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COMPETITION



PLUS THE R/C CAR MAGAZINE



• REEDY RACE OF CHAMPIONS



• PRODUCT REVIEW:
HYPERDRIVE

• MOTOR BASICS
102

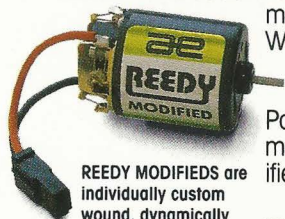
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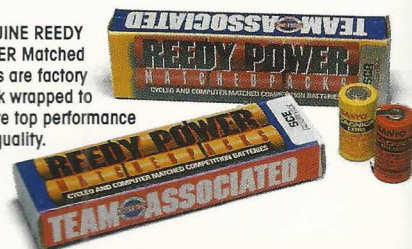
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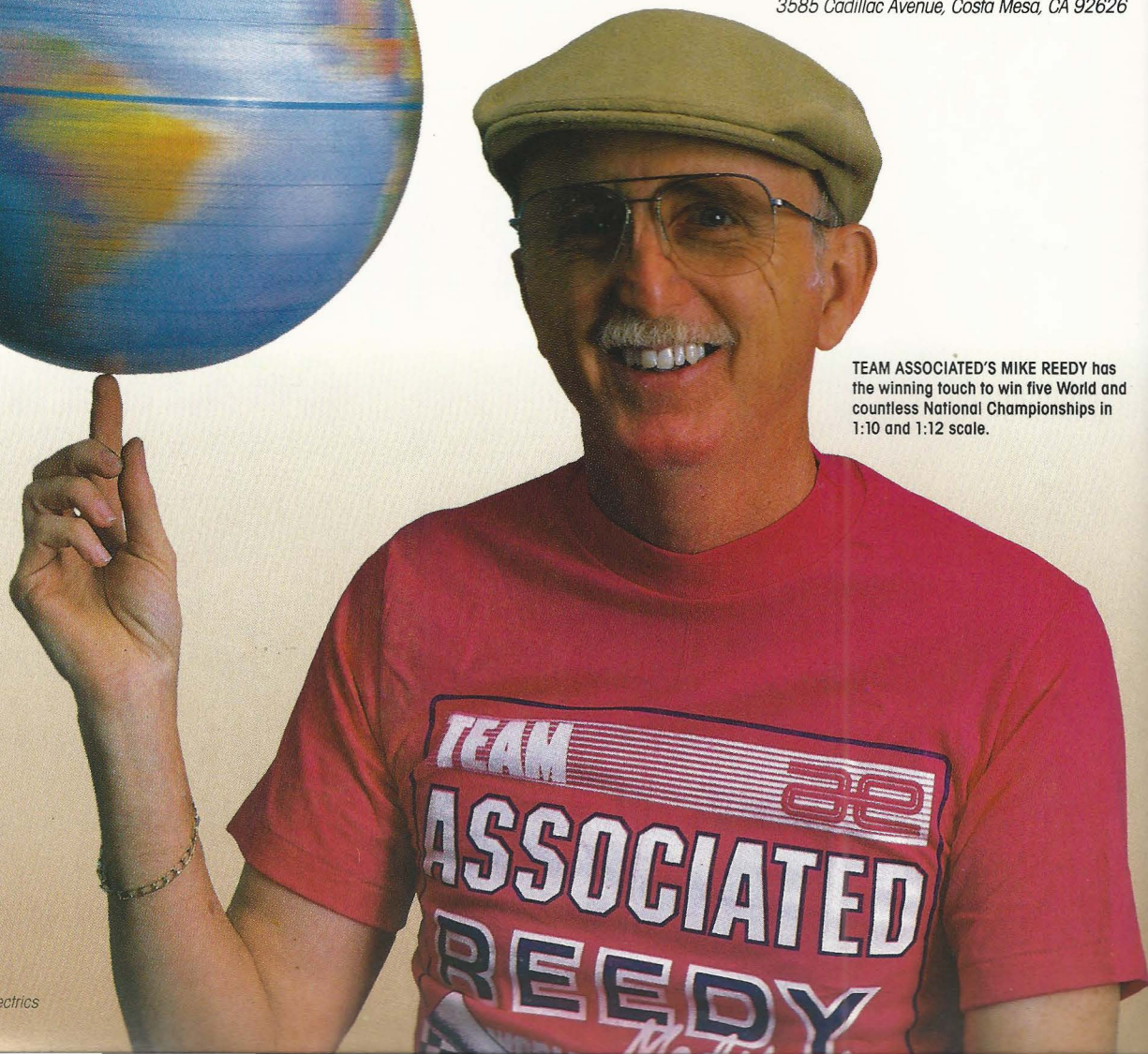
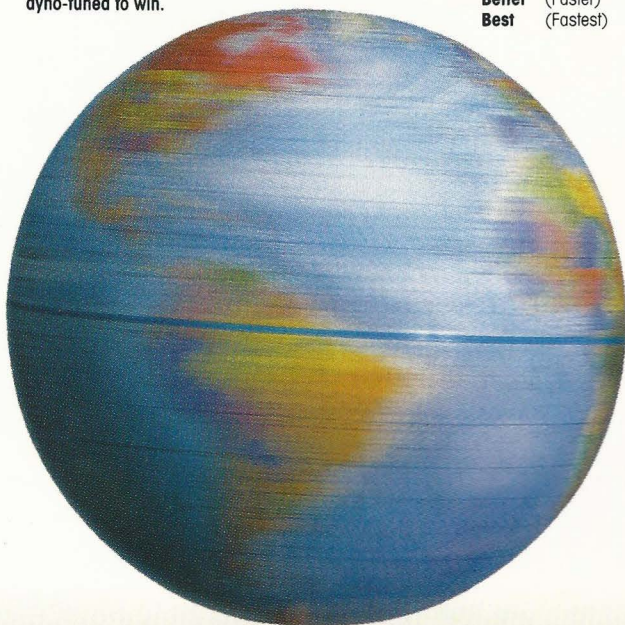
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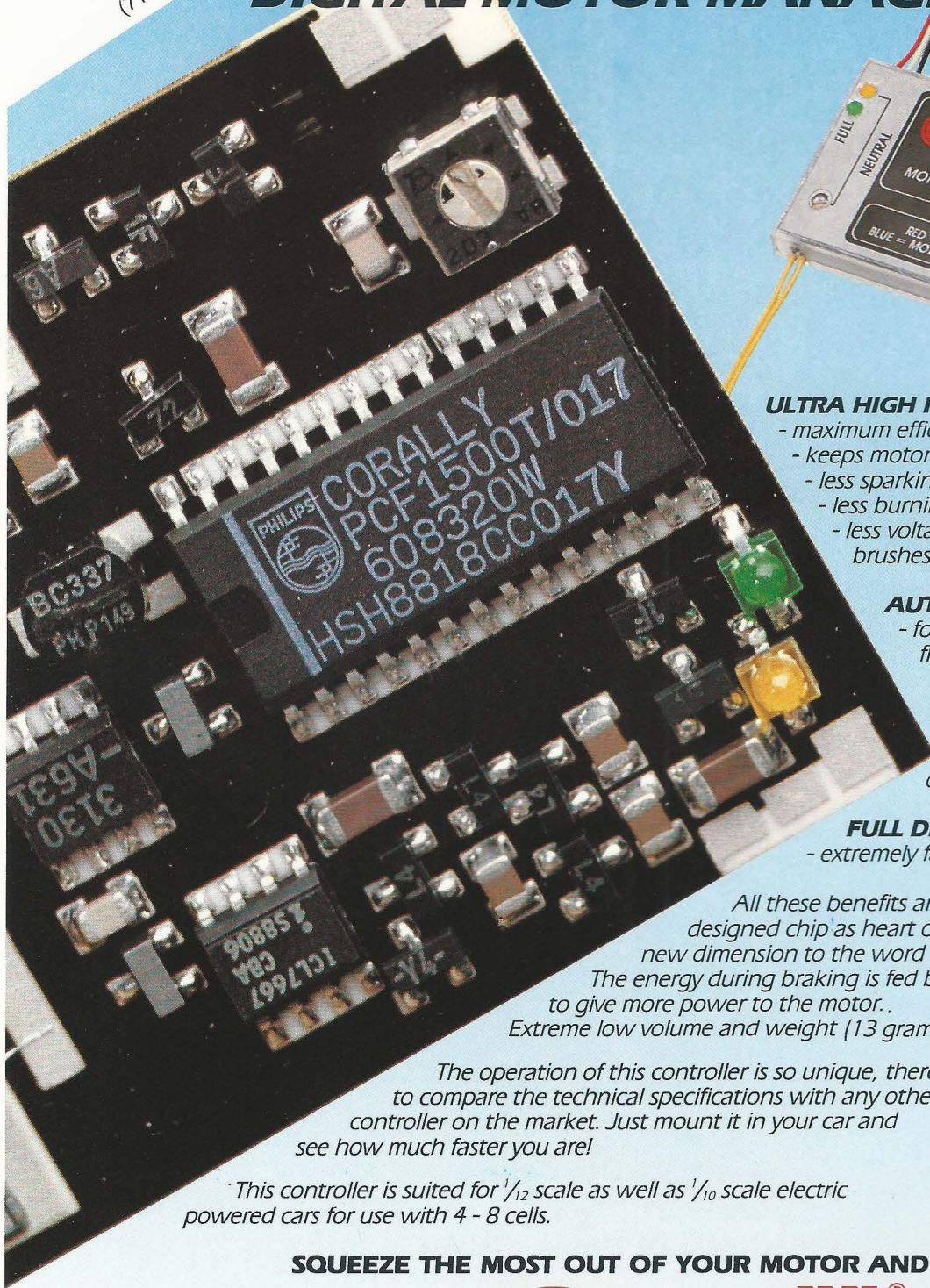
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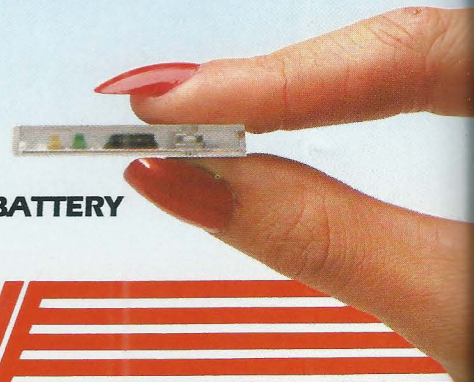
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PRODUCT REVIEW

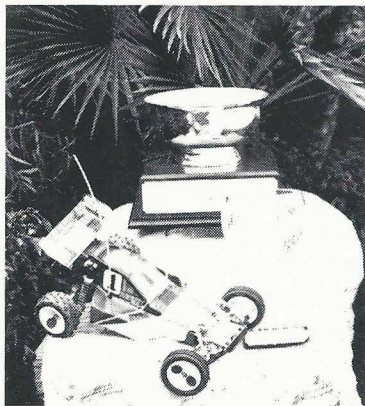
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ABOUT THE COVER

This month's cover features one of the winning cars Cliff Lett ran in the Invitational Class at the Reedy Race of Champions. Lett ran an Associated RC10 in the 2WD portion of the Invitational and ran a Yokomo YZ-10 in the 4WD portion both powered by Reedy Modifieds.

MAILBOX

THE R/C CAR MAGAZINE

Being a racer for a little over a year now, and after winning the stock championship by a large margin my first year out, I feel the need to search out new horizons for my RC 10. Locally I have proven myself well and for personal satisfaction I want to try some large events. Your magazine has the listings, applications and information I need to do that. You definitely have the "Racer" in your magazine. I am looking forward to my issues and the season to come. Thank You!

James Merritts

ORDER UP!

Dear Sir:

Today good service is so rare that I felt I should give credit when it is do. Normally you read about all the horror stories about dealing with companies, in fact, I personally could write pages about poor service. However, this organization deserves recognition for excellent service.

On Monday, February 6th I faxed an order to BoLink in Georgia. On Wednesday, February 8th I got a call from UPS that my order was sitting at the border in Windsor. Talk about prompt delivery! But the most surprising thing to me was this was the second time in a row I got such excellent service! It takes longer to get the parts from UPS to Chatham than from Georgia to Detroit because of customs. Please note, these were not especially large orders.

BoLink, I thank you! You should be proud!

Yours truly,

John Elliot

PARAGON OR NOT

Dear Competition Plus:

I am an avid r/c racer. I study race results and advertising to stay abreast of the new products and trends.

I've been noticing a lot of Paragon Racing Products at our track lately and after looking in your magazine I noticed a conflict. Paragon advertised their Ground Effects tire traction compound as the, "Choice of World Champions" (Oct. 88, pg. 10). On page 42 in the same issue you listed the IFMAR World Championship results.

The list does show that 7 out of the top 10 used Paragon traction compound, but first place winner Masami Hirosaka was using Yokomo traction. Is this just a typo, or does Yokomo have a tire traction that I didn't know about? Sincerely,

Brian Hughes

ED: After additional research into this discrepancy we have come to a conclusion that although Masami did inform us that he was using Yokomo tire traction, the truth is the traction used by Masami was indeed Paragon. Possibly in the translation, or in all the excitement which followed the event the question was mis-construed. We apologize for the error, and especially to Paragon Racing. They are the ones that deserve the credit for winning the title, in relation to tire tractions.

WHAT TIME IS IT?

For the past several months I have watched, with great interest, the on-going discussion regarding the timing in today's stock motors. I say with great interest because it is very important to me that we develop a solution that will accommodate the largest group of racers while remaining fair.

I will not go on and list the problems with the current trend amongst the stock motors now being produced for use in the ROAR stock classes. Nor will I reiterate the stories about that select group of racers who know what to do to these motors to make them go faster. You have

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heard it all before. Personally I disagree. Yes we have a problem, but I think people are complaining for all the wrong reasons.

Some stock motors carry far to much advance in their timing. This makes the motor faster, but it also reduces the operational life of the motor. You, the racer, asked for a faster motor. And the manufacturers provided it. Had you asked for a motor that lasted a long time, they would have provided that. In some cases manufacturers do, but you won't buy it. Why? Because you are convinced that you are getting beat by someone that has a faster motor. Not someone who is a better driver. Not someone who is better prepared. Someone with a faster motor! So off to the store you go to buy a faster motor. Do you really think that you can buy more power and come back next week and win? If this is true, then how come everyone in the modified classes are not running equally? They are allowed to run whatever they want. Any number of winds. Any gauge wire. Ball Bearings. They can advance their timing to the point that the motor will run in the opposite direction. Do they all run equal? Absolutely not! Why? Because driving skills are not equal. Because they are not all equally prepared. You cannot buy a victory. You can only earn it.

If you really want to win, watch what the winners do. They take care of their equipment. They come to the races prepared. They practice, practice, practice. Have you ever noticed at a major event where the stock motors are handed out, the fast guys always make the main? They drive their way there. Today's stock motors cannot be tampered with. Try it and you will damage them. You can change brushes and springs to improve performance. This is very tedious work. But it will make a difference. That is how they are beating you. Through

tedious, time consuming, hard work. This is what it takes to win.

So in reality the predicament we find ourselves in, that of the hot motor of the week syndrome, was really caused by a few racers who can't deal with being beat by someone who has taken the time to do their homework. And now those same few racers want ROAR to step in and bail them out. Only now they want to hide behind the concept of "saving the sport".

What about a solution? Should ROAR create a rule that would require stock motor manufacturers to incorporate a standard degree of timing advance? Are you prepared to go slower? Are you prepared to watch the same drivers win? What about the motors that are presently available? Should we make everything you now own illegal? Should we make everything currently on the hobby dealers shelves illegal? How do we explain to the manufacturers that his motors ordered six months in advance will not be ROAR legal when they arrive here in the United States? There are about 10 importers of ROAR legal stock motors. They each import several thousand stock motors a month. If we gave them six months to comply with the standard timing specification it is conceivable that nearly 500,000 motors would be imported between now and then. What would become of these motors? Do they become illegal? How do you police this? Think about it. Think about the economic ramifications. Can we afford to burden the manufacturers with all of this obsolescence? Hmmm. Maybe you think these motors would just get used up. If they are left in circulation anyone who wins a race would be accused of running one of the "old" motors. Or we could accuse the manufacturers of saving these little jewels for use by their "team" drivers. Sounds like

chaos in the making!

How about creating a new class? You heard me right. A new class. The class we now call stock would be "SuperStock", or something along those lines. The revised "Stock" class would be based on a new set of motor specifications that would include a set standard for timing advance. The amount of advance would be kept to a minimum to encourage longer motor life. Of course, we would require these motors be tamperproof and that the commutator be locked on the shaft. The longer motor life would result in lower racing costs to the hobbyist. The motor would be the only difference between "Stock" and "SuperStock" classes. Local clubs and events would determine their own needs and requirements.

Let's review the benefits of this approach. First of all we have accomodated the racer that wants to race competitively without buying a new motor every week. We have accomodated the racer who likes to "play" with his motor to increase it's performance without forcing him into the expense of moving up to the modified class. We have not created obsolesence of our equipment or the existing inventory of hobby shops, distributors, or the manufacturers and their suppliers. We have in fact created another market for them to create a new product for. The fact is several manufacturers are already producing motors of this type. More importantly we have devised a solution that allows for good competition, not only on the track but in the industry as well. We will further the opportunity for participation in our sport while creating economic growth and market stability. Most importantly, we will have put the fun back in our racing. Isn't that what this is all about?

John Thawley

CP

Motor Basics - 102

By F. Dale Cauthen

Telling the good from the bad from the indifferent.

Looking at a motor will not tell you how well that motor performs. Sure, you can spot obvious problems, with the naked eye; a badly misaligned bearing, a burned commutator, worn out brushes, mismatched brush springs and the like. But the less obvious problems require more than a quick visual check.

A handy device for your toolbox is a completely wired up mechanical speed control. Put the motor on and power it up with one of your practice batteries before mounting it up in

our car. A screeching noise usually indicates a wornout or (if you're lucky) dry bearings. The cure is a drop of oil and then a second test. If oil didn't help, odds are you're due for a new motor bearing.

Your car ran so good the first heat, you just charged up another pack and didn't touch the car at all before the next run. Now it keeps stalling and has to be pushed by a marshall or hit by one of the poor guys running behind you before it will run again. Guess what? You didn't check your motor between runs or you would have seen that the

old dried out piece of yellow foam you stuck on the motor with a rubber band is leaking dirt into your brush hoods and the dirt is now making the brushes stick in the hoods. If you have other motors with you, change to a fresh clean one before the next run. If that's the only one you brought, remove the brushes from the hoods and either put the springs out of harm's way or refasten them in place, leaving the brushes outside the hoods. Now liberally blow the brush hoods out with motor spray and hit the brushes with it while you're at it. Check the comm for

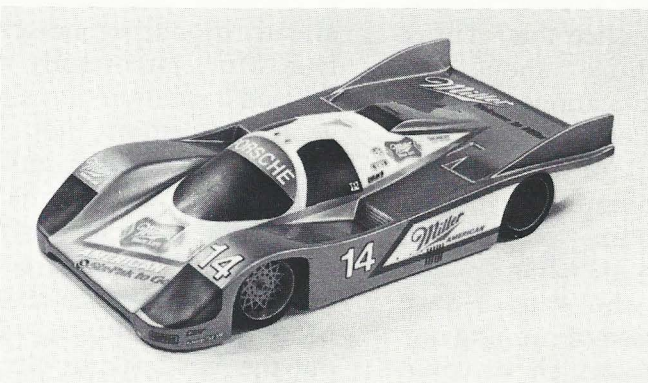
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3140 - Porsche 962 GTP



3145 - Nissan GTP

damage and clean it up with a Parma comm stick. Power may not be as good as before but the motor should run okay again. Replace the brushes before next race day. If the motor looks clean when you pull off the filter, check the brushes. Could be that the club hammer smacked you so hard he has broken one of your motor brushes and now the broken off piece of brush is twisting out of line in the hood and hanging up. Spare "pre-broken-in" brushes are the best form of insurance for these kinds of problems. Just be sure to break them in on the motor you intend to run them in later. Slight variations in brush hood alignment from motor to motor can make a great deal of difference in brush wear-in.

Your motor ran great until the brushes had to be replaced. Now it sounds weak on the test pack.

Thinking its just your ear not hearing the revs right, you mount it up in the car anyway. The car starts slow but seems to get faster towards the end of the run. Next time you put in new brushes, use the test speed control to run the motor at three or four volts until the brushes are polished over the entire surface of the face. During this process, check the motor often and give it a rest whenever it seems to be getting hot. Warm is ok, if it's uncomfortable to hold in your hand, that's too hot. After break-in, spray the brush hoods and comm off thoroughly with motor spray to remove the brush dust that's accumulated there from the brushes wearing in. Then sparingly relube the bearings. Also, don't get creative with the motor and stand it up on something so it's not running at the same angle that it sits in the car. Some manufacturers prefer

their motors to run loose and the brushes will be seating themselves to an area of the comm that they will never see in normal use. Lay it on it's side with nothing obstructing the flow of air through the can so the armature can stay as cool as possible.

You've just "tweaked" your new stock motor and now the car has to be pushed to start and is really low on horsepower. Congratulations Mr. Badwrench, you've overdone it and broken a winding off at the comm. Throw that motor in your scrapbox and go buy another one.

Motor sounds bad on test power and visual inspection shows a loose endbell. Be glad you found this on the testbench instead of in the car. A loose endbell can cause anything from erratic performance to a blown speed control should the endbell come completely off, letting the

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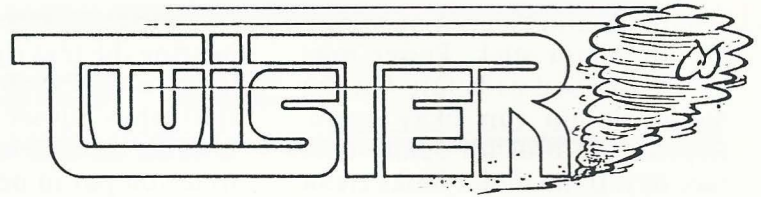
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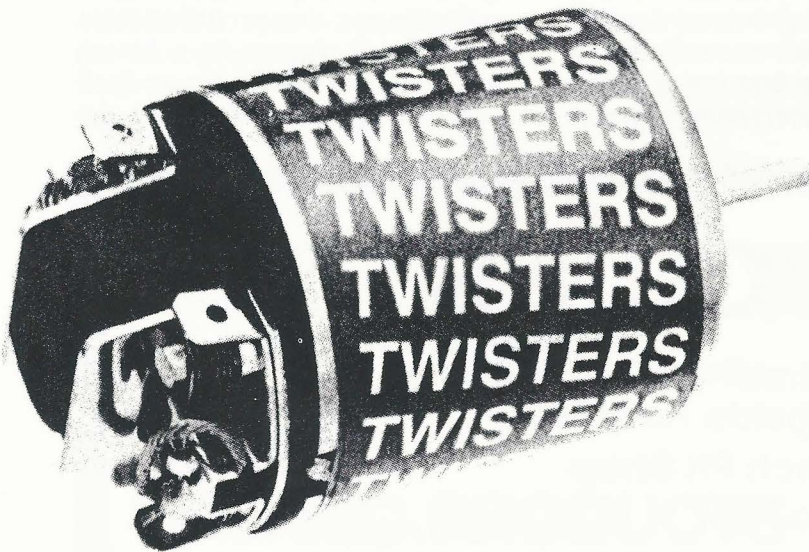
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THE UNFAIR ADVANTAGE !

brushes touch. If your motor can has marks showing where zero degrees timing alignment should be, realign the endbell properly and check the brushes and comm for damage before running the motor again. For stock motors, an experienced stock class racer can show you how to crimp down the can tabs so the endbell stays in place. Stock motor endbells should be pinned securely in place by the manufacturers to prevent this problem. A good hard wallshot can loosen most of them. Even pressing on a pinion gear that has a slightly undersized center hole can push some of the them off, although the only pinions I've had this problem with were 32 pitch.

You forget your test speed control or don't have a pack charged up to use it with. The motor you want to put in your car looks okay at a glance but you really need a good run and want to be as sure as you can be that this motor is up to it. Remove the brushes from their hoods. Are the brush ends smoothly arched to match the commutator and polished evenly across the entire comm end? Are all sides of the brushes smooth and free of any telltale signs of arching (pitting or burn marks)? Spin the armature in the can. Does it turn freely with no friction noise or shake that might indicate a damaged bearing or armature shaft? Your answers to these questions will tell you whether this motor is **LIKELY** to be good, bad, or indifferent. Some things not even a dyno will tell you. So the only true test of the motor will always be running it in the car. But if you could answer "yes" to all the questions above, odds are the motor is going to perform well. If you had to admit the brushes aren't quite broken in yet, or one of the bearings was beginning to wobble a bit, or the comm had a groove in it, then this motor is most likely an indifferent performer. If the brushes were discolored from heat, spinning the arm produced a slight grinding noise, or there was oil in the brush hoods and burn marks on the comm, go look for another motor. This one needs help.

The main thrust of all this is

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that you cannot afford to ignore the condition of your motor if you care about performance. Keep it clean. Maintain the brushes and commutator carefully. Don't let your bearings run dry but don't over lubricate to the point that oil goes inside the motor. Gear sensibly and keep the gear mesh smooth to avoid overheating the motor.

Keep these points in mind and your motors should live to a ripe old age. Abuse them and your hobby shop owner will see you often.

Some of my motors are approaching three years of regular use with no major problems and no component replacements other than brushes. A few, sadly, have become useless from all out efforts to win racers at all costs. Those that died early were the victims of overgearing and the heat produced by that abuse or from modifications that pushed them beyond their limits. Usually when I overgeared a motor, it was intentional and the risks were understood. At least

once, I traded a good motor for a trophy. More times, the car didn't finish the race and the motor was trashed anyway. You have to decide what risks you are willing to take when selecting your gear ratio. When you have a choice, use the smallest pinion that will keep you in the race. Often, you will be passed by every other car in the race down the straight-aways but still turn the best lap count because your car performs better in the twisty sections and stays together for the entire run.

The one thing there is never an excuse for is allowing a motor to be damaged by dirt. Motor filters are cheap insurance, so is motor spray. Spend a little time on your motors and save money in the long run on replacement costs.

Next time we'll get into use of the dyno and how to select the right motor for the specific car you are running and a little on how to "guesstimate" which motor to select for the track you intend to run it on. Until then, keep it clean!

Hyperdrive

By Jeff Palmer

When you open your field box, does it look like the back lot of a transmission repair shop — littered with 32, 48, and 64 pitch gears. Life was so simple a few years ago when the only decision was to choose the correct pinion gear to match the driving conditions since all gears were the rugged 32 pitch type. Then came the new, more efficient, 64 pitch gears and the gear race was on. Soon, the outcry from the perils of fine tooth gears could be heard at the local tracks — “Another @#% stripped gear!!”. Along comes 48 pitch gears, which appear to be the perfect compromise between efficiency and ruggedness and here we are, at the current state-of-the-art for gears. Or are we? Check out the HYPERDRIVE; there are surprises to be found.

The HYPERDRIVE is a belt system and represents a radical departure from the norm in R/C racing. You still have a pinion and a spur gear, just like in the traditional gear systems, but instead of matching these two gears directly, you use a belt. Now you ask, “Why complicate the drive system with a third element, the belt?” Good question! It doesn't seem possible that a more complicated drive system could be more efficient than a less complicated one, but the HYPERDRIVE by S.S. Industries, claims you will get greater distance from a battery using the HYPERDRIVE than a car using the traditional gear system, regardless of gear pitch. That's a bold claim but how do you verify it?

The Test Scenario

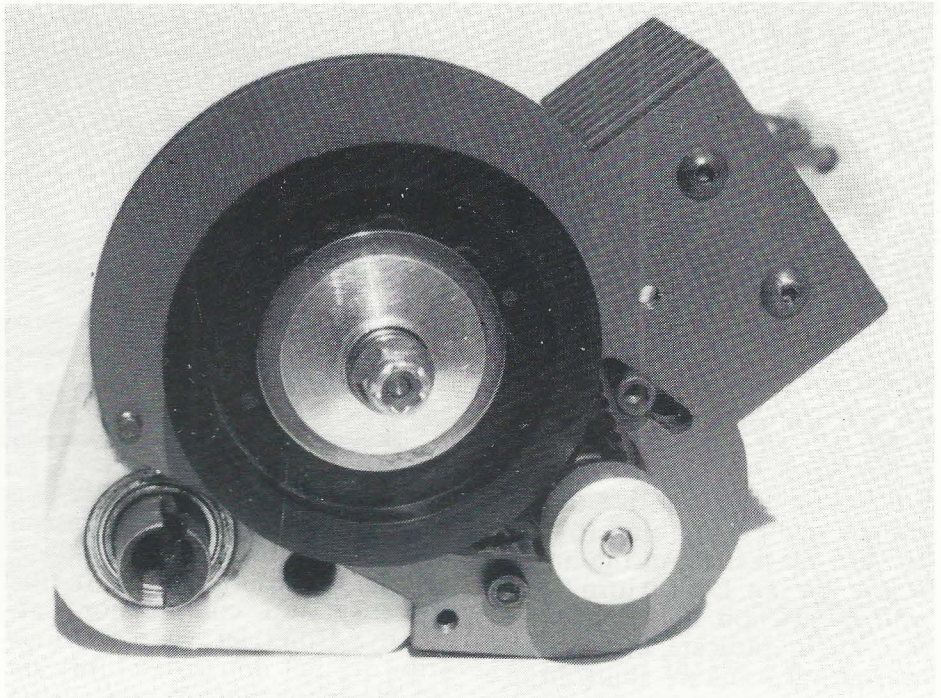
To test the HYPERDRIVE claim, I decided to use my Associated RC10 with its stock transmission. To insure that both systems get the same amount of

power, I used a good consistent power source — Trinity's Matched Sanyo SCRs (7 cells). To provide the batteries with a consistent charge that could be monitored, I used Tekin's Pro Charger (BC-200) with LED read out. Between tests the pack was allowed to do a

mance to 64 pitch gears but at ½ throttle and above the results were:

HYPERDRIVE out lasted 32 pitch by 10%, 48 pitch by 7%, 64 pitch by 5%.

How do you interpret this information and what does this



“Quiet, efficient and fast.”

proper recovery, that is, the pack was allowed to rest for 48 hours before being recharged and used again. A Reedy Stock Motor was used for all the tests and it was controlled by a Tekin ESC Pro Speed Controller. To test the full range of efficiency, the tests were conducted at ¼, ½ and full throttle using 32, 48 and 64 pitch gears. All gear ratios were based on a 32 pitch gear using 8, 10, 12, 14 and 16 tooth pinions and a 54 tooth spur gear. The car was placed on a stand and allowed to free-wheel so track conditions and driving skills would not be factors in the early portion of the test. At ¼ throttle, the HYPERDRIVE had equivalent perfor-

mean to the racer! I wasn't sure, so I packed up my gears, my batteries and the car and headed to the local oval track. There I could repeat the tests using consistent driving conditions requiring minimal driving skills. Using the same charging and testing scenario described earlier, the following results were obtained: HYPERDRIVE averaged 3 laps more than 32 pitch gears, 1.75 laps more than 48 pitch gears, 1 lap more than 64 pitch gears. Enough said, HYPERDRIVE's claims are accurate.

Changes To Your Drive System

If HYPERDRIVE has any disadvantages, its the conversion

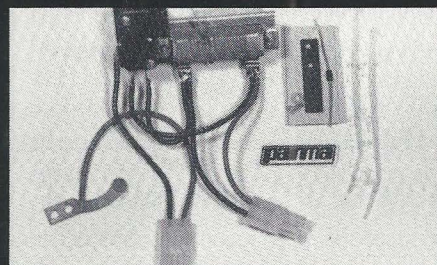
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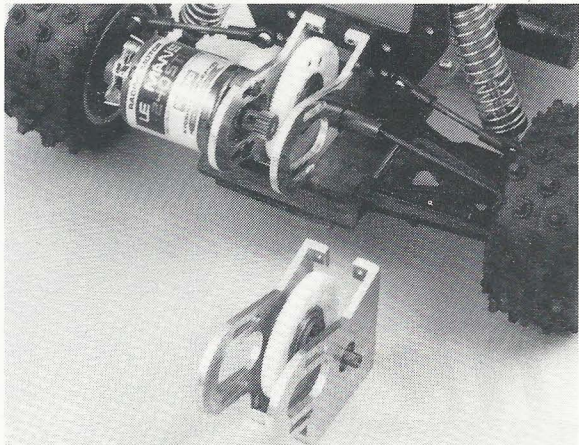


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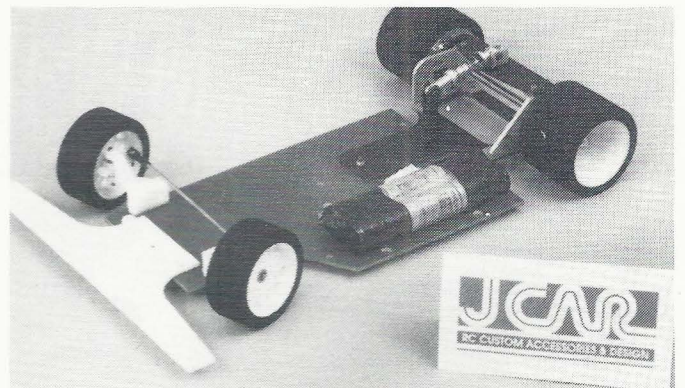
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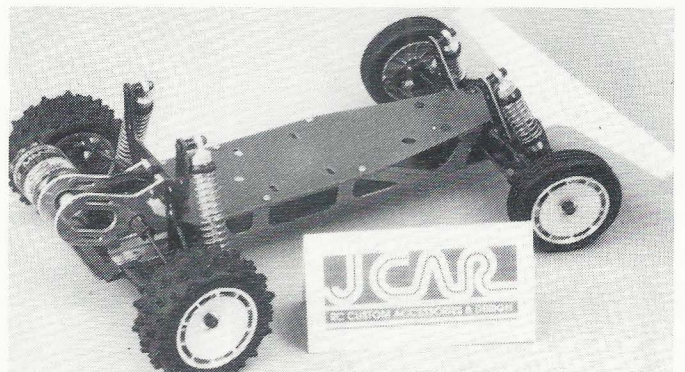
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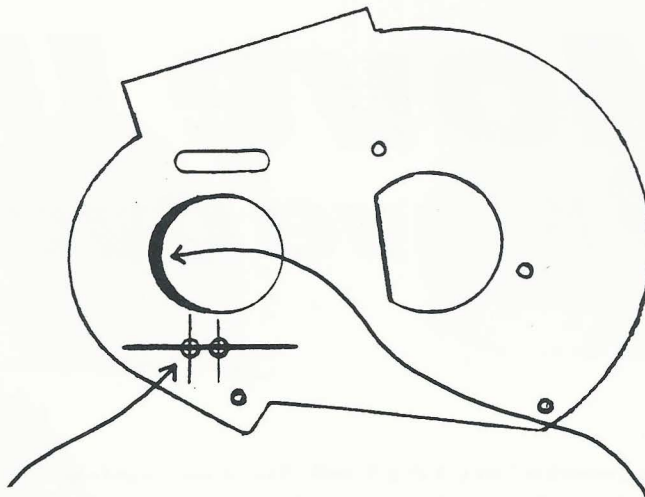


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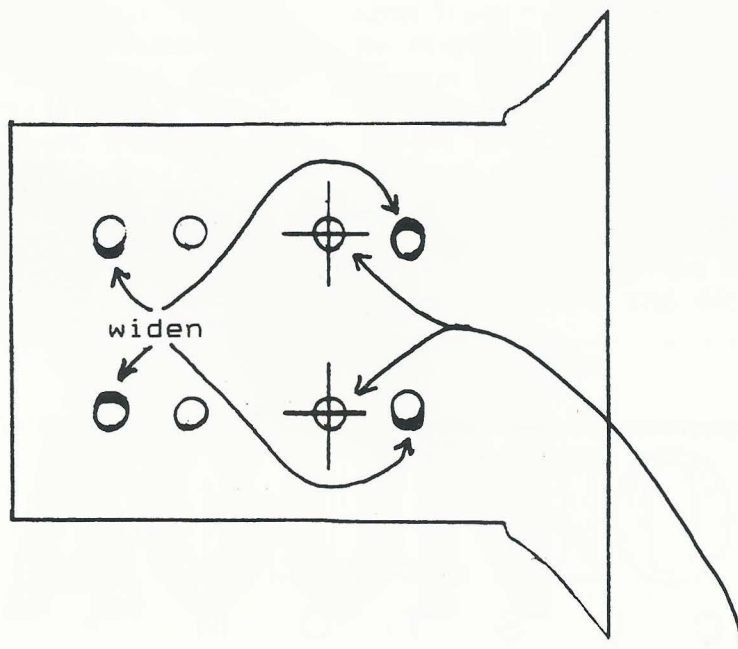
required to use the system. All current on-road and off-road cars use a two gear system which means, the spur gear rotates in the opposite direction of the pinion/motor. HYPERDRIVE's belt system uses a belt which causes the spur gear to rotate in the same direction as the pinion. In a stock installation this means, when you hit the throttle you'll be going backwards. Now, the only problem with going backwards is, it's against ROAR rules. This problem can be solved by reversing the leads to your motor — put the negative wire from the speed controller on the positive terminal of the motor and the positive wire from the speed controller on the negative terminal of the motor. Sounds easy, right? Well, your modified motor will need to be retimed, since all the advanced timing is now retarded timing; rotate the end-bell 180°. In the case of stock motors, you can't re-time them, however, there are other alternatives.

The simplest alternative for those running the stock RC10 transmission is to mount the motor bracket on the opposite side of the transmission. To accomplish this, cut off the portion of the bracket that attaches to the tub of the RC10 (see photo #2). To allow for the correct adjustment of the belt, an additional motor mounting hole will need to be drilled and the motor pinion hole may need to be enlarged (drawing #1). To enlarge the motor pinion hole, use a Dremel with bit #196 and route out the hole as noted in the drawing. Next, drill the additional motor mounting hole, using a 5/16" drill bit. File these areas smooth to avoid being stabbed or cut by metal splinters. Now, reverse the spur gear drive shaft assembly (see photo #3) and assemble the modified motor bracket on the left side of the transmission. Remount the motor, hook up the electrical and GO!!

For those using the MIP or Team Pit Stop transmission, a



Drawing # 1: Drill the second hole (left) and route out the darkened area. This template will work for current RC10 motor brackets.



Drawing # 2: Mid-engine conversion drilling guide. Drill the two new holes indicated and widen the darkened areas.

second alternative is available; we're about to create a mid-engine (motor) RC10. To accomplish this, everything from the rear bulkhead back need to be reversed. Start by turning the motor bracket, transmission and rear bulkheads around (see photo #4). To remount these parts, two new holes need to be drilled. Use an 11/64" drill bit and the drill template provided in drawing #2 and drill the two holes required. You can counter sink the new holes, to allow the screw heads to recess flush with

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That, plus mid-ship placement of the motor helps to distribute weight evenly, so the front and rear pin-spike tires keep grabbing fistfuls of traction.

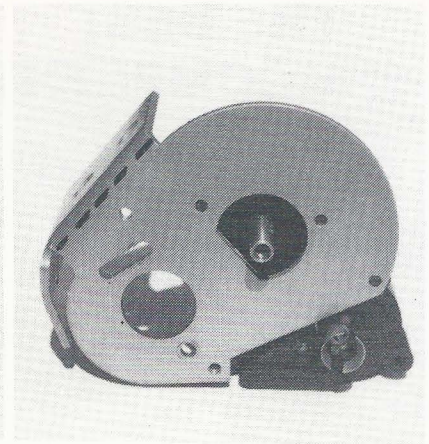
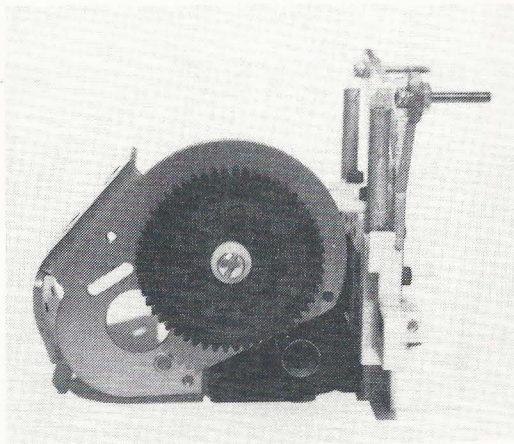
The Optima Mid CS includes a glass-reinforced, wishbone/parallel arm independent suspension and four oil-filled Kyosho Gold Shocks for a smooth ride. The factory assembled, front and rear gear-type differentials are sealed against dirt, and a protective belly pan keeps all sensitive on-board gear in top operating condition. Powered with lightweight, durable, and efficient belt drive, the Optima Mid CS is accented with fluorescent yellow, one-piece wheels that heighten visibility in the racing pack and warn all other off-roaders to look out! A new generation of Optima is coming through!

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the bottom of the RC10, using a 7/32" drill bit and lightly drilling the chassis. Now reassemble the motor bracket, transmission and rear bulkhead. The two holes used to screw down the rear bulkhead may be spread to wide to line up correctly. To solve this problem, slightly enlarge the holes toward the middle of the chassis (see drawing #2); use the 11/64" drill bit. For those using stock type rear "A" arms, swap the rear "A" arms with each other. DON'T swap the "A" arm mounts as this will change the toe-in of the rear wheels. If you're using the stock tub, please note the chassis modification in photo #5. This cut will allow the dust cover to fit correctly and give better access to the transmission for gear and belt changes as well as provide better access to the motor on the other side. Remember to file smooth the modified areas to remove any sharp burrs and splinters. Assemble the out drive/dogbone assemblies and GO!! For those using "The



Right - Photo # 2: "Cut along dotted line." Left - Photo # 4: To do a stock mid-conversion, reverse all these parts. Use drilling template (drawing # 2) and modify the chassis. Reassemble and go!

Touch" trailing arms, the mid-engine conversion will work. Reverse the motor bracket, transmission and bulkhead as described above but DON'T swap the trailing arms. Simply move the shock mount to the back side of the trailing arm and move the tie rod to the back side of the rear hub carrier — great engineering Gary (The Touch). Hit the throttle and GO! I

haven't tried this conversion with A & L's, Andy's or MIP's trailing arms. If you have, please write to the magazine and let me know. I'll pass your information on to the readers.

I bet you thought you were done with modifications, well for RC10 drivers there's one more required. On the HYPERDRIVE pinion gears remove the inter flange (photo #6) and file or

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grind away the excess aluminum which held the flange (photo #7). This modification will allow for adjustment of the pinion gear for correct alignment. S.S. Industries is evaluating the producing of special RC10 pinions with this modification made. Write them a note and tell them what you think.

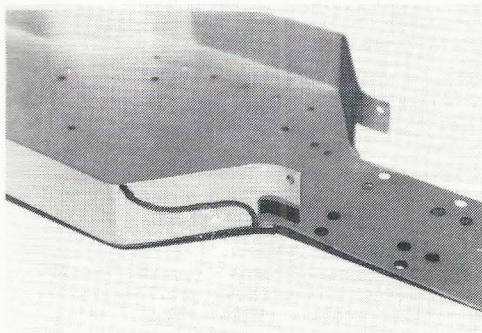
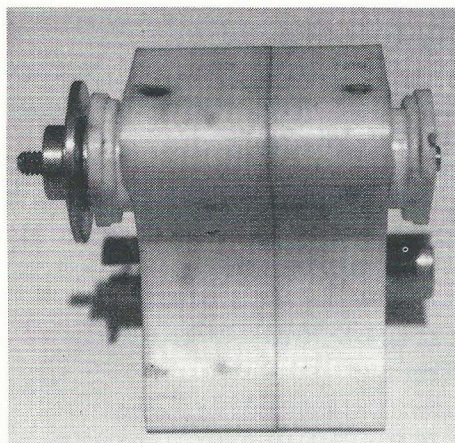
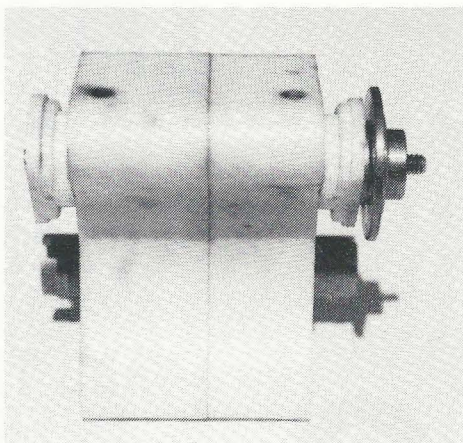


Photo # 5: To finish the job, make this cut on both sides ("s" mark in photo). Stay 1/4" above the bend on the bottom of the chassis and you won't sacrifice strength.

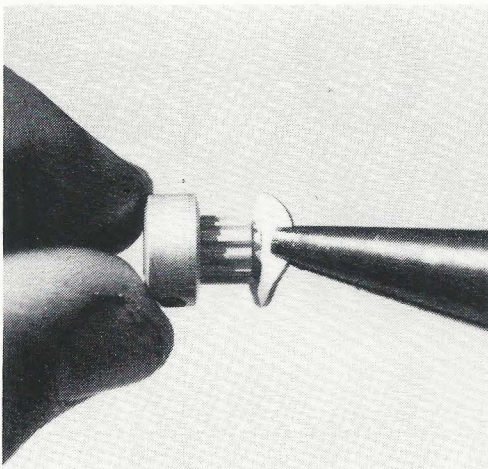
If you're still hesitant about a belt drive system because of the possibility of slipping belts, let me take this opportunity to set your fears at ease. When the belt was adjusted properly, the system is more efficient than traditional gears. When the belt was loose, it would slip a little during high torque periods; at the start of a race or when accelerating out of a sharp corner. Since the belt has teeth, the slippage is minimal and the overall performance of the car was well within acceptable limits. If the belt is stretched tight, the problem of binding occurs at the transmission or motor but I never caused a failure by over tightening. The belt will stretch which makes it difficult to over tighten. The belt system is very forgiving and it's easy to adjust properly. OH, FOR THE SIMPLE LIFE!

A couple of final notes:

1) Litespeed markets an RC10 motor bracket with oversized holes which will work perfectly. You'll also get the added benefit of the enhanced cooling for the motor. If you need more adjustment for the belts use the motor



Left - Photo 3A: Switch the side the spur gear is on. To do this, simply pull out both sides of the diff shaft assembly. Right - Photo 3B: And reassemble on opposite sides.



Left - Photo 6: The last modification. Remove the flange from the pinion. Right - Photo 7: On the left is the stock pinion gear. On the right is the modified pinion.

bracket template and drill the additional hole.

2) Advanced Racing Products markets an RC10 mid-engine conversion for those who want the work already done. Again, the motor bracket may need some work; use the motor bracket template and make the desired changes. This product is tailor perfect for the HYPER-DRIVE. With the battery cut outs for improved weight distribution and a lower center of gravity, this conversion kit is a great start toward an awesome 2WD oval car.

3) S.S. Industries is preparing to market a reverse diff cover for those of us who hate dirt in our transmissions.

A side note that was uncovered

during the testing: Trinity 64 pitch gears were more efficient than Losi 64 pitch gears. For this article, the efficiency rating was based on Trinity's 64 pitch gears.

'Til next time. GOOD RACING!!

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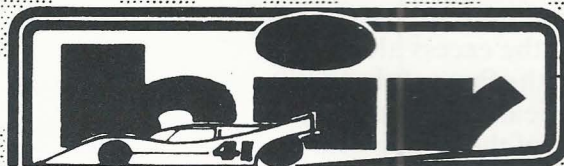
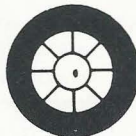
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Sacramento Super Bowl III

By Marge Schlager

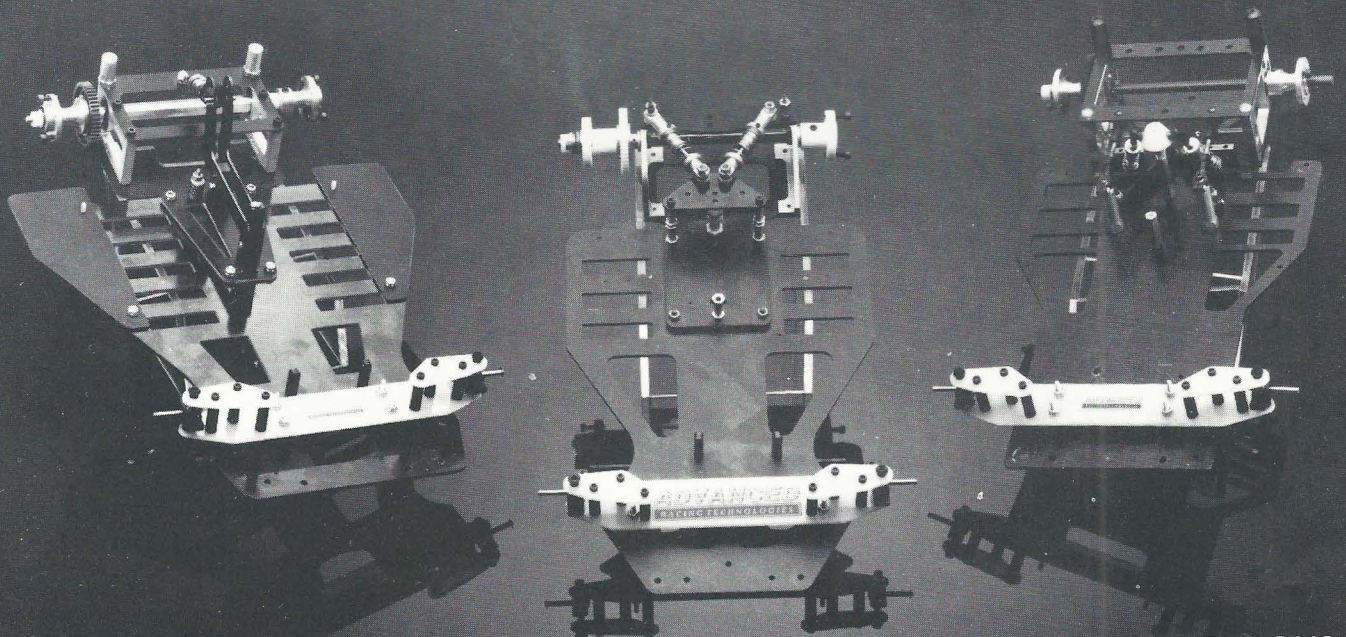
Combine a new indoor track, a worthy cause and an awesome off-road configuration in the California Northlands and you have the Sacramento Super Bowl III. This year's Super Bowl was held at the new Sacramento Mini-Wheels owned and operated by Paul and Marge Schlager.

The facility consists of the 113 X 57 foot dirt track. The top quality top soil and clay mixture surface makes traction heaven for the racers. The track accommodates both off-road and oval races. The on-road track is 45 X 95 feet and the races are computer scored using the Autoscore and Bremstar R/C Racing Systems.



In the Pits.

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"Touched" Optima Mid makes it thru!

The pit area is fully lit and covers 2,400 square feet of the building. Also included are the electrical outlets, restrooms concessions and the retail area. All of this is within the 20,500 square foot building.

Wow!

Like the previous Super Bowl Sundays this race was organized and sponsored by The Touch. Thanks to the track crew of Tony O'Reilly, Gary Harvey, Dave A., Phil Gorden and Bob Harris for a mega challenging track configuration made available to the 180 racers.

The off-road circuit started in front of the drivers stand, then through a left turn into a short straight. From there a minor set of triples just in front of another left turn which was the final set up for The Overpass. The Overpass is a giant 8 foot jump over cross traffic! Upon landing a driver makes a quick right and prepares to tackle the triple bowls. The best way to take this obstacle is to run down the bottom or gas it and run on the 4 foot side walls which run right-left-right. After this its a right turn followed by a straight which runs under The Overpass, through the mega mogals, a right turn and back to the start line.

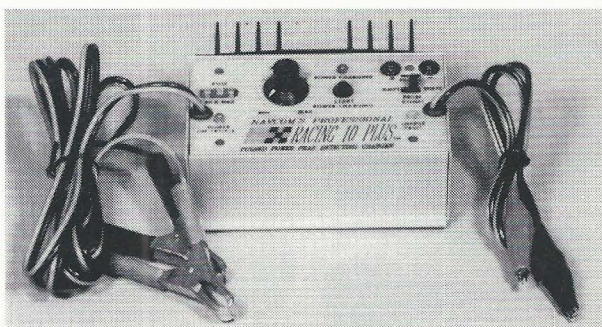
This Super Bowl was done in cooperation with the Toys for Tots, and a many thanks to the racers who donated the hundreds of dollors worth of toys. They were well appreciated. All the participants received a bumper sticker from the S.M.W. and a sticker sheet from The Touch. Raffle prizes donated by Associated, CRP, Dahm's, M.I.P., Paragon, Reedy and The Touch were given away during the mains.

The three rounds of 18 qualifying heats took the race through 8 grueling hours. What better way to



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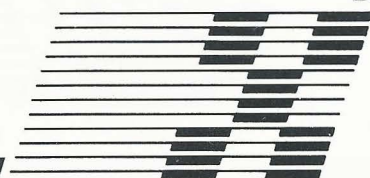
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Rob Robinson

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First Place - Gary Guest

1988 WESTERN OFFROAD CHAMPIONSHIPS

T.Q. & First Place - Rob Robinson

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Anaheim Stadium - First Place

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break the pre-main tensions then to watch, or for the brave, participate in the Jumping-Jack-Flash contest. The event was to decide who could jump their car the furthest over the ramp. Each participant received two chances. The winner picked up an awesome trophy. Piece of cake, or so thought the 24 entries. The best jumps were had by Dan Slokes. His launch was measured at 13 feet. Dan Rodamire was at 11 feet and William Dixon at 9 feet, 4 inches. The best of the best, however, belonged to Steve Small with a 16 foot, 3 inch assault.

Because the track was so challenging the mains would be won by the racer that knew how to DRIVE the track. Superior individual performance was the word of the day for three drivers.

In the 2WD Stock A main the pole position was had by Rick Vehlow (Reedy/Associated) and he got the hole shot off the line. Rick had a clean first lap and was still in front, but one mistake

and Jay Kanemoto would take over first. When Rick made that mistake Jay did go in front, but in lap three Rick took the lead back and it was his for the race.

In the 2WD Modified A main Dan Stokes (Concord Hobbies) had the pole. Dan wasted no time and after getting the hole shot he went through the race and quickly started lapping the field. By lap six he had seven cars one lap back. In the final 30 seconds he had lapped all but the second place car driven by Ron Williams. Dan went on to take the win with Williams second. Finishing in the third place spot was Jon Anderson. Dan Stokes was also the winner of the TQ race.

As anyone who was there can attest to the high speeds of the 4WD Modifieds made for a slam bam event. The lead had changed six times between the front four drivers. When it was over the winner was Tony O'Rielly.

It was a spectacular race and

many great moments were shared by all. Once more not only did everyone have a good time, but it was all for a very worthy cause. The Toys for Tots really appreciated the donations and thanks to all who participated.

2WD STOCK MAINS

A MAIN

- 1st - Rick Vehlow
- 2nd - Ron Williams
- 3rd - Jon Anderson
- 4th - Jay Kanemoto
- 5th - Kevin Jelich
- 6th - Steve Small
- 7th - Randy Crane
- 8th - Dan Stokes
- 9th - Vernon Decker
- 10th - Dan Lodermeier

B MAIN

- 1st - Steve Schuyler
- 2nd - Flying Bryan
- 3rd - Carlos Garcia
- 4th - Jeff R.
- 5th - Dave Kelly
- 6th - Bob Ives
- 7th - Sean Dehart
- 8th - RC Racer
- 9th - Rich Albright
- 10th - Ron Lewis

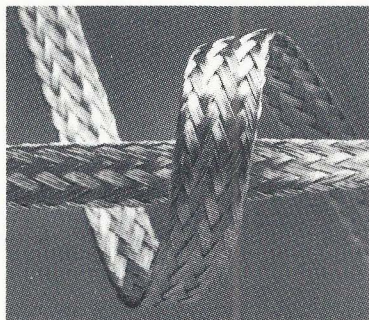
C MAIN

- 1st - Jay Sped
- 2nd - Ben Tibbetts

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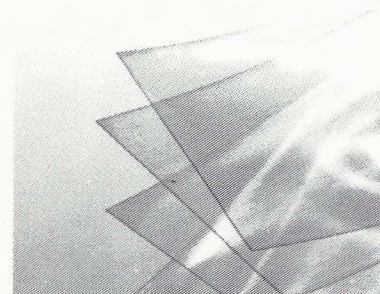
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6 CELL



7 Cell



SUB C

3rd - Dennis Ferguson
D MAIN

1st - Bud Kanemoto
2nd - Richard Sales
3rd - Chad Gillihan

E MAIN

1st - Andy Harding
2nd - Kristen Harvey
3rd - Eldon Hocut

F MAIN

1st - Maria A
2nd - Rick O'Boyle
3rd - Rob Thorp

4WD STOCK MAINS

A MAIN

1st - Jim Castlebury
2nd - Bobby Ligebach
3rd - Nick D'Amico
4th - Richard Natrass
5th - Iron Man
6th - Mike Dixon
7th - Phil G.
8th - Gary Herdrith
9th - Derek Pearson
10th - Mike Furry

B MAIN

1st - Richard Jung
2nd - Steve Hedaria
3rd - Don Laskey
4th - JR Cat
5th - Paul Nichols
6th - Randy Wooddell
7th - John Bartlett
8th - Levi Allen
9th - Mark Smoot
10th - Dan Corbit

PRODUCTION MAINS

A MAIN

1st - Mike Kroeker
2nd - Mark Werblow

3rd - Kevin McNiff
4th - Shane Digger
5th - Frank Leggio
6th - Ken Wold
7th - Duane Layton
8th - Joel Duncan
9th - Jeff Thalman
10th - Rod Driggers

B MAIN

1st - Mike Lewallen
2nd - Sabrina Sample
3rd - Ed Cecil
4th - Dawn Cecil
5th - Chris Harrison
6th - Eric Bradshaw
7th - Unicorn Kid
8th - Jay Rich
9th - Cliff Kolton
10th - Rick Covey

2WD MODIFIED MAINS

A MAIN

1st - Dan Stokes
2nd - Ron Williams
3rd - Jon Anderson
4th - Randy Crane
5th - Dan Lodermeier
6th - Mark Francis
7th - Rick Vehlow
8th - Tony O
9th - Jay Kanemoto
10th - Steve Schuyler

B MAIN

1st - RC Racer
2nd - Matt Francis
3rd - Carlos Garcia
4th - Flying Bryan
5th - Dino Baltazar
6th - Vernon Decker
7th - Robby Moots
8th - Ron Lewis

9th - Jim C

10th - Ralph Banvelos

C MAIN

1st - John Alton
2nd - Mike Kelley
3rd - Rich Albright

D MAIN

1st - Sean Dehart
2nd - Ben Tibbets
3rd - Bob Ives

E MAIN

1st - Dennis Ferguson
2nd - Chuck Kimber
3rd - Wally Woodson

4WD MODIFIED

A MAIN

1st - Jay Kanemoto
2nd - Nick D'Amico
3rd - Tony O
4th - Bobby Lingebach
5th - Doug Erickson
6th - Jeff R
7th - Phil G
8th - Neil Rabara
9th - Robby Moots
10th - Gary Harvey

B MAIN

1st - Iron Man
2nd - Don Laskey
3rd - Mike Dixon
4th - William Dixon
5th - Richard Jung
6th - Jake Alton
7th - Dan Corbit
8th - Bill Sample
9th - Josh Alton
10th - Dave A

C MAIN

1st - Bob Harris
2nd - Richard Sales
3rd - ?

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- C. **Ugly Stick**
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- D. **Motor Cover Heat Sink**
#244
- E. **Bond-On Heat Sink**
#400 B (blk) (horiz)
#400 C (gold)
#500 B (blk) (vert)
#500 C (gold)
- F. **Speed Control Heat Sink**
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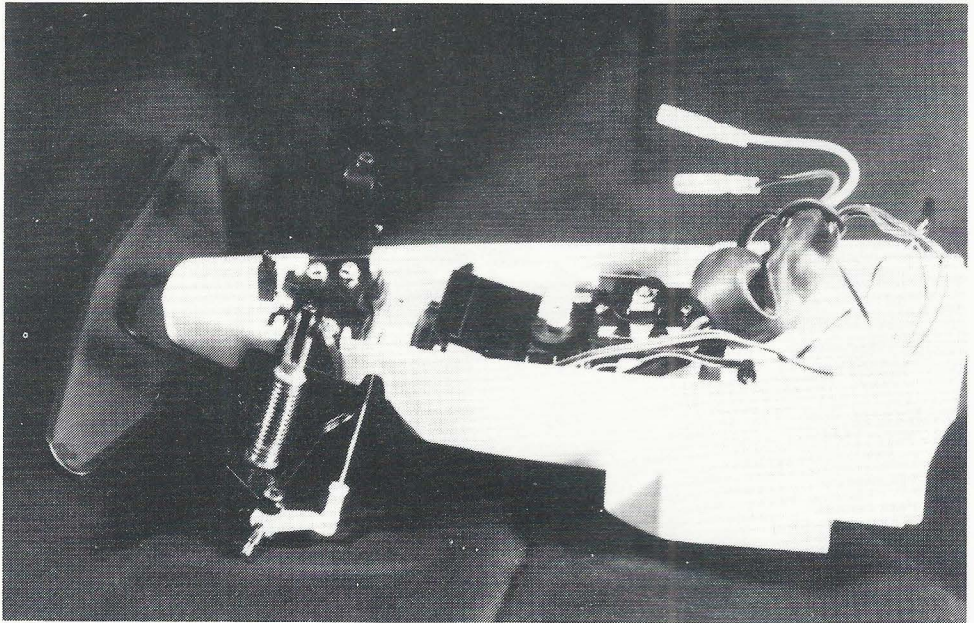
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Futaba FX10/All Terrain R/C Off-Road Car

By Bob Crane

From the Company that has brought you the hottest radios on the market introduces their entry into the radio controlled car market. The FX10 is an entry level kit designed to be built by your average 11 - 12 year old and some older kids, (like me!). You will need a two channel radio with a battery eliminator circuit. Obviously, we used a Futaba pistol grip radio. You may also use the Futaba MC112B MOSFET speed control as an option on your FX10.

The directions are very clear and feature photographs in place of line drawings for the various phases of assembly. The steering servo and servo saver are assembled first, followed by the mechanical speed control. The



The completed front end - Note: large bumper for hard times!

resistors are plugged in at this point in the assembly. The throt-

tle servo is installed in the servo housing and the controller lin-

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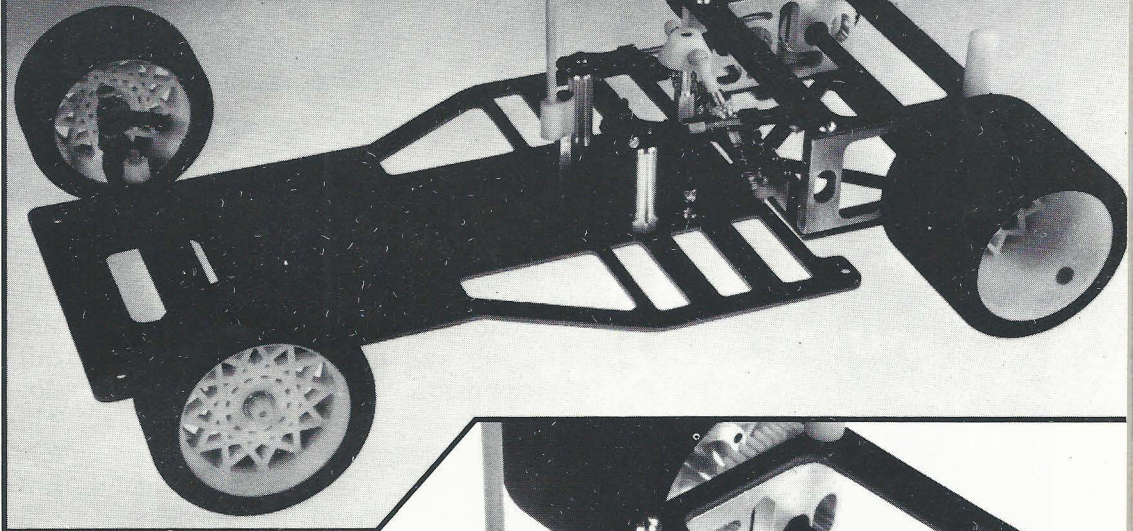
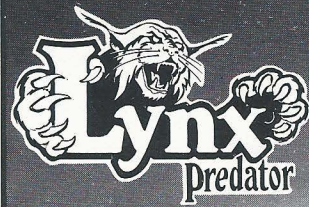
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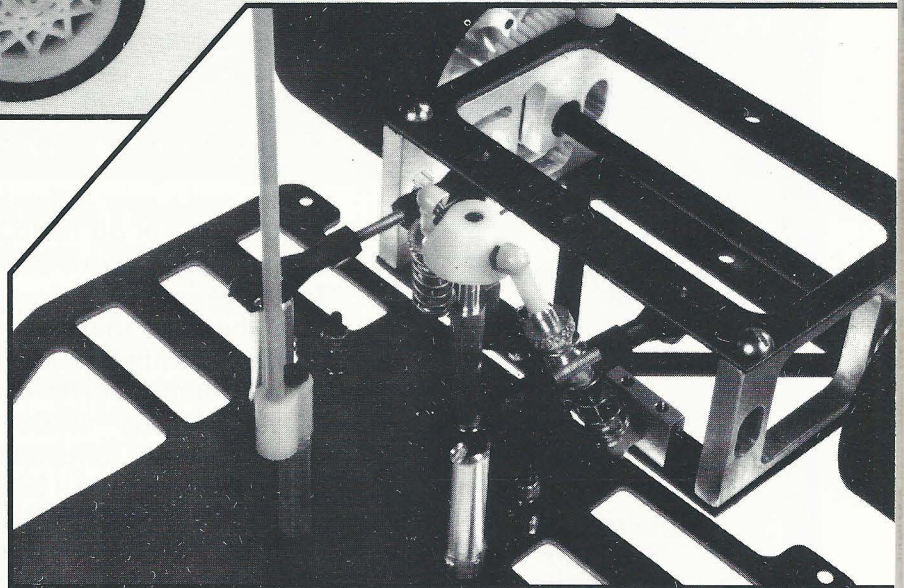
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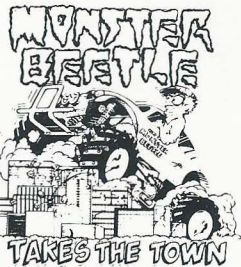


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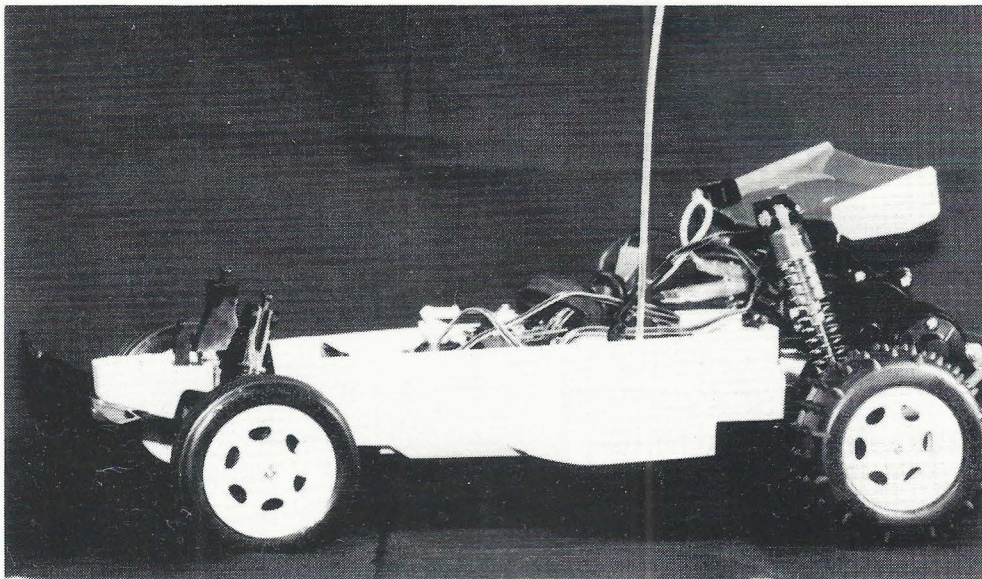
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The plastic monocoque tub chassis for the FX10 — with all the goodies installed.

kage is attached. Make sure that you lubricate the switch on the speed controller to insure optimum contact for efficient operation.

The chassis is a one piece plastic tub and takes mounting the suspension and body post mounts very easy. The battery is completely enclosed in the chassis and is secured in place with a compartment cover. The front suspension features independent suspension arms with front coil over shocks. The shocks are not oil filled but they do provide effective dampening. Included in the kit is a flexible front bumper that can take the shock of hitting the wall and not causing damage to the car.

The gearbox utilizes a differential and assembles quite easily. An oilite bearing is installed on the idler gear and a resin bearing. Be sure to apply grease to the idler gear teeth. When installing the planetary gear into the differential gear apply grease to the teeth but wipe off any excess grease. Carefully assemble the diff and install it in the gearcase. The rear bumper guard is then attached to the rear of the gearcase, to keep those hot shot drivers off your tail! The motor is mounted as per instructions in the holes provided in the gearcase. The holes will insure that you have a perfect gear mesh when you run the car.

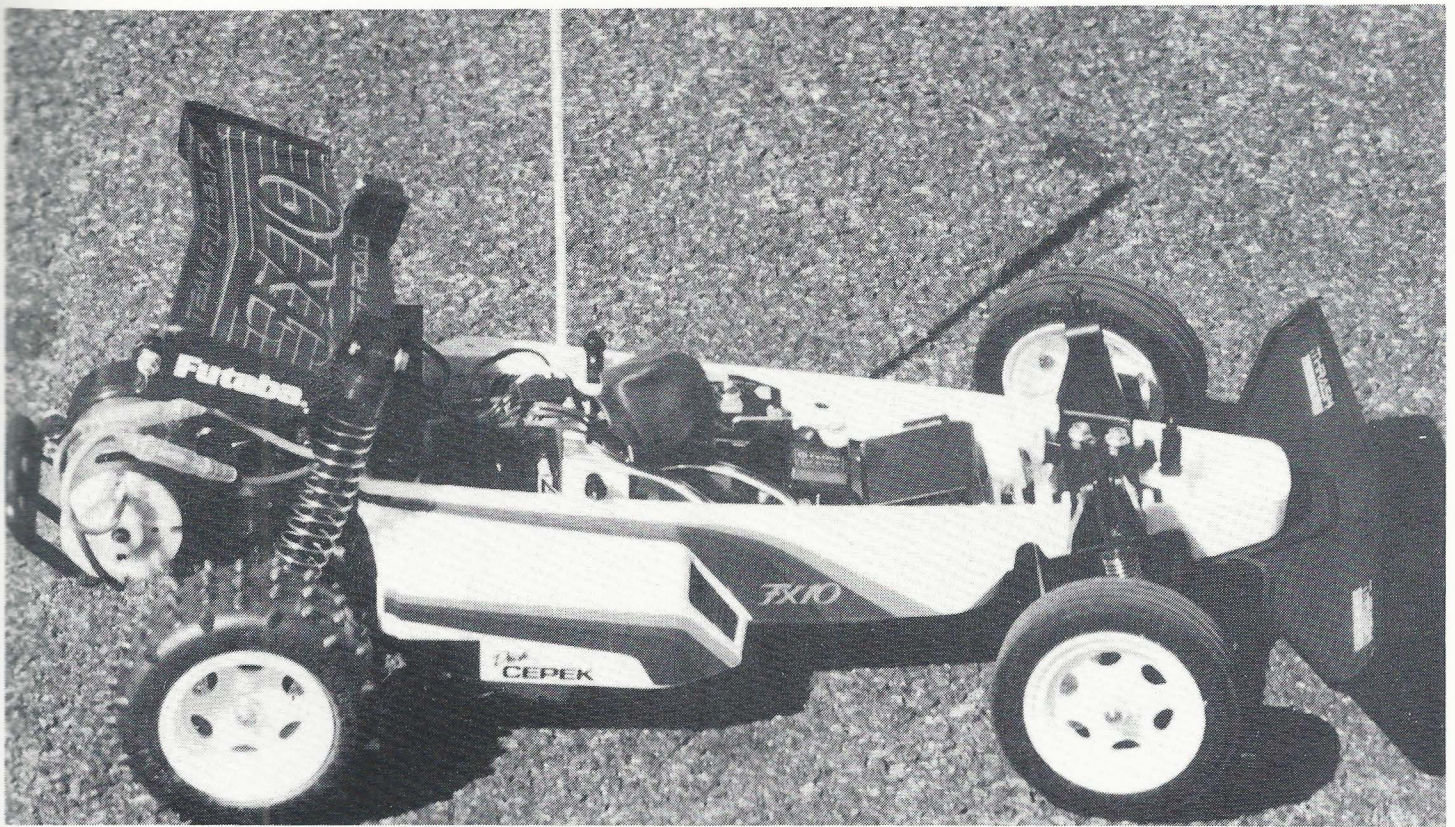
The rear independent suspension is then attached to the chassis and the gearcase. The FX10 uses dog bones in the drive train. Do not grease the half shafts or universal joints. Test the diff after you have installed the dog bones for a smooth action. This will reduce the wear and tear on the diff during racing and fun driving.

The rear dampers are built and then installed as per the directions. Now is the time to install the radio gear. The receiver is secured to the chassis, over the battery compartment using the urethane rubber band. Take your time and use tweezers for this chore! The antenna is then routed out of the chassis into the antenna tube. Now mount the rear wing and the receiver switch. Put your battery on charge and let's mount the tires.

Stretch the front tire over the wheel, locating the tire bead over the grooves in the wheel. The rear tires may be a bit harder so you may want to use some glass cleaner on the wheel to make it slide on better.

Adjust the steering so that the front tires are pointed forward and incline a little forward. Adjust the steering linkage length using the ball socket with needle nose pliers. Adjust the steering servo linkage also.

Trim excess polycarbonate plastic off of the body using



Everything fits so nicely into the chassis! A great beginner's car.

scissors. Drill a 4.5 mm hole on both sides of the body as shown in the directions. Tape the windows prior to painting with masking tape. Apply the racing decals and lets go to the dirt.

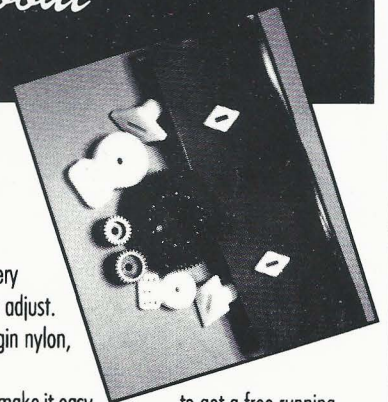
Before trying the car in the dirt, let's trim the car out on your driveway or sidewalk. The car should go straight, hands off, with the trim tab centered. You may have to re-adjust the steering linkage to achieve this. When you are satisfied, let's run the FX10 in the dirt. The FX10 handles itself quite well in the dirt. We tried our standard figure eight turns. The car slides into the corner and you can power the car out of the corner. With the steering adjusted, the car shoots down the straightaway.

Avoid water and moisture when you run your car. This will cause damage to the radio equipment and may corrode parts. Like cornering, jumping requires some technique. For maximum control, jumps should be taken low and close to the ground. Your jump may not look impressive, but you will get around the track

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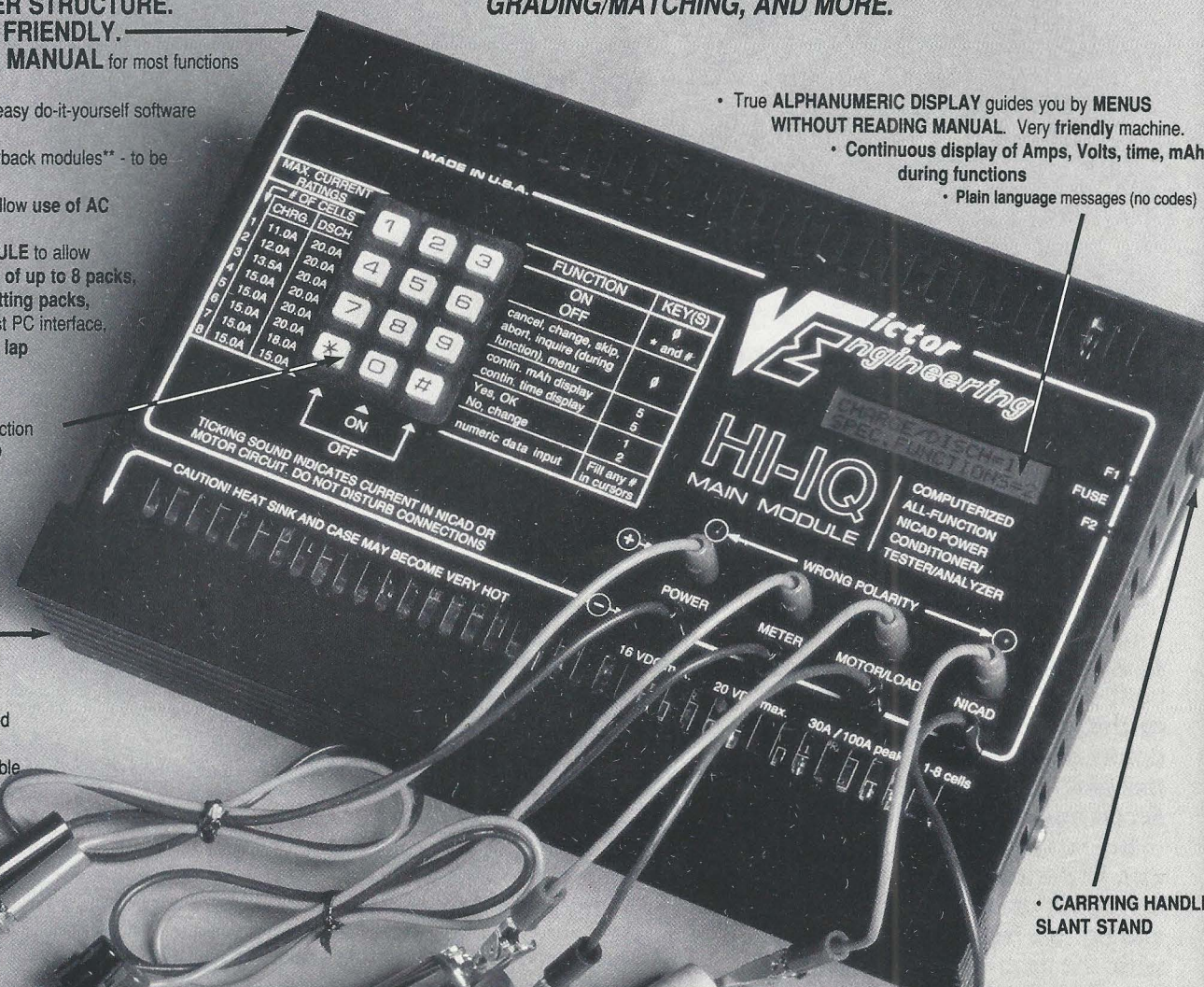
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1989 Reedy Race of Champions

By Leo Barana



Cliff Lett posing with Mrs. Roger Curtis after his victory at the 1989 Reedy Race of Champions.

What has become one of the most prestigious races in the World is the Reedy Race of Champions. In only its third year the race attracted 32 of the World's best drivers.

The list of drivers included your present 1/10 4WD and 1/12 On-Road World Champion Masami Hirotsuka from Japan. America's hottest driver Cliff Lett (considered co-favorite with Masami) was also participating. In '88 Lett captured nearly every title and with this being the first big race of 1989 one could only wonder if his hot streak was going to continue.

Other top drivers in the competition were the defending Reedy Race Champions Chris Allec and Kris Moore. Allec won the inaugural event, and Moore was the defending champion. Also competing was former World Champion's Gil Losi, Jr. and Jay Halsey.

All the above, plus an additional 26 of the World's best were out to compete in the Reedy Invitational Class. Some newcomers to this year's Invitational Class were Joe Schmitz and Kurtis and Chris McElroy. Joe Schmitz earned his way into the Invitational Class by taking both the 2WD and 4WD Reedy Race open titles last year. Kurtis was invited in as he set the TQ marks in both open classes at the '88 event. Kurtis' cousin Chris has been a hot local talent for the last couple of years and has proven time and time again that he can run with the best in the world.

As was the case last year the Invitational drivers would have twelve races to decide the overall championship. The schedule called for six races in the 2WD cars on Saturday, and six on Sunday for the 4WD vehicles. On each day the drivers were allowed one throw out.

No changes in the open class either. Again there were both 2WD and 4WD Modified classes, however, this year there was also a Monster Truck division. The Monster Trucks were modified powered as well.

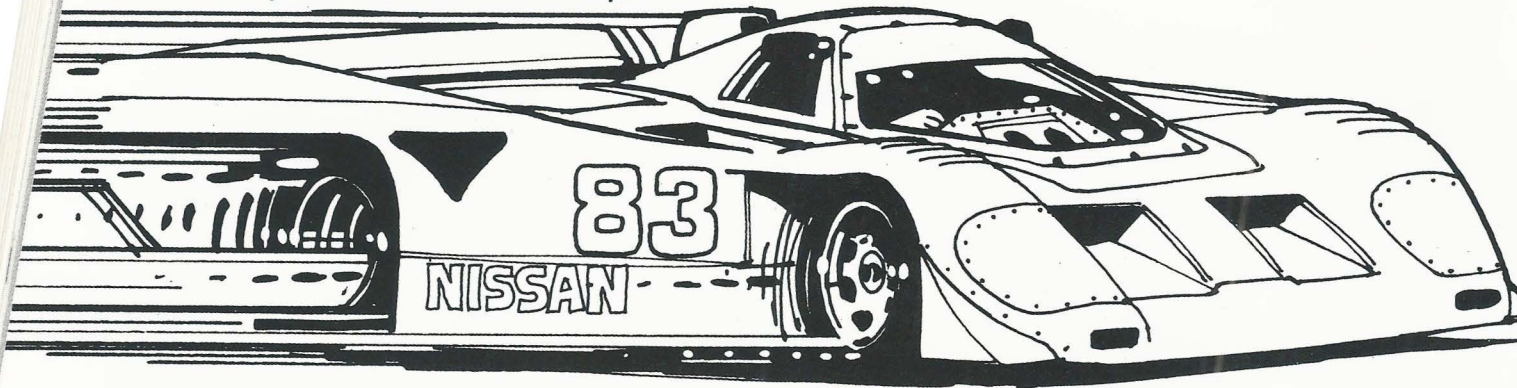
2WD MODIFIED QUALIFYING

The first round of qualifying was a close one and it saw but two 14 lap runs. The first was by yours truly. I was fortunate enough to run a 14, 4:17.6 which put me in the top spot for six heats. I was toppled by Mark Pavidis. Mark's run was just about 1 second faster.

Although round two saw only one more 14 lap run, there were a string of fast 13 lap runs. I again was able to run 14, and while it wasn't fast enough for me to regain the TQ spot, I felt good about being consistently fast. The best 13 lap run was Gary Demory's. His was a 4:02.2. That

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Modified • 4 cell • Modified motor

All heats 8 minutes

ROAR Membership required

Sign in closes 6:30 p.m.

Entry fee:

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1/10 Unlimited • Solid Axle cars 6 cell • Modified motor

1/12 Unlimited • 4 or 6 cell • Open motor

All heats 4 minutes

Sign in closes 7:00 p.m.

Entry fee.....\$ 7.50

Saturday

JJ'S R/C SPEEDSHOP Presents

"Stadium" Off-Road Racing

1/10 Stock • 6 cell • Stock motor

1/10 Modified • 6 or 7 cell • Modified motor

All heats 4 minutes

Sign in closes 4:00 p.m.

Entry fee\$ 7.50

Sunday

TEAM **SEMROCC** RACING Presents

Championship Road Racing

1/12 Stock • 4 cell • Stock motor

1/12 Modified • 4 cell • Modified motor

1/10 Stock • 6 cell • Stock motor

1/10 Unlimited • Solid Axle cars • 6 cell • Modified motor

All classes require full bodies

All 1/10 Scale heats 4 minutes

All 1/12 Scale heats 8 minutes

ROAR membership required

Sign in closes 10:00 a.m.

Entry fee:

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was good enough to put him fourth on the grid as Randy Locken was still third with his round one run of 13, 4:02.0.

As round three came, most felt that the track had yielded its best runs already. Well, those who had that feeling were correct. There were no new 14 lap runs, and the best 13 was Steve Chamberlain at 13, 4:09.2. Although it doesn't sound that fast, it really was a good run when you consider that none of the other top runners were able to better their runs. Indeed, for that late in the day it was a very good run.

The third round of qualifying was the last one run for Saturday. The fourth and final round of qualifying was on Sunday morning. As the drivers came and inspected the circuit they were all pleased to see that the track looked fast again and it was now up to them to make the main. The track was fast and the 14 lap mark never looked easier to reach. In fact, there were five 14



Gary Guest was the winner and TQ of the Modified Monster Truck Class. He was driving an RC10 with Peak Performance power.

lap runs turned in Sunday morning. Steve Chamberlain, who had the best run in the third round Saturday, picked up where he left off and set the track ablaze with his 14, 4:10.8. That put him and his sponsor Peak Performance on the pole. Other 14 lap runs

were posted by Mark Pavidis, Nichelle Rivera, Tym Wells and myself. The battle for the A main was heated and it was a great appetizer for the MAIN course.

MONSTER TRUCK QUALIFYING

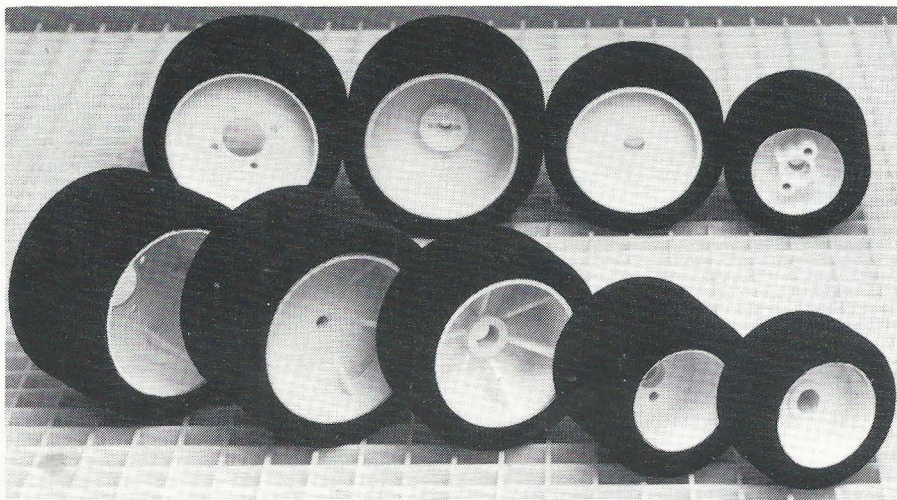
At every race I attend the monster truck class seems to grow and grow. The class has developed from what was really just toy trucks to full blown race machines.

As qualifying started everybody wanted to know just how fast these machines could go. In the first heat of round one qualifying Ron Williams gave the drivers something to shoot at with a 12, 4:18.4. In the next heat the William's run was bettered at 12, 4:13.3. As the heats moved on so did the TQ's. Gary Guest smashed the existing TQ mark with his 13, 4:18.8. He was the only driver in this round to run 13 laps.

As round two came Gary Guest had the field challenging

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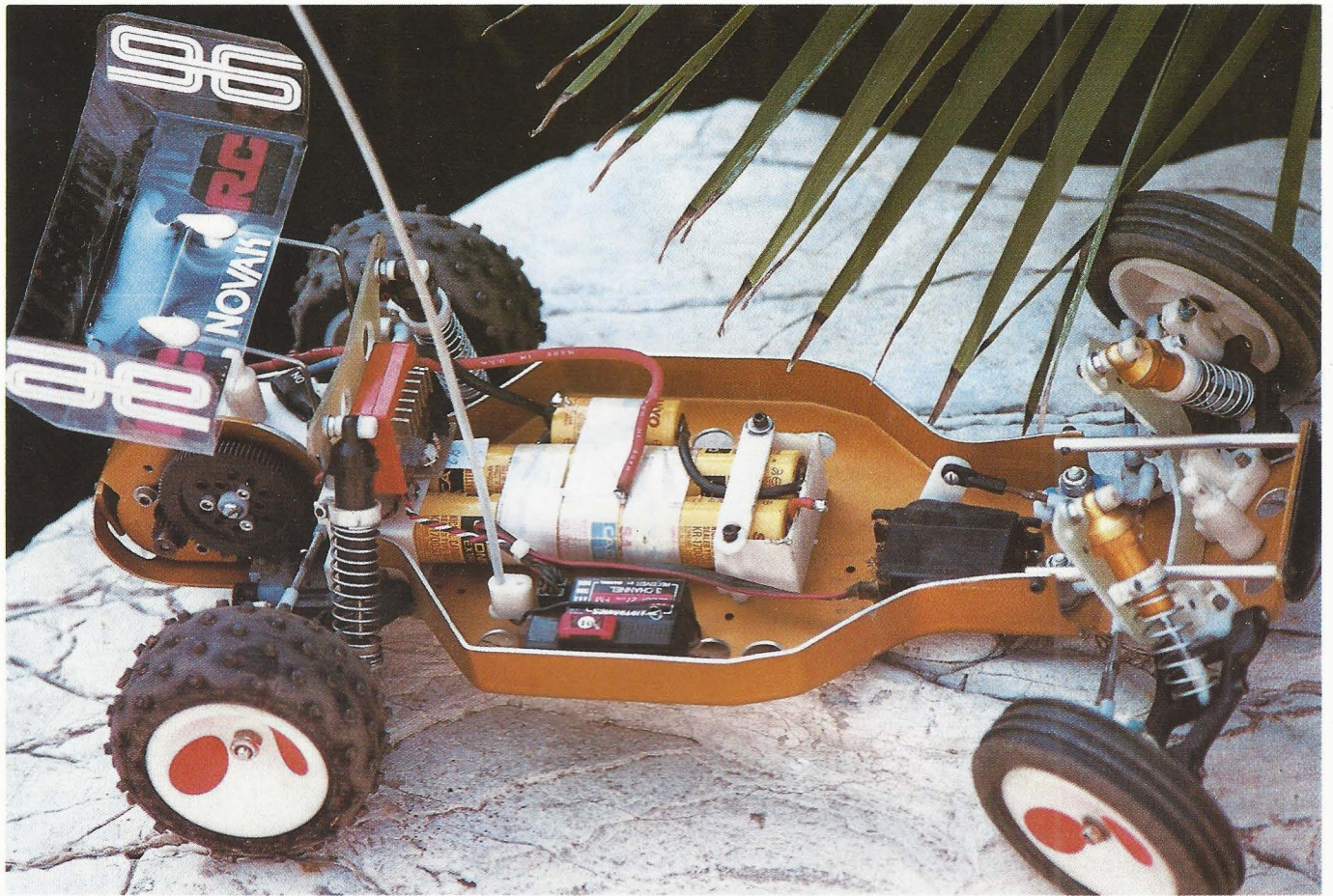
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Cliff Lett's winning Reedy powered RC10. The car looks basically stock except for the Andy Front Arms.



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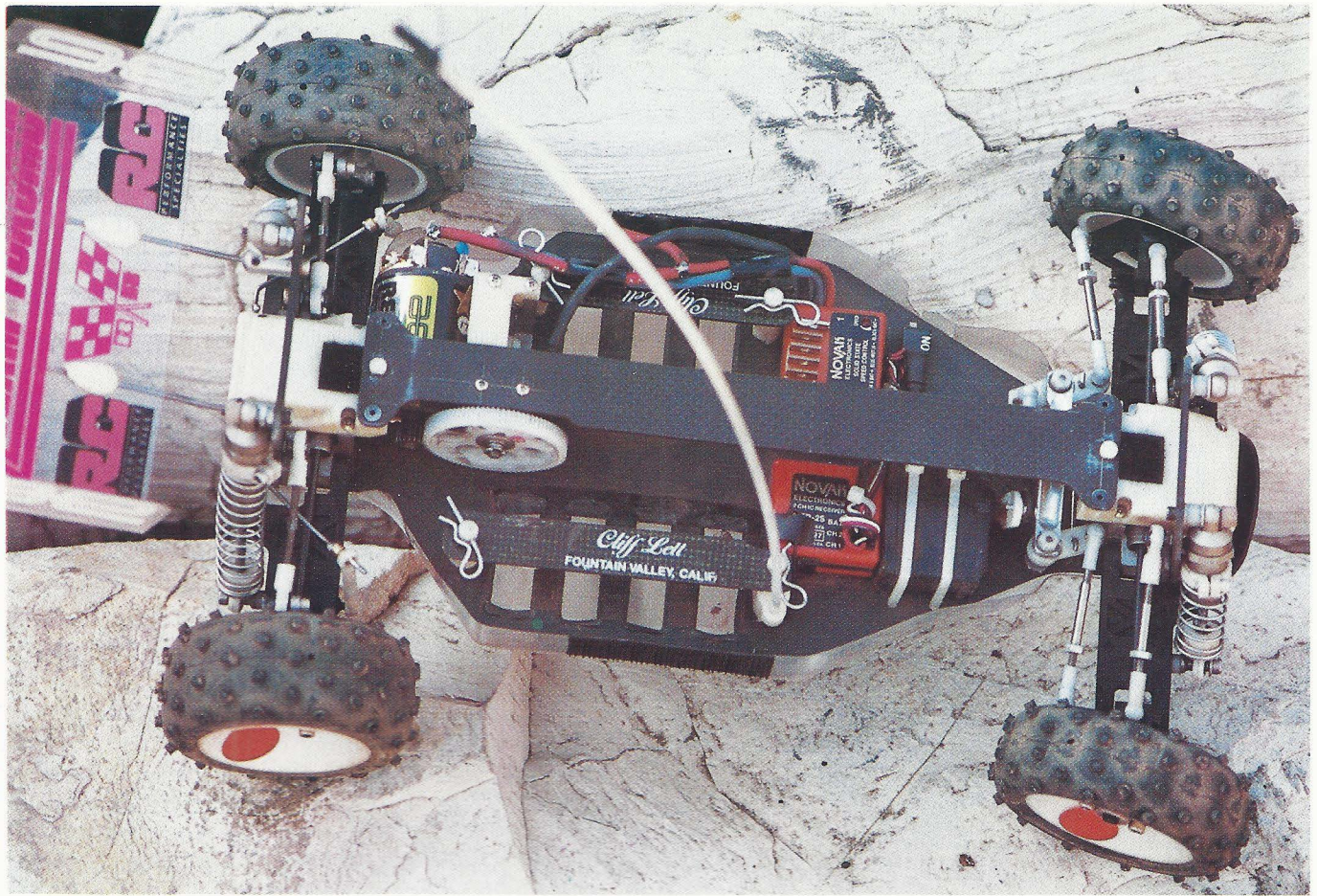
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Cliff Lett's winning Yokomo YZ-10. Lett's cars are always very neatly arranged.



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for second spot. Guest was awesome as he took his Peak Performance/RC10 powered truck to a smashing 13, 4:07.7. Unbelievable! This was in the realm of some of the best 2WD Modified runs! After two rounds in 2WD modified Gary's run would have put him seventh on the grid for the "A".

As in the 2WD's, the third round was the slowest on the average. Guest was still the top cat around with another 13 lap run.

With the track conditions in Sunday mornings fourth round being as good as they were two questions popped up. How fast could Gary Guest go, and could anybody be on the same lap as him let alone attempt to out qualify him. After the first heat went off nobody was even close to 13 laps. The second heat clocked off and after four minutes were up we finally had another driver turn 13. This run was



Mark Pavidis won the 2WD Modified Class with his Reedy/RC10 combination.

turned by Greg Dee using Twister power. He did not run as fast

as Guest, but it was satisfying to see someone other than Guest go 13. With the final heat of Monster Truck qualifying at hand all eyes were on Gary Guest. How fast could he go? Well the fourth round did not treat him favorably and he was unable to better his best run.

4WD MODIFIED QUALIFYING

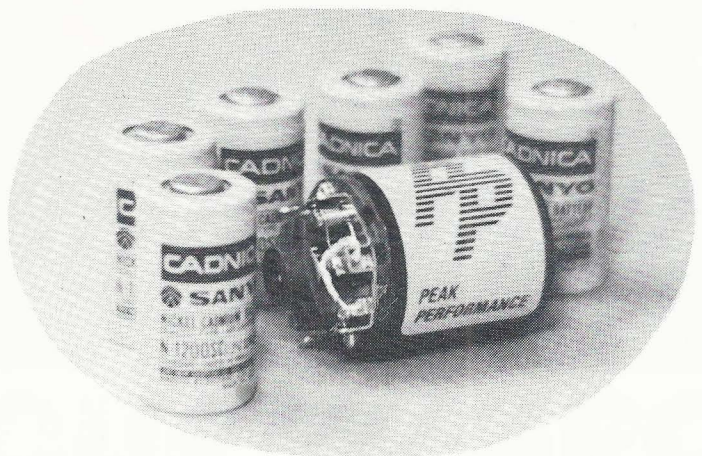
With five 2WD Modifieds going 14 laps, and two Monster Trucks running good 13s it looked like the 4 wheelers should post many 14 lap runs, maybe even a 15. Mike Dolan posted the first 14 lap run with his 14, 4:17.4 run. Dolan was using an SRS Optima Mid with Peak Performance power. Dolan was soon topped by Bill Shumate at 4:16.3. Things began to heat up in the 4WD class in round two as local sensation Randy Locken obliterated the TQ mark with his 14, 4:02.8. Locken who was considered by myself and many

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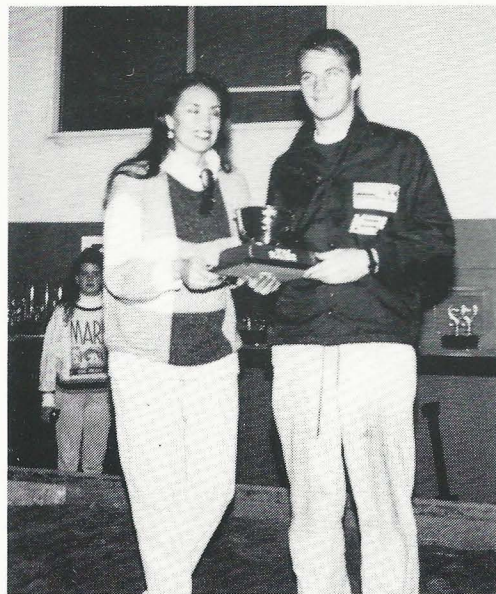
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others to be the favorite in the 2WD Open Modified class was using a Yokomo YZ-10 with Reedy power in 4WD. The final 14 lap run of round one belonged to another Peak Performance driver Nichelle Rivera. She was able to turn a 4:14.1.

So at the end of round one we had four 14 lap runs. No 15s, but Rocket Randy Locken came mighty close. As round two was kicked off we had a serious challenge to Locken's TQ. This was turned in by Tym Wells and his run was 14, 4:03.2, just four tenths of a second behind the TQ. Another five 14 lap runs were had, but no other serious challenges to the TQ.

As in the other two classes mentioned, the third and final round of qualifying on Saturday was the slowest. The track got a little more pitted and the bite had definitely gone away. With the 4WD cars, however, the bite loss was not as big a factor.

Three drivers went into the 14 lap arena. The first was Mike



Christian Keil was the winner of the 4WD Modified Class. Here being presented the Reedy Silver Bowl by Mrs. Roger Curtis. Keil was driving a YZ-10 with Reedy power.

Tapp. His Twister/Cat was clocked at 4:17.6. After Tapp it was Germany's Christian Keil. His Reedy powered machine went out and ran a 4:17.7, that was good enough for the A main. The final 14 on Saturday was a good one. Darrin Stump was the

owner of a 14, 4:14.6.

Looking back at the three rounds of qualifying we had just had in 4WD class there was nine 14 lap runs. With one more run on Sunday with a fresh track, there was no doubt in my mind that the A main would be all 14 lap runs.

I was a little surprised, however, to see that after the dust settled at the end of the fourth round Sunday morning the A main would include a 13 lap run. A total of five 14 lap runs were put up in round four, but all the runs were posted by drivers already in the A main. The best 14 was Darrin Stump's at 14, 4:11.3. The only 13 lap run to make the main was Takeshi Yamamoto. His best run was a 13, 4:01.4 which was recorded in round four.

2WD MODIFIED A MAIN

After a competitive four rounds of qualifying the mains had arrived with great anticipation. The climax of the 2WD class was the A main.

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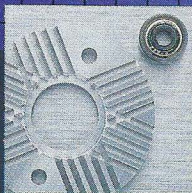


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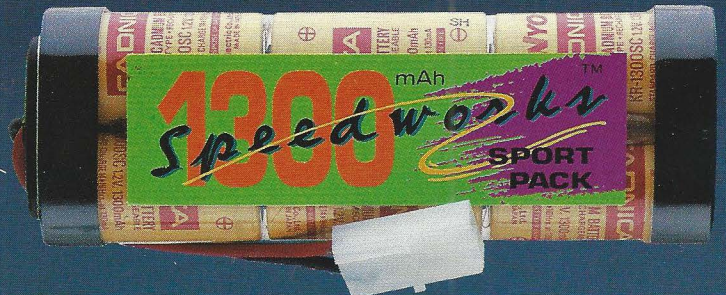
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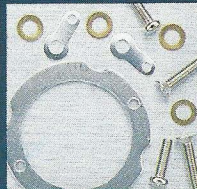


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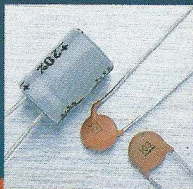
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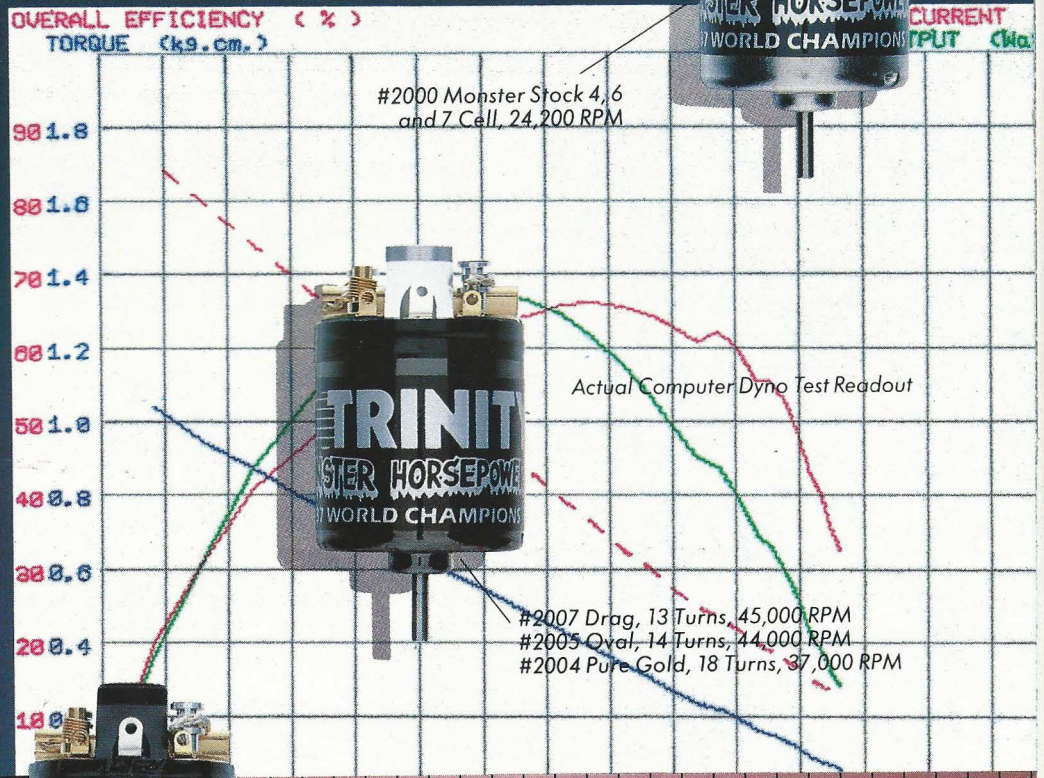
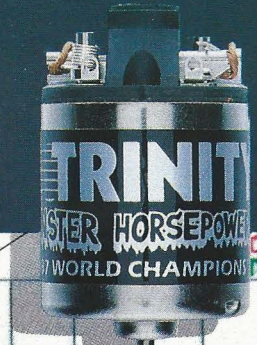
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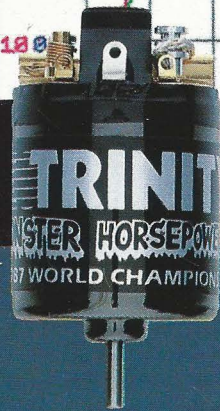
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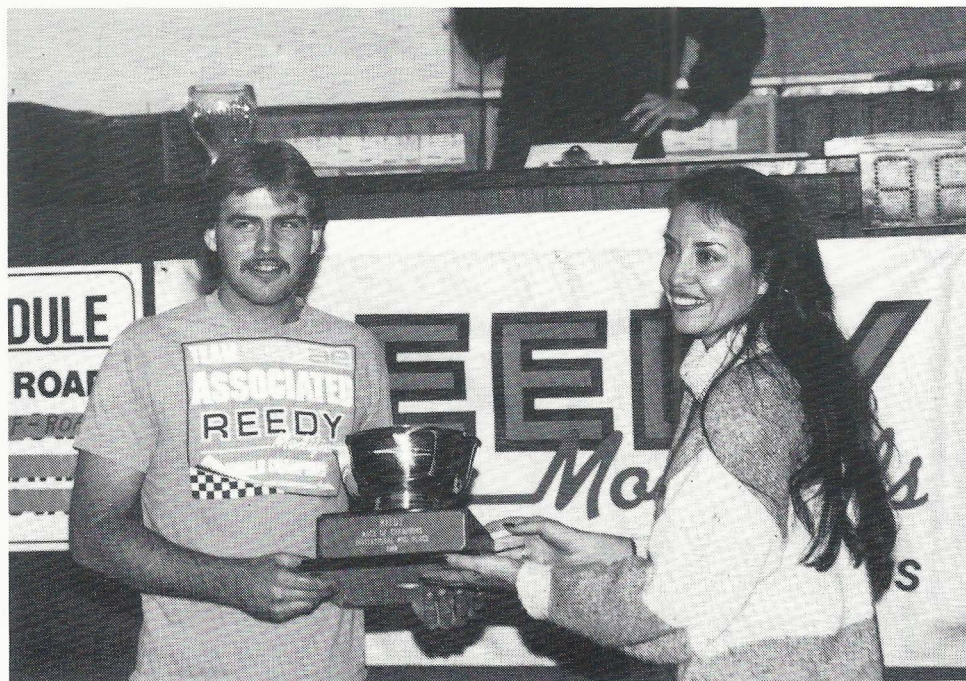
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From the TQ position Steve Chamberlain picked up the hole shot with Mark Pavidis tucked in behind for second. I managed to muscle my way into third and got a major adrenalin rush when I saw Chamberlain and Pavidis tie up. A major traffic jam ensued. I basically closed my eyes and when I reopened them I found myself in front. Pavidis came out of the tangle second with Gary Demory third. Going to the big jump I cheesed it and found myself setting up a date with the pipe. Motor'n Mark Pavidis captured the lead and during the next couple of laps the field settled down. Chamberlain, moments later, got around Demory and it looked like it would be a two car event. The race for the top spot ended early as on lap six Chamberlain came up lame. At the halfway point Mark was about a half lap up. The race was soon for the runner-up spot.

The race for second was heated. Demory inherited the



Former World Champion Jay Halsey fought a hard battle for the title, but came up two points short. He came in second with his Reedy/Associated/Yokomo combination.

number two spot with J.D. Beckwith in third. Joining this duet was Nichelle Rivera in fourth. The trio was separated by just a turn. The battling for the second spot was intense and to every-

one's glee there was no hammering. As they dashed for the line it was Demory in second, J.D. Beckwith third and Nichelle Rivera fourth. The winner was Mark Pavidis. That gave Reedy

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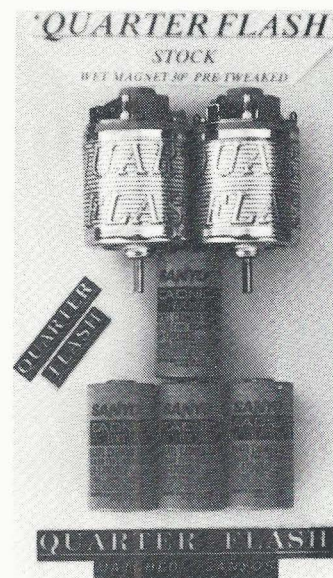
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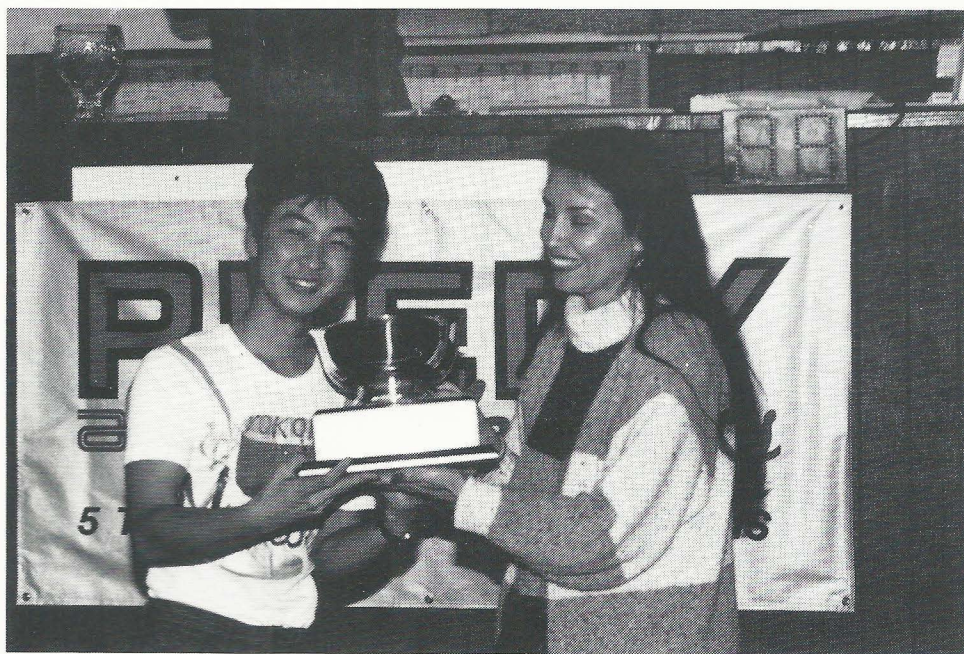
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the first win of the '89 event.

MONSTER TRUCK A MAIN

The monster trucks, on paper at least, looked as if it would be a two truck event at best. The only drivers to run 13 were Gary Guest and Greg Dee. The start was no picnic for the man, Gary Guest. He got banged and really beat up. When he finally got squared away he was able to get a good view of the field. A good view of the rear of their trucks as Guest was in last place. In front was Jeremy Kortz and right behind him was Greg Dee. Jeremy's father Gary was just behind the two in third place. The three of them exchanged the lead at every corner. This was to the advantage of Gary Guest. Slowly Guest had started to make his move back to the front. At the two minute mark it was Gary Kortz in front, Greg Dee in second and Gary Guest a close third. There was no doubt that Guest had the fastest truck among the three. The only ques-



If it hadn't been for the unlucky start early in Saturday's competition Masami may have been the overall winner. Masami completed the 1-2-3 sweep in the Invitational Class for Reedy.

tion that remained was if he would be able to get around the other two drivers. With just under a minute to go Guest was handed the lead as Dee and Gary Kortz tied up. Guest got a hard fought win with Kortz

second and Dee third. Guest's win put Peak Performance in the win column.

4WD A MAIN

The start of the 4 wheel A Main was less than picture perfect. When tone indicating the

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race commencement was heard, the top two qualifiers, Randy Locken and Tym Wells opted to become siamese twins on the front straight. Before they could be separated Darrin Stump and Christian Keil hopped to the front. Stump and Keil opened up their lead and started to put on a real driving show. At the two minute mark the front two were as strong as ever. With one minute to go, the crowd really starting getting into this event and let their feelings be heard. There is little in life more exciting than being in a close battle for the lead at a major race. This one came right down to the last corner. Keil dove underneath Stump and with just a few turns remaining he now had the lead. Stump tried to regain the top spot, but there was just not enough time. Christian Keil all the way from Germany made the trip worthwhile taking the 4WD crown. Darrin Stump was in second. It was a shame one of them had to lose. When I think back on this race there really was no loser. Keil's victory meant it was Reedy's second title in '89.

The highlight of the Reedy Race of Champions is really the Invitational Class. The only race on the globe to compete with this race as far as the competition level is concerned is the World Championships.

To determine the 1989 Champ the drivers would compete in twelve rounds - six in 2WD Modified and six in 4WD Modified, with one throw out per class. The scoring was done on a points system with one point for a win, two for second and so on. There were 32 drivers represented from five foreign countries.

The drivers were placed in four heats, totaling eight drivers in each. After each round the heats were shuffled around so that all the drivers and heats were mixed well.

After the first round had past we naturally had four leaders. At the completion of the second round only two drivers remained

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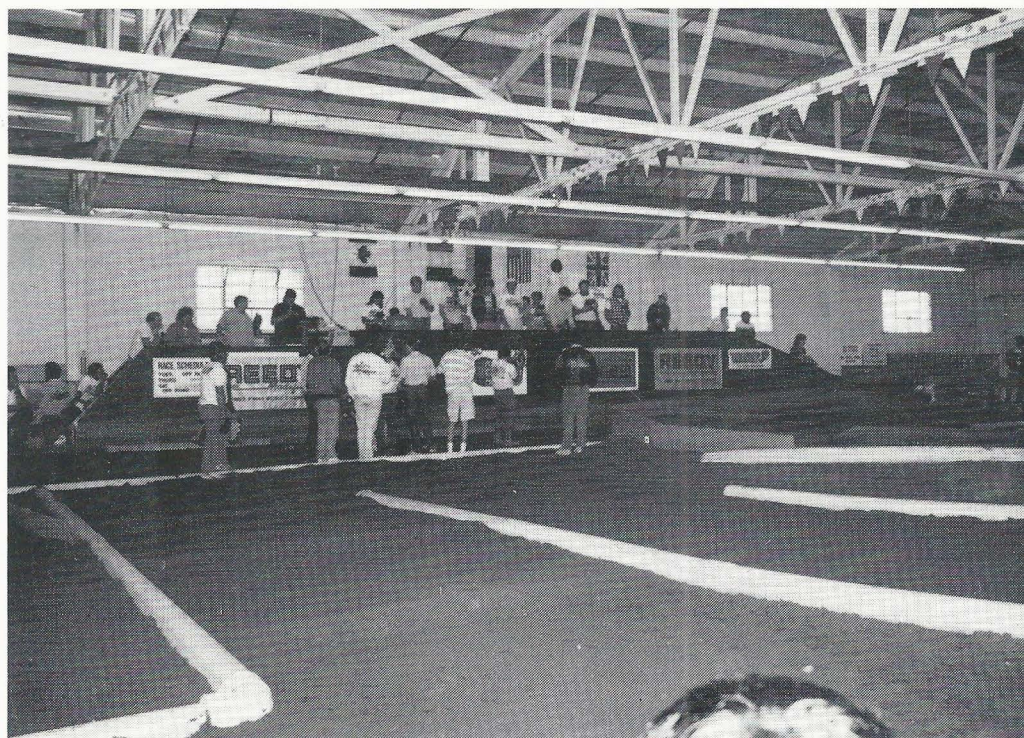
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undefeated. Both were Reedy/Associated drivers and both had numerous titles under their belts. They were Jay Halsey and Cliff Lett.

After three rounds there was only one driver unbeaten. His name was Cliff Lett. Jay Halsey was only able to pick up a third. With the throw out, however, they both still had 2 points. At the halfway point we had three drivers with 3 points total. Chris McElroy (Peak Performance/Kyosho), Joe Schmitz (Twister/JRX-2) and Gil Losi Jr. (Revolution/JRX-2) were all tied at third.

With round four now a memory, the result board showed Cliff Lett in the winner's circle again. Jay Halsey, with the throw out taken into consideration, was tied with Lett after the third round. Halsey came up one position short in round four and finished in second spot. He was now one point behind Lett. The race for the third spot tightened.



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There was now four drivers, all with 5 points. Jamie Booth (Reedy/Associated) had now joined the third place trio making it a quartet.

Jay Halsey got back on track with his third win. Also picking up his third win was Masami Hirosaka. One might ask, how with three wins this is the first

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mention of Masasmi. The second and third rounds were not too kind to him as he came up with two DNFs which translated to a seventh and eighth place finish. He could dump the eighth, but the seventh place finish was a heavy burden to carry.

Cliff Lett was still driving like a machine. Lett made it five straight and with that clinched the 2WD portion of the Reedy Race. With just one round left with the 2 wheelers the sixth round came and all the drivers could do was try and not lose ground on Lett.

Just for good measure Lett decided to go six straight. He would end up with 5 points for the 2WD portion of the event. Jamie Booth ended round six with his third straight win. That enabled him to break away from that third place tangle and up into second. His partner in second spot was Jay Halsey. The '85 2WD World Champ managed a second spot in round six.

The fourth place positions went to Chris McElroy and Kris Moore (Twister/Associated). Both these drivers had 9 points, 2 points behind Halsey and Booth.

So ended the first day of Invitational racing. With Sunday before us some drivers wanted to forget the day they just had and for others like Cliff Lett, they just wanted to continue on their winning ways.

With the 4WD cars due up next most felt that the racing would be much closer. For starters the 4 wheelers more much more high strung and any bad landing off one of the many jumps could end months of preparation.

Masami Hirosaka got his 4 wheel performance off on the right foot taking a win in round one. That was a desperately needed victory seeing how unfortunate he was in 2 wheel. The third heat of round one could tell a very big story. In this race you had Cliff Lett, Jay Halsey, Chris

McElroy and Jamie Booth. The winner of this heat would have a big psychological advantage, not to mention a boost in the scores.

As the announcer called time the first to come across was Chris McElroy. Next to him was Jay Halsey and third was Cliff Lett. Jamie Booth had problems and never really recovered from his seventh place finish in this race.

After the second round was complete Cliff Lett had to be shaking his head and saying what's wrong. He could do no better than sixth in this round. On the flip side Chris McElroy and Masami Hirosaka made it two straight wins. Jay Halsey had a good performance as well with another second. The points chase after 2 rounds, with throw out taken had Lett still in front. His 2 point lead after day one of racing had quickly shrunk to just a point. Jay Halsey was now stalking Cliff Lett just a point back. Chris McElroy, who was a full 4 points back on Saturday, was

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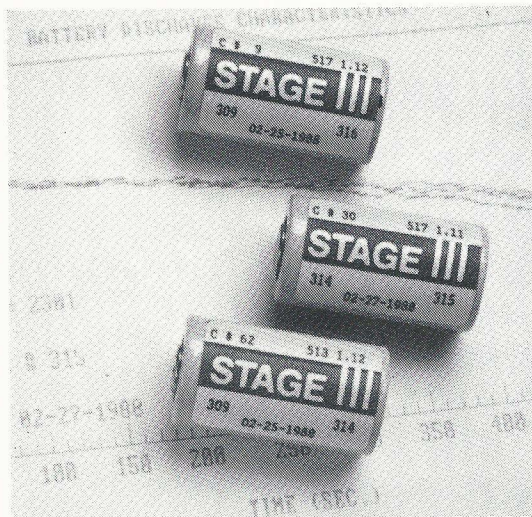
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now within striking distance just 2 points behind Lett. Masami Hirosaka had a big jump in positions. At the close of day one he was floundering in eighth place. Now he was up in fourth, 5 points out of the lead.

Round three saw Cliff Lett pick up his first win of the day. This provided only a short breather as both Chris McElroy and Jay Halsey were nipping at Lett's heels. Both McElroy and Halsey picked up wins in round number three.

With only three rounds left the tension to perform, and perform well was high. At this point one mistake and you might as well pack it up. Lett came through with a win. Jay Halsey came through with a victory. Chris McElroy a second. The fourth round points rap up with throw outs was Cliff Lett at 10 points, Jay Halsey at 11, and Chris McElroy 12. Masami Hirosaka although not mathematically out,

was well behind at 16 points with just two rounds remaining.

Lett kept applying the pressure on the rest of the field and picked up his third straight win. Both drivers right behind Lett faulted. Jay Halsey managed fourth and Chris McElroy seventh. These would have to become their throw out races. Masami was able to pick up second.

The final round of the 1989 Reedy Race Invitational Championships. In the previous two years Mike Reedy only managed runner up positions at his race. In the first two years he was in the lead up until the last round. Would this year be the same?

In the sixth and final round Lett opened the door wide as he suffered with a bad start and managed fourth. Fortunately for Lett, Jay Halsey and Chris McElroy did not have luck on their side either. Jay made seventh and Chris fifth.

The cup now belonged to Cliff

Lett and Mike Reedy. It was their moment. In all the whoopla over the victory another important position change occurred. While Jay Halsey finished in second overall, it was Masami Hirosaka, and not Chris McElroy in third. The two tied in points, and tied meant taking the throw out into account. The position was settled with number of first place finishes. Masami had six and Chris had but four.

That swap in third gave Reedy a sweep in the Invitational class, and top finishes in the 2WD and 4WD open classes.

As always the Reedy Race of Champions was a memorable event. At the end of it you can always hear the racers making plans for next year's event already. This year, however, there was a change in tracks and it was held at Radio Controlled Raceway. This facility has been around for a long time and is one of Southern California's premier

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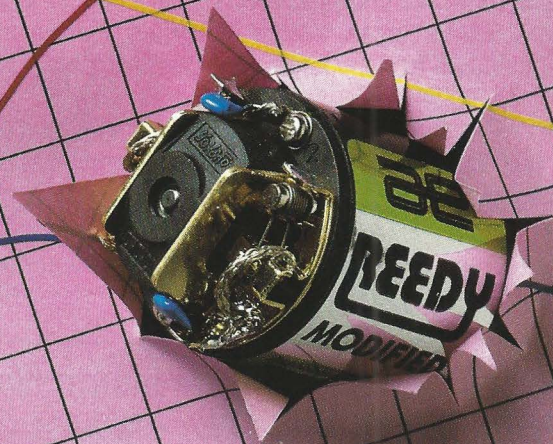
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Thru 10th - 10 Points

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1st - 11 Points
2nd - 12 Points
3rd - 13 Points
4th - 14 Points

Thru 10th - 20 Points

C MAINS

1st - 21 Points
2nd - 22 Points
3rd - 23 Points
4th - 24 Points

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- 1st - Mark Pavidis
- 2nd - Gary Demory
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- 5th - Randy Locken
- 6th - Leo Barana
- 7th - Eric Beier
- 8th - Tym Wells
- 9th - Dennis Taylor
- 10th - Steve Chamberlain

B MAIN

- 1st - Kevin Mercadante
- 2nd - Mike Tapp
- 3rd - Christian Keil
- 4th - Sean Masterson
- 5th - Cleve Mason
- 6th - Nubua Watarai
- 7th - Zac Wheatcroft
- 8th - Rick Rhode
- 9th - Darrin Stump
- 10th - Tony Neisinger

C MAIN

- 1st - Mike Dolan
- 2nd - Rick Boggess
- 3rd - Takeshi Yamamoto
- 4th - Guy Thomas
- 5th - Jeff Reed
- 6th - Ruben Falcon
- 7th - Robert Ronas
- 8th - Derek Furutani
- 9th - David Ronas
- 10th - Tamotsu Yamamoto

D MAIN

- 1st - Scott Anfinson
- 2nd - Chuck Puma
- 3rd - Jason Christensen
- 4th - John Bagakis
- 5th - Brian Kono
- 6th - Gary Gray
- 7th - Bob Forsyth
- 8th - Larry Gold
- 9th - Robert Ahulli
- 10th - Chris Reed

E MAIN

- 1st - Nick D'Amico
- 2nd - Thomas Welding Jr.
- 3rd - Ken Spratt
- 4th - Vernon Tripp
- 5th - Doug Brown
- 6th - Chris Chan
- 7th - Donnie Hawkins
- 8th - Jason Wright
- 9th - Norio Yasuda
- 10th - Derek Schmitz

F MAIN

- 1st - Swirv Norwood
- 2nd - Floyd Trujillo
- 3rd - John Bagholz
- 4th - Mike Burns
- 5th - Tony Scripilliti
- 6th - Phil Perdue
- 7th - Victor Chico

**MONSTER TRUCKS
A MAIN**

- 1st - Gary Guest
- 2nd - Gary Kortz
- 3rd - Greg Dee
- 4th - Jeremy Kortz
- 5th - John Bagakis
- 6th - Larry Gold
- 7th - Al Bridges
- 8th - Rob Dunlap

B MAIN

- 1st - Ned Morris
- 2nd - Gil Losi Sr.
- 3rd - Ron Williams
- 4th - John Smith
- 5th - Richard Jamieson
- 6th - Andy Jacobson
- 7th - Giti Gowland
- 8th - Russ Hawkins

C MAIN

- 1st - Mike Bodman
- 2nd - Robert William
- 3rd - Eddie Mondragon
- 4th - Vernon Tripp

**4WD MAINS
A MAIN**

- 1st - Christian Keil
- 2nd - Darrin Stump

- 3rd - Bill Shumate
- 4th - Mike Tapp
- 5th - Nichelle Rivera
- 6th - Nick D'Amico
- 7th - Tym Wells
- 8th - Randy Locken
- 9th - Mike Dolan
- 10th - Takeshi Yamamoto

B MAIN

- 1st - Rick Rohde
- 2nd - Derek Furutani
- 3rd - Ruben Falcon
- 4th - Nubuo Watarai
- 5th - Norio Yasuda
- 6th - Greg Dee
- 7th - Swirv Norwood
- 8th - Joe Martin
- 9th - Tamotsu Yamamoto
- 10th - Dennis Taylor

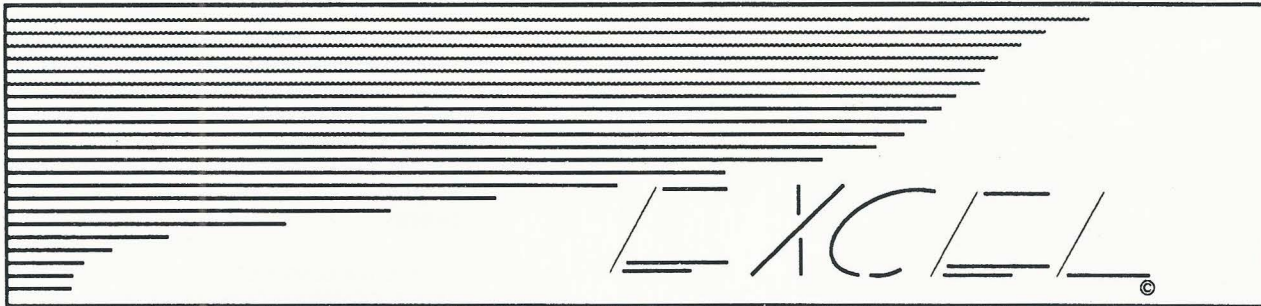
C MAIN

- 1st - Curtis Strawn
- 2nd - Pete Gamari
- 3rd - Robert Ronas
- 4th - Robert Ahuli
- 5th - Chris Chan
- 6th - David Ronas
- 7th - Steve Chamberlain
- 8th - Ken Spratt
- 9th - Jason Christensen
- 10th - Mark Neale

D MAIN

- 1st - John Smith
- 2nd - Andy Jacobsen
- 3rd - Sonny Najera
- 4th - Stephen Chen
- 5th - Victor Chico
- 6th - Hobie Kaptan
- 7th - Floyd Trujillo
- 8th - Eddie Mondragon
- 9th - Christian Durand
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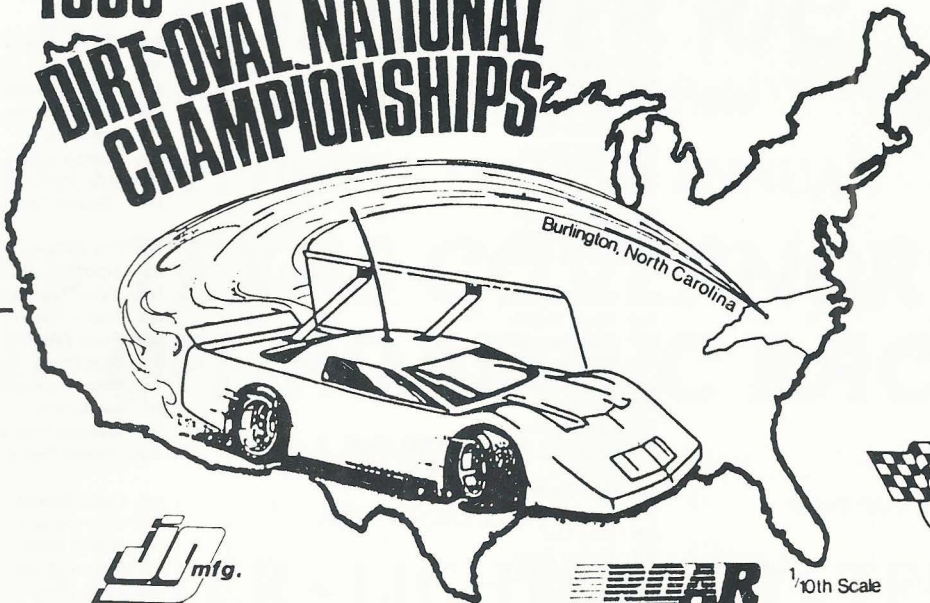
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MODIFIED: 2WD _____ 4WD _____ CAR# _____
MODIFIED SPRINT: _____ CAR# _____
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CONCOURSE ENTRY: YES _____ NO _____
AMOUNT ENCLOSED: \$ _____
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INVITATIONAL CLASS 2WD RESULTS

ROUND 1				ROUND 2				ROUND 3			
PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.
1st - Losi, Jr.	1	0	1	1st - Lett	1	1	1	1st - Lett	1	1	2
1st - Hirosaka	1	0	1	1st - Halsey	1	1	1	2nd - Halsey	3	3	2
1st - Lett	1	0	1	3rd - Schmitz	1	2	1	3rd - C. McElroy	1	2	3
1st - Halsey	1	0	1	4th - Allec	1	3	1	4th - Schmitz	5	5	3
5th - Drescher	2	0	2	5th - Losi Jr.	5	5	1	4th - Losi, Jr.	2	5	3
5th - Kloeber	2	0	2	6th - Hirosaka	7	7	1	6th - Allec	4	4	4
5th - Schmitz	2	0	2	7th - C. McElroy	2	2	2	6th - Johnson	1	4	4
5th - C. McElroy	2	0	2	8th - K. Moore	2	3	2	8th - Booth	2	7	4
9th - Rossetti	3	0	3	9th - Drescher	4	4	2	9th - K. Moore	3	3	5
9th - Allec	3	0	3	10th - Kloeber	5	5	2	10th - Hohwart	1	4	5
9th - K. Moore	3	0	3	11th - Vehlow	2	6	2	11th - S. Dunn	2	6	5
9th - M. Dunn	3	0	3	12th - Booth	2	7	2	12th - Drescher	5	5	6
13th - Johnson	4	0	4	13th - Rossetti	3	3	3	13th - Rossetti	6	6	6
13th - Hohwart	4	0	4	14th - M. Dunn	4	4	3	14th - M. Dunn	4	4	7
13th - Matsumoto	4	0	4	14th - Johnson	3	4	3	15th - K. McElroy	2	6	7
13th - Soderquist	4	0	4	16th - S. Dunn	3	6	3	16th - Jones	4	7	7
17th - Cull	5	0	5	17th - Jones	3	7	3	16th - Kloeber	7	7	7
17th - Kyes	5	0	5	18th - Hohwart	4	4	4	18th - Vehlow	6	6	8
17th - K. McElroy	5	0	5	19th - Kyes	4	5	4	19th - Hirosaka	8	8	8
17th - Reed	5	0	5	20th - Soderquist	7	7	4	19th - Reed	3	8	8
21st - Vehlow	6	0	6	21st - Matsumoto	8	8	4	21st - Kyes	5	5	9
21st - S. Dunn	6	0	6	22nd - Cull	5	5	5	21st - Cull	4	5	9
21st - E. Moore	6	0	6	23rd - k.McElroy	6	6	5	23rd - Kondo	3	6	9
21st - Kondo	6	0	6	24th - Reed	8	8	5	24th - E. Moore	5	8	11
25th - Booth	7	0	7	24th - Katz	5	8	5	24th - Soderquist	8	8	11
25th - Oberle	7	0	7	26th - Kondo	6	6	6	24th - Matsumoto	7	8	11
25th - Jones	7	0	7	27th - Oberle	6	7	6	27th - Lautenbach	6	8	12
25th - Dieter	7	0	7	28th - E. Moore	8	8	6	27th - Katz	7	8	12
29th - Lautenbach	8	0	8	28th - Lautenbach	6	8	6	29th - Oberle	8	8	13
29th - Katz	8	0	8	30th - Dieter	7	7	7	30th - Davies	7	8	14
29th - Davies	8	0	8	31st - Davies	7	8	7	30th - Dieter	8	8	14
29th - Blandin	8	0	8	32nd - Blandin	8	8	8	30th - Blandin	6	8	14

ROUND 4				ROUND 5				FINAL 2WD RND.			
PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.
1st - Lett	1	1	3	1st - Lett	1	1	4	1st - Lett	1	1	5
2nd Halsey	2	3	4	2nd - Halsey	1	3	5	2nd - Halsey	2	3	7
3rd - C. McElroy	3	3	5	3rd - Booth	1	7	6	3rd - Booth	1	7	7
4th - Schmitz	2	5	5	4th - C. McElroy	2	3	7	4th - C. McElroy	2	3	9
4th - Gil Losi, Jr.	2	5	5	5th - Losi, Jr.	2	5	7	4th - K. Moore	1	3	9
6th - Booth	1	7	5	6th - K. Moore	2	3	8	6th - Losi, Jr.	3	5	10
7th - K. Moore	1	3	6	7th - Schmitz	3	5	8	7th - Schmitz	4	5	12
8th - Johnson	3	4	7	8th - Hirosaka	1	8	10	8th - Hirosaka	2	8	12
9th - Allec	4	4	8	9th - Johnson	4	4	11	9th - Johnson	2	4	13
10th - S. Dunn	3	6	8	10th - Allec	5	5	12	10th - Hohwart	1	4	14
11th - Hohwart	4	4	9	11th - K. McElroy	2	6	12	11th - Allec	3	5	15
12th - Hirosaka	1	8	9	12th - Hohwart	4	4	13	12th - K. McElroy	6	6	18
13th - K. McElroy	3	6	10	13th - S. Dunn	5	6	13	13th - S. Dunn	7	7	19
14th - Cull	2	5	11	14th - Cull	5	5	16	14th - Vehlow	3	6	20
15th - Drescher	7	7	11	15th - Kondo	3	6	16	15th - Cull	5	5	21
16th - M. Dunn	8	8	11	16th - Vehlow	4	6	17	16th - Kloeber	4	7	21
17th - Rossetti	6	6	12	17th - Drescher	6	7	17	17th - Kondo	6	6	22
18th - Kondo	4	6	13	17th - Kloeber	4	7	17	18th - Rossetti	5	7	23
18th - Vehlow	5	6	13	19th - Rossetti	7	7	18	19th - Kyes	4	6	24
20th - Kloeber	6	7	13	20th - M. Dunn	8	8	19	20th - Drescher	8	8	24
21st - Kyes	6	6	14	21st - Kyes	6	6	20	21st - M. Dunn	6	8	25
22nd - Jones	7	7	14	22nd - Jones	8	8	21	22nd - Soderquist	5	8	26
23rd - Soderquist	4	8	15	23rd - Soderquist	6	8	21	22nd - Lautenbach	3	8	26
23rd - Reed	7	8	15	24th - Reed	8	8	23	24th - Katz	4	8	27
25th - E. Moore	5	8	16	24th - E. Moore	7	8	23	25th - Blandin	5	8	29
26th - Lautenbach	5	8	17	24th - Lautenbach	6	8	23	25th - Jones	8	8	29
27th - Oberle	5	8	18	24th - Oberle	5	8	23	27th - Oberle	7	8	30
28th - Matsumoto	8	8	19	24th - Katz	3	8	23	27th - E. Moore	7	8	30
29th - Katz	8	8	20	29th - Blandin	3	8	24	29th - Reed	8	8	31
29th - Dieter	6	8	20	30th - Matsumoto	7	8	26	30th - Matsumoto	6	8	32
31st - Blandin	7	8	21	31st - Dieter	8	8	28	31st - Dieter	7	8	35
32nd - Davies	8	8	22	32nd - Davies	7	8	29	32nd - Davies	8	8	37

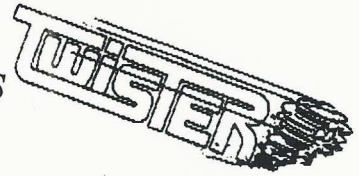
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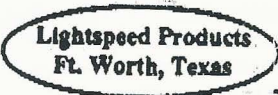


R.O.A.R. Membership Required (Available at Track) Entry Deadline March 27th
Entry \$ 25.00 Stock Includes 1 Handout Motor \$ 15.00 ALL OTHER CLASSES

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Qualifying start 7 a.m. Saturday, April 1st - Mains Start Sunday, April 2nd at 7 a.m.

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TOTAL AMOUNT ENCLOSED \$ _____

INVITATIONAL CLASS 4WD RESULTS

ROUND 1				ROUND 2				ROUND 3			
PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.
1st - Lett	3	0	8	1st - Lett	6	6	8	1st - Lett	1	6	9
2nd - Halsey	2	0	9	2nd - Halsey	2	2	9	2nd - Halsey	1	2	10
3rd - C. McElroy	1	0	10	3rd - C. McElroy	1	1	10	3rd - C. McElroy	1	1	11
4th - Hirosaka	1	0	13	4th - Hirosaka	1	1	13	4th - Hirosaka	2	2	14
5th - Booth	7	0	14	5th - Losi, Jr.	4	4	14	5th - K. Moore	2	8	16
5th - Losi, Jr.	4	0	14	6th - Booth	8	8	14	6th - Booth	3	8	17
7th - Allec	1	0	16	6th - K. Moore	5	8	14	7th - Losi, Jr.	4	4	18
8th - K. Moore	8	0	17	8th - Johnson	2	4	15	8th - Allec	6	6	19
8th - Schmitz	5	0	17	9th - Allec	3	3	16	8th - Schmitz	2	6	19
8th - Johnson	4	0	17	10th - Hohwart	3	5	17	8th - Johnson	8	8	19
11th - Hohwart	5	0	19	11th - Schmitz	6	6	17	11th - Hohwart	7	7	22
12th - K. McElroy	5	0	23	12th - K. McElroy	1	5	19	12th - K. McElroy	7	7	24
12th - Kloeber	2	0	23	13th - Vehlow	1	7	21	13th - Kloeber	4	4	25
14th - Kondo	3	0	25	14th - Kloeber	2	2	23	14th - Vehlow	6	6	27
15th - Cull	5	0	26	15th - Cull	3	5	24	14th - S. Dunn	1	8	27
16th - Vehlow	7	0	27	16th - Kondo	3	3	25	16th - Kondo	6	6	28
16th - S. Dunn	8	0	27	17th - S. Dunn	7	8	26	17th - Cull	5	5	29
18th - Katz	1	0	28	18th - Rossetti	4	7	27	18th - Blandin	2	2	33
19th - M. Dunn	4	0	29	19th - Katz	5	5	28	18th - Katz	5	5	33
20th - Lautenbach	4	0	30	20th - Drescher	4	8	28	18th - Lautenbach	3	7	33
20th - Rossetti	7	0	30	21st - Kyes	5	6	29	18th - Drescher	5	8	33
20th - Kyes	6	0	30	22nd - M. Dunn	7	7	29	22nd - Rossetti	7	7	34
23rd - Blandin	2	0	31	23rd - Lautenbach	7	7	30	22nd - Jones	3	8	34
23rd - Jones	2	0	31	23rd - Soderquist	4	7	30	24th - Kyes	8	8	35
25th - Drescher	8	0	32	25th - Blandin	2	2	31	25th - M. Dunn	7	7	36
26th - Oberle	3	0	33	26th - Jones	8	8	31	26th - Soderquist	8	8	37
26th - Soderquist	7	0	33	27th - Oberle	8	8	33	27th - Oberle	5	8	38
28th - Reed	6	0	37	28th - E. Moore	6	8	36	28th - Reed	4	7	40
29th - E. Moore	8	0	38	29th - Reed	7	7	37	29th - Matsumoto	4	8	42
29th - Matsumoto	6	0	38	30th - Matsumoto	8	8	38	30th - Dieter	6	6	43
29th - Dieter	3	0	38	30th - Dieter	5	5	38	31st - E. Moore	8	8	44
32nd - Davies	6		43	32nd - Davies	6	6	43	32nd - Davies	3	6	46

ROUND 4				ROUND 5				FINAL RESULTS			
PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	TOTAL PTS.	PLACE/NAME	POINTS	T.O.	FINAL POINTS
1st - Lett	1	6	10	1st - Lett	1	6	11	1st - Lett	4	6	15
2nd - Halsey	1	2	11	2nd - Halsey	4	4	13	2nd - Halsey	7	7	17
3rd - C. McElroy	2	2	12	3rd - C. McElroy	7	7	14	3rd - Hirosaka	1	2	19
4th - Hirosaka	2	2	16	4th - Hirosaka	2	2	18	4th - C. McElroy	5	7	19
5th - Losi, Jr.	1	4	19	5th - Losi, Jr.	1	4	20	5th - K. Moore	1	8	23
6th - K. Moore	5	8	21	6th - K. Moore	1	8	22	6th - Losi, Jr.	8	8	24
6th - Johnson	2	8	21	7th - Booth	2	8	24	7th - Booth	2	8	26
8th - Schmitz	3	6	22	8th - Johnson	4	8	25	8th - Johnson	3	8	28
8th - Booth	5	8	22	9th - Schmitz	5	6	27	9th - Schmitz	5	6	32
10th - Allec	8	8	25	9th - Allec	2	8	27	10th - Allec	7	8	34
11th - Hohwart	6	7	28	11th - K. McElroy	4	7	32	11th - Kloeber	1	7	34
11th - K. McElroy	4	7	28	12th - Hohwart	5	7	33	12th - Vehlow	1	6	35
13th - Kloeber	4	4	29	12th - Kloeber	7	7	33	13th - Hohwart	3	7	36
14th - Vehlow	4	6	31	14th - Vehlow	3	6	34	14th - K. McElroy	5	7	37
15th - Cull	4	5	33	15th - Kondo	2	8	36	15th - Lautenbach	2	7	39
16th - Katz	1	5	34	16th - Lautenbach	1	7	37	16th - Kondo	5	8	41
16th - Kondo	8	8	34	17th - Cull	7	7	38	17th - Katz	3	6	42
18th - Blandin	7	7	35	18th - Katz	6	6	39	18th - S. Dunn	3	8	42
18th - S. Dunn	8	8	35	18th - S. Dunn	4	8	39	19th - Cull	6	7	44
20th - Lautenbach	3	7	36	20th - Blandin	5	7	40	20th - Rossetti	2	7	45
21st - Jones	3	8	37	20th - Jones	3	8	40	21st - Blandin	6	7	46
22nd - Drescher	6	8	39	22nd - Rossetti	3	7	43	22nd - Jones	6	8	46
23rd - Rossetti	6	7	40	23rd - Drescher	6	8	45	23rd - Dieter	8	8	53
24th - Kyes	7	8	42	24th - Oberle	3	8	49	24th - Kyes	4	8	54
24th - Soderquist	5	8	42	25th - M. Dunn	7	7	50	25th - Davies	2	6	56
26th - M. Dunn	7	7	43	25th - Soderquist	8	8	50	26th - M. Dunn	6	7	56
27th - Dieter	2	6	45	25th - Kyes	8	8	50	27th - Matsumoto	4	8	56
28th - Oberle	8	8	46	28th - Dieter	6	6	51	28th - Dieter	7	7	57
29th - Reed	7	7	47	29th - Matsumoto	4	8	52	29th - Oberle	8	8	57
30th - Matsumoto	6	8	48	30th - Davies	5	6	54	30th - Soderquist	8	8	57
31st - E. Moore	5	8	49	31st - E. Moore	6	8	55	31st - Reed	4	8	59
31st - Davies	3	6	49	31st - Reed	8	8	55	32nd - E. Moore	7	8	62

T.O. = Throw Out

Ties in final points were broken by including throw outs, then number of first places.

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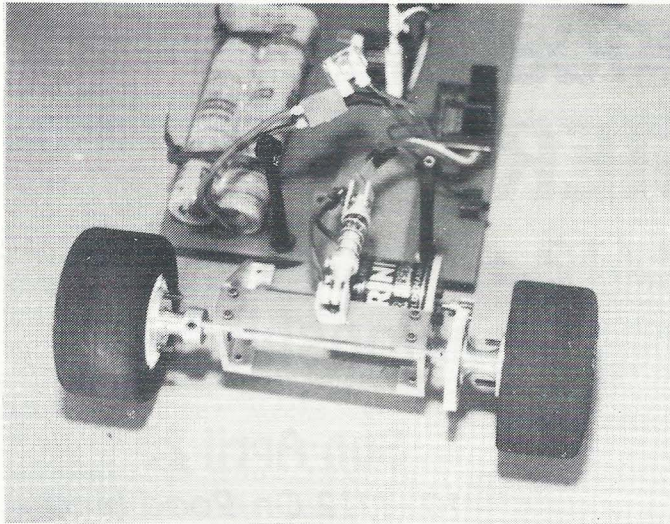
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thought it would work on carpet and he said, "great", so I asked him to send me one and said I'd give it a try up at Bridgeport.

When the chassis came in I had the old Invader all disassembled, a new BoLink rear axle for Associated gears, a 12L front end, a new set of aluminum hubs and the Tekin electronics all set to complete and ready for its first race.

For those of you already familiar with the 12L, assembly will be a snap from the one page instruction sheet. For those who are not, see setup instructions.

Come Friday night, I walked into USA Raceway with my new creation and quickly got on the track for a test run. It seemed to go around quickly enough on the Stage III "518" pack and the only apparent problem was that it needed higher body mounts in the rear to get the body up off the rear pod a little more. So I hastened over to the parts counter and picked up a pair of BoLink's four inch body posts and then set out shortening them to three and one half inches, finishing up just in time to get out for the first heat.

Expecting to have quite a bit of dialing in to do,

I'd registered for the stock class and didn't expect to do much in the first heat. If not doing much means beating the second place car by four laps, I guess I wasn't too disappointed. Disappointed? Gimme a break! I was ecstatic. This car practically drives itself. The first run was forty-three laps in four minutes, this was with running a tuned up Race Prep stock motor on a six cell SC pack.

Figuring the car could go a little faster, I bolted in a Trinity Speedworks dirt oval stock motor and another Gonzo six cell SC pack. If I'd known the car was going to perform so well, I would have made up SCR packs for it but its terrific performance was such a surprise to me, that all I could do is bolt in my best motor and go for it with what was at hand. Second and third runs of forty-five laps each landed me smack in the middle of the "A" main and it was time to go fast with the big boys.

On the pole was track record holder Chris Peletier. Outside on the front row was Kevin Marcy, a consistent top performer. Given this kind of competition, I had no illusions about winning the race but expected to give them a run for it. Right off the line though, it was obvious that I was far off the pace. As the car came by Rick Fleming he yelled to me that the diff was too loose. Next lap around we pulled the car off and tightened it all the way down. It was too tight, but better than too loose. The problem turned out to be the too coarse threads on the BoLink axle. These large threads make adjusting the differential difficult because a slight turn on the axle nut results in a great deal of change in the diff function and a hard wall shot that causes the nylon nut to turn slightly doesn't just loosen the diff up a little, it loosens it up a lot. The solution is for the manufacturers to thread the axle for the small, fine-threaded steel locknut used on the Associated cars. I'm told there are such axles available but will wait to check them out before recommending one.

All in all, I'm extremely happy with the car. We raced it again on Sunday and again on six cell SC packs with the Trinity Speedworks stock motor but in the modified class against cars running hot motors on seven cells and finished with a forty-six lap run in

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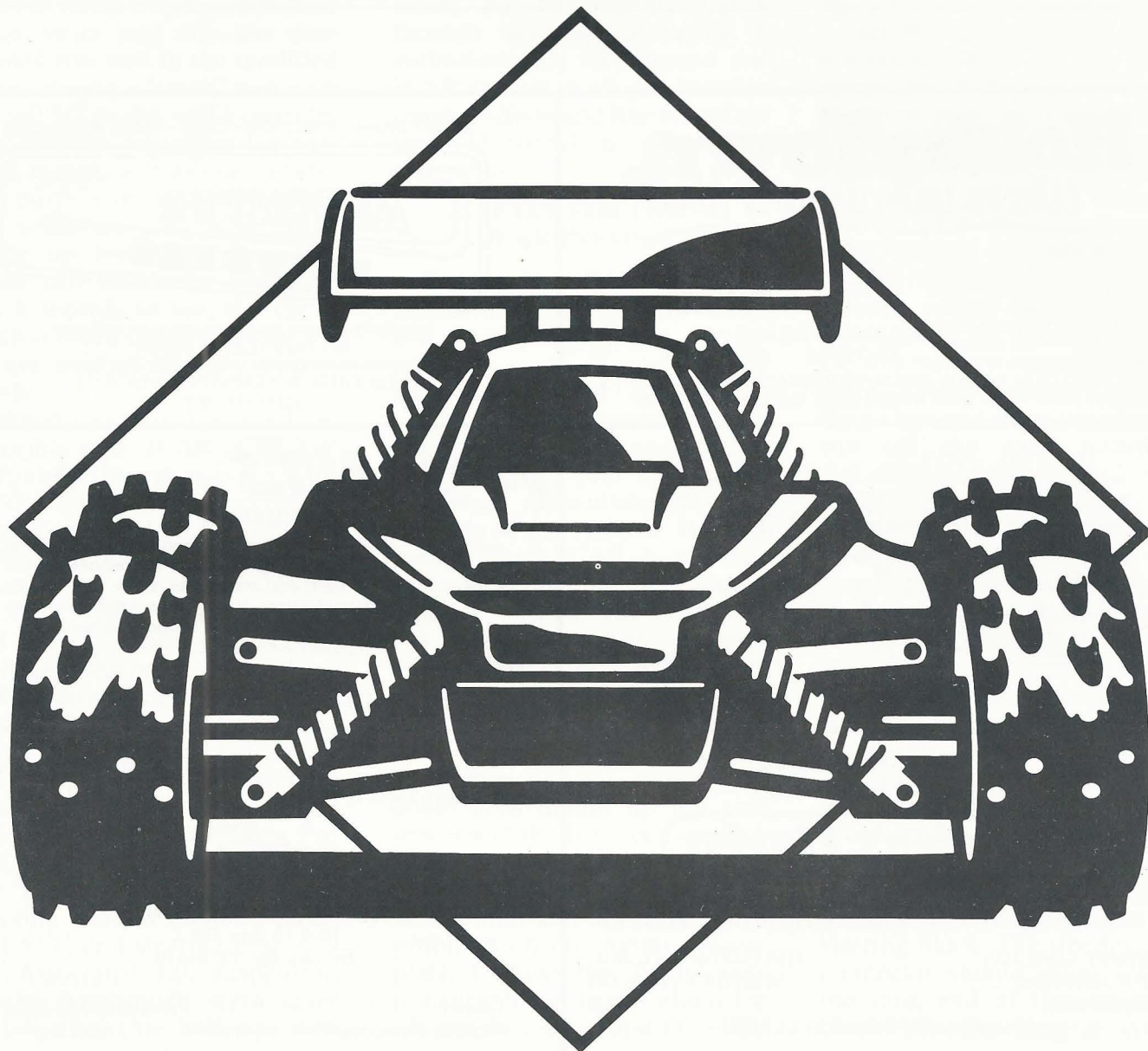
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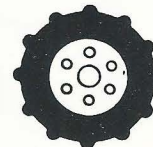
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the main, seven laps slower than the "A" main winner's fifty-three laps. Considering that the driver had not raced carpet oval in over three years and the car performed this well in the modified class running a "stock" motor on six cell SC packs, well I consider it a definite contender for new track records and will race it with that purpose in mind as soon as I get some six cell SCR packs made up for stock class and seven cell SCE's for modified. Track records or not, the car is just too much fun to drive for me to not race it at every opportunity.

Major components used in assembly were: JCAR's CBL/GP BoLink/6P-10 chassis \$29.00; JCAR RC10 front bumper (available in blue, red, white or black) \$7.95; BoLink tires, blue compound on the front \$15.00; BL3309 green rears \$16.00; BoLink aluminum hubs No. BL3514 and No. BL 3518 \$7.50 & \$6.50; BoLink steel axle No. BL5730 \$6.00; D & D Graphite brand antenna post No. GLA-1125 \$6.95; Bud's differential thrust cone - \$3.95.

Speed control is the Tekin Pro ESC190 and the radio receiver is the 27mhz Tekin micro unit. Steering servo is Futaba's excellent S132 and steering gear uses the Associated 12L suspension blocks, Kimbrough servo saver and Rocket City ballends with

rods cut from Parma threaded rod.

Other than the diff working loose, no components failed through two days of racing. I enthusiastically recommend the JCAR chassis to all you Invader owners who would like to update that old friend into a current competitor.

SETUP FOR THE JCAR/INVADER

Building the JCAR from your old Invader means only about two hours work for a careful assembly, even if you haven't built an Associated 12L before.

Step one of the instructions is a simple matter of removing the rear pod from your old chassis and then remounting the pod onto the new JCAR pan. You will notice that the JCAR chassis uses no upper plate or radio tray. None is needed. The chassis is cut from .125 G-10 material which provides exceptional strength and resistance to flex while providing plenty of room for mounting the electronic equipment of your choice. You could even mount up full size servos and the Invader's original speed control with a full size radio receiver should you so choose and still not have space problems on this roomy chassis plate. I chose the Tekin components shown in the photo for the simple reason that these are

the best components I've seen to date and their small size and lightweight make them ideal on any serious racing machine.

Step two is where those of you not familiar with the 12L might appreciate a bit of additional direction. From your local hobby shop procure a set of 3211 steering blocks (\$2.00), 3214 E-Clips (10 for \$1.00), 3212 kingpins (\$1.50), 4115 front suspension arms (\$4.00), 4119 silver front springs (\$2.00) and a bag of small Kyosho rubber washers of the type used in an Ultima gearbox. Do not buy the Associated front axles. These constantly spit off the e-clips and allow the wheel to run off the axle. Substitute Bolink Part No. BL5364 threaded axles (\$3.50). Go ahead and pick up a couple of bags of the green countersunk head screws that Associated sells for a dollar a half-dozen and a 4127 shim set for \$1.50. The JCAR chassis is setup for the green screws because these are often easier to find than the newer silver screws. Now press one axle through each steering block. The c-clip should wind up on the same side of the block as the steering gear connector. Push a kingpin up through the bottom of the suspension arm and then into the steering block. The steering gear connector should point toward the long end of the mounting block. As the kingpin comes

○ HobbyShopper's Guide ○

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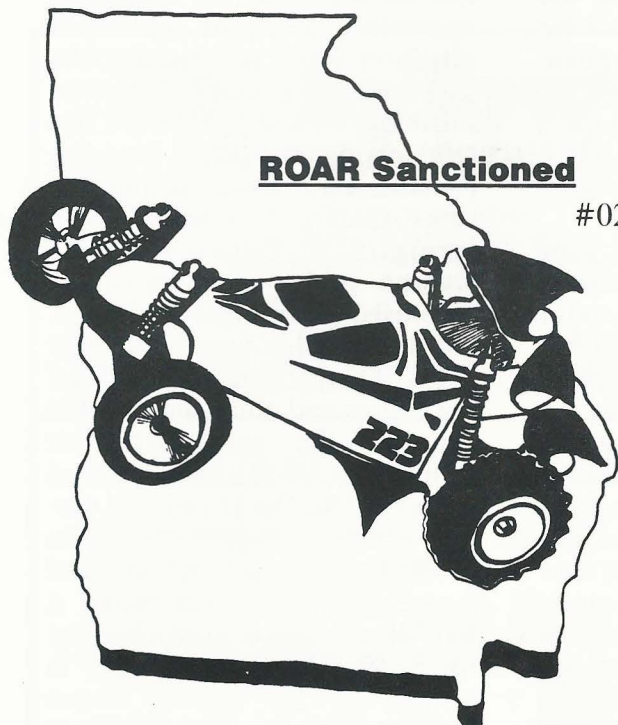
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OFF-ROAD CHAMPIONSHIP

LOCATION: Lake Mayer Raceway, Lake Mayer Park, Savannah, Georgia.

WHEN: April 28th, 29th and 30th *

CLASSES: 2WD Stock, 6 Cell ROAR Approved Stock Motor. 2WD Modified 7 Cell ROAR Approved Modified Motor. 4WD Stock 6 Cell ROAR Approved Stock Motor. 4WD Modified 7 Cell ROAR Approved Modified Motor. ROAR Rules Apply. ROAR Membership Required - May Join At Race.

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Make Checks Payable To S.C.O.R.E. (Savannah Chatham Offroad Racing Enthusiasts).

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Address: _____

Classes: 2WD Stock _____ 2WD Modified _____ 4WD Stock _____ 4WD Modified _____

Frequency: 1st _____ 2nd _____ 3rd _____ Amount Enclosed \$ _____

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Name _____ ROAR # _____

Address _____ Car _____

City _____ Motor _____

State _____ Zip Code _____ Radio _____

Circle Class(es) _____ Choice of Alternate Frequencies _____

2WD Stock 1st _____ 2nd _____ 3rd _____

2WD Mod. 1st _____ 2nd _____ 3rd _____

4WD Stock 1st _____ 2nd _____ 3rd _____

4WD Mod. 1st _____ 2nd _____ 3rd _____

Entry Fee: \$30.00 each stock class (motor provided)

\$20.00 each modified class.

Total Enclosed \$ _____

T-Shirt given to each driver - your size preference XL L M S

ENTRY DEADLINE APRIL 10, 1989 - NO ENTRIES ON RACE DAY

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through the top of the steering block place a rubber washer on. Then follow with a silver spring and put e-clips into the two slots in the kingpin. Repeat for the other side and mount to the chassis with one zero degree block under each suspension arm. For a little added stiffness you can add a piece of threaded rod across the tops of the suspension arm with a plastic ballend (minus the ball) one each end, but I haven't found that these help. The aluminum screws will still bend when you take a hard wall shot. But screws are cheaper than suspension arms so just replace them when they bend. Mount up the steering servo and rods from your Invader and your 12L front end is complete.

That's it. It's a car. easy or what?

If you weren't running a rollover antenna on your Invader, a solid fiberglass rod is the option of choice. These don't break as easily as the hollow graphite variety and Trinity's Econo model will only cost you a third of what one of the fancy models would. Mount it to the center of the chassis.

I located my front body mounts on top of the suspension arms because they don't get broken so easily up there and you want the front of the body to be able to flex. You'll see why when you nose into the wall gently and the car rebounds away instead of stopping and waiting for a marshall to notice it.

Run a front bumper, at least

the first couple of races. The chassis is drilled for JCAR's RC10 bumper which comes in your choice of four colors and provides super protection for the front tires and steering gear.

Jay Hawley advised me to drill a couple of holes in the T-bar, one on each side about midway between mounting screws for a 4-40 screw to pass through for "tweaking". This allows adjusting the chassis turning bias should you find that your car is turning in one direction (probably left) better than the other. My car works best with the T-bar adjusted so that the rear pod rests level relative to the chassis plate. Yours may require adjustment depending on your weight distribution and which front end caster blocks you wind up with after dialing in the steering. Notice, too, that the chassis provides two battery mounting positions. If you want less left turn bias, first try just mounting the battery pack in the inside position to more nearly balance the car's weight toward the center of the car. Once you get used to the sheer speed of oval racing the JCAR you'll probably want to mount the battery pack toward the left side of the chassis using the provided holes. In either case, don't forget to bolt a cut down BoLink body post to the hole just in front of the pack to avoid having your batteries leave the car should you hit something hard.

During the two races this past weekend, we went through several combinations of tires before settling on the Bolink "blues" on the front and Bolink "greens" for the rear. At first, the car didn't seem to be hooking up well enough in the rear so I started dialing. The first and easiest adjustment you should try whenever your rear tires are breaking loose in the turns is to turn down the dual rate on your transmitter to remove some steering travel. That is often a quick cure with off-road cars but didn't do it for the JCAR/Invader. Next we tried TRC's wide low profiles

in green compound on the rear, no difference. Then I switched to the Bolink blue compound (asphalt) fronts, better. Finally, we went back to the narrow Bolink green rears and the car was so easy to drive that the only problem I was having was trying to learn to cope with avoiding slower traffic while this bullet whipped around the track every five seconds or so. If you truly love going fast and haven't yet tried carpet oval, you are in for a rare treat.

Special thanks are in order to several individuals without whose help this car couldn't have happened!

Jay Hawley of JCAR who supplied the JCAR parts and advice on setup.

JCAR

52 Perkins Avenue
Norwich, CT 06360
(203) 887-6476

Kerry Johnson of Bolink for the various Bolink products needed to make the car perform so well.

BoLink R/C Cars, Inc.
420 Hosea Road
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(404) 963-0252

Ernie Provetti of Trinity for more information on motors than I knew existed in this universe.

Trinity

1901 E. Linden Ave., # 20
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Kevin Orton of Tekin for the superb electronics.
Tekin Electronics, Inc.
970 Calle Negocio
San Clemente, CA 92672
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And last but certainly not least, Ralph Duncan for teaching me more about how to make a carpet car work in several five minute conversations than I had learned in the last several years by myself. Thanks guys!

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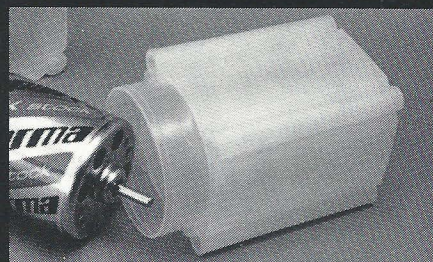


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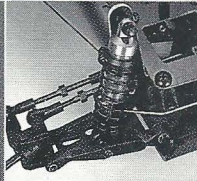
Adding to the ball differential, front and rear stabilizers, special shock stays, adjustable tie rods, and ball bearing set already included with the World Champion Turbo Ultima, Kyosho has fully primed the Ultima Pro for victory with universal swing shafts, Gold Shocks, and a durable, lightweight graphite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

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

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— 1/8 & 1/4 Scale —

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On Quincy Road, Wichita Falls, Texas. Every 2nd & 4th Sundays at noon. Call (817) 691-1478.

WALT'S HOBBY & CRAFT

4300 West Genessee Street, Syracuse, NY 13219. (315) 468-6544. 1/10 Off-Road racing on unique indoor clay track. Mon. eves (sprints). Racing 7 p.m. - Sat. Afternoons racing at 1 p.m. Computerized scoring. Daily practice.

HITT'S HOBBY AND RACEWAY

Tuesdays: Oval Asa, Full Bodies

Thursdays: Off-Road - Stock

Saturdays: Off-Road - Novice

Sundays: Off-Road - Modified

Oval and Off-Road; 853 Wren Rd., Goodlettsville, TN 37072. For info call Ben or Kent (615) 859-3465.

CARCLUB - COCHRANTON AREA

The Carclub races Fridays starting at 6 p.m., Saturdays starting 9 a.m. Sundays

starting at noon. Large indoor carpet - dirt outdoor. Call for info Harry Turner, 120 W. Adams St., Cochranton, PA 16314. (814) 425-7788.

QUEEN CITY R/C RACEWAY

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

PDQ RACEWAYS & HOBBIES

1/8, 1/10, 1/12 Scales

Call times and details. 429 Bankhead Highway, Mableton, GA 30059, (404) 941-2626.

NEW ENGLAND'S

PINE BANKS R/C RACEWAY

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

NEW! Computerized Lap Counting

NOW: Version RCC5.V4 will run your races from sign-up to trophy awards! Using compatible PC's or TRS-80's.

From simple sign-up sheets and quick data entry, the CDS program will make up the entire qualifiers and mains racing schedules, resolve frequency and car number conflicts, print racing schedules and save all data to disc.

Race director has options to select number of cars per race for all classes, and sequence of racing class events.

The actual racing program can run automatically by sequence or be selected by event number from the event schedule. The mains will be automatically made up from quickest qualifying times and laps.

All the extensive features of existing RCC5.V3 program have been retained and enhanced to run quicker and easier. Watch for the greatest Total Automatic System Announcement. We at CDS have done it! The fully automatic system, RCC5.V5, will be provided as an integrated system including software, lap counting devices, computing, displaying and printing equipment. A complete across-the-counter line of components will be available for retail sales.

We are tooling up to have RCC5.V5 on the market very soon.

Suggest you purchase the RCC5.V4 system now so that you will be computer-wise when the remaining hardware will be available.

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(213) 719-8975**

GROUND ZERO RACEWAY

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

SROKA'S INDOOR R/C

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

FLINT R/C CAR CLUB

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

MILE-HI R/C SPEEDWAYS

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

AMERICAN HOBBIES

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

C.A.R. CLUB

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

ARROW HOBBIES

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

BLASTERS OFF-ROAD CLUB

Every Sun. at noon-weather permitting. ROAR. 42 Riel Dr., St. Albert, Alberta, Canada. Call Fred at (403) 457-9333. In winter on carpet.

BUCKLEY SPEEDWAY

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

HOBBY HAVEN RACEWAY

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

RADIO OPERATED AUTO RACING OF ROCHESTER

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

HOBBY HUT

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

USA RACEWAYS

6083 Dixie Highway, Bridgeport, Michigan, (517) 777-7USA.

Every Thursday Oval & Off-Road
Every Fri. Indoor Carpet Oval

R.C. BUGGYWORLD & RACEWAY

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

OUTLAW MOTOR SPEEDWAY

7920 Webster, Highland, CA Every 2nd Sunday - 1/10 dirt oval. All classes. Call (714) 370-0607.

LITTLES HOBBIES

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

R/C WORLD & TRACK

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

FAST LANE R/C

On Road Asphalt Track. 21616 Golden Triangle, Saugus, CA. Call (805) 255-2404.

RPM R/C RACEWAY

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

REC. R/C RACEWAY

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

MADISON AREA RADIO CONTROL

CAR ASSOCIATION, INC.

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

THE RANCH PIT SHOP

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

COMPETITION HOBBY

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

CONNECTICUT AUTO RACING TEAM

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

HOBBYTOWN

1/4 Mile High Banked Indoor Carpet Tracks at two of our stores. The Lincoln

track is at our Sutter Place Mall store located at 5221 S. 48th St., Lincoln, NE 68516 (402) 483-7427. The Omaha track is located at Rockbrook Village at 11011 Elm Street, Omaha, NE 68144, (402) 391-5669.

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

ROMAC

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

COOPER'S RC RACE CENTER

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

VICTORIA HOBBY SHOP

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

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

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

HOBBYTOWN RACEWAY

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

BNS COMPETITION HOBBIES

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

DESERT HOBBIES & RACEWAY

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

TAIT'S HOBBY SHOP

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

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Wisconsin's finest off-road race track. Perfectly groomed 100 ft. straightaway,



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SPEEDWORKS motor. Both classes will be for six cell batteries. A special 120' x 48' carpet track has been designed to provide a true test of driving skill. Horsepower will not be the deciding factor! SPEEDWORKS is dedicated to distinguishing the best sportsman driver in North America.

Special seminars will be presented, featuring 10 of the best expert drivers in the country. These talented men will share their race secrets in group and one on one sessions. Special attention will be given to motor care and tuning,

chassis set-up, and driving tips. SPEEDWORKS wants you to learn how to go faster. These same 10 drivers will also compete in a special 10 car event using the same SPEEDWORKS motors used in the "SPORTSMAN CUP". You

will see the secrets they have shared, in action!

If you are truly a sportsman driver, don't miss the 1989 "SPEEDWORKS SPORTSMAN CUP"

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Name: _____
 Address: _____
 Phone: _____
 Freq. Choice: 1. _____ 2. _____ 3. _____
 ROAR No. _____ Entry Fee \$35.00
 No. of years driving: _____ T-shirt size: _____
 Class: 1/10 _____ on road S M L XL XXL
 Class: 1/12 _____ Age (optional) _____
 All entries are subject to refusal based on Mfr. support / Deadline March 15, 1989
 Make checks payable to John Thawley and mail to:
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- NEW!** • OPTIMA MID TITANIUM SUSPENSION HINGE PINS
- FOAM MOTOR COVER THAT BREATHES
- RC10 RETAINING RING SETS FOR HINGE PINS
- RETAINING RING PLIERS
- YOKOMO/KYOSHO MOTOR MOUNT GASKET
- SF3 ANTI-FRICTION LUBRICANT
- RCPS DECAL SHEETS

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W.K. LOVELESS • SRM • FAST TRACKS

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computer scoring, drivers stand, starting lights. Racing every other Sunday 1 p.m. Menomonee Falls, WI (414) 255-2040.

TRACKSIDE RACEWAY

Dirt Oval Racing every Thursday night 6 p.m. Fully stocked hobby shop, computer scoring, lights, bleachers, concessions. Menomonee Falls, WI (414) 255-2040.

WAGONHILL HOBBIES

Indoor 1/10 & 1/12 on-road racing every Friday night. Outdoor Off-Road every Saturday Night. 225 S. Board St, Grove City, PA, (412) 458-4711.

HOBBY CENTERS

DIRT-DROME

Indoor Dirt Oval: Tues. 2WD Stock/Modified, Sprint Car Bodies Only. 4WD Mod. Oval full bodies 7:30 p.m. Thurs. Open Practice 6-10 p.m. Sat. 6 Big Classes 7:30 p.m. 2WD Stock A, 2WD Stock B, Box Stock Trucks, Modified Trucks, 2WD Modified, 4WD Modified. Sun. Open Practice 1-5 p.m. Call Brent Wilson (502) 683-7611. 715 E. 4th Street, Owensboro, KY 42301.

DIXIE R/C HOBBY SHOP

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

BREMEN RACEWAY

Clay Oval Track 60 x 100 ft. Under roof, lighted Friday nights 7 p.m. May thru

Sept. Call for information (219) 546-3807. Bremen Hobbies, 308 N. Bowen, Bremen, IN 46506.

WEST TEXAS R/C RACEWAY

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

JIM'S R/C SPECIALTIES

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

EAGLE HOBBY CENTER & RACEWAY

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

SUMMIT SPEEDWAY

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

ACTION SPEEDWAY

Indian River's Facility

1/10 scale half mile clay oval & off-road. Two story covered drivers' stand, large pit area close to track, ample parking, classes for young and old, beginner's to expert's, and truck pulls. Coming soon - 1/10 scale super speedway and road course, night racing, full electric, and

concessions. For further information call Trace or Chip Button (407) 231-9410 or Doug Upton (407) 569-8793.

THE INSIDE TRACK

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

ABC R/C

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

TC'S R/C'S

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

BROCKTON INTERNATIONAL SPEEDWAY

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

SONOMA COUNTY RACEWAY

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

ALL IN 1 RACEWAY

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

THE SQUARE ROUNDHOUSE SPEEDWAY

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

COASTAL BEND SANDBLASTERS R/C CAR CLUB

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

CAJON R/C SPEEDWAY

1875 Joe Crosson, El Cajon, CA 92020. Fastest paved oval & road course in CA. 1/10 & 1/12 scale every Friday night. Please call for off-road dates. Hot Line (619) 449-0788/Parts 449-9948.

RADIO CONTROLLED HOBBIES & RACEWAY

Indoor Off-Road racing every Tuesday & Thursday evening beginning at 7 p.m. and Saturdays at 5 p.m. Open 7 days a week. 2011 Placentia Ave., Costa Mesa, CA 92627. For more info call (714) 631-1555.

RADIO CONTROL RACE WORLD

150 Clove Road, Staten Island, NY, (718)

448-0385. Wed. - Fri. 7-10 p.m. Open practice. Saturday 4:30-6 p.m. Race Registration. Sunday 12-5 p.m. Practice/Truck Pulls. Large indoor 1/10 off-road.

R/C RACEWAYS

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

R/C PERFORMANCE CENTER

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

PARLOR HOBBIES

1/10 on Asphalt - Full bodies - Grand National or ASA bodies preferred. Rabbit Lane & 34 Broad St., Matawan, NJ 566-3158. April 2 - 9 - 16 - 23 - 30; May 7 - 14; June 4 - 11 - 25; July 2 - 9 - 16 - 23; Aug. 6 - 13 - 20 - 27; Sept. 17 - 24; Oct. 1 - 8 - 22 - 29; Nov. 5 - 12 - 19.

**R/C SPEED CENTER
R/C ADDICTION**

2810 N. Pacific Hwy., Medford, OR 97501, Call Gene or Betty Skelton, (503) 779-8298. 1/10 and 1/12 scale, banked dirt oval racing, dirt off-road racing, sled pulls, mudbog. Racing every week, year around.

- 1/12 Scale -

OUTLAW RACING

Every Friday nite Stock only 6:45 p.m. Every 1st Sunday - 1/12 Stock & Modified. 1/10 on-road Stock & Modified, 1/24 Tamtechs. Call Paul Nadeau, (714) 370-0607

GLASS CITY RADIO CONTROL

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

S.T.A.R.C.

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

TEAM RACE R/C CAR CLUB

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

NORTHERN MINI-RACERS

4 Cell indoor regular schedule 1st & 3rd Saturday, located at 1715 S. Broadway, Minot, ND Call Roger Lee, Pres. (701) 838-0654, or 839-5294.

KOUNTRY KLIN HOBBY

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

USA RACEWAYS

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

THE RANCH PIT SHOP

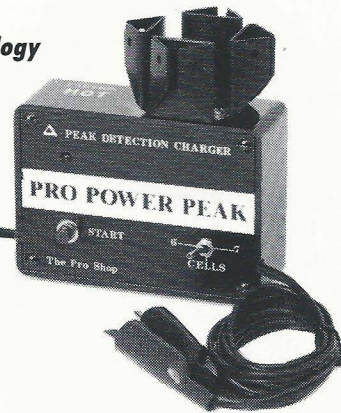
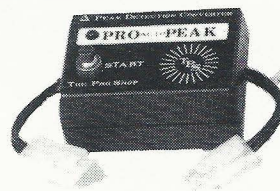
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- Transistor Current Regulator
- Pulsating LED Charge Indicator

91766, (714) 623-1506. Every 4th Sun. 1/12 & 1/10 On-Road Combined Program.

OMAHA NEBRASKA RADIO OPERATED AUTO DRIVERS

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

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

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

**CENTRAL MARYLAND ELECTRIC RACING CLUB
COMMUNITY R/C SPEEDWAY**

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

FLORIDA STATE SERIES

April 29 & 30 - Jacksonville
July 8 & 9 - Pinellas
Sept. 30 & Oct. 1 - Ft. Lauderdale, Nov. 4 & 5 - Orlando
Steve Whitney (407) 631-8761

- Special Events -

**ROAR REGION VI
OFF-ROAD SERIES**

May 27 - Metro Raceway, Bakersfield, Stock & Modified.
July 8 & 9 - Radio Controlled Hobbies, Costa Mesa, Saturday Stock, Sunday Modified.

**ROAR REGION VI
OVAL SERIES**

April 1 - Metro Raceway, Bakersfield, Stock, Mod, & Sprint
June 3 - Racer's Haven, Bakersfield,

Stock, Mod. & Sprint
August 6 - R/C Outlaw, Highland, Stock, Mod. & Sprint
For further information call Cliff Soderberg, (213) 988-1006.

TRC/TRINITY CHALLENGE

April 14 - 16, 1989

At Lake Whippoorwill International Speedway, 12345 Narcoossee Rd., Orlando, FL 32827. For info call (407) 277-9586.

1989 1/8 GAS IFMAR WORLD CHAMPIONSHIPS

July 4-9, 1989

Tuesday, Wednesday and Thursday will be qualifying (6 rounds of 10 min, qualifying heats). Friday will be a "rain-day" in case one of the qualifying sessions rains out. Saturday will be the bump-up finals day, and Sunday the 9th of July is 1/8, 1/4, 1/2 finals and Main Event day. The track is a permanent 280 meters long with 13 turns, all more or less banked. The drivers' stand will be rebuilt and extended from 10 meters to 16 meters. The pit area will be reconstructed and all covered. If you have any questions contact us by phone, fax or letter. P. O. Box 413, 2100 AK Heemstede, Holland, Tel. 31-23-292068, Fax: 31-23-284950.

1989 ROAR NATIONALS

1/10 DIRT OVAL
May 11 - 14, 1989

R/C Hobby Workshop, Burlington, NC. Contact Dave Guerin (919) 228-6809.

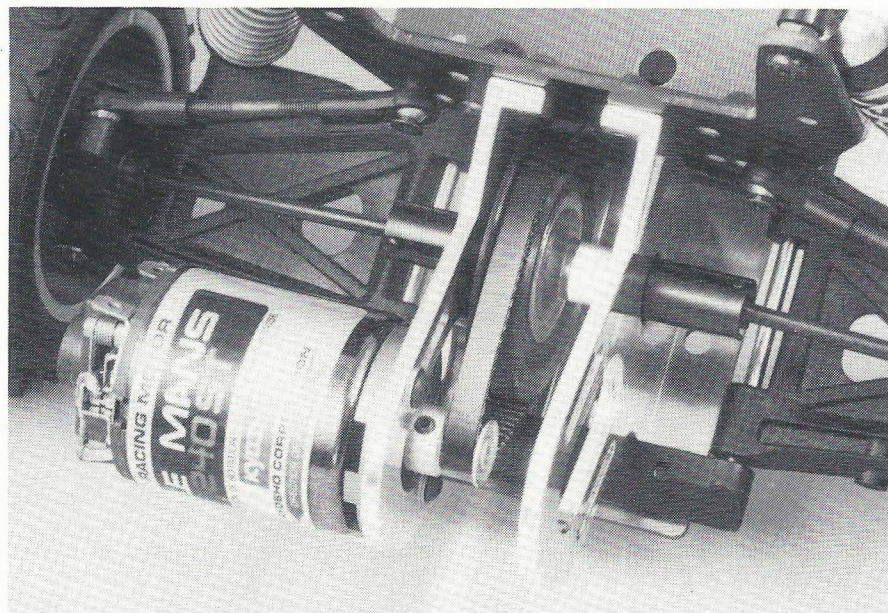
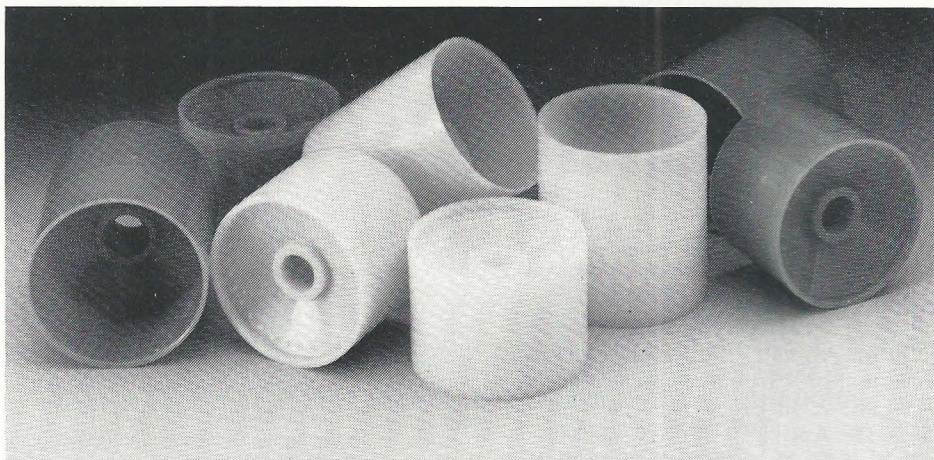
1/10 & 1/12 PAVED OVAL
May 25 - 28

R/C Hobbies, Snellville, GA. Contact Roy Kelley (404) 985-1448.

CP

NEW PRODUCTS

Paragon Centerlines have gone rad! These lightweight competition rims are now available in vibrant fluorescent colors. The new colors include Hot Pink, Fire Orange and Saturn Yellow. Outshine the competition with the new, wild centerlines. Suggested retail for a full set (two front, two rear): \$5.95. Part Nos. are HP-014, FO-014, and SY-014 respectively. Paragon Racing Products, Dept. CP, 8802 Knollwood Dr., Eden Prairie, MN 55344, (612) 934-1220.

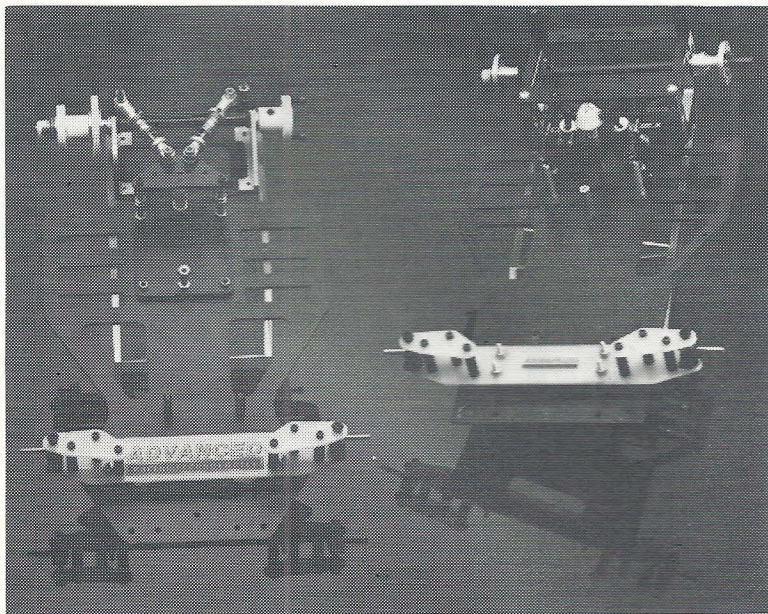


J-CAR™ DDS™ Transmission. Now you can own the most efficient, simplest, easiest to maintain, and lightest transmission available for your Kyosho Ultima, and RC10. J-CAR is now offering the DDS, featuring either the stock Turbo Ultima differential or the Thorp Ultima differential. The DDS can be set up to use 32, 48, or 64 pitch Robinson Racing gears or the Hyperdrive belt drive system. The motor can be mounted on either side of the transmission for different tracks. The DDS works great for dirt ovals, off-road and asphalt racing. Gear ratio range from 7.20 to 2.64. Retail \$80.00. J-CAR, 52 Perkins Ave., Norwich, CT 06360, (203) 887-6476.

TEKIN's new micro receiver has improved rejection of adjacent channels on 75 megahertz! This tiny new receiver is the result of intensive research and testing by TEKIN engineers and actually out-performs many larger receivers as well as other mini receivers. Now there is no need to avoid transmitters on a frequency next to yours, even if it is transmitting on higher power than you are. Other features include super low operating voltage, special noise rejection circuitry for ESC use, and .45 oz. weight. The new TEKIN Micro is available now . . . ask your R/C dealer! Tekin Electronics, 970 Calle Negocio, San Clemente, CA 92672, (714) 498-9518.

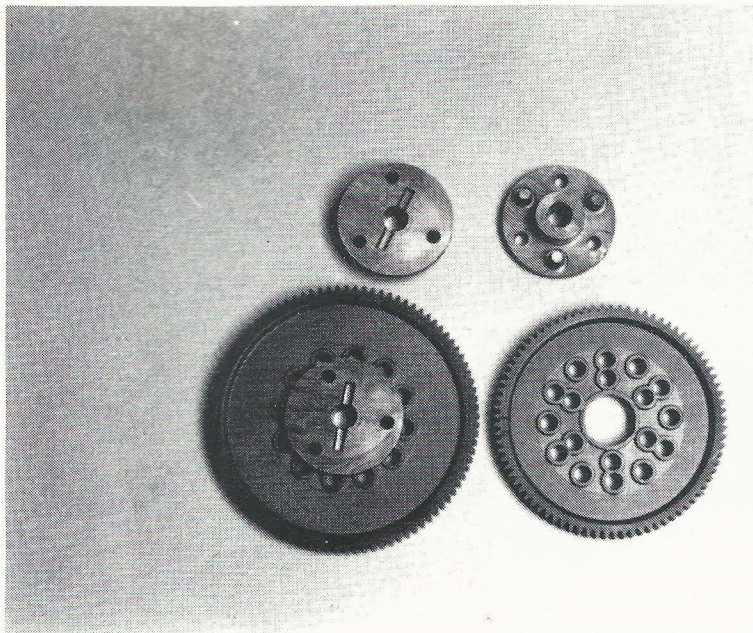


New off-road tires from Parma! Shown are new "Small Spike" Tires for the Schumacher CAT, and others using 2.1" rims. Fronts (#12036, \$12.00/PR.) and rears (#12037, \$12.00/PR.) are available at your local Parma dealer. Parma International, Inc., 13927 Progress Parkway, North Royalton, OH 44133.

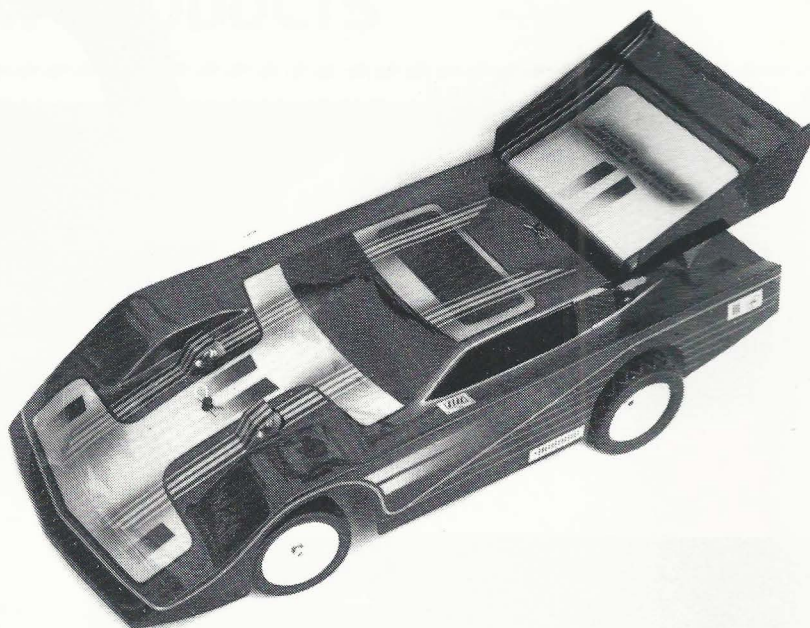


Advanced Racing Technologies has the front end to make your 1/10 scale car perform at its best. Our front end is designed to replace the weak single supported front ends of the TRC Pro 10, BoLink Eliminator 10, Predator/Lynx, Delta Villain, Hyper-Drive, and McAllister cars. The ADVANCED front end is an infinitely adjustable, dual-supported front end and uses our exclusive Pivot/Saddle block systems made popular and race-proven on our own AGITATOR. Retail price is \$45.00. Advanced Racing Technologies, 460 Cypress Lane, Suite F, El Cajon, CA 92020, (619) 441-8595.

Kimbrough Products is giving away free adapters that enable racers to use K.P. Precision gears in a JRX2 car. For the next few months K.P. will be attaching these adapters along with a gear chart to the K.P. 81, and 84 tooth gear packages, so hobby shop proprietors can detach them and give them to people racing JRX2s. The reason these two sizes were picked is, they are the nearest K.P. has to stock JRX2 82 tooth gears. People that want to convert their JRX2 cars to Monster Trucks can use them because the K.P. 96 tooth gear will fit (without the gear cover) and with a K.P. 15 tooth pinion gives a gear ratio of 13.95 to 1 just right for those new super hot wind motors. Kimbrough Products, 1420 E. St. Andrews Place, Unit F, Santa Ana, CA 92705, (714) 557-4530.

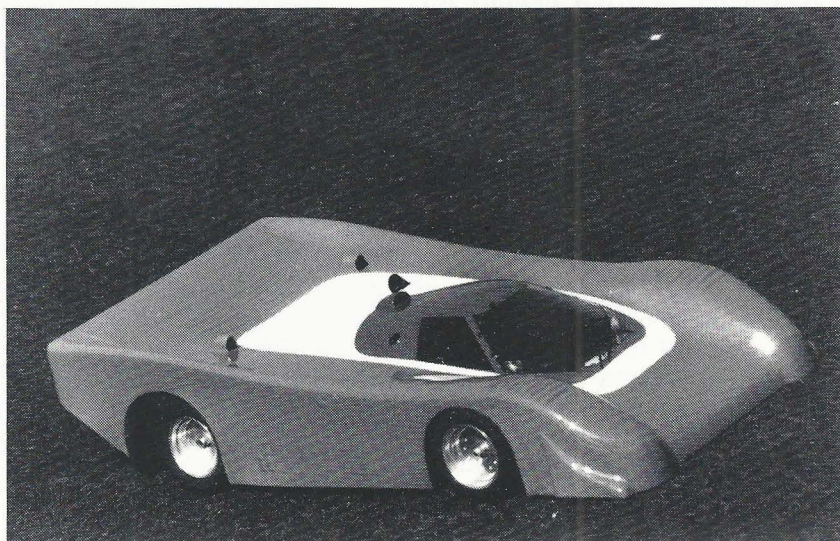


Motion Graphics has introduced a full line of concourse-quality custom painted R/C car bodies. 1/10 and 1/12 scale lexan/polycarbonate bodies are primarily featured; with all other body types also available. These unique custom graphic designs are highlighted by airbrushed custom colors, including metallics and candy colors. Replicas are a specialty. Each custom-painted body features unique detailing. Tinted windows, personalized lettering, numbers, team names and logos are available options. Bring excitement to your racing as these bodies are guaranteed to cause heads to turn. Motion Graphics, P. O. Box 1590, Westminster, Maryland 21157.



STAGE III is proud to announce the release of Super 13 and Super 13B wire for all types of R/C racing. 805 strands of oxygen-free copper, pre-tinned for easy soldering, wrapped in burn proof silicone, Super 13 and 13B are rated at a whopping 55 amps, and it stays super flexible even after getting hot. Outside diameter is smaller than our old 14 gauge, with 20% less internal resistance! Super 13: 2 ft. each of black and orange, retail \$4.75. Super 13B: 2 ft. of blue, retail \$2.75. Stage III, 1189 Chicago Rd., Troy, MI 48083, (313) 585-1150, Fax 978-9085.

TMS Products releases its first in a new line of Polycarbonate R/C car bodies. The Nissan GTP-ZX is the first in this high-quality, highly detailed series of 10th scale bodies. The TMS Nissan features great aerodynamics, canard wings, windshield clips and wiper, realistic air ducts, intricate side detailing, not forgetting the gas caps and more. Fashion your on-road car after 1988's IMSA-CAMEL GT Champion, or design your own fabulous paint job for this detailed car. Available from TMS Products, 1948-A Del Amo Blvd., Torrance, CA 90501.





JR-X2 TECHNOLOGY IS HERE!

WHY JR-X2?

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

GIL LOSI JR.



BODY AND WING

Super tough and stylish Lexan® body shell form fits to chassis and covers the rear shocks for added protection from dirt.

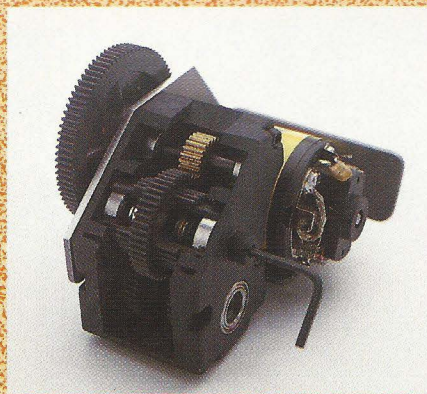


LOSI SHOCK ABSORBERS

Internally pressurized with hardened and microground shafts. Easy to replace pre assembled cartridge and ultra smooth stainless steel springs.

LOSI 5 LINK SUSPENSION

The new LOSI 5-Link® rear suspension handles all types of track conditions ... features unique universal/slider drive shafts.

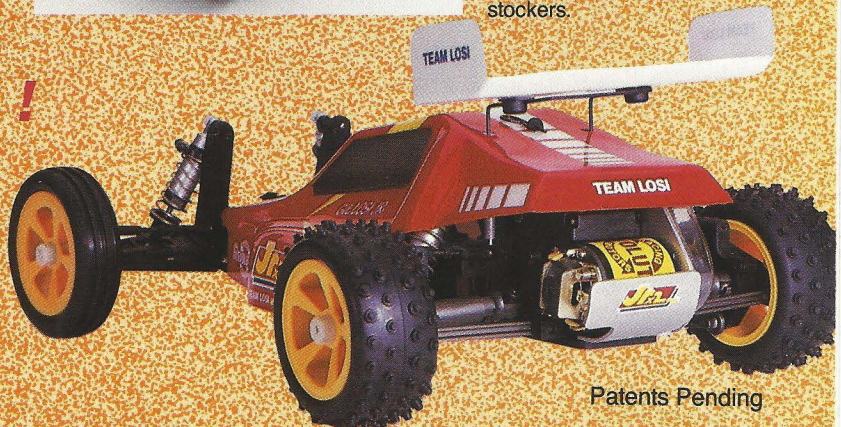


"ALL-NEW" JR-X2 TRANSMISSION

The JR-X2 is a dramatic winning edge. The L.R.M. (low rotating mass) gears are 48 pitch and molded from self lubricating materials specially formulated for low friction and durability. The 2.18 to 1 final drive ratio is lower than most others' and allows selecting the correct gear ratios for the new breed of hot modified motors along with the proper ratios for stockers.

THE WINNING EDGE . . . !

A group of dedicated, performance minded, professionals working to develop quality products at a reasonable price. Team Losi supports their products with continuing testing, racing, and customer assistance. When you choose Team Losi you get years of World Championship experience and expertise. The JR-X2 is the new generation in 2 wheel drive performance. Team Losi has given you a kit that out of the box will give you the edge against other cars.



Patents Pending

TEAM LOSI 1655 E. MISSION BLVD., POMONA, CALIFORNIA (714) 620-0164

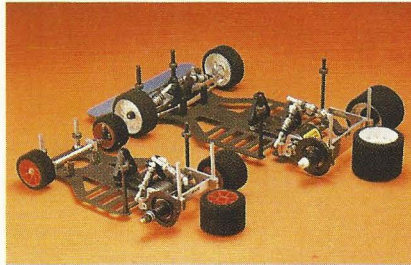
Ralph Burch Jr., world class driver and 1988 McCoy champion, was our choice to put Hyperdrive to the test.

"The Hyperdrive belt drive system will do more for the performance of 1/10th, 1/12th, and off road racing than belt drive has already done for 1/8th scale," said Ralph.

Racers everywhere are discovering the advantages of Hyperdrive. At its first introduction to the racing world, 2 of 3 stock, and 5 of 9 modified class winners won with Hyperdrive equipped cars at the 1988 10th scale Nats!

The combination of tough anodized

aluminum motor drive, durable Kevlar belt, and Teflon impregnated Delrin diff pulley is new, and it's a killer!



DELTA SPYDER and VILLAIN will feature Hyperdrive on some models soon.

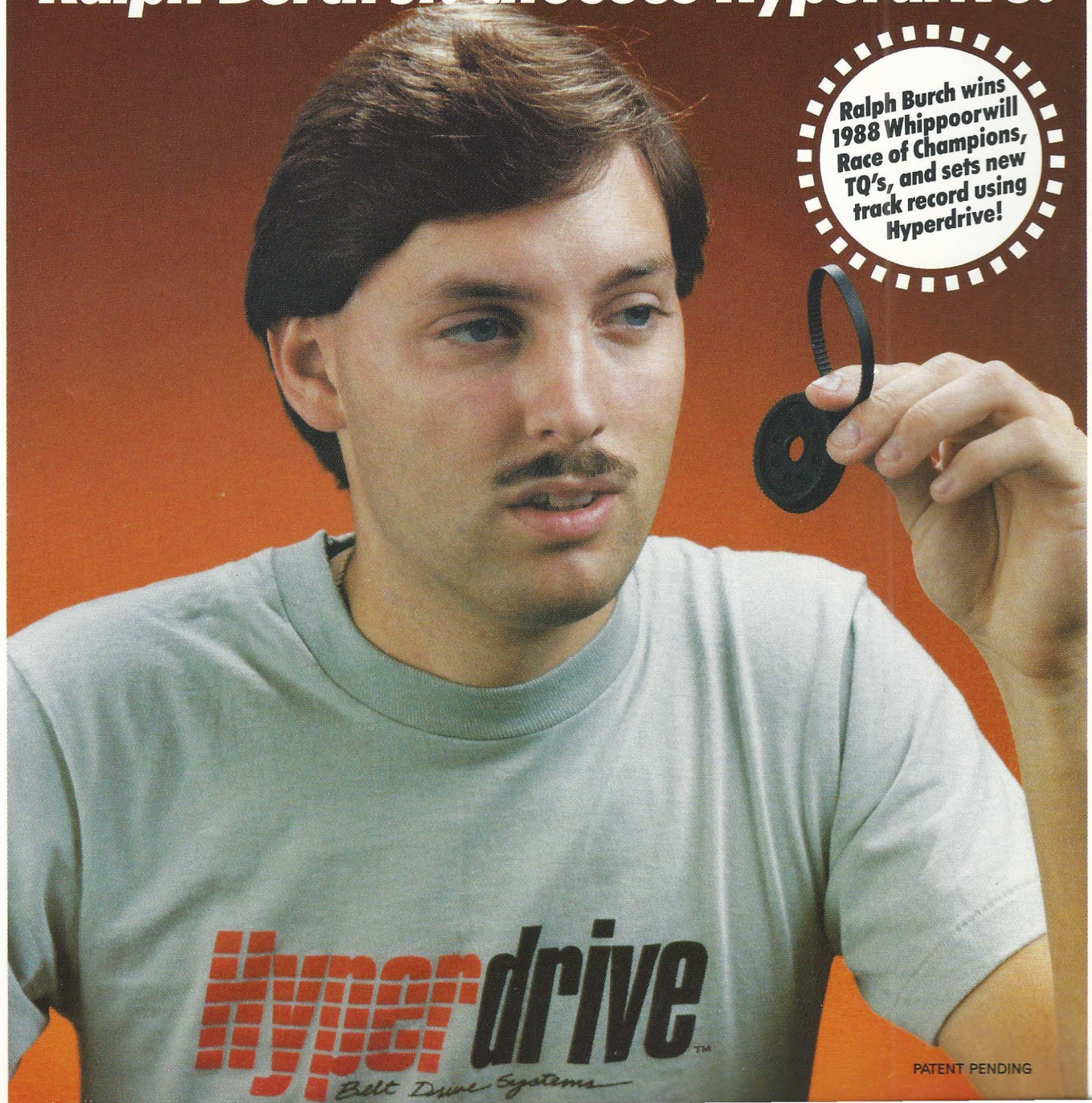
HyperdriveTM
Belt Drive Systems

Add **Hyperballs**, the highest grade bearings on the market, with **Hyperrings**, our chrome-hardened diff rings, and you have the ultimate, near frictionless, bulletproof drive system.

Contact us today for our new catalog and ordering information, or order direct using your VISA or MASTERCARD.

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Ralph Burch Jr. chooses Hyperdrive!



Ralph Burch wins
1988 Whippoorwill
Race of Champions,
TQ's, and sets new
track record using
Hyperdrive!

HyperdriveTM
Belt Drive Systems

PATENT PENDING

IT'S LOADED.

You're looking at the most potent pistolgrip radio you can buy.

When it comes to features and performance, it's loaded. But only the competition needs to be worried.

PCM 1024.

Futaba's Magnum PCM fires out its commands in high speed, high resolution 1024 Pulse Code Modulation.

Virtually stepless PCM 1024 is a Futaba exclusive, and for response and resistance to interference nothing even comes close.

And Futaba's pioneering efforts in PCM have also resulted in a remarkably compact 3 channel receiver.



The 3 Channel PCM/BEC receiver weighs just 0.73 oz. and measures 1.75" x 1.125" x 0.625"

ALL THE RIGHT MOVES.

On the track, Magnum PCM one-touch, electronic trim and adjustable dual rate give you precise control over changing conditions.

Steering wheel throw, spring tension and throttle limit can also be easily changed on the transmitter.



Another important feature is Direct Servo Control (DSC), which lets you check and adjust settings without turning the transmitter on.

The Magnum PCM control panel. Customize your system for every application.



A PIT CREW IN THE PALM OF YOUR HAND.

The control panel of the Magnum PCM gives you access to every option imaginable.

ATV, exponential and sub-trim let you fine tune steering and throttle servo action to suit your driving style, car or track.

Third channel, mixing, fail safe, PCM/PPM (FM) and servo reverse controls are also provided.

THE FUTURE IS NOW.

Developed and competition-tested for all types of RC racing, the Magnum PCM can handle anything on wheels.

From high-powered 1:8 gas cars to high jumping 1:10 offroad racers, Futaba's reliable, surface-mounted electronics can take it. A complete selection of servos and MOS/FET speed controls is available.

We've even included twin-servo steering control, four wheel steer (4WS) differential and torque-steer compensation mixing.

Magnum PCM is truly the system for the serious racer. Everyone else is just firing blanks.

MAGNUM Futaba.

Futaba Corporation of America
555 West Victoria Street, Compton, CA 90220

Now you don't have to settle for anything less than MRC

Performance features you'd expect from MRC at a price you wouldn't.

It's remarkable that you can buy these systems with an abundance of performance features at this price. It's even more remarkable that they come from MRC...the people who know R/C cars, the company that puts

reliability and high technology into everything they design. Now it all comes together in a pair of two channel radios for car or boat that offer the quality and performance you'd expect from MRC...at a price you wouldn't.

See them at your hobby dealer.



MRC's two channel dual stick radio at remarkable pricing.

Top Gun, MRC's two channel wheel unit with advanced high tech features.



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