



RETURN OF THE KING

TEAM ASSOCIATED 12R5 THE NEW 1/12TH CIRCUIT BENCHMARK

BY RUSS GILES

The Associated RC12 series of cars date back to the late '70s and despite its name this new car is the 10th generation of the Team Associated 1/12th dynasty. They have always been the benchmark that other cars are judged against, so the new 12R5 has a lot to live up to!



Above: The all new front suspension and laid down servo

AGGRESSIVE DESIGN

The car is all new, the only parts I can find that are carried over from the old L4 is the diff and back axle assembly, all the other parts of the car are freshly tooled, new components. Surprisingly for an American design it is nearly all metric threads, with only the rear wheel screws being the old imperial 4-40 thread, an example of the new approach being taken by Associated.

The design team at Associated in California have taken a very aggressive approach to the design of the new car, whilst the general layout of the front suspension is similar to the old car, the rear suspension is completely different. Gone is the familiar T-bar that has served so well in the past, and in comes a link type suspension with coil springs being used as the main springing medium on both the front to rear and side to side movement.

The two suspension layouts, T-bar and link, have existed side by side for some time, with manufacturers choosing their designs based on one or the other. It has generally been assumed in the past that the T-bar car is better for modified motors and more open tracks and the link car is more suited to smaller, tighter tracks and Stock or 19T motors. Previously Associated have been the stalwarts of the T-bar design, so this is a radical move for them!



Above: The underside showing the cells grouped near centreline
Below: Overall rolling chassis, showing its very clean lines



The rear pod is held on the chassis plate by a central pivot ball, this gives the required free movement in bump and roll, there are two links down the side of the chassis that hold the pod in line permitting no rear steer effects, the side springs pick up on the rear of these links to control the chassis roll, the bump is controlled by the traditional in line coil spring/damper assembly, in line down the centre of the car. The damping in roll is now controlled by a hydraulic damper, rather than the previous friction plates.

The batteries are now in one group in the centre of the car rather than a saddle pack arrangement; moving the weight to the centre of the car reducing its polar moment of inertia. Good for quick transitions through tight corners but sacrifices some inherent stability.

'The dampers are of a design that I have not seen used on a model car before...'

THE DEVIL IS IN THE DETAIL

As previously mentioned, the components of the car are all new, the front suspension may look familiar, but the dynamic strut design uses new detail designs to ensure that many of the shortcomings of the old design are overcome, the front arms now fix to aluminium plates that are fixed to the chassis with M3 screws, this will give a very rigid base for the front arms. The front arms look like they can be spaced apart to widen the front track, a tuning aid. The reactive caster is adjustable with moveable top arm mounts rather than swapping parts, the static caster is adjustable by moving plastic C-clips, far more convenient than the old PTFE washers previously used.

The front axles included now use nylock nuts to hold the wheels on, so there are no more small E-clips to lose! The design of the front end also allows the use of very small tyres; it looks like they will be able to wear down to the rim, where previously this required the use of aftermarket parts.

The servo is now laid down flat on the chassis, the previous design has the servo mounted at an angle to minimise the bump steer and give good Ackerman angles throughout the steering throw. The new geometry uses these effects to enhance the handling and provision is made to alter the Ackerman angles as a tuning aid.

The rear end will also allow the use of tyres down to the rim, it also has the now popular 4-point fixing for the top plate, making the pod very rigid.

The dampers are of a design that I have not seen used on a model car before, the problem with hydraulic damping is ensuring the volume of oil inside the shock body remains constant, in most conventional designs this is achieved with some form of volume compensation device, a bladder or some sort of closed cell foam ring that compresses as the damper shaft slides in to the main body displacing the oil, the downside to this is the springing this adds as the bladder compresses and expands.

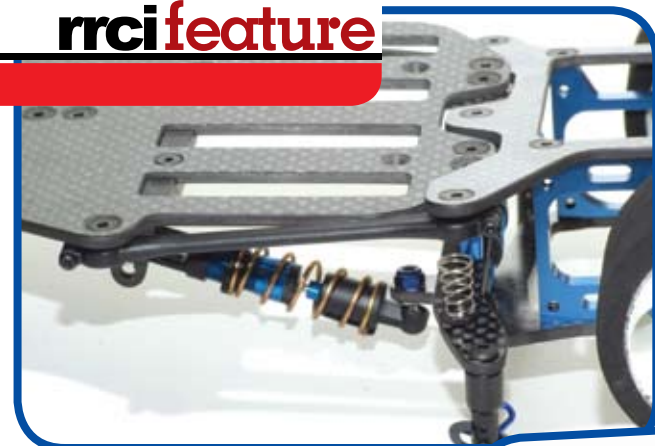
On these new designs developed by Associated the shock shaft extends all the way through the shock body and has a set of seals at each end.

This gives a precise damping and springing in both directions. This is critical for the side damping on this car, the side to side must be exactly the same or a handling tweak will be the result. This is a real advantage over other 1/12th designs, the side damping can be set accurately and will remain consistent through a day's racing, the more commonly used straw tube type dampers always vary over the course of a meeting.

Another neat feature that I have not seen before on a 1/12th car is the adjustable shock angle, the front end of the centre damper is adjustable for height in four positions; this will allow the weight transfer characteristics to be fine-tuned, giving a small amount of control of the turn in and cornering characteristics.

PUTTING IT TOGETHER

The kit only comes as a 'Factory Team' spec, so includes all the nice blue anodised aluminium parts and titanium upgrades. It is clear as soon as you start the build that Associated have worked on improving the quality and fit and finish of their cars, they have not been poor in this respect in



Left: The rear suspension in full roll, the side springs are adjustable to tweak the chassis



Right: All new multi adjustable front suspension close-up. Wheel nuts mean no more lost E-clips!



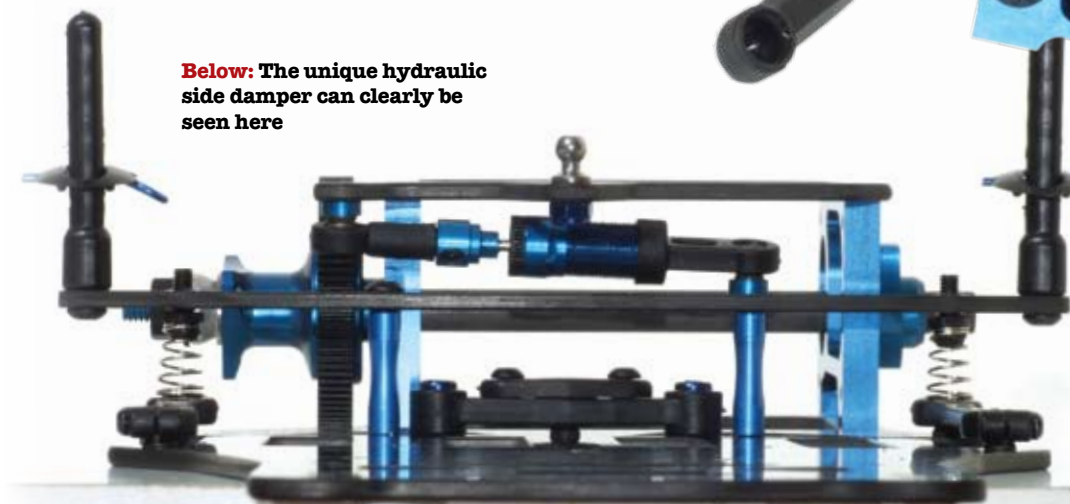
Left: 'Lowered' pod plates and the proven axle and diff

Above: The rear side link and spring, note that the link ball joints are adjustable to get a snug fit

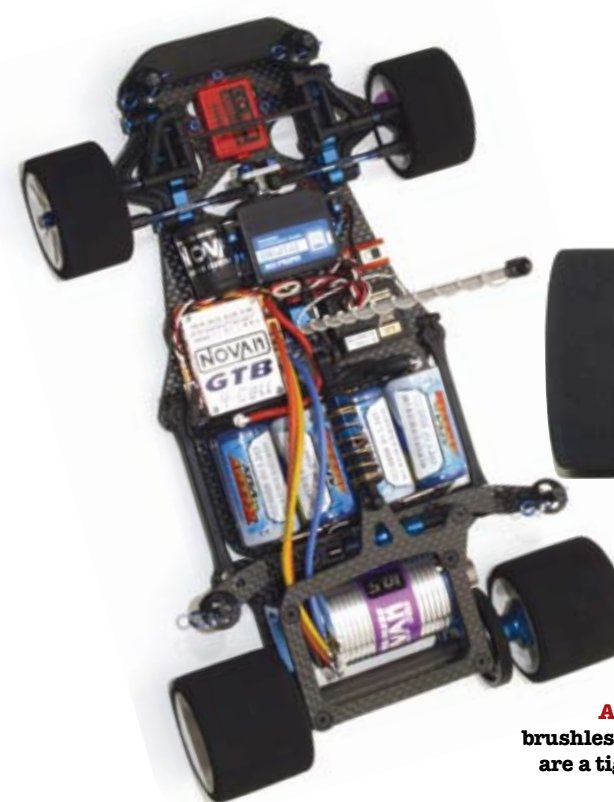


Right: Reactive caster is easily adjustable on the car.

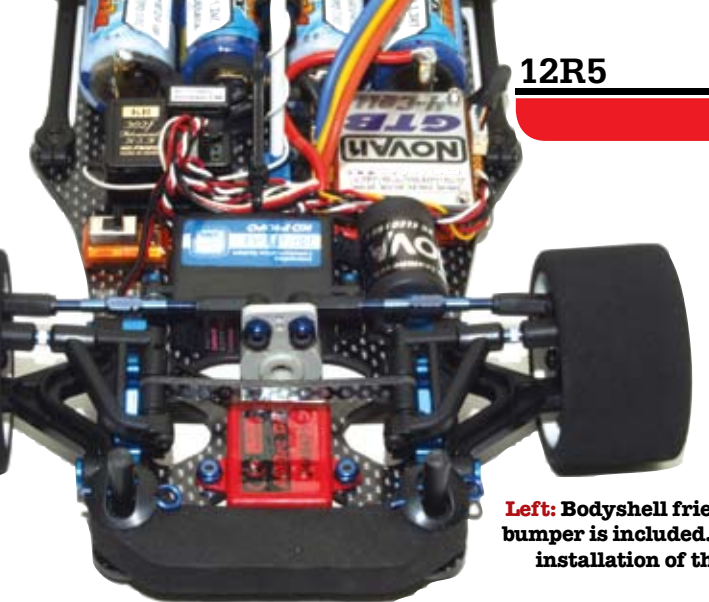
Below: The unique hydraulic side damper can clearly be seen here



Below: The radical new damper design; note the piston rod at each end. Adjustable angle as well



Above: Novak brushless electronics are a tight fit on the chassis



Left: Bodyshell friendly foam bumper is included. Note neat installation of the AMB PT



Above: The Reedy batteries and Novak motor, top-notch performance for this Pro level car

the past but they have definitely moved on. The instructions are clear and concise with plenty of illustrations and build tips along the way, as long as you follow the build manual the car will go together very well.

There are always areas that need extra care, the things that caught me out were the threading of the shock tops on the damper bodies, the plastic is fairly soft and compliant and it is easy to cross thread these. The damper shafts are also longer one end to the other so care needs to be taken to make sure that these are the right way round.

The carbon fibre parts should be prepared before assembly; I sand the edges of the parts with wet and dry, used wet to avoid the nasty carbon dust, to round off the sharp edges. Some people also advocate the use of cyanoacrilate glue to seal the edges, but that is something that I do not do myself as carbon lay up and resin technology has moved on a long way since the early days when they would delaminate when flexed. Interestingly there is no note made of this in the instructions.

I also got a bit too carried away when threading the set screws in to the side spring retainers, I split the moulding on one of mine so be careful!

The car is not difficult to build, but the more time and care you spend putting it together, the better it will go on the track.

I used a KO PDS949ICS servo on this car, it fits perfectly and uses the Kimbrough servo saver supplied in the kit.

The electronics haven't got much room in most 1/12th cars and the narrow chassis on the R5 accentuates this, the Novak GTB 4-cell brushless controller I chose to fit to the car is a very snug fit. The power capacitor sitting alongside the servo, in comparison the receiver has plenty of space. I was particularly careful to route the wires where they do not touch the bodyshell and do not snag when moving the rear suspension.



QUICK SPEC

Class: 1/12th 2WD Electric Circuit
Type: Chassis Kit
Manufacturer: Team Associated
Price: £169.99 RRP

REQUIRED TO RUN

Motor: Novak 10.5 Pro
 ESC: Novak GTB 4-cell
 Batteries: Reedy VMX 4200 NiMH
 Tyres: Jaco Yellow/Double Pink
 Bodyshell: Protoform Speed 12
 Lightweight
 Paint: TelsShells
 Radio: KO 40 MHz
 Receiver: KO 302F
 Servo: KO PDS 9491CS
 Charger: Eagle CDC

DISLIKES

Heavier than an L4

LIKES

Constant Volume Dampers
 No 'Hop ups' required
 General quality

CONTACT

CML Distribution,
 Tel: 01527 575349
www.cmldistribution.co.uk

There is a change to the BRCA rules for next season to allow 10.5 brushless in to the Spec motor class previously limited to 19T spec motors only, and as Novak have a motor approved for this new class it seemed an ideal opportunity to try this. There is much talk in 1/12th circles about the use of receiver batteries on the brushless systems. I feel that this may be of benefit for a low wind motor but is probably unnecessary for anything 6.5 or higher, and certainly not needed for a 10.5T. I have always preferred the KISS approach!

There is a nice touch with the chassis being pre drilled to take an AMB personal transponder in front of the steering servo, though care is necessary to get the wiring past the steering linkage without any catching.

The batteries used are the Reedy VMX IB4200, a pure performance cell these need careful maintenance and care to get the most from them, but will give top notch performance if you look after them.

The tyres were fitted and suspension set-up, this is where patience will really pay back, care must be taken to

make the chassis sit level at 4 mm, the pod and chassis must be level with each other, the side springs must be adjusted to give only the slightest preload and no tweak in the chassis.

The tyres and wheels are the new Jaco Prism in yellow rear compound and double pink front, these have taken the 1/12th world by storm over the last few months and seem to be the tyre of choice for many racers.

The shell used is the Protoform Speed 12 B, a very popular shell in the states, not used much here in UK, as it is not BRCA approved for use at nationals.

OFF THE BLOCKS

The first opportunity for me to try the car was at one of the Chesterfield clubs' summer shootout meetings, the CARS/AMC shootout is as close as it gets to national conditions.

My first run with the car was a bit of a disaster! Mostly of my own doing unfortunately, not giving myself enough time to get ready, and a radio problem didn't help!

Second run I was prepared and a couple of laps in to the run it became clear that the car certainly generates plenty of grip, a little too much at the hairpins as it grip rolled! This is a fairly rare problem in the UK, we don't normally lay down enough grip on the circuit for this to happen, so careful driving was required to overcome the problem till the end of the heat.

Back in the pits and harder, smaller diameter front tyres were selected to calm the handling down a bit, the ratio I had selected for the 10.5 motor was also too low, the 54 mpr recommended in the Novak instructions being too conservative, so a ratio of 57 mpr was selected.

In the next round it was clear that the grip roll was not cured completely, however the handling improved as some of the grip wore off the tyres and during the second half of the race the handling really got going, the speed was fine and the car certainly had plenty of steering for the tighter sections of the circuit. The continuing grip roll called for more measures, I ran a bead of super glue round the outer sidewall of the front tyres, this has the effect of stiffening the sidewall and stops the front tyres snatching and causing the grip roll, I also changed the rear tyre to a Pink compound, these changes certainly helped, the car was more stable and still generated the steering.

The RC12RS was certainly better than its driver at this point! It was my first ever meeting with a link car whose handling characteristics are slightly different to the T-bar cars I am used to, and I need to work on my driving style to get the most from the car.

Talking to the team drivers that have been running the car for a few weeks they recommended the following, a softer side spring, (black rather than the kit silver), this gives the rear of the car a more planted feeling, the side damping is reduced to 10 weight to suit, other than this they are still running the standard set-up recommended in the manual.

WILL IT BE THE BEST?

Only time will tell, the 1/12th circuit car has been around for 35 years or so now, it has developed in to a very effective weapon, there is only so much that can be done given the basic building blocks. I think it will be very difficult for any manufacturer to come out with the real killer design for this class, but what Associated's design team have done is tried to be as aggressive as possible in design and develop the best solution to the problem of going fast round a track, given our rules. This they have been very successful at!

COVERING ALL THE ANGLES

It is clear that the chaps at Team Associated are trying to cover all bases with the new release of a T-bar conversion kit for the car, this is a more conventional design with saddle pack batteries and a fibreglass T-bar to provide the rear suspension. I have yet to see one of these cars, but I expect it to be much closer to the old L4, a case of evolution against the RS's revolution it will be interesting which one is the better on our type of track and carpet here in the UK. **RRCI**

Below: See how low the sleek Protoform Speed 12 Lightweight shell sweeps over the classy Jaco Prism wheels

