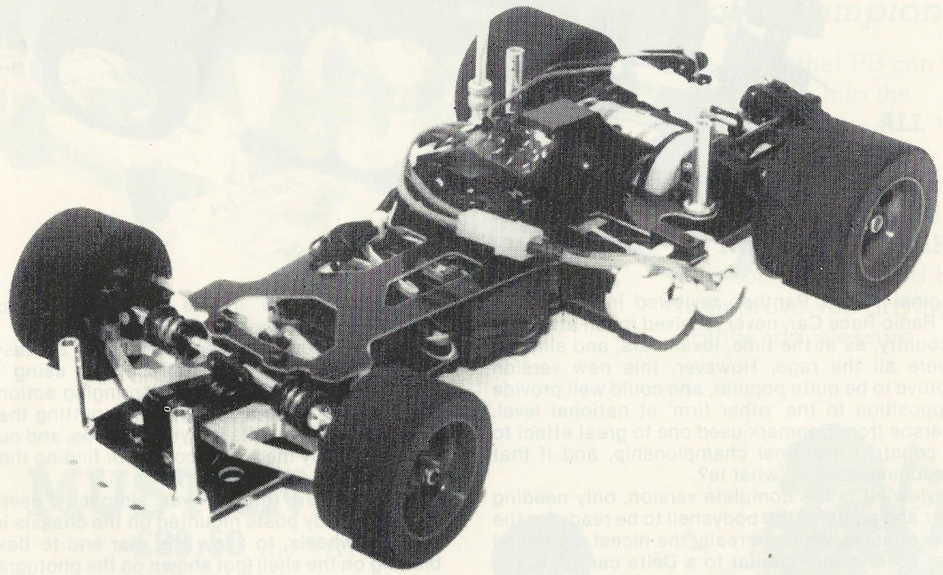
AYK RS401 CYCLONE

RRC looks at the first production all independent 1/12th suspension car



The new AYK Cyclone

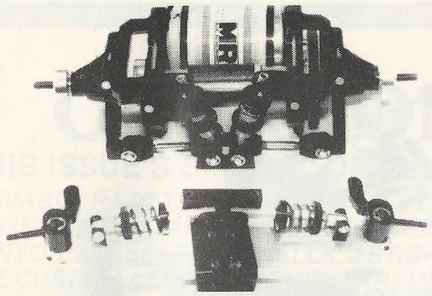
AS SOON as we heard that the much rumoured AYK suspension car was finally due in this country we were on to importer Mick Langrdige like a shot. He confirmed that his sample was indeed due any day and promised us an early view of it.

A few days later a large flat parcel with Japanese markings on it arrived at the door. Our first look at the slightly battered and much travelled carton left an impression that the Japs mean business with this car. The box lid picture is a superb full colour illustration of the Kremer CK-5 sports car during a pit stop, and in the lower right corner a postcard size picture of the rolling chassis. Display impact is the intention of this box. Take the lid off and we find a Lancia-Martini Group 6 sports body and the almost assembled rolling chassis sitting side-by-side. A choice of bodies is to be available, the CK-5, the Lancia Martini and AYK's own sports special.

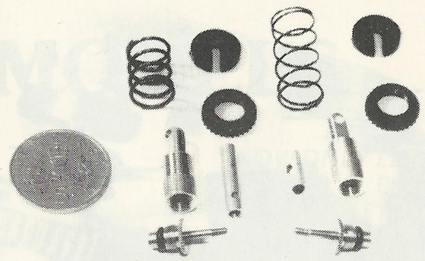
Because we feel this car may be a significant leap forward in 1/12th racing technology and possibly have the same impact as independent suspension did on I.C. racing, this review will be more thorough than usual. It just looks so right! As soon as you pick it up you want to rush off to the workshop to fit the electrics then take it to the track – and that is just what we did! A car such as this deserves the best equipment so it was a quick trip to Eastleigh Models to tap up Dave Farndale for the right bits. While he played with the cv's we took out our shopping list, Demon, Sanyo's, MRP 551 Sanwa receiver and SM-401 servo, Parma mediums for the rear, Uffra greens for the front and a couple of cans of SG flexan for the body. Right, let's get back home.

The chassis is in an assembled condition, that is virtually everything is in place excepting for circlips and the drive shafts. As we intended photographing all the stages of assembly it was a case of take it all apart and re-assemble with care. On this early example the instruction book was pure Japanese, with just numbers in English, but fortunately the usual exploded drawings were very detailed, and suprisingly although there was a mulititude of components assembly was quite straight forward.

First item on the agenda is the coil-spring/shock absorber assemblies. All four shock absorbers are the same, differing only in top mounting and springs. The bodies are nicely turned alloy tubes, threaded on the



Front and rear suspension units.



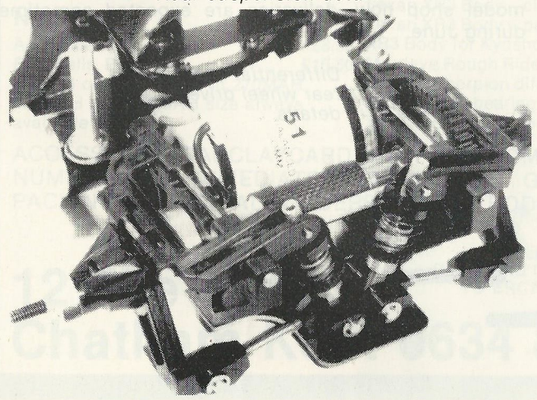
Shockers easily stripped for maintenance.

bottom half for the spring adjusters and, having only a threaded top cap, should be oil-tight. Two bottles of oil are suplied — thin and thinner with no visible indication of which one to use, so we used 3 in 1 as carpet tracks are smoother than ashpalt ones! After leaving to stand for 20 minutes or so for the air bubbles to rise the piston asemblies were gently eased into the barrels and the caps screwed up tight. The bottom mounting is part of the shock-absorber body with threaded alloy tubes of differing length front and rear, screwing onto the piston shafts for mounting the tops. Springs of different thickness and length are used; the front being short with thick diameter wire and the rear long with thinner wire. These are retained at the top in both cases by a slide-on plastic cup on the shaft and at the bottom by a knurled plastic threaded nut, providing adjustment for tension. When assembled each pair of shock-absorbers has a very nice balanced feel to them.

The front suspension is best described as swing-arm. Solid, heavy looking arms or wishbones, about 3/16″ thick, machined out of aluminium, are not as heavy as they look. These are symmetric in design and are mounted on pivots close to the centre line of the chassis. Provision is made for castor angles of 0° to 12° with zero camber when arms are level. Front stub axles are mounted via a vertical king-pin pivot — American style — and AYK have reverted to about 1.25mm trail on the stub-axles. Springing is operated by direct action of the shock absorber against the front bulkhead. Three screws mount the complete front suspension unit to the chassis, location being provided by the bulkhead moulding slotting into two chassis cut-outs.

Now for the interesting bit, the rear suspension. This is made completely of glass reinforced nylon mouldings with a very conscious effort being made to keep weight to a minimum. Two side pieces are attached to the

Rear suspension detail.



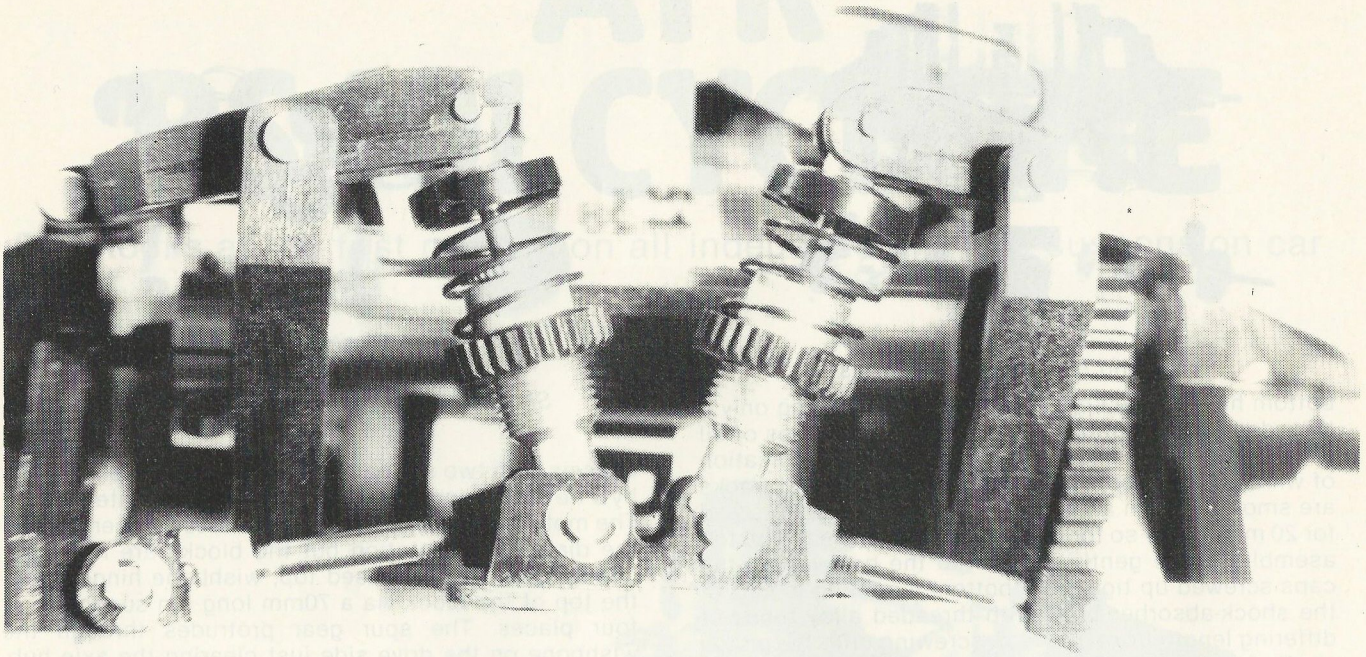
chassis with two self-tapping screws and strengthened by a tie bar behind the axle and the shaker plate in front. The motor can be fitted to either of these, depending on the direction of rotation but the blocks are not interchangeable. A wide based top, wishbone hinges from the top of the block via a 70mm long pin supported in four places. The spur gear protrudes through the wishbone on the drive side just clearing the axle hub. This hub is located at the bottom by a single threaded link which allows for camber adjustment, although at the recommended setting, camber angle is zero and such is the design geometry that camber change is minimal through the suspension travel. A rocker arm system is used to operate the spring/shock absorber which works perfectly.

The drive-train consists of 37 components, including grub-screws but excluding motor and wheels. From the geared differential through to the constant velocity joints and half shafts the engineering quality is very high. In fact the engineering of the car shows a very thorough approach, with no sign of skimping in order to get the car into production. The diff runs in high quality ball bearings and is retained by the screw-on spur gear on one side and a clamp-on boss on the other. There are no bearings in the diff and in our experience very little wear takes place in the casing. The hub carriers support the axle in two oilite bearings although ball-bearings are an option.

Gears are supplied as sets giving a range of 46/17 — 2.7-1 to 50/13 — 3.8-1. The latter may be about right for standard motors, but to use a modified motor will need some work on the motor blocks. The motor is located by the bottom screw only and is not slotted for adjustment, although some motor movement could be provided if necessary. At last the Japanese have discovered 32DP gears so there may be some scope for modifying proprietary gears to obtain some more useful ratios.

Chassis and shaker plate are cut from 1.5mm epoxy fibre glass, coloured black (to simulate carbon fibre?) and has very few screw holes. In fact the rear motor/suspension assembly is located by four self-tapping screws only and is removable once assembled.

Final assembly was fairly straight forward as there is adequate space for all the major components. Nicads are a very snug fit between chassis and shaker-plate and are held in place by releasable tie-straps. The kit came with a lightweight resistor fitted but stock kits will not have this. In its place a Demon 2c was installed on the shaker and the receiver underneath. In the instructions it is suggested the receiver is mounted as far forward as possible, its position dictated by the steering servo. This is mounted on two small posts which in turn are mounted on a small shaker plate. A nice compact Kimbro style three piece servo-saver is



Rear shocks in place. Note simple spring adjustment.

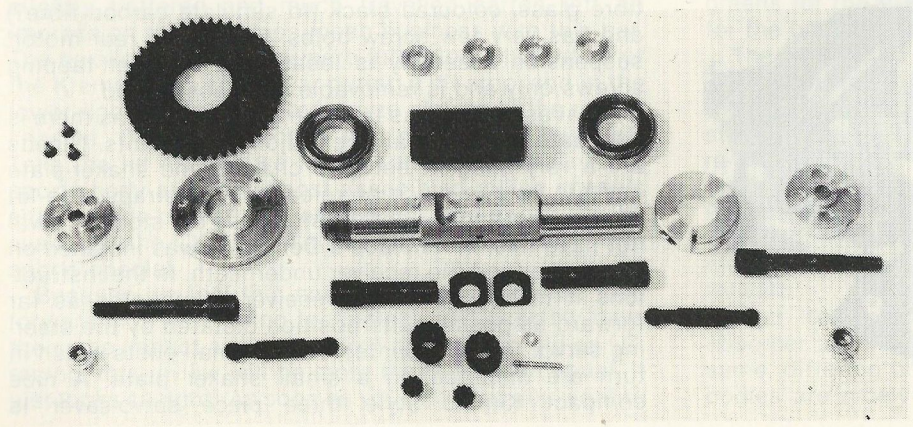
provided with three alternative mountings. The servo fits off centre and odd length track rods are included to accept the lightweight ball joints.

Having trued up the tyres it was time to fit the wheels and see what the finished article looks like. Fronts are now mounted American style, i.e. two bearings on each wheel and a direct fit to the axle: AYK having abandoned live-axles in the interest of weight saving. Bearings supplied are phosphor-bronze with the ball-bearings as an option. Full scale type peg drive is used at the rear with centre nut retention. Wheels are moulded in red and have 8 circular holes in them. Although the kit tyres should work on carpet it was decided to do initial testing with known tyres to give a base to work from.

After fitting the very lightweight hollow aluminium body posts, two on front bumper and two on rear of shaker-plate, we thought it a good idea to weigh the little beastie just to satisfy our curiousity. Much to our surprise (and a few others we expect) weight, with painted lightweight body, was 2lb 2ozs — just 3ozs over the weight limit. This is as shown in the photo's and incuded the receiver in its case and front bumper. So we think there is scope to knock off a couple of ounces. When you bear in mind that the current breed of flat plate chassis are struggling to get down to 2lbs then the Cyclone doesn't look so bad. Having carefully assembled everything as per instruction we sat the car down on its wheels. It immediately settled level with all four tyres flat on the ground — eureka! The suspension moved with only a little pressure so it was decided to wind up the adjusters to make the car as stiff as possible without jacking the suspension up. Of course it will need a fair amount of track time to evaluate just what suspension adjustments do to the car. The only thing remaining was to charge it up, soak the tyres and drive it.

Rather than try to flannel you with track impressions we must be honest and tell you that asembly was done between club-nights and before we were able to run the Cyclone, the magazine deadline arrived so this will have to be held over. When we return it, Mick Langridge intends reducing the weight a little before giving the car its baptism in open competition at Watford in the Ally Pally League on May 7th. As you read this in June we shall know if it is going to work. It looks to be well thought out, and so delightfully made that it must perform at least as well as any current car in use, and only time will tell if it is any better.

Priced at £99.95 the RS401i Cyclone is not cheap. The kit is a true rolling car, lacking only motor, ni-cads speed controller and radio equipment and when you do a component count the price doesn't seem so bad. Distributed by Langtune Racing. Start queing at your local model shop now, deliveries are expected sometime during June.



Differential and rear wheel drive details.