

THRASHING (TESTING)

... ASSOCIATED Shows 'Em How One More Time!

Associated has definitely made their mark in R/C car racing, primarily with an enviable list of wins in 1/8 competition. But when it was decided to get into the booming 1/12 electric market, they were on new turf dominated by others that had been in the 1/12 business for a long time . . . it was not the time for rushing into a new field.

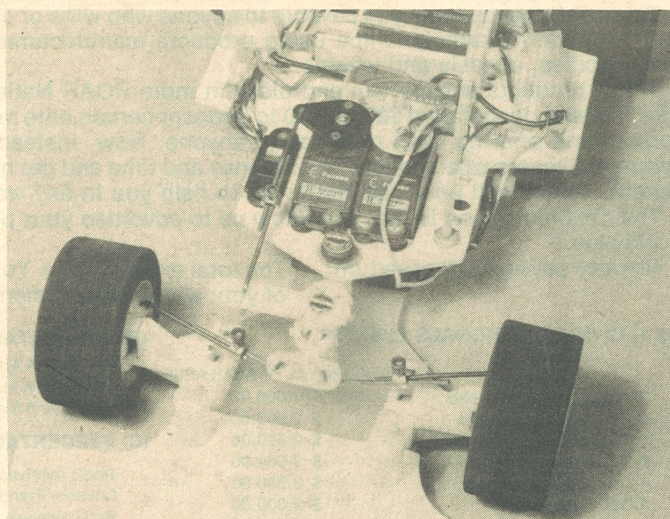
And they certainly did not rush it. Granted, it takes a lot of design time, working on the minor points of development and then to get the tooling working properly, but here it is early '79 and I can remember seeing early prototypes of the RC12E at the '77 ROAR Nationals.

Was this much time necessary to develop the car? I would imagine so, knowing that Associated did want to get in on things as soon as possible. But was it worth it? Yes, it was. I won't hold back on you, making you wait until the end of the test report for a rating of some kind. The RC12E is the best 1/12 electric available right now . . . not perfect, of course, but still the best available. Let's see if we can't dig into it and find out why.

THE KIT

There are a number of different ways to buy an Associated RC12E; a basic chassis and little else, a complete chassis kit less radio, assembled cars with or without radio. What we are dealing with here is the number 3010 6-cell car kit, less radio but with everything else needed.

All components are bagged in groups corresponding to the sub-assembly they compromise. Packing is done so that there,



Close-up of front on RC12E. Notice the new servo saver in place and that we converted steering rods to two-piece units, making toe-in adjustment easier.

should be no damaged pieces when you get your car, there is even a paper liner protecting the clear Lexan body from being scratched by other contents of the box.

The box itself features full-color labeling, which might not be of much tangible value to the racer, but does indicate Associated's pride in their product and desire to show it off with proper packaging.

In the all-important area of instructions, Associated has set a new high for the others to try to reach. A huge, 40-page instruction manual is provided, the written text being supplemented by chassis diagrams, pictures of completed cars, wiring diagrams and exploded-view drawings. It is enough to say that if you faithfully follow the instructions, your car will

be built right. The instructions are so clear and presented in such a logical order, that it is not even necessary to read through them before beginning assembly of the car.

But that is not enough and Associated has recognized that by going on to detail how to mount and paint the body (even suggesting several different paints to use), discuss the nature of nickel-cadmium batteries, explain the effects of over-charge and excessive discharge, give instructions on no less than four different charging methods, all of value depending on your charging equipment. The section on charging is wrapped up with explaining how to get maximum power to the motor and a useful discussion of three "memory" effects common to nicad batteries.

Last and certainly not least is a section devoted to tuning your car for the best performance . . . all good, valuable information that is concluded with suggestions on getting some racing started in your area.

Completed Associated RC12E, ready to run. Control by Futaba. Shown with the TOJ Can-Am body furnished with this particular car kit . . . driver not molded into body and a separate driver figure not furnished.

There are a couple of *very* minor mistakes (two misspelled words and on page II-8 a reference to a figure on page II-5 that should instead be page I-9) that are only mentioned to show that very little escapes the Dirty Eye. This manual was checked from one end to the other and on a scoring system of 1 to 10 Associated gets an 11, it is that good.

Starting at the front end of the car is a pre-cut bumper of poly, same as the material in the radio tray. The front suspension pieces are molded nylon, as are the steering blocks, rear axle brackets, body posts, the motor adjusting cam and the wheels. The servo saver is cut from poly.

The chassis is 'glass, wide at the front and rear to accommodate suspension pieces, waisted in the center to get proper flex. The pan in our kit was probably cut on a router, but a look at several recent kits shows them to have been die-cut. The routed pan is nice and smooth on the edges, the die-cut ones can have rough and jagged edges, so handle with care and plan on doing some filing to smooth things up.

The 6-cell battery pack is furnished, in the form of two 3-cell sticks, with each battery being welded to the other. Heat shrink tubing encases each stick. All wiring is furnished and is of the high temperature variety. The plugs are a molded nylon version (pre-wired) that feature very positive locking, no chance of them coming unplugged at a crucial time. The resistor is different, as it has a band of windings for brake as well as throttle control. This results in being able to adjust the amount of brake easily, unlike the resistors that have only one brake winding.

The front wheels run on a hardened axle shaft and are fitted with oilite bushings. In the rear, the 1/4-in. round axle rides in oilite bushings. The front bushings work fine, we had some trouble with the rear ones, though.

GETTING IT ALL TOGETHER

With the super instruction manual, this is (almost) a no-sweat operation. Every-

thing fit like it should until installing the rear axle. It proved to be very difficult to get things lined up so that the axle was free in the bushings. Considerable time was spent in shifting the rear blocks around, loosening the inboard mounting screws and shimmed but still the axle was too tight. Not having a reamer on hand, I lapped the axle to the bushings with a lapping compound. This did help a lot but is not the real answer. What is suggested is that you get the rear blocks aligned as accurately as possible and then to line-ream the bushings (while installed in the rear blocks). The axles we have all check out at .249, so a .250 reamer ought to work fine.

The final solution to the problem is to use ball bearings on the rear axle, which is what I ended up doing, that eliminating any alignment problems.

Fit of the main gears to wheel hubs is tight, as is the fit of the wheels on the rear axle. A couple of passes with the X-acto knife gets the gears fitting better, the wheels seem to come in just right after taking them off and reinstalling a couple of times.

The only other problem in assembling the car was the front stand-off for the radio tray not lining up quite right. The hole in the chassis was enlarged, the stand-off moved slightly and it fit OK.

Other than the above, the car went together very well. I am not trying to emphasize the couple of small problems we had, it just isn't much fun writing about pieces that simply fall in place . . . as do most of the ones on this car. If you can read and follow instructions, plus be aware of what is a good mechanical fit, you will have no problem in getting this car together right the first time through.

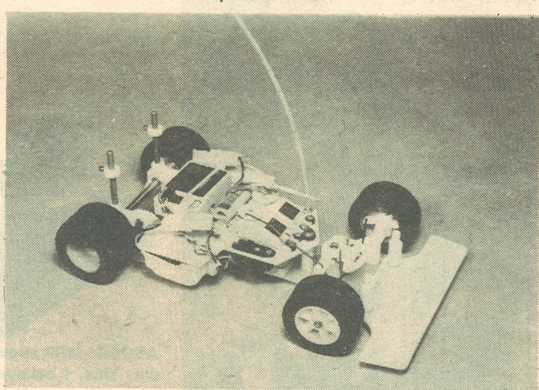
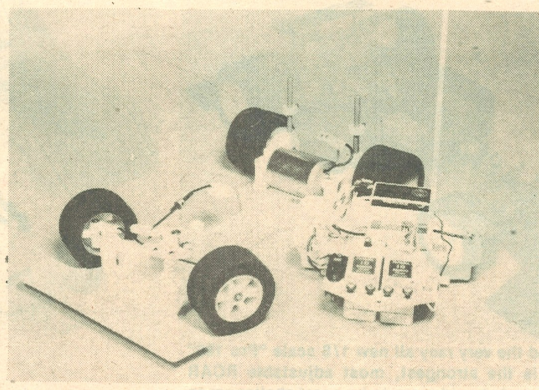
TO THE PAVEMENT

As is RCW's policy when testing cars, the car in box-stock condition was taken out to see how it worked, even if a couple of things were suspect right off the bat. First runs showed the car to be very easy to drive, smoother than any 1/12 car around and quite stable, not being easily upset by bumps.

However, the tricky looking servo saver just wasn't working right. Out of turns it would not return to center, making blasting down the straights a tricky proposition. Several attempts were made at fixing the thing, but the only solution that worked was to install a sheet metal screw in the forward leaves of the servo saver, locking them together. This effectively turns it into a complex bellcrank. No more problem with going back to center, but also removing the "saver" feature. I don't regard this as a serious problem, the 1/12 cars don't put much strain on servos anyway, so it is highly unlikely that any problems would show up from locking out the servo saver.

Back out to run the car, it went straight when asked to and we got down to really going hard. As handling traits of R/C cars are a personal kind of thing, we can't get into this side of the RC12E much, other than to say that in stock condition it is very controllable and easy to drive. This equates to under-steer, which is what you will get on most surfaces, but it is a predictable kind of under-steer even novice drivers have no trouble getting used to.

Where this car excels is that it can be set up to give most any kind of handling desired . . . and do it in a very predictable way. This is *not* a feature to be overlooked; in fact, it is one of the best features of the car. I have worked with a



number of 1/12 electrics and can now get them all set up the way I want, but it usually takes a lot of fiddling with rear tires, front tires, steering throw, etc., to get it right and it doesn't seem that any certain changes will get the desired result. As an example, in the shop are two electric cars that work the same, and quite well, on a local Indoor track. Each car took considerable work to get them like I wanted and each is fitted with different front tires, rear tires and bodies, even though the basic cars are from the same manufacturer.

With the RC12E you just don't have this problem. If you need more steering, some more throw at the wheels will get it, or try the softer (number 3651-S) front tires. When you have the steering very close to where you want it, but say you want just a tiny bit more, then tighten down the front radio tray screw and that'll do it.

The car responds so well to tuning that you can actually play with wing position, height and angle to get the last bit of performance out of the car. I didn't think that wings made much difference on 1/12 cars until working with the RC12E. Now I can see changes in high speed steering, for instance, at a local Indoor track where we are running a Road course and only using 4-cell packs!

Having worked with the RC12E for awhile now, I am confident that I will be able to get the car dialed to any track with a minimum of fuss . . . a couple of practice sessions ought to do it, try that with your current electric car.

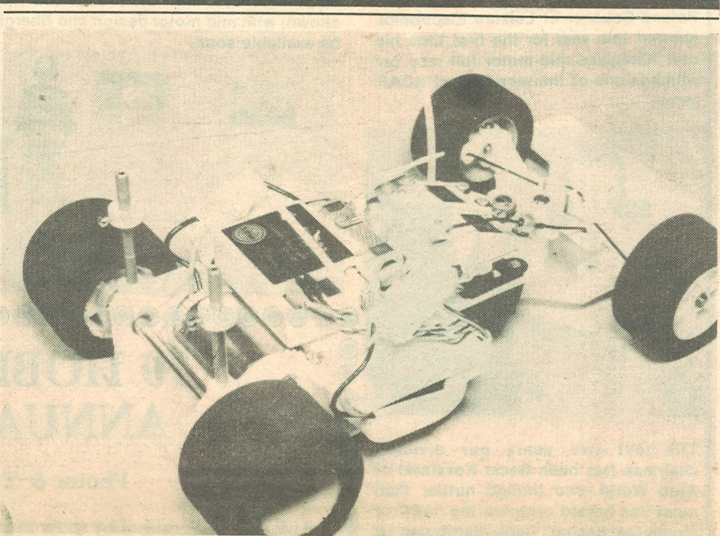
The 1/8 racers reading this are probably wondering aloud right now about the above observation on this car. You're right, 1/8 cars do respond to tuning in a predictable manner. Until the RC12E came along, 1/12 cars did not.

BACK TO THE SHOP

In case you're thinking the car is the ultimate solution to electric chassis, it is not. The test car had a noticeable amount of tweak in it, which was shimmed out with thin washers under the left front suspension arm. Later this tweak came back, but to the opposite side. Then it was noticed that the left front tire was wearing at an angle. Evidently the left suspension arm was down slightly, causing the tweak and the funny tire wear.

Once we ran the car outside when it was very cold. A solid impact with a concrete curb broke the front bumper and the radio tray. The temperature, not the impact, did them in; we have no further problems here.

A couple of rear wheels have been chipped badly, though. Badly enough that we won't use them again. They were trashed in Indoor 4-cell racing, incidentally,



UPPER LEFT: Unplug the motor, remove steering linkage from servo and pull three screws common to stand-off and radio tray and the complete radio system, batteries, resistor, etc., can be taken off the chassis. Very handy for cleaning or for trying different radio layouts on the same chassis. UPPER RIGHT: Completed RC12E. Older servo saver in place. The Futaba S7s are a tight fit, car was later changed over to S16s. ABOVE: Another view of complete car. Radio tray doesn't have much extra room, but then none is needed. Stock mounting of Futaba receiver leaves crystal easily accessible for frequency changes.

tally, no freezer test this time. No breakage problems at all with front wheels.

I think the problem with "breaking" a few things (also broke a rear axle/motor mount and a couple of body posts) comes from Associated not using virgin nylon for the molded pieces, as the things that broke really shouldn't have . . . not counting the bumper and the tray, of course.

On the positive side, we haven't had any gear problems and they do run with little noise, plus being of a small diameter (the largest gear is 48 tooth) and so up out of harm's way. The 'glass chassis is very durable and will probably last forever. The car is easy to work on, if necessary. Parts are readily available from a large number of dealers, a point not to be taken lightly with any race car. The car is backed with a number of accessory items, ball bearings for the front and rear, a tubular rear axle, a wide range of gear sets for experimenting with different ratios, and a bunch more stuff either out now or coming soon.

I suppose we can wrap up the positive side of things by saying that the Dirty Family decided to add another electric car to the race equipment and the choice was obvious; we bought another RC12E. That ought to tell you something.

A COUPLE OF BAD POINTS

A separate section, as there are two things that I really don't care for with this car. First, there are a lot of Can-Am

bodies that won't fit, usually it is the steering linkage from the servo to the servo saver that gets in the way. This problem can be worked around by using a different layout on the radio tray, but in stock condition it is a real problem. You can just about forget trying to put a Formula I or Indy body on. All GT bodies fit OK.

After overcharging a battery pack (ruined a couple of cells), we found out it is just about impossible to get a welded pack apart, let alone fixing it and then getting the thing back in the battery cup. Do something nasty to your pack and you'll be buying a complete 6-cell set to replace it with. They cost \$37.00, assembled and ready to use. Keep that in mind when charging . . .

TO THE TRACK

With testing in stock condition finished, we took both cars (bought another one, remember?) to a higher level of performance with the installation of ball bearings all the way around, experimentation with the softer front tires, track tests with gear ratios, installation of modified and blueprinted motors, two-piece steering linkage to allow changing toe-in settings, etc. The more we run the cars it seems the better they get and the more we like them. True race-type equipment.

An Indoor racing is about the only thing going on around here right now, we decided to take on the Indoor Fliers at the local track. At first, tires were a problem,

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but once we switched to what everybody else was using (foam tires capped with 2 1/8-in. bicycle inner tubes) things came together. As of this writing, I have entered three races—one Oval, two Road—and have a perfect score with wins in nine straight 15-lap heats and three “A” Mains. Stating that I am winning is good for the ego, but the real point is that switching from my other electric cars to the RC12E gave me enough of an advantage to move from being an also-ran to coming home in front.

WRAP UP

In looking back over what I have just written, I see that a number of good features have not been touched upon. Things like front wheel bushings and front axles that wear a long time, an easily adjustable motor mount arrangement, rear wheels that run true and don't flop around on a loose-fitting axle, built-in rear wing fixture, left or right hand drive capabilities for the motor, mid-engine positioning of the electric motor and lots more.

I'll leave you to discover these features on your own, because if you are in any way serious about your electric racing, you will be running an RC12E soon, assuming you don't already have one.

FLASHO!!

Coming in the door just before this test is to be published is Associated's all-new servo saver for the RC12E. Molded in nylon, the servo saver arm has a square drive engaging a closed loop on the pitman arm. It will absorb hard shocks to the steering linkage, yet goes back to center every time. Now this vital piece can be rated as highly as the rest of the car. RCW