using a ten-cell battery pack, which provided enough power to determine handling characteristics while minimizing risk of crash damage.

Corbitt made no modifications to the chassis and added only medium Tire Bite to produce a 2.1-second test run on a 5:1 gear ratio. Subsequent runs were consistent. Alternate gear and tire combinations were not used since the test was to determine car handling and not whether the track record could be broken. Corbitt reported that the rail did handle well and tracked straight on every run.

There was, however, one complaint not related to performance. We both had difficulty accessing the motor for servicing. The motor pod is very tight, requiring the top motor pod plate to be loosened or removed when changing the motor. One racer at the track commented that he solved the problem on his Lockmann chassis by cutting out one side plate and installing a post, which provided enough room to angle the motor through the narrow passage.

The final body shown in the photos was painted by Master Hobbies. Pactra blue was darkened to match the color of Joe Amato's rail. The wing was replaced by Protoform's Low Drag Wing, a thin, two-piece airfoil that allows the wing mounts to be hidden inside, which is ideal for aerodynamics and appearance.

In summary, Lockmann Precision's Top Fuel Dragster is a quality product with a simple but effective design. The rigid chassis did not sag under the weight of batteries. Access to the micro switches was easy. Weight was at the minimum allowed by IEDA rules. The pivot steering was effective. Price is consistent with the other two major companies. The car has already proven itself with drivers like Tim Smith and Kent Vahlsing. If you are serious about performance, Lockmann Precision may be in your future.

PRODUCT SOURCES:

Futaba Corp. of America, 4 Studebaker, Irvine, California 92718.

Lockmann Precision, 17344 Eucalyptus, Unit 1-B, Hesperia, California 92345.

Master Hobbies, 565 Main St., Leicester, Massachusetts 01611.

Novak Electronics, 18910 Teller Ave., Irvine, California 92718.

Paragon Racing Products, Dept. MC2, 340 Industrial Rd., Waconia, Minnesota 55387.

Protoform, 5455 Southwestern Blvd., Hamburg, New York 14075.

Robinson Racing Products, 4968 Meadow View Dr., Mariposa, California 95338.

Twister Motors, 657 East Arrow Hwy., Suite H, Glendora, California 91740. ●

TECHNICAL DATA

	AMATO RACING	STROKER RACING
Driver:	Joe Amato	Corbitt Marshburn
Chassis type:	1994 Hadman	1994 Lockmann
Weight:	2025 lbs.	36 oz.
Wheelbase:	300"	24.25"
Body Type:	Hadman	Protoform "Top Fuel 1"
Body Material:	Magnesium	Polycarbonate
Spray Paint:	Plastikote	Pactra
Painter:	Bob Sodano	Master Hobbies
Motor:	496 CID Hemi TFX	Twister 10T
Fuel:	Angus Nitromethane	Sanyo 1000 mAH
Ignition:	Mallory Super Mag (2)	Microswitch (2)
Wires & Plugs:	Accel & Autolite	Hardwired
Radio:	(none)	Novak NER-3FM
Lubrication:	Valvoline	Paragon Ultralon
Clutch:	ATF/Automan	(none)
Reverser:	Lenco	(none)
Wheels:	American Racing	HPI
Tires:	Goodyear	CKW Foam
Safety Equip:	Simpson	Radio Controlled

GARDEN STATE CONTINUED FROM PAGE 57

recently set the Land Speed Record in California at over 105 mph! It is also the rail A.D. Rigmaiden drove to another national record here this weekend.

The Twister-powered Lightz Dragster used by Rigmaiden set another new national record in the 16-cell Top Fuel Dragster class with an awesome 1.79 sec. blast! A.D. also ran a 1.76, but it also was too quick for the 1% back up, but nevertheless the fastest-ever pass in the class! This kind of E.T. was considered Top Fuel Unlimited time only a few short months ago! A.D. also just missed the Top Alcohol Funny Car E.T. mark with a 1.96, falling just short of Tom Vasi's run in Minnesota.

Terrance Holt again proved he's the king of Pro Stock and Alcohol Rail TQing both classes again, with his Cordite power, without much trouble. In Pro Stock Terrance ran a national record 1.957 E.T. at 65.55 mph, also a national record In Alcohol Rail, Terrance also lowered that mark to a national record 1.952 E.T. at another Record 68.18 mph. Four national records at one race!

Kent Vahlsing broke both ends of the Nitro Funny Car national record with a 1.861 E.T. at 71.77 mph! Kent also had the Unlimited Dragsters covered, winning that class.

In Super Truck, Tony Frank set both the National E.T. and mph, 2.038 sec. at 66.19 mph.

That makes a total of 14 national records set at this year's IEDA Garden States Nationals! An unbelievable mark not soon to be broken.

I must apologize for the lack of qualifying results and a full recap of Eliminations that I usually cover, but IEDA officials, after repeated requests for a copy of these results refused to send us a recap! Fortunately, there are rumors that another sanctioning body is being formed for RC drag racers consisting of RC drag racers, who want to get more involved. The new organization, to start in 1995, hopefully will cooperate with the media and the racers, reopening the lines of communication that have become nonexistent in recent months. This is something IEDA has failed to do.

On the other hand let's thank *RC Model Cars* Magazine for keeping us all up to date and involved with the only national coverage of our great sport. Now if we all had *RC Model Cars* decals we could show our appreciation!

NEW IEDA NATIONAL RECORDS AT GARDEN STATE NATIONALS

Super Stock E.T./3.101 Jeff Dubiel
Super Stock MPH/40.82 Jeff Dubiel
Super Truck E.T./2.038 Tony Frank
Super Truck MPH/66.19 Tony Frank
Pro Truck E.T./2.177 Tony Rudis
Pro Truck MPH/61 .42 Tony Rudis
Pro Stock E.T./1. 957 Terrance Holt
Pro Stock MPH/65.55 Terrance Holt
Top Fuel Funny Car/E.T. 1.861 A. D. Rigmaiden
Top Fuel Funny Car/ MPH 71.77 Kent Vahlsing
Alcohol Dragster/E.T. 1 883 Terrance Holt
Alcohol Dragster/ MPH 68.180 T. Holt
Top Fuel Dragster/E.T. 1.796 A.D. Rigmaiden
Top Fuel Dragster/ MPH 73.31 A.D. Rigmaiden •

SANDMASTER ST CONTINUED FROM PAGE 24

about the performance level of the O.S. .10 engine. After the obligatory handful of super-rich break-in runs, I loaded up the fuel cell with 20% nitro, cleaned out the carb and was totally floored by the power this guy turned out. This little sucker screams!!

Lap after lap, the truck threw up huge roosters tails to the delight of the few electric guys around the track. The Sandmaster ST was an absolute blast to drive.

After beating around my secret test track (sure hope Ace Construction never settles their strike!), I packed up the gear and headed to RC Madness in Enfield, Connecticut for a few hot laps. Having just hosted the ROAR offroad regionals, the track was in great shape for a test session. Keeping in mind that this is an entry-level ride, I still couldn't resist hammering on the ST. Lap after lap, the truck threw up huge roosters tails to the delight of the few electric guys around the track. Although a little short on the suspension side (save those pennies for the Equalizers), the Sandmaster ST was an absolute blast to drive.

If you're looking for an easy to operate, low maintenance, highly upgradeable, nitro-burning stadium race truck that can make huge power that won't break the bank, check out the latest offering from Kyosho, the Sandmaster ST.

PRODUCT SOURCES:

Kyosho/Great Planes, Box 9021, Champaign, Illinois 61826. (217) 398-6300.

Futaba Corp., 4 Studebaker, Irvine, California 92718. (714) 455-9888.

Dahm's Racing Bodies, Box 360, Cotati, California 94931. (707)792-1316. •

PRE-RUNNER CONTINUED FROM PAGE 62

is a ton of hot aftermarket products available from both Tamiya and HPI.

The kit comes with a mechanical step speed controller, large rubber knobby tires, coil-over plastic shock bodies, 540 Mabuchi motor and a real trick polycarbonate body (not to mention the two huge sheets of decals).

Since we're talking four-wheel drive, the rear differential utilizes a more advanced ball diff gearbox while up front, a conventional bevel gear unit is supplied. The two drive units are mated together by a center mounted propeller shaft which mounts into plastic drive cups. Since construction is based on modular design, it only takes a couple of screws to secure the completed differentials to the chassis. Aside from mounting the plastic shock bodies, electronics package and body, there's not much to the build. I always enjoy spending some time on the bodies and Tamiya makes the detailing a breeze. Their color schemes usually require only one or two colors, plus they supply the necessary window masks. Even their decal sheets are a snap to work with, although it may take some time to get them all on. You'll find that it will be a lot easier if you spray the spot your going to place the decal with soapy water or Windex beforehand. It makes positioning the larger decals a lot easier.

HIGH PLAINS DRIFTER

Ride height is an important factor with an offroad vehicle so I choose to add all the supplied spring tension adjusters to give it as much ground clearance as possible. Once I had the radio gear trimmed out, it was only a matter of time before I hammered down on the throttle to get the Toyota airborne. You have to keep in mind that the Pre-Runner is not a full-blown offroad race truck, although it would be hard to convince an untrained eye based on the highly detailed body and trick wheel/tire combo!!

What the Pre-Runner lacks in serious offroad performance is easily overlooked once you hit the docile confines of a sandy parking lot or an open field. The four-wheel Toyota absolutely rips!

It reminds me of the first time I saw Ivan Stewart puts his truck through its paces at Dallas Stadium in a Mickey Thompson Event. It even snap rolls like the real thing! Tamiya has hit the mark again with another winner. I'm sure it won't long before we see Chevy, Fords and Nissans going at the local playground. I for one can't wait. •

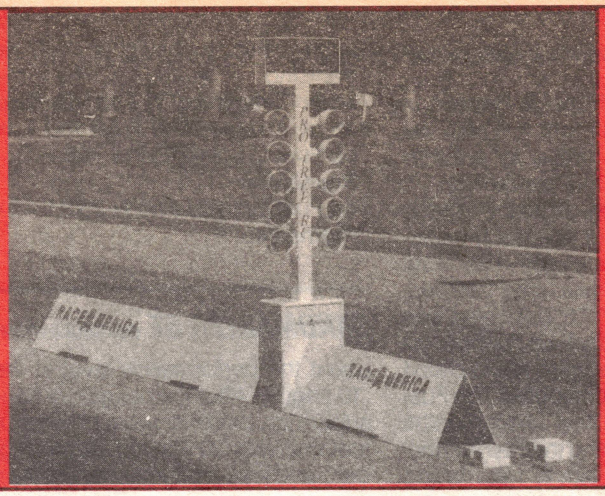
RC CARS DECALS!
RADIO CONTROL MODEL CARS
FULL-COLOR FOR YOUR CAR, ONLY $2.50
RC Model Cars
34249 Camino Capistrano
Capistrano Beach, CA 92624

RACE AMERICA

PO BOX 3469
SANTA CLARA, CA
95055-3469
(408) 927-6064

DRAG TIMING SYSTEMS

Complete Timing Systems for the Street, Parking Lot or Hobby Shop Race Track.



These systems are designed for more than just traditional Drag Racing ...

Develop your own side-by-side Racing Programs:

- Dirt & Sand Drags
- Obstacle Course Racing
- 50' Short Track
- BMX Bicycle Race
- Tractor/Truck Pulls
- 4WD Truck Drags
- 1/10 Scale R/C
- 1/8 Scale R/C
- 1/4 Scale R/C

WHEEL BALANCER CONT. FROM PAGE 30

little. An average rubber cap wheel out of balance by three grains (a grain is 002285 oz. or 64.798 mg.) would be considered a very good wheel. Many wheels are usually out of balance in more than one area but to keep our example simple, we'll use just one out of balance area.

According to my physics book, "centripetal ("center-seeking") force is the constant inward force necessary to maintain circular motion. Centripetal force is balanced by a reaction force, the centrifugal ("center-fleeing") force, which acts not on the circling object but on the source of centripetal force, usually located at the circle's center. The two forces are equal in magnitude and opposite in direction." In other words, if you find the centripetal force, you'll know the centrifugal force. The formula to find centripetal force is as follows: "Centripetal force (F) acting on a body of mass (M) is given by the equation F mvvr, where v is its velocity and r is the radius of its path." See Figure B. (Are your eyes glazed over yet?)

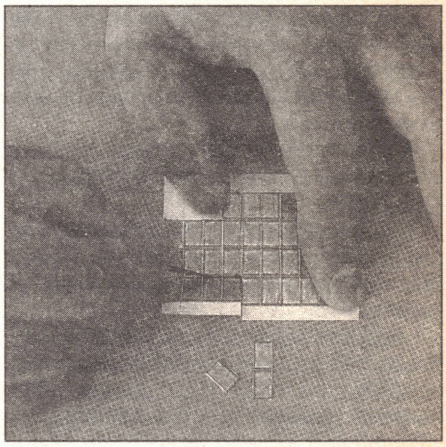
According to our example, a wheel out of balance by a paltry three grains has the force of 3.3 Newtons when it's up to speed. (Newton force needed to accelerate a 1-kilogram mass 1 meter per second squared.) So what the heck does that mean? Well, one Newton converts into 2,248 pounds. In other words our three grains at speed has the same effect of 11.9 ounces! (See figure C.)

(Note: Our example assumes that the weight that is out of balance is located on the outer edge of the tire. While this is highly unlikely to occur and such an condition would increase the effect of centrifugal force, it was used to simplify the illustration.) While you might not think 11.9 ounces is a big deal, remember we're just talking about one wheel here! Also, consider the size and weight of a 1/10-scale SS car and the fact that your wheels will most likely be more out of balance than the above example and I think you'll get the picture. Although our car wheels are fairly rigid, if your wheels are moderately out of balance, the centrifugal force such as the one illustrated can cause the heavy side of a wheel to flex outward and cause it to run in an out-of-round condition when at speed. Of course this effect will vary according to wheel size, wheel rpm and wheel stiffness. Since flex is pretty much limited on most wheels, most of the time an out of balance wheel translates into power robbing vibration which in more extreme cases can cause handling problems.

1Newton = .2248 pounds **1 oz. = 0.0625lbs.**

3.3N. x .2248lbs. = .74184lbs = 11.86944oz. ≈ (11.9oz. at speed!)

<Figure C>



If you use the pre-made wheel weights, cut out a few in groups of one, two, three and four. The configuration will vary according to the type of wheel you'll be balancing.

1grain = 64.799mg. **1mg. = 0.000001 kg.** **Off balance by 3 grains**

3 x 64.789 = 194.397mg. = 0.000194397kg. off balance or (m)ass

Wheel RPM ≈ 7,054 **(v)elocity=2πr/(t)ime** **Time= (60s.)/(7054 rev)**

1In. = 2.54 centimeters or 0.0254 meters

2.45 in. = 0.06223 meters

v = 2π(0.06223m÷2)/0.008505812305075s = 22.99862646484 (≈23 m/s. velocity)

F = mv2/r

F = 0.000194367kg. x (23m/s x 23m/s) ÷ 0.03115m = 3.300807158909kg.* m/s squared ≈ 3.3 (N)ewtons

<Figure B>

MATERIALS

To balance wheels, you'll need a low-friction, dynamic (as opposed to the static type) hobby propeller balancer. These are used to balance propellers for model airplanes and boats. There are generally three types of balancers available. The kind you hold between your fingers, the type that rides on disks and the magnetic

LOCKMANN Precision
TOP ALCOHOL, TOP FUEL & TOP FUEL UNLIMITED Dragsters

THE ULTIMATE IN R/C PERFORMANCE MACHINES...Handcrafted in Southern California!
17344 Eucalyptus, Unit 1-B • Hesperia, CA 92345 • (619) 947-3684 • FAX: (619) 947-3689

type. You can count out the finger-held type as they are just about worthless for our purposes (and should only be relied upon as a last resort when used with props). The magnetic type rides on (what else?) magnets. Friction is virtually nonexistent on this type of balancer. This is both a plus and a curse at the same time. If there ever was an example of a tool being too good at what it does, this is one of them. At first, you may think this balancer is the way to go, but being so friction-less, it takes what seems like forever for it to stop spinning. I'm not kidding.

This leaves us with the disk-type prop balancer. This seems to be the best unit for wheel balancing. There are a few manufacturers who make these. Although you'll most encounter the type with metal disks, I have seen ones with plastic disks. I don't know if one is more accurate than another, but I seem to feel the metal disk type is more accurate. This isn't based on any experience or knowledge about them, so my gut instinct may be totally psychological. Otherwise, among the metal disk types, they are basically all the same so you can feel pretty confident if you shop for them solely by price.

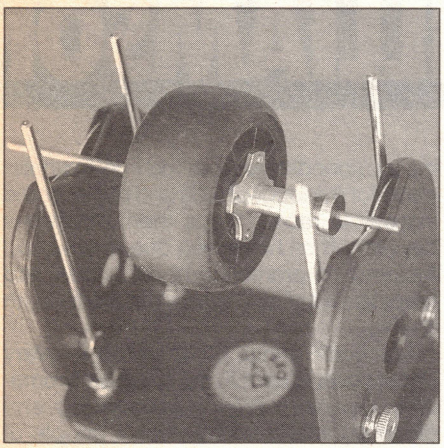
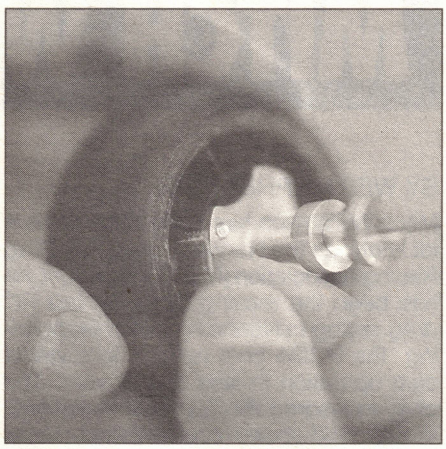
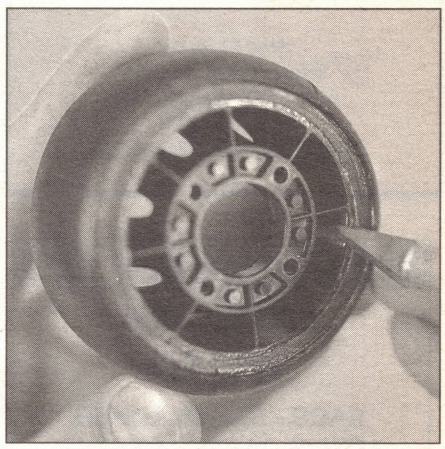
To balance your wheels, you'll also need some sort of weights. There are a couple of manufacturers who make stick on weights just for this purpose. If you decide to use this type, pick up some double-sided tape (not servo tape) too. More on this later. Stick-on weights work well and are convenient to use although I have seen people using all kinds of home brew stuff such as modeling clay, epoxy with BB's, screws and just anything you can imagine (mostly on offroad cars—surprised?). Some ideas are good and some are questionable. I suppose what you ultimately use really doesn't matter as long as it stays on and doesn't change weight as time goes on. (I would think clay would dry out and change its weight.)

Most wheels will require their bearings to be inserted in them so they will mount on the balancer, although, depending on the type of wheel you're balancing, you may require a hub to mount the wheel. You can use the one from your car as long as it isn't bent. For example, to balance 1/10-scale SS rear wheels, I use a titanium hub from T&A Machining and aluminum screws from Team Associated to mount the wheel with. While you don't need to use exotic hubs and screws, I use the titanium hub and aluminum screws because the lighter the hub assembly is, the less likely it will require balancing.

GOIN' ROUND AND ROUND

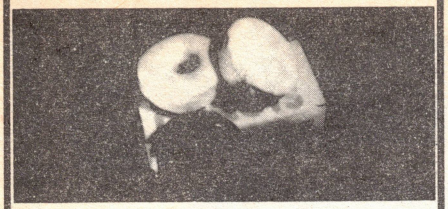
If you're using a hub, the first thing you'll need to do is to balance it. Do this with the wheel mounting screws in it. If you are balancing wheels that use bearings, insert the wheel bearing into the wheel and balance the wheel like that. You can use bushings, but make sure they're new or fairly new, and not out of round. The way to check the balance of the hub or wheel is the same. Mount the hub (with wheel or wheel with bearings respectively) on the balance shaft between the centering cones and place the shaft on the disks. Give the shaft a light spin and wait until the assembly comes to a stop. You don't need to go crazy on the spin. If the shaft makes two or three revolutions before coming to a stop, it's enough. All you're doing by spinning the shaft more is increasing the time you have to wait for it to stop. When the hub comes to a stop, note how it is situated. If you want, you can mark the top of the hub or wheel with a pencil mark to help you

continued on page 80

■ LEFT: Mount the wheel on the balance shaft and give the shaft a light spin. Now wait until the assembly comes to a stop. You don't need to go crazy on the spin. If the shaft makes two or three revolutions before coming to a stop, it's enough. All you're doing by spinning the shaft more is increasing the time you have to wait for it to stop. ■ CENTER: When you find a heavy side, place a wheel weight on the opposite side of the wheel. Temporarily stick the weight on with a small piece of double-stick tape. Now spin the wheel again and see if you need to add more weight. Continue this cycle until your wheel comes to rest at different spots on each spin. ■ RIGHT: Once you're satisfied with your work, peel off the double-stick tape and the weight's paper backing to permanently mount the weight. The tip of a hobby knife can assist in tight areas.

GLAZE BELONGS ON
DONUTS



NOT YOUR MOTOR'S
COM AND BRUSHES

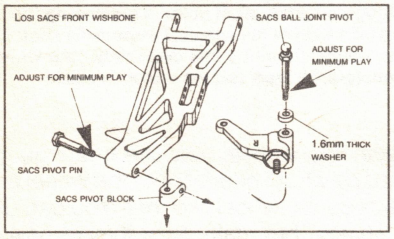
PREVENT GLAZE, CARBON BUILDUP AND FLASHOVER.

USE AERO-CARS
CONDUCTA MOTOR DROPS!!
AC-3003
ADD POWER AND SPEED.
INCREASE MOTOR AND BATTERY LIFE.

Send $2.00 for
information and decals
Aero-Car Technology, Inc.
P.O. Box 336
Western Springs, Illinois 60558

Schumacher USA
LOSI XX
RC10

SACS - SCHUMACHER
ACTIVE CASTER SYSTEM



This revolutionary system operates to maintain a constant caster angle for the steering as the chassis and suspension move up and down. This greatly increases steering response and stability reducing lap times significantly. Allows a more aggressive driving style over jumps and through badly rutted sections of track.
The SACS system includes swept wishbones and all required parts to fit Losi XX or RC10 buggies. A new shock tower is included for accurate control of roll-center.

U1617 SACS - ACTIVE CASTER SYSTEM RC10
U1618 SACS - ACTIVE CASTER SYSTEM LOSI XX
RETAIL $34.95

CALL NOW: SCHUMACHER USA
PH: (813) 889-9691 OR 889-9489
Fax: (813)889-9593
MAIL ORDER - DEALER DIRECT
VISA MASTERCARD



PROFILE OF A DRAG RACER: MITCH WILLIAMSON

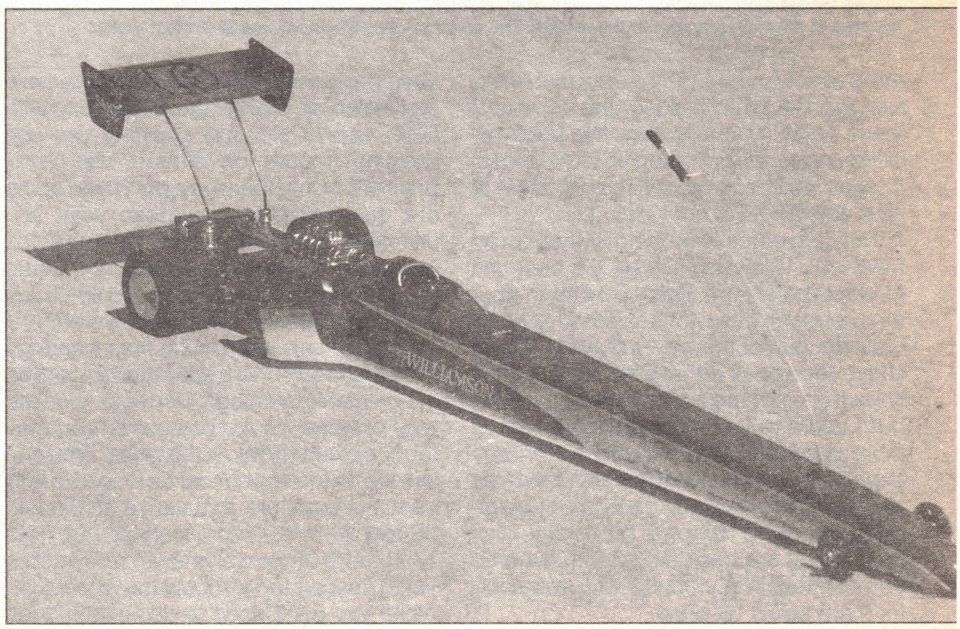
BY WES MCPHEETERS

Mitch Williamson has been in the news a lot lately; as the Northern California Drag Racing Association (NCDA) President, he has been the moving force behind RC drag racing in Northern California, building the NCDA from nothing to a viable club operation in less than a year. The club sponsored the Top Fuel Invitational and the land-speed record attempt events in June, 1994, in addition to running regular race programs every other week or so.

Mitch has been involved with many forms of racing over the years, including power boat racing in the Western U.S., full-size drag racing at the Baylands Raceway Park in Fremont and onroad/offroad RC racing. He got mixed up with the RC drags through club racing in Oakland, California. Because it was a long drive to Oakland, Mitch set out to start a club in the South Bay. He worked at a break-neck pace to line up a location with the city of Sunnyvale and local hobby shops to spread the word of the event. He joined with RaceAmerica to demonstrate their race timing system, giving participants NHRA realism with their racing experience from the outset. At one of the first race days, Mitch's brother, Bill, came out and was so jazzed by drag racing that he helped spring for the purchase of the first race-timing system. The two brothers were the top speedsters in the Top Fuel Dragster class for the longest time and put on some incredible races. Since then, Mitch has backed off on his racing due to time and focused on promotion of the NCDA and helping a lot of new racers get started with racing.

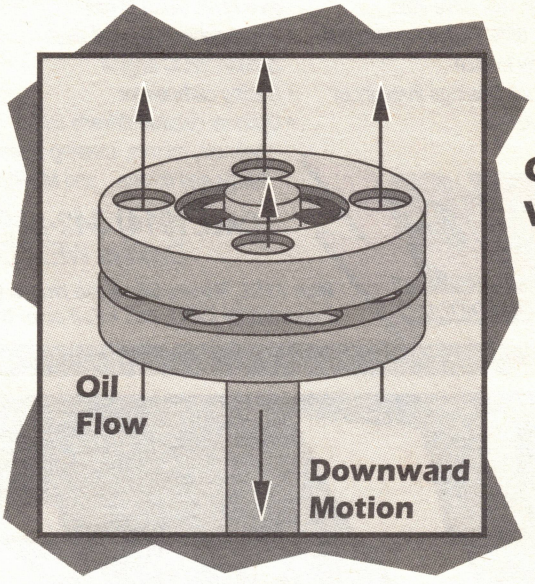
Mitch still brings a car or two to every racing event (usually he handles promotion, planning, setup, announcing and cleanup) and puts together a couple of fast passes just to keep his skills sharp—

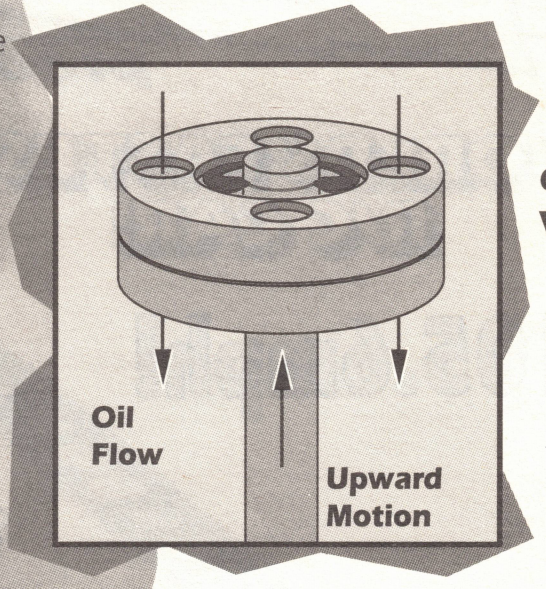
continued on page 80



NEW
2-Stage Pistons

Now RPM has Shock Pistons for all Associated and Losi shocks that work at two different rates! Yes, the pistons allow the shock to move with full dampening in one direction and move at a quicker and lighter dampening the instant the direction changes! This is how full scale racing shocks work, they never use the same dampening in both directions of travel. These pistons will install on all stock Associated or Losi shock shafts. They can be flipped either direction to have the heavier dampening in either the up or down travel! The two piece pistons are color coded for the dampening hole size. There are six sizes to choose from and are packaged in packs of 12 pistons, 4 of each size. Great for on or offroad and oval!





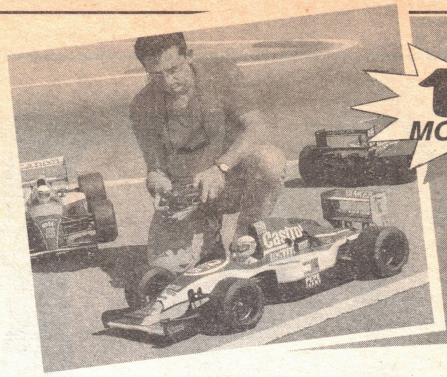
#8042 Light–Med. Dampening
Equiv.–Assoc. #1-2 or Losi #54-55
3 sizes, 4 ea. $6.95

#8043 Med.–Heavy Dampening
Equiv.–Assoc. #2–3 or Losi #56-57
3 sizes, 4 ea. $6.95

RPM

14978 Sierra Bonita Lane ▪ Chino, CA 91710 Send $2.00 for complete catalog and decals

The YANKEES Are COMING!
The YANKEES Are COMING!

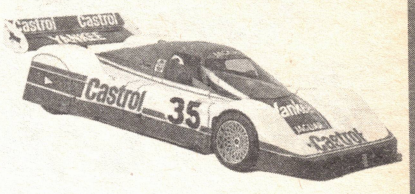


The most USER-FRIENDLY gas 1/4 Scales in the world!
All YANKEES feature composite injection molded parts, making them most definitely virtually INDESTRUCTABLE!

ALL YANKEES FEATURE :

- Highly detailed Lexan Bodies
- 8 Highly detailed rims (4 different styles)
- Pure rubber racing tires (13 different styles)
- Steel gears and Drive Train
- Heavy duty 10 mm dogbone design rear drive train
- Over 85% Factory assembled, ready to race
- Full ball bearings throughout the vehicle
- Oil-filled aluminum high-volume shocks
- Fully race-ready planetary differential*
- Fully tunable suspension, 95% race ready out of the box
- 30 minute run times on 8 cents worth of gas
- Dependable, easy pull start Zenoah 22CC engine
- Racing carbuerator
- Optional detailed driver's suits, helmets, mirrors, steering wheels, wings and drivers... and MORE!

- **Cross Control**
- **Baja VW**
- **Spider Peugeot**
- **Jaguar Sport**
- **Vitara**
- **Formula 1**
- **BMW M3**
- **Porsche 930**
- **Bugster**
- **VW Enduro**
- **Mercedes 190**
- **Alfa Romeo**
- **BMW M3 DTM**
- **Opel Calibria**
- **Renault Twingo**
- **Peugeot 905**
- **Predator**
- **NASCAR Stocker**





CEC
CUSTOM ELECTRIC CARS

CALL (914) 342-8697 TODAY!
Dealers WELCOME!

Box 2151, Route 52 • Pine Bush, NY 12566
Imported by CEC, Inc. • Full color brochure, only $4.95

Lightz products

P.O. BOX 24910
TEMPE, AZ 85285
(602) 894-6908

WORLDS FASTEST R/C CAR!

105.6mph!



CONGRATULATIONS TO A. D. RIGMAIDEN, WHO SET A NEW I.E.D.A. TOP FUEL RECORD AT THE WORLD NATIONALS, OCTOBER 16, 1994 USING A LIGHTZ DRAGSTER CHASSIS.

1.77 at 75.5mph!

MORE POWER TO YOU



With PTI Power Pack batteries the power is in your hands. Whether you're racing flat out or just flat out having fun, you have the power to cut the juice loose right in the palm of your hand. PTI's batteries are cycled until they are stabilized before being precisely matched into packs. So crank it up with the PTI power pack, and turn up the juice.

FOLLOW THE LEADER PTI

Progressive Technologies, Inc., PO Box 950, Pilot Mountain, NC 27041-0950, Phone (910) 368-1375, Fax (910) 368-1380

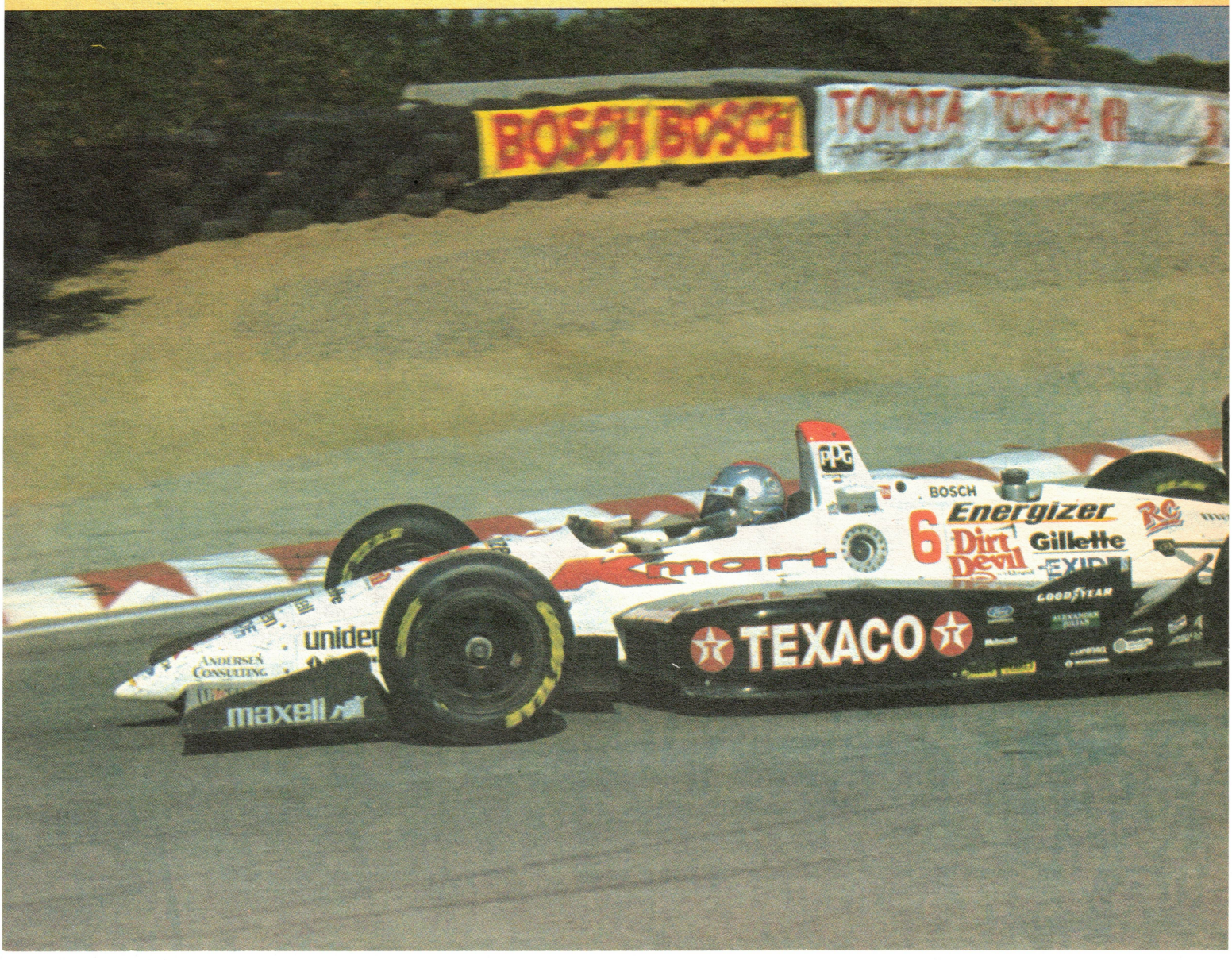


THE LAST

Laguna Seca, California was once again the site of the last Indycar race of the year, but for Mario Andretti, it was the scene of the last Indycar race of his long and heralded career. The former Indycar, Indy 500 and Formula One champion decided in early '94 to call it quits, a decision celebrated by a year-long "Arrivederci Mario" farewell tour. The Newman-Haas team, for whom Mario has driven for 12 consecutive seasons also lost their other star driver. Nigel Mansell, reigning Indycar Champion, announced his decision late in the season to return to Formula One in 1995. His subsequent return to F1 was

continued on page 80

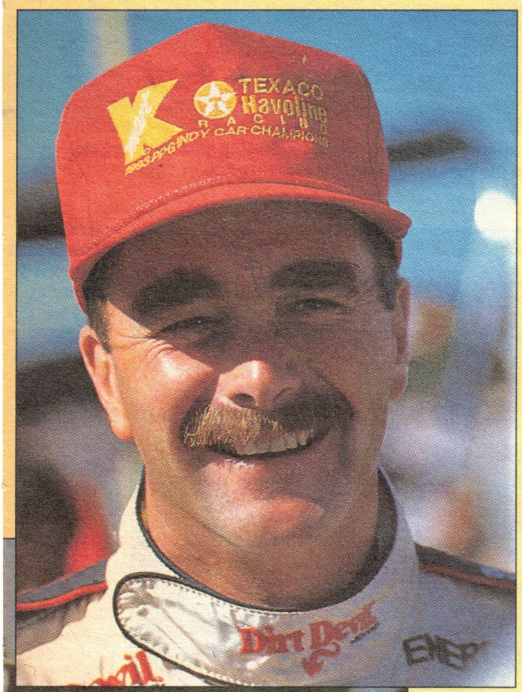
Mario Andretti drove his last Indycar race in the season's closer at Laguna Seca, to cap a career that spans 36 years of racing dirt cars, Formula One, stock cars, midgets and Indycars, a record that will not be equalled.

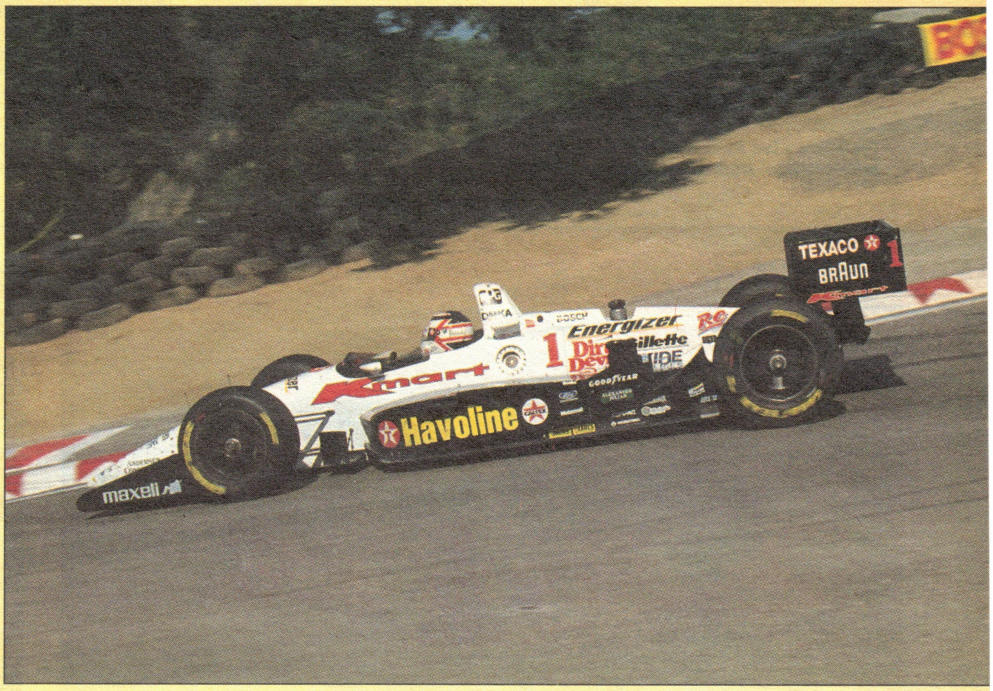


RACE

INDY CARS AT LAGUNA SECA

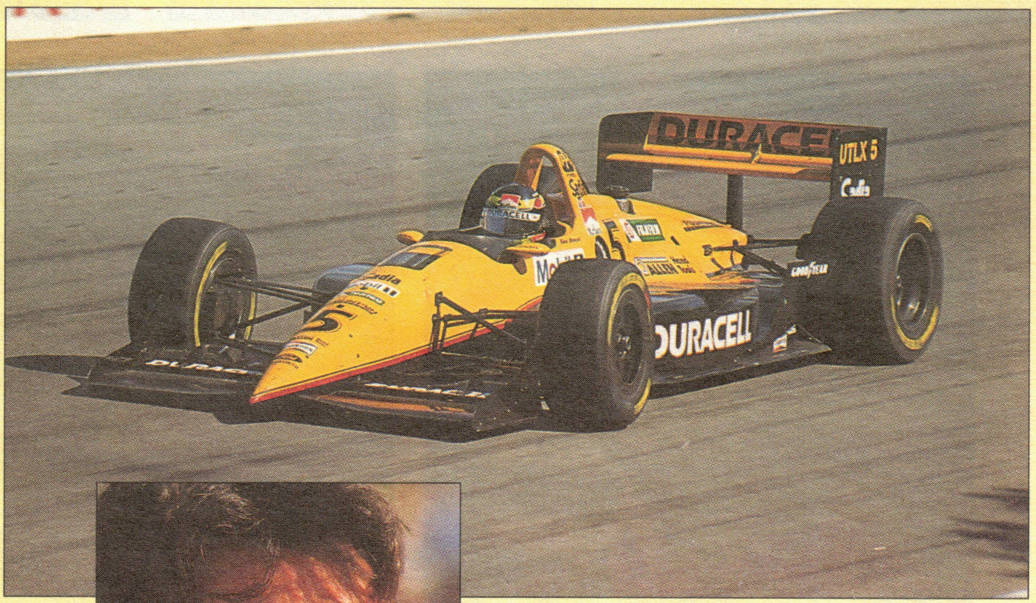
BY RICHARD DOWDY • PHOTOS BY CHRIS & RICHARD DOWDY

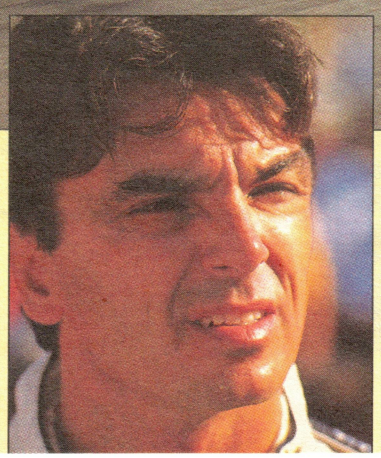




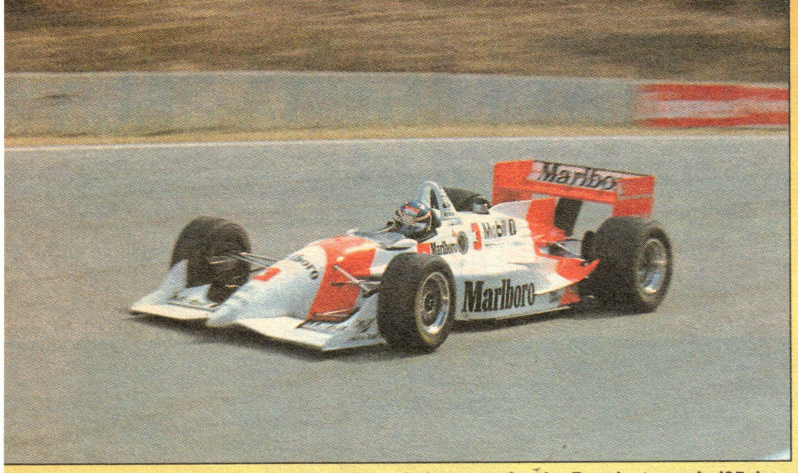
The 1993 Indycar Champion and 1992 Formula One Champion Nigel Mansell finished eighth at Laguna Seca in his last Indycar race before returning to Formula One. He won the last F1 race of the year in Australia, starting from the pole position.



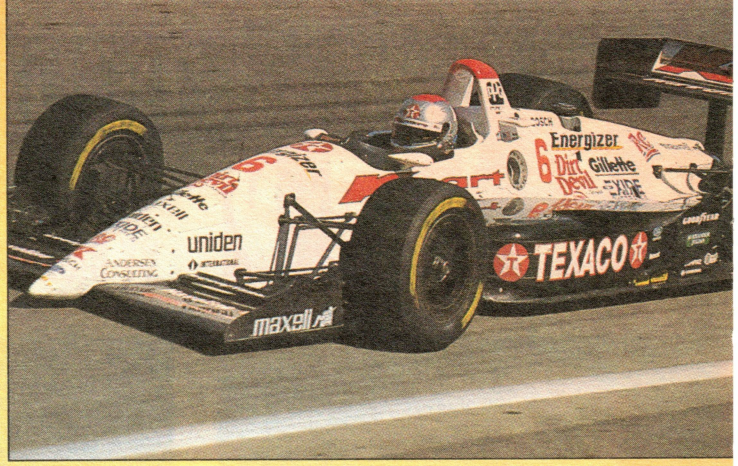




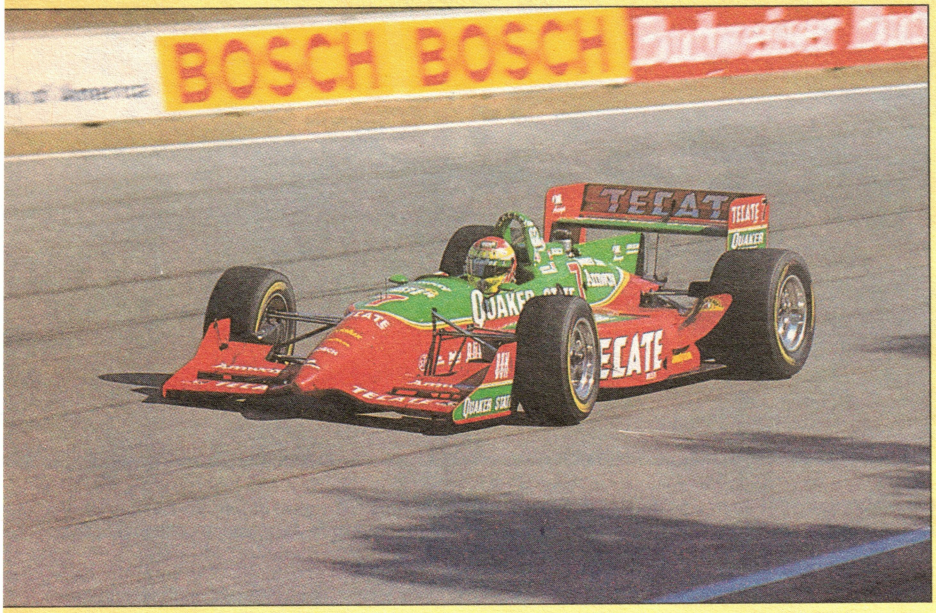
Raul Boesel finished second at Laugna Seca in his last race for Dick Simon Racing. Next year he joins Bobby Rahal's team, which has given up on Honda in exchange for Mercedes engine power.



Paul Tracy led from the start in his last race for the Penske team. In '95, he joins Michael Andretti at Newman-Haas Racing.

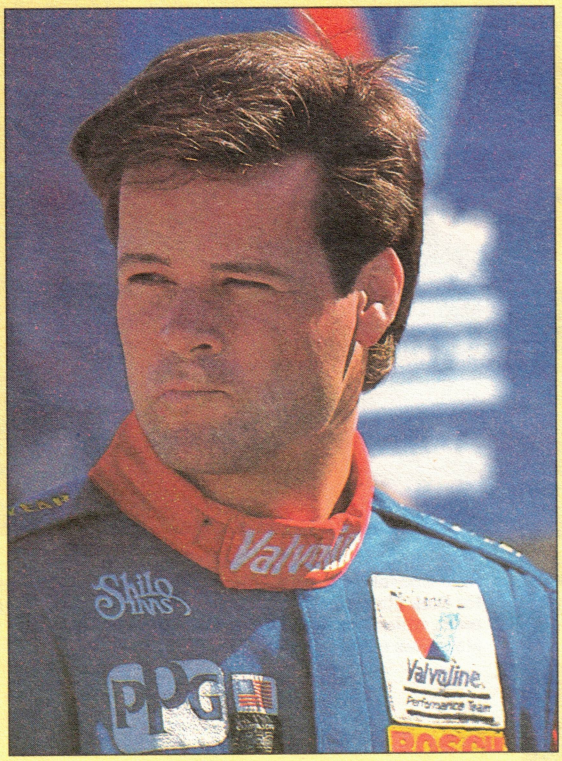


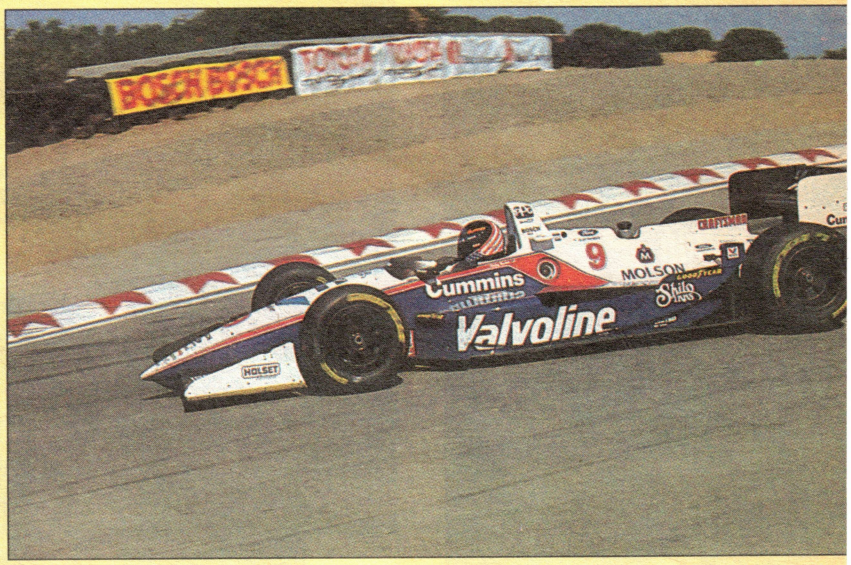
Mario Andretti's career spans 52 Indycar wins, beginning with the Hoosier Grand Prix in Indiana, to his last victory at the Phoenix 200 in 1993.





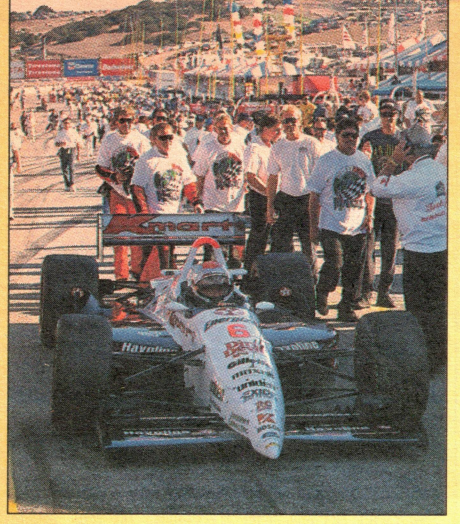
Adrian Fernandez will drive again in '95 for Galles Racing. In Monterey, the rookie finished seventh, behind Arie Luyendyk.





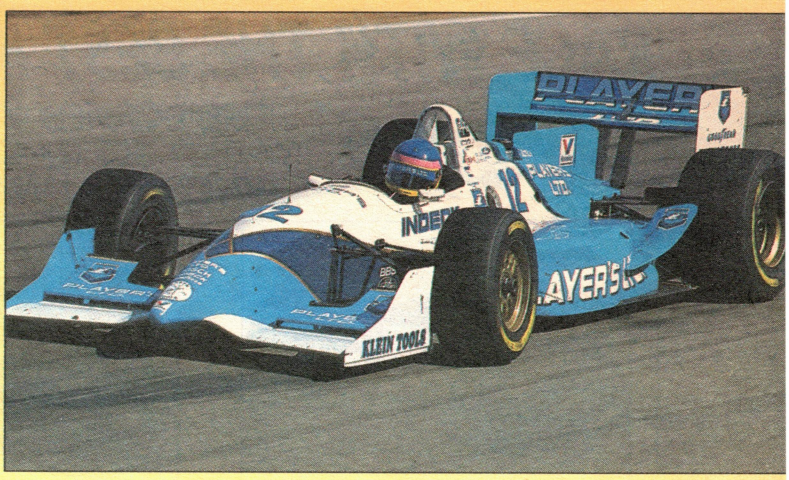
Hotshot Robby Gordon drove to thirteenth at Laguna, and will return with Valvoline and Derek Walker's team for '95. He's one driver who will enter the winner's circle this year.

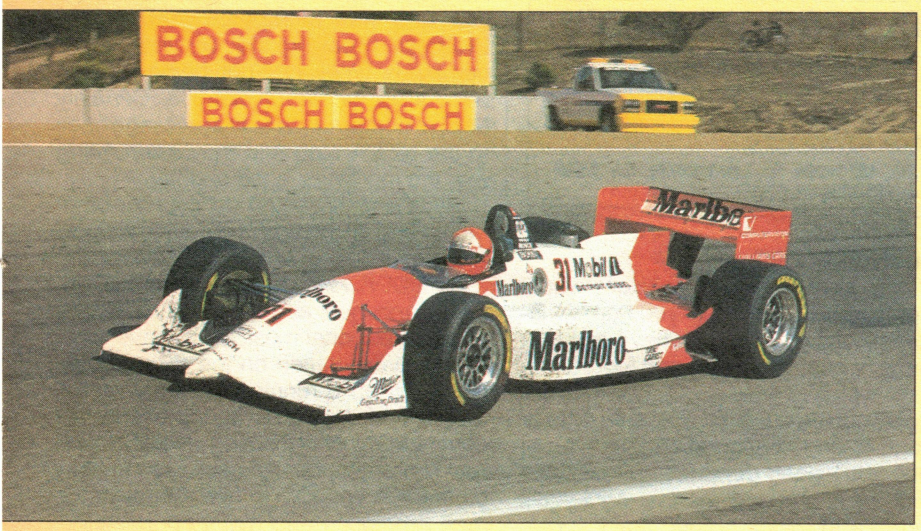
INDY CARS AT LAGUNA SEC

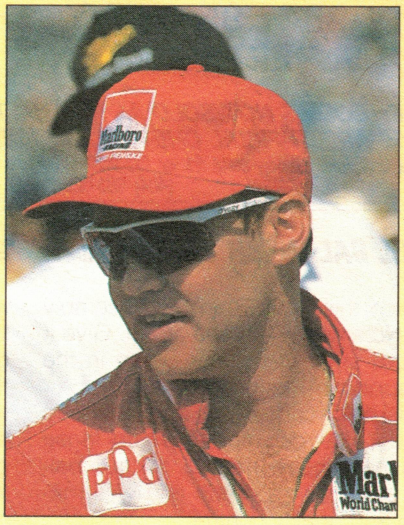


Mario's last lap: As he completed a final parade lap, up and down pit row his competitors donned "Arrivederci Mario" T-shirts in honor of the veteran's last Indycar race.

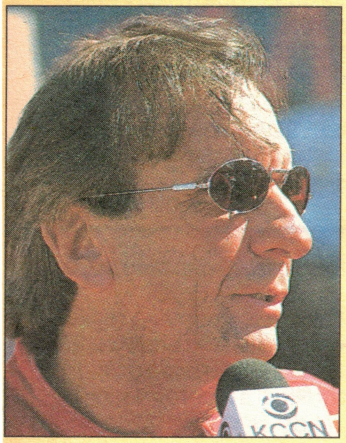
Jacques Villeneuve, Rookie of the Year, brought his racer home in third at Monterey, and is one to watch in '95.



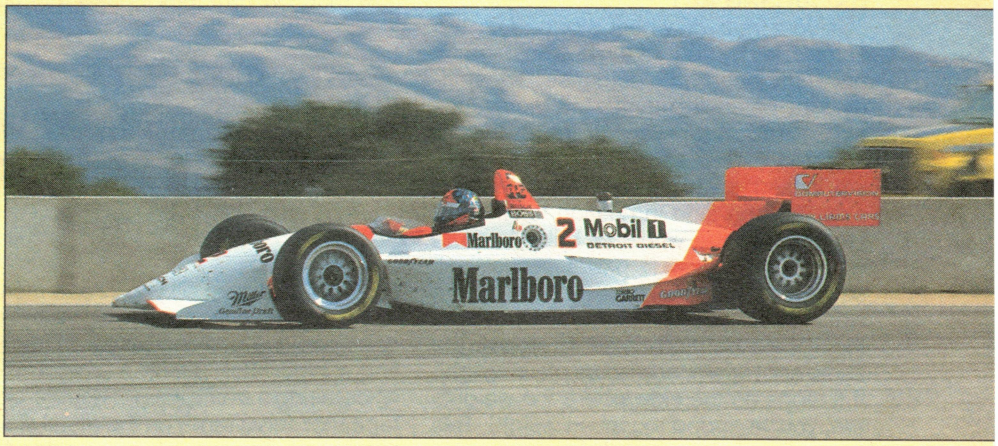


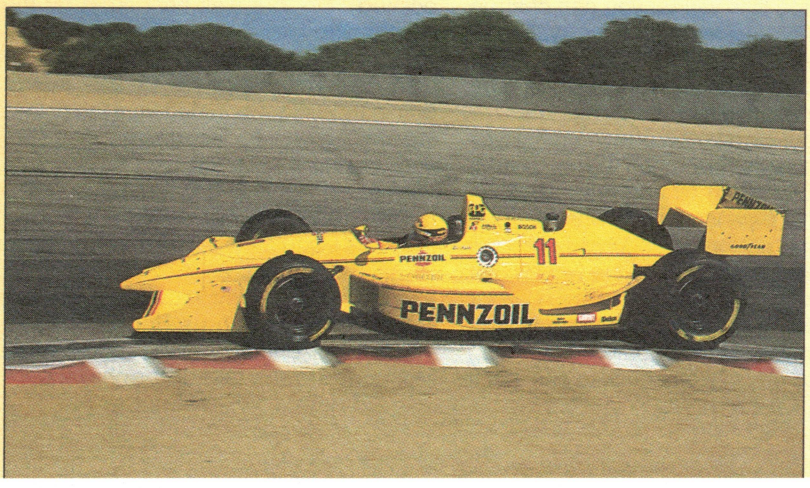


Al Unser Jr., Indycar Champ for 1994 and '94 Indy 500 winner, will return to the Penske team this year, on the trail of a back-to-back championship.



Emerson Fittipaldi finished second to Al Jr. in the driver's championship, and will be back as his teammate with Penske Racing in '95. The veteran driver can never be discounted as a leading contender.





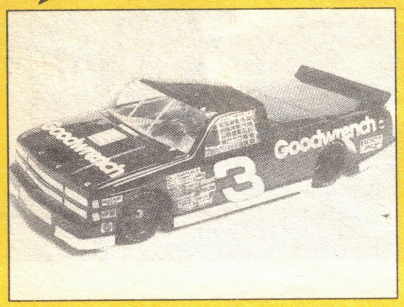


In his last race for Jim Hall/Pennzoil, Teo Fabi came fifth at Monterey. He comes back next year with a new team and a re-dedicated effort.

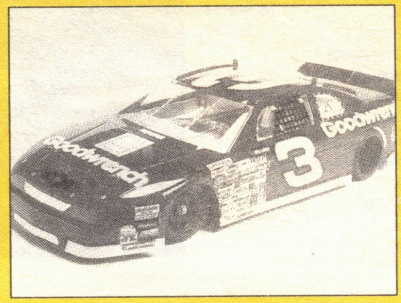
RACE WITH THE BEST IN 1995!

bodies by BoLINK®

THE BODIES *YOU WANT* TO RACE... *WHEN* YOU WANT THEM!



BL-2284 '95 CHEVY SUPERTRUCK



BL-2285 '95 CHEVY MONTE CARLO
(narrow width. Add -L for Pro-Lite)

NOTE: BODIES NOT SOLD AS PICTURED.
THESE ARE OFFICIAL CHEVROLET LICENSED PRODUCTS.

For a complete catalog send $3 to: BoLINK® R/C Cars (RCM), 420 Hosea Rd, Lawrenceville, GA 30245
(404) 963-0252 FAX (404) 963-7334

WHEEL BALANCER CONT. FROM PAGE 71

recognize this spot. Spin the assembly again. Note where it stops again. Give it one more spin. If it doesn't stop in the same spot more than once, your hub or wheel is balanced. If you just balanced your hub, you can now start on those wheels that require the hub. My hub balanced perfectly—a credit to T&A's machining and quality control.

BALANCING ACT

If your hub or wheel stopped in the same spot two out of three spins, it may have just been a coincidence. Try spinning the balancing shaft a few more times and see what happens. If the assembly stopped in the same spot every time, you'll need to add some weight to the high side (the top side in relation to where it stopped) of the wheel or hub. Add the weights to the inside (the side that isn't seen when mounted on the car) of the wheel. After you add some weight, spin the wheel a few more times. If it stops in the same spot again, add some more weight. If it stops on the side where the weights are, you've added too much weight. This is usually obvious, but I'll say it anyway, don't add weight to the new high side as this would be counter productive. Instead, remove weight from the heavy side. If you find that you've added weight all over the wheel and it still doesn't balance, pull all of the weights off and start again. You shouldn't need weight in more than three or maybe in extreme cases, four places maximum. If you can, try and avoid stacking weights. Sometimes this is unavoidable, but the closer you can mount the weights to the outside of the wheel, the more effective they'll be. Of course, the less weights you need to add the better, so that is your goal.

BALANCING TIPS

If you are using the pre-made wheel weights, this tip can save you from wasting some of them. Cut out a few weights in groups of one, two, three and four. Since these weights are rectangular, your weights can be cut out in a side-by-side or an end-to-end configuration. The type of group you'll need depends on how wide the wheel is and how much weight you'll need to add. Since no one really knows how much weight they'll need, cut out a few configurations so you'll have them to test. After you have some weights cut out, don't peel the backing off yet. When you find a high spot, attach a weight to the wheel using a small piece of double-sided tape (not servo tape) on the metal side of the weight. This way, if you've added too much or too little weight you can change it without having to use the sticky side of the weight. When you have the wheel balanced, remove the double sided tape and permanently mount the weights.

Sorry, but I don't know of any surefire way to know exactly how much weight to add.

Sorry, but I don't know of any surefire way to know exactly how much weight to add. It's all pretty much hit and miss although after you've balanced a few wheels, you'll sort of get a feel for how much weight you'll need. Also note that balancing wheels that have been run a few laps seem to be easier to balance. I guess they must round themselves out. One last note, before attempting to balance any wheel, check to see that it isn't bent. It will save you a lot of time and frustration.

COMING FULL CIRCLE

Wheel balancing is one area that many racers overlook when setting up their cars. Some think the gains are negligible and other think that it's too much trouble to do. Well, it does take some time and effort, but it just may give you that performance edge that you've been looking for that your competition has overlooked.

Have fun and be fast! ●

WILLIAMSON CONTINUED FROM PAGE 72

his fast passes are consistently sub-2.000-second times. He traveled to the IEDA Northstar Nationals in Minnesota this summer and was triumphant in Top Fuel Dragster, breaking the existing record numerous times but not being able to back it up for the official title. Certainly Mitch's performance sent a message back to the NCDA club that they are running with the top times in the country.

Mitch enjoys setting up cars for other racers and giving tips and advice with the resultant improvement in performance.

As NCDA President, Mitch is the primary announcer and uses his experience as a professional musician to have a excellent presentation on the microphone; he keeps up a running dialogue on the racers and the race, and presents full commentary of upcoming events. A career Navy man, he has been able to draw on leadership skills to help him with the race promotion and event coordination. He has specialized with the military police which has provided him with training on safety and crowd control.

Mitch is presently assisting Al Herbst with his startup of the Southern California equivalent to the NCDA—soon to be known as the SCDA; stay tuned for more from this racing hotbed. ●

THE LAST RACE CONTINUED FROM PAGE 76

impressive: at the season-ending race in Australia, Nigel took the pole and won the race driving a Williams Renault racer. No annoucement of Nigel's team affiliation for '95 has been made as yet.

At Laguna Seca, Mario finished a disappointed 18th, but was heartened by the affectionate farewell from fans and competitors alike. Nigel finished eighth. Canadian Paul Tracy kept the Penske team's dominance intact as he led from the pole to the checkered flag. Raul Boesel was second, driving a Lola, followed by Jacques Villeneuve, Teo Fabi and Arie Luyendyk.

The 1995 racing season will find Indycars populated with an ever-growing list of young lions as the old guard, as exemplified by Mario, moves on. We can look to drivers such as Robby Gordon, Villeneuve, Adrian Fernandez and Andrea Montermini to ably take up the challenge. ●

[2PD Magnum]

TRIGGER HAPPY

If you're in a hurry to get to the winner's circle, you can't waste time in the pits.

That's why our 2PD transmitter lets you make over a half dozen fine tune adjustments without even pulling your car off the track.

Steering rate and trim, throttle trim and ATL are ready at your fingertips for quick action. Steering and throttle ATV, sub trims and servo reversing are in the control panel.



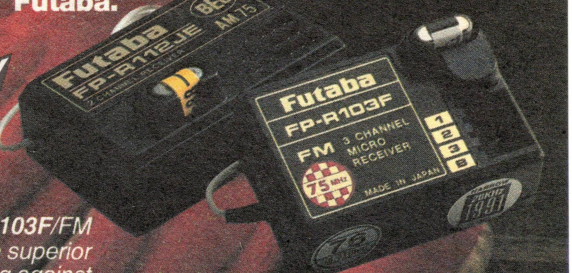


2PD Magnum Narrow Band AM Pistolgrip

AM or FM, both 2PD Magnum Narrow Band transmitters and receivers allow use of all 30 of the 75MHz frequencies. And you can choose from the best servos, too; mighty S9301's, mini S9601's or speedy S132H's. Shoot for victory lane with RC racing's most popular pistolgrips, the Magnums from Futaba.



NARROW BAND



***R112JE**/AM and **R103F**/FM receivers provide superior Narrow Band filtering against noise and interference*

Futaba

Futaba Corporation of America
P.O. Box 19767, Irvine, CA 92713-9767

©1992 Futaba Corp.

MORE POWER!

FOR YOUR 10L AND 10LSS
EVERYBODY WANTS MORE POWER AND NOW YOU CAN HAVE IT WITH RACING INNOVATION'S NEW DUAL MOTOR MOUNT FOR THE 10L AND 10LSS
*PRECISION MACHINED FROM AIRCRAFT GRADE ALUMINUM
*INCLUDES COMPLETE INSTRUCTIONS FOR INSTALLATION AND WIRING
*$29.95plus $3.00 postage and handling



send check or money order to:
Racing Innovations, 2707 Michael Drive,
Newbury Park, CA 91320 (805) 498-5494
(allow 3 weeks for personal checks)

UP-DATE YOUR SHOP

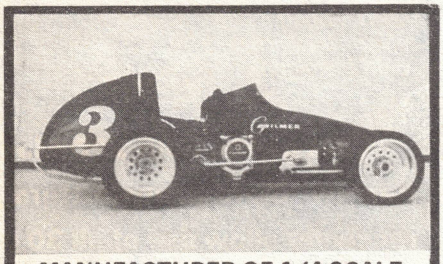
METAL & WOODWORKING MACHINERY, TOOLS, METALS, BOOKS, ACCESSORIES, SUPPLIES....



CATALOG $1.00
VISA/MASTERCARD/DISCOVER ACCEPTED

FANTASTIC SAVINGS ON ...Lathes, Milling Machines, Abrasives, Grinders, Tool Chests, Presses, Planers, Shapers, Tablesaws, Bandsaws, Routers, Sanders, Taps & Dies, Chucks, Boring Bars, Buffers, Collets, Fluids, Vises, Toolkits, Calipers, Shears, Scroll Saws, Micrometers, Rotary Tables, Dry Blast Cabinets, Blades, End Mills, Arbors, Much More!!!

BLUE RIDGE MACHINERY & TOOLS, INC.
P.O. BOX 536-MC • HURRICANE, WV 22526
800-872-6500



MANUFACTURER OF 1/4 SCALE RADIO CONTROLLED MIDGETS.
SEND $3.00 FOR INFORMATION.
GILMER HOBBY
DEPT. RCM 1213 4th AVE.
HOWARD LAKE, MN 55349
612-543-2395

AD INDEX

Aero-Car Technology 72
Arrow Hobbies 82
Associated Electrics 41,42, 43, 47
Barracuda 15
Blue Ridge Machinery 82
Boca Bearing 57
Bolink RC Cars 80
CMM 29
Custom Electric Cars 24, 74
Conley Engines, Inc. 34
Dahm's Racing Bodies 35
Deans Corp. 17
Futaba Corp. of America 81
Gilmer Hobby 82
Hitec/RCD 19
Kimbrough Products 55
Kyosho 7, 23
Lightz Products 74
Litespeed 6
Lockmann Precision 71
Love's Precision Racecars 51
Moore's Ideal Products 3, 5
MRC ..... Cover 4
NCDA Drag Assn. 53
National Watch 82
Niftec 33
Novak Electronics ..... Cover 2
Parma International 13, 63
Quarter Flash 6
Quarter Scale Racing Assn. 53
Plus Co. 33
PTI 75
Protoform 31
RaceAmerica 66,70
RPM Racing Products 73
Racer's Choice 11
Radar Sales 82
RC Model Cars/MRC Sweepstakes 39
RC Motorsports of Miami 59
Racing Inovations 82
Schumacher Race Cars 25, 72
Shoptask 33
TD Enerprises 13
TM RC 24
Tekin Electronics 9
Thorp Racing 54
Traxxas ..... Cover 3
Ultimate Hobbies 27
WCM 17
WRAM Show 33

Note: The Ad Index is published as a service to our readers and is revised as late as possible to include ad changes. Gallant Publications is not responsible for errors or emissions.

REPLICA SWISS WATCHES

LOWEST PRICES! Best Quality & Service Guaranties! 2 Year Warranty!
Exact Weight! 18KT Goldplated! Waterproof!
Submarine & Daytonas available!
Fast delivery!

Phone (404) 682-0609
Fx (404) 682-1710

New and Refurbished **RADAR GUNS**



Call for Our FREE Catalog

Over 20 Different Guns
Great for Lots of Sports
Ideal Tool for the Racer
Rental Program Available
Priced From $395 - $2000

RADAR SALES - 5485 Pineview Ln. - Plymouth - MN - 55442
Phone (612) 557-6654 - Fax (612) 550-0454

Arrow Hobbies

YOUR R/C DRAG RACING STORE

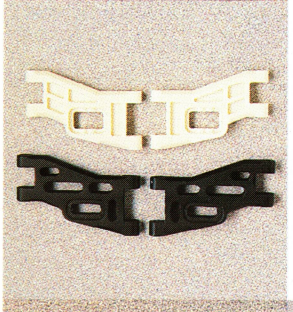
FINE DESIGN+PROTOFORM+LIGHTZ PRODUCTS+ARROW SPEED-WORKS LOCKMANN PRECISION+ASTROFLIGHT WEBB TECH DRAG CELLS+CORDITE MOTORS+BOLINK+TWISTER+DAHMS TRINITY+CUSTOM VINYL DECALS AND MORE.

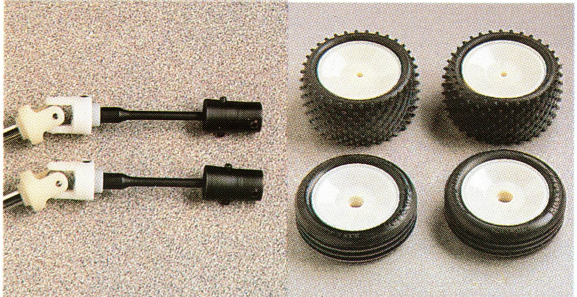
25% OFF ALL 1/10 SCALE DRAG PARTS
CALL FOR FREE CATALOG
(610)461-1481 - FAX (610)586-3455
WE ALSO HAVE 1/4 SCALE GAS & ELECTRIC CARS

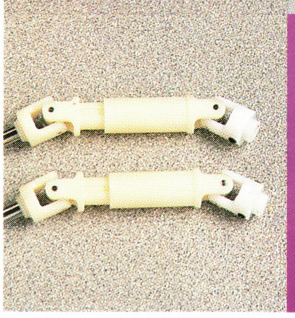
ROUGH TRACKS, TIGHT TRACKS, FAST TRACKS...



HOW CAN ONE CAR DO IT ALL?







TOTAL COMPETITION PACKAGE

The answer is, one car cannot be the best on every track with every driver. Serious racers know that some cars handle rough tracks better, while others have more steering for tight tracks. These performance characteristics are controlled by the specific combination of dimensions, geometry, and components that make up the design of the car.

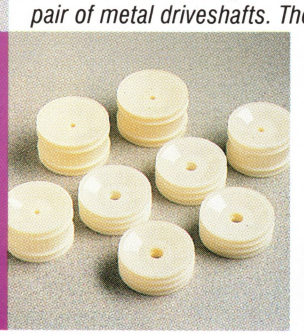
*That's why Traxxas has created the **T**otal **C**ompetition **P**ackage™. The Traxxas TCP is a **total racing system** for the driver who wants to design the perfect car for his track and driving style. The extra parts and trick accessories in this package, along with detailed Racer's Tips and instructions, allow you to totally customize the performance of your car. For example: do you want more stability? Then, choose the new, long front arms; steering blocks; and the extra pair of longer Big Bore shocks. Need more traction? There's an extra set of 2.2 rims and Pro-Line™ tires. What about top speed on smooth, fast tracks? Slide in the pair of metal driveshafts. The list goes on! See it at your hobby shop today.*

NO BREAKAGE GUARANTEE*

ONE BOX.

ONE PRICE.

ALL THIS GREAT STUFF!



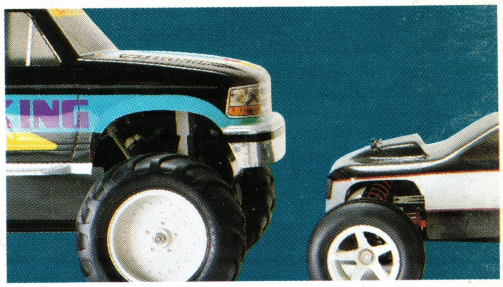
*Contact Traxxas for details.

TRAXXAS
FROM START TO FINISH

Copyright Traxxas Corporation 1994. 12150 Shiloh Rd., Dallas, TX. 75228
Traxxas U.K., P.O. Box 1128 Winterbourne, Bristol, BS12-2SH, England
Specifications subject to change without notice. Pro-Line™ is a registered trademark of Pro-Line Corp., manufacturer of radio control model car tires.

NOW, WORLD SCALE FOR THE PRICE OF 1/10TH.

Why Buy Just Another 1/10 When Suddenly You Can Own World Scale For The Same Price... You already know that World Scale is bigger, more powerful, more rugged, handles realistically and in many cases is as fast as 1/10. Now, thanks to clever engineering, we're able to offer this World Scale Thunder King BBX kit at a retail in the same price range as many of today's 1/10 scale trucks.



World Scale trucks are longer and wider, with 50% more mass than 1/10 scale

Bigger, More Realistic, More Rugged And Just As Fast. World Scale isn't just bigger. It's remarkably engineered to perform realistically. The suspension uses a four wheel independent design with tough extra long A- arms dampened by large volume oil-filled aluminum shocks with coil over springs, just like full sized off-roads. There's also a selection of shock pistons for tuning the suspension to the track, and huge 5 3/4" tires for major clearance. Its two RS 540 motors are matched to a dual motor transmission with adjustable slipper clutch, for the power and road hugging to take you over or through the hairiest obstacles, including tall grass high enough to stop a 1/10. And, when you compare its speed with 1/10 monster trucks, you'll find the Thunder King BBX faster than most.

This World Scale Thunder King BBX also has refinements, like adjustments for toe-in and toe-out and for front and rear camber. And features like a detailed polycarbonate pickup body, strong, lightweight special aircraft grade, non-flex aluminum alloy chassis, motor plate and sub chassis and so much more.

Now, World Scale's speed, durability and size available for the price of ordinary 1/10, so why settle for anything less. World Scale Thunder King BBX, now at your hobby dealer.



Introducing World Scale Thunder King BBX

MRC™ Model Rectifier Corporation
200 Carter Drive Edison, NJ 08817