

AYK



FROM AYK RACING, the originators of the promising but not successful 'Trailblazer' and then the winning 'Sidewinder,' comes the 'Bobcat,' a lightweight 1/10th Off-Road racer which looks set to follow on the 'Sidewinder's' success. There are a number of areas on the 'Sidewinder' which cause problems — for instance it is imperative that the differential gear spacing is correctly set and whilst this is not a particularly difficult operation in its own right, disassembling the gearbox is something else.

Anti-roll bars are becoming standard fittings on many of the latest newcomers and AYK have added same on both front and rear of the 'Bobcat.' The car is also slightly lighter in weight and is much less of a squeeze as regards radio and speed controller installation — mainly due to the redesigned gearbox layout which hangs the motor out of the back-end instead of squeezing it in front of the gearbox.

For those who can't wait to get racing the kit is very much pre-assembled — indeed all that remains to be done is to install the motor, check over the gearbox, secure the front tyres

with cyanoacrylate, install radio and servos, fill the dampers with oil — and of course paint and fit the Lexan body.

What you get

The chassis consists of two square section aluminium girders with aluminium sheet at the front and rear, drilled where suitable with large holes to keep the weight down. The front suspension is also from ally sheet pivoted from two ally blocks mounted on the girders. The front wheel nylon swivels are mounted on steel kingpins fixed at their bottoms with pins and at the tops with ball-ended tie rods supported on their other ends by two ally blocks at the extreme front of the girder chassis. A single oil-filled sprung damper is connected across both bottom wishbones. A piano wire anti-roll bar is also fitted using ball-ended links! This and the damper spring can be adjusted for weak or strong action.

The wheels are plastic mouldings and are carried on bronze bushes on steel shafts. The servo saver is a substantial nylon two part moulding using a top mounted spring which can

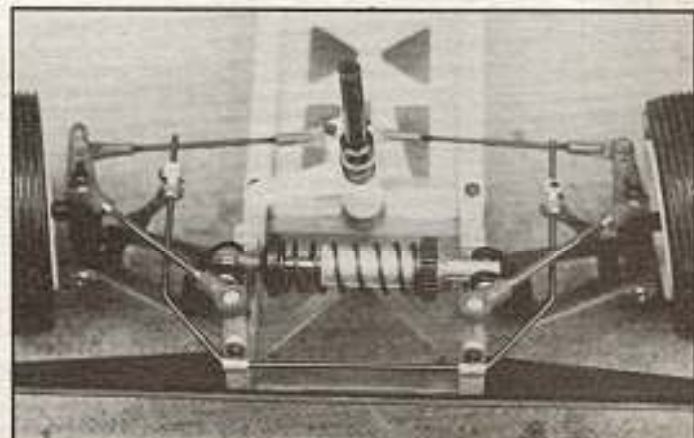
be adjusted for stiffness. This is similar to the 'Sidewinder' and was not very successful initially, however more on this under running report later.

Turning to the backside, the suspension is very similar to the 'Sidewinder' set up, using aluminium/nylon trailing arms supported at their pivoting end by ally pillars and at the wheel ends by a massive oil-filled sprung damper assembly — one

to each wheel rather than the single on the front. The rear anti-roll bar assembly operates in identical fashion to the front unit. The wheel shafts run in bronze bearings and the output to same is via two steel half shafts.

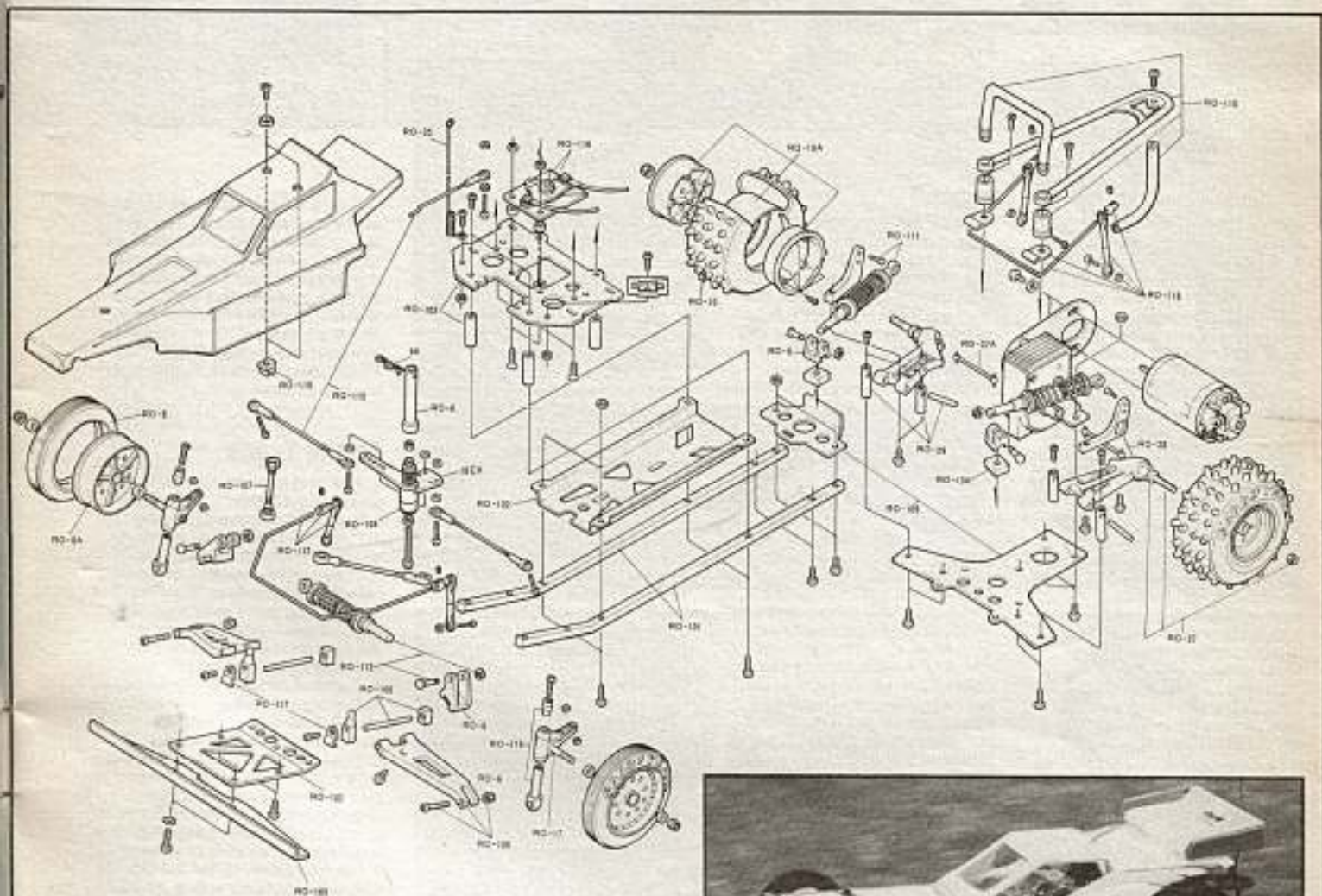
The dampers are top quality and simply need removing and the top unscrewing, then filled with the oil supplied. Make sure that the brass piston is at the

Below: close-up of the front-end showing the mono-shock damper and anti-roll bar mountings.



'Bobcat'

The next generation AYK 1/10th Scale Off-Road racer takes on where the 'Sidewinder' left off. John Cundell investigates

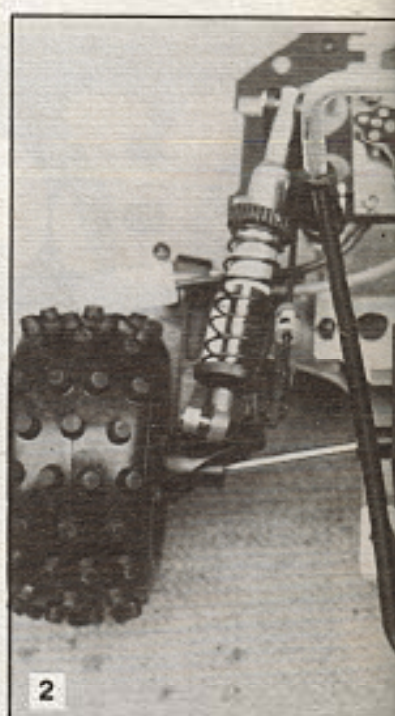
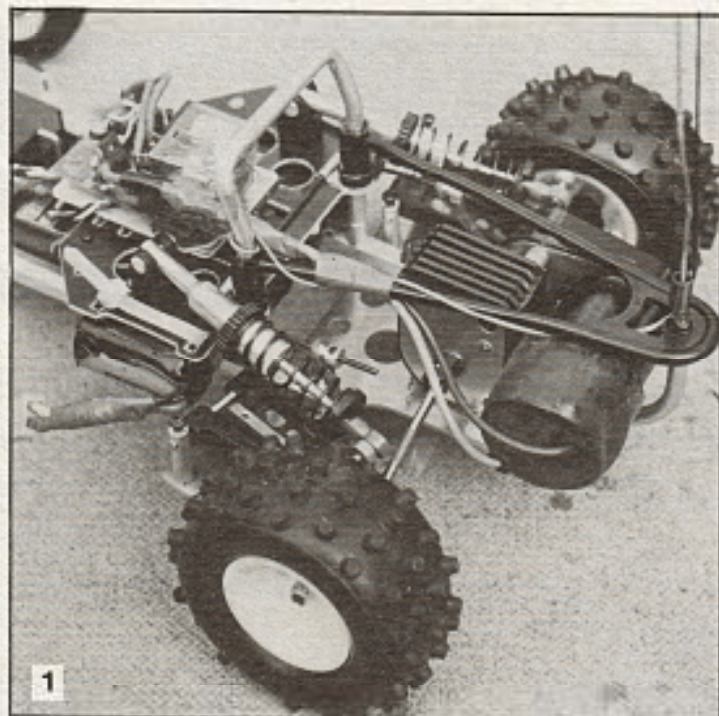


AYK 'Bobcat'
Exploded view diagram



Track Test

- 1: The new and improved 'Bobcat' gearbox/differential unit. Rear suspension layout is virtually identical to the 'Sidewinder.'
- 2: From the rear, the rear bumper protects the motor and gearbox. Installation and removal of the motor is now much simpler.
- 3: The completed rolling chassis awaiting the radio control equipment.
- 4: From below showing the ally chassis rails plus front and rear suspension mounting plates.
- 5: The completed car now fitted with a Lazer 'Bug' electronic speed controller in place of the kit resistor item.



bottom of the oil chamber before filling — fill to the top of the smooth part of the chamber, not the thread, carefully insert the rest of the piston assembly and screw on the chamber top which can be carefully secured by the judicious use of a tweak with the pliers. Reassemble the spring and the job is done. They have a nice smooth action and so far have shown no signs of leaking — quite an improvement over the 'Sidewinder' dampers which were prone to leaking everywhere.

The gearbox assembly is a marked improvement over the 'Sidewinder,' although of very similar design. The first noticeable improvement is the ease of removal of the whole assembly for maintenance. Simply remove three fixing screws. It consists of a nylon moulded case with ally side plates, both of which can be removed by unscrewing another two screws and a throughbolt which also secures the motor mounting plate. The same differential assembly as the 'Sidewinder' is used and it is very necessary to inspect this for any side play and to take up any excess slack by fitting one, two or three washers supplied. A small allen key is provided to facilitate removal of the small screw which holds the differential output drive units together. Failure to properly adjust the differential and remove any excess slack will undoubtedly result in premature stripping of the differential planet wheels. Take

heed!

The drive motor and intermediate gears are easily fitted and lubricated by removal of a plastic moulded gearcase. The gearbox also locates the motor/gearbox protection bumper which doubles as the serial wire base — all as per the 'Sidewinder.' A sturdy yet flexible rubber motor protection is provided, complete with wire outlet holes, which simply pushes over the brush end of the motor and very effectively keeps out dust and water. The motor supplied is a longcase 550 type called *Magnum '360L*.

A GRP radio plate just forward of the ally radio/body roll bar contains the three speed mechanical speed controller and a cut-out for the necessary servo, secured by small nylon tie-wraps, crude but effective. The AYK mechanical speed controllers are as good as any but I can't help feeling they would last longer if the sharp pointed pick-up contacts were replaced with ones with more rounded ends which would be much kinder on the wiper plate. One advantage over the 'Sidewinder' is that the controller is superbly positioned for ease of maintenance. The resistors are sensibly mounted by being clamped between the racer chassis plate and a lightweight ally plate which should keep them secure and cool.

There is tons of room for the largest radio and servos and plenty of room to accommodate an electronic speed controller — as can be seen, I decided to

fit one from the outset, mainly because I had one available and I do prefer their action to mechanical units.

The 7.2 volt 1.2ah Ni-Cad pack is slung under the radio plate and over the ally chassis plate and is secured with adjustable tie-wraps supplied.

Pre-assembled does not mean tightened-up. It is very necessary to go over every screw, nut and bolt, and test for tightness, using threadlock in areas where there will be vibration, especially around the suspensions of course.

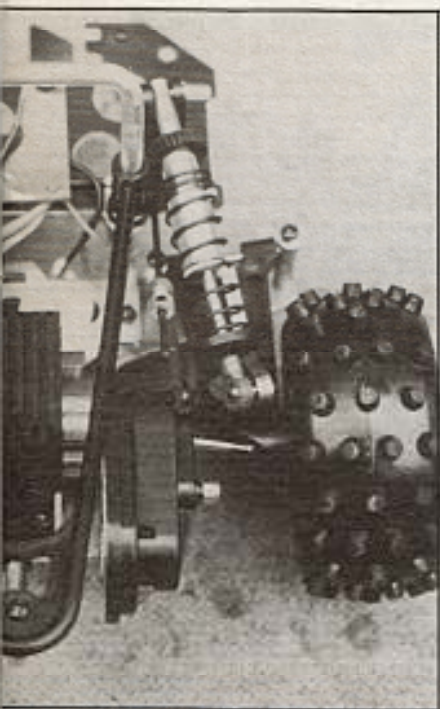
The lexan body needs cutting to shape and painting. This is not my strongpoint and I was pleased to accept the offer of Milton Keynes club member David Meadows to take over the task. As usual David has produced a smart and attractive colour scheme for which I am very grateful. The body is fixed onto the car by two sprung plastic clips at the top over the roll bar and by a spring clip over a plastic body holder at the front mounted on top of the servo saver post. Two body types are available, one with a wing. The instructions suggest fixing the wing with adhesives and two screws. We used just two small pieces of servo tape. The wing is held in place firmly enough to stay there during racing but is dislodged without serious damage following a major crash. If screwed the wing is usually ripped off and ruined beyond repair on the first accident. The usual self-adhesive decal sheet is also included.

There are a number of accessory packs and tune-up add-ons available and many builders will no doubt opt for the ball race packs which can be obtained for the front wheels, the rear trailing arms and the gearbox. There is also a wonderful oil called Pole Position which I can't wait to get my hands on!

On the Track

The first run was fast and under good control. After minor adjustments the next run was diabolical. That's what comes of letting an 'expert' loose. The rear damper screw balljoints removed themselves from the rear trailing arms after the second run — reminiscent of the first 'Sidewinder' runs and which should have been threadlocked before, especially following my earlier comments on this task. Application of same solved that problem.

Our track was at the end of a long season and needed some maintenance to remove some large and bumpy areas of bare grass plus a ramp that causes problems to practically all cars. It was necessary to set the suspensions fairly soft to overcome these difficulties. Steering was precise and there is no tendency to under or oversteer. However the same problem that was experienced with the 'Sidewinder' emerged, that of the all plastic V type servo saver sticking. This was traced to binding of the lower plastic arm on the nylon

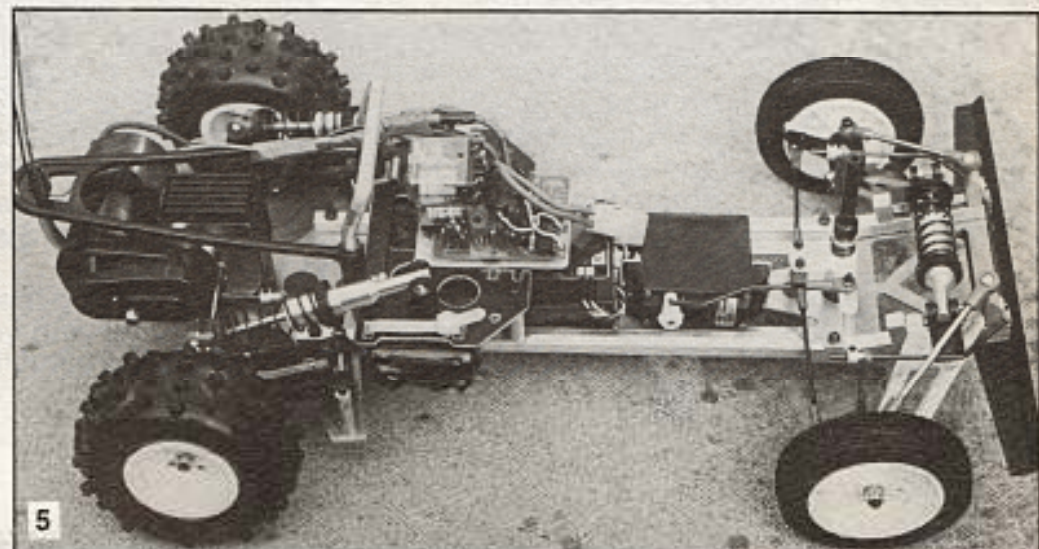
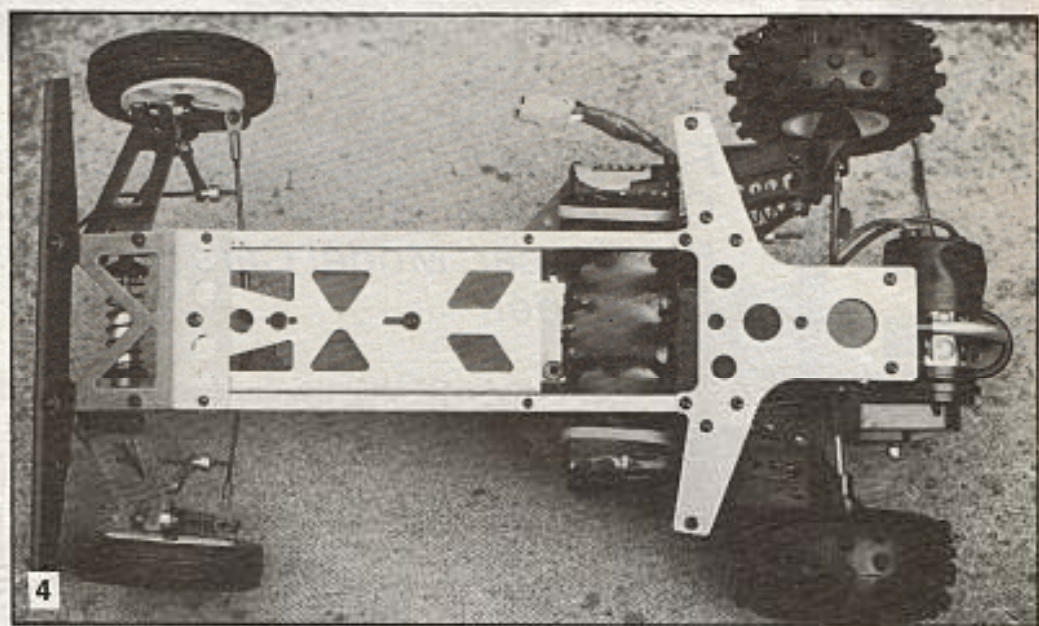
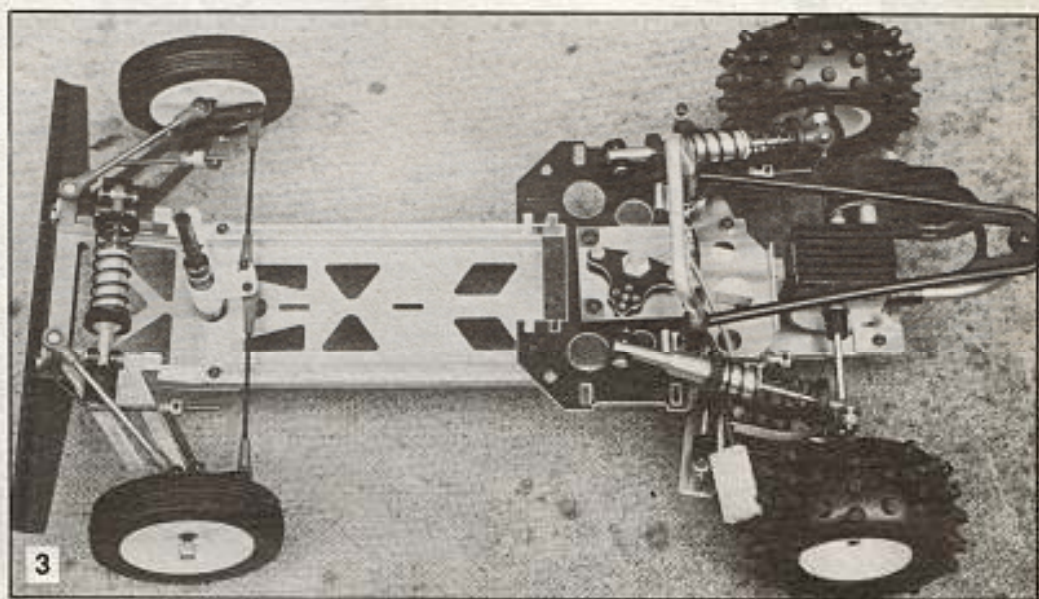


support collar at the bottom of the support shaft. I solved the problem by fitting a thrust bearing in place of the nylon collar. A bronze bearing would also probably do the trick just as well. It is also worth lubricating the plastic ball ends around the front suspension. These are all a bit stiff initially and contribute to poor operation of the servo saver.

With the 'Magnum 360L' motor the car is fast — certainly as quick as my 'Sidewinder' and acceleration is better because of the lighter weight. Steering is precise and the suspension works well and has plenty of provision for adjustment to suit different conditions. An added bonus for upgraders is that the old 'Sidewinder' body will also fit — allowing you to have a racing and a concours body. The front suspension has yet to be proved for long life, but the fact that it is made from a simple piece of flat plate will ease replacement and repair and plastic ball joints are relatively cheap.

Altogether an excellent package from AYK which will appeal to committed 'Sidewinder' owners looking for an upgrade with a better gearbox, for newcomers who are looking for a competitive two-wheel drive car straight out of the box, and for others who like a car that is relatively straightforward in design and which lends itself easily to modification and experimentation.

UK distributor: Irvine Engines.
Price: approximately £90.00.



B-O-B-C-A-T




JEREMY ROBINS reviews this 1/10th Off-Roader, the latest 2WD from AYK.

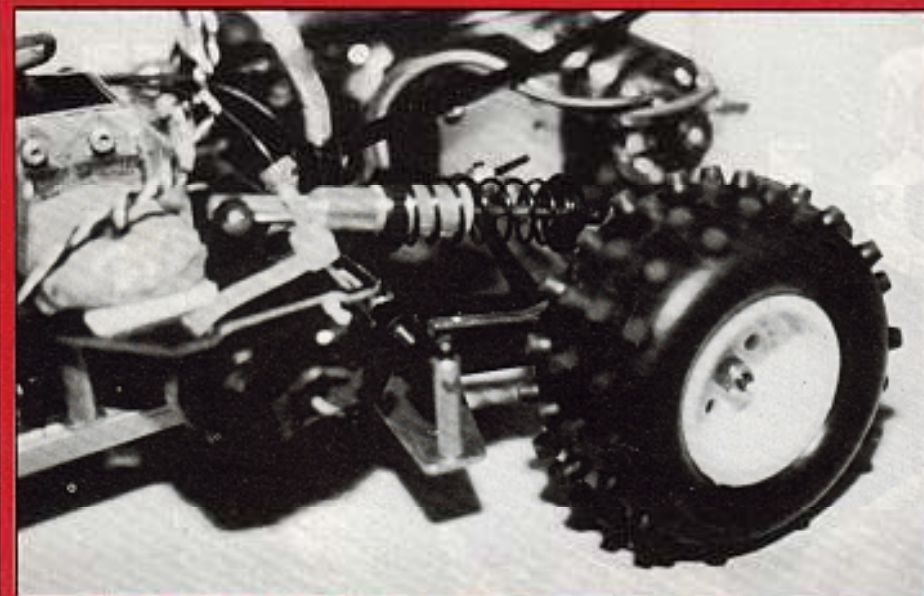
You may already be saying, we are spoiled for choice in the 1/10th off-road market, but as it is, yet another new car has appeared from the land of the rising sun.

The latest being the Bobcat from AYK with its sister car the Buffalo. Both cars follow the more conventional set up of two wheel drive and two wheel steering. The only difference between them being their body shells.

These two cars are sure to make the choice of buying a new car even harder, whether it be for the first time buyer or the more experienced driver, as they both have many qualities that will appeal to both grades of drivers.

The car itself comes ready assembled which will obviously appeal to the first time buyer and yet it has many qualities that the experienced driver will appreciate, such as quality castings and mouldings.

For this review most of the car was stripped down to see exactly how it was



Rear trailing arm with damper and wheel in place.

put together and to find out what individual components went into making the car.

The gearbox was the first area to be looked at. Here it was found that all gears were enclosed in aluminium/plastic casings. The gearbox could be described as being in two parts, one the reduction gearbox and the other enclosing the differential and one idler gear. Upon close inspection of the differential it was found to be of good quality, using the more standard bevel gears rather than the more expensive bull type limited slip. One nice feature of this diff' is that provision has been made so that if necessary washers, which incidently are supplied, can be placed on the outside of the half shaft bevels to force them inwards. This means that when the diff' starts to wear then these washers can be fitted into place and help take up some of the slack and therefore lengthen its working life. Although by looking at the size of the teeth on the planetary bevels, of which there are two, it would be hard to imagine this diff' ever wearing out.

The diff' is driven by a brass idler gear which is connected to the second half of

be found forming the basis of the reduction gearing, one being meshed onto the motor pinion supplied.

As throughout the rest of the car the gearbox is supplied with phosphorous bronze brushes although the simplicity and smoothness of the gear meshings seems to overcome any major power loss that

might be caused through not using ballracers. If ballracers are to be bought as an extra then care should be taken in buying the correct sizes as the car uses three different sizes.

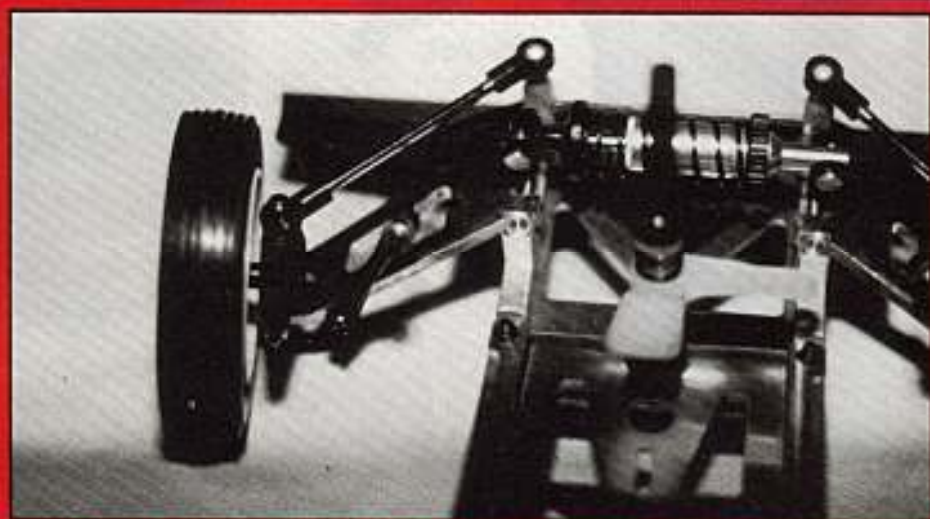
One interesting area related to the gearbox is that of the motor which seems to be a 550 type Mabuchi with a Yokomo style endbell and variable timing, making this motor illegal for standard class racing, but providing very good value for money for someone who does not want to race the car under BRCA rules.

Drive to the rear wheels is transmitted through ball and pin type drive shafts to semi-pneumatic 4x3 round tread tyres. These tyres seem to be made of a good quality rubber compound making them soft and providing very good grip.

The rear suspension is of the semi trailing arm type. The actual suspension arms are made of a combination of glass filled nylon and aluminium. This set up provides both strength and lightness which are obviously two very important qualities that all suspension components should have.

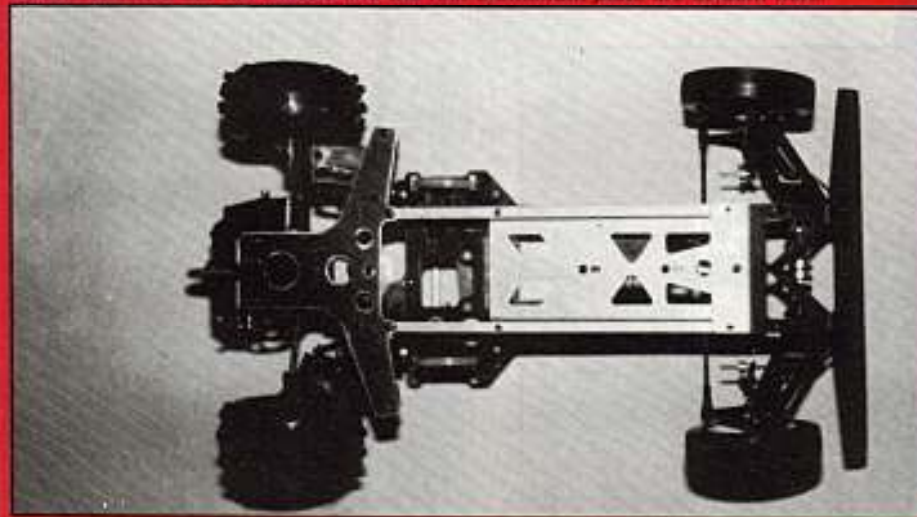
One noticeable feature of the rear suspension is the pre-set toe-in and pre-set negative camber. The idea of this is to help keep the tyres in better contact with the ground when the car is cornering and to aid the anti-roll bar in stopping the car from rolling over.

The anti roll bar itself is made of 2mm spring steel and can be adjusted for tension by the means of simply loosening an



Above: Front suspension showing upper and lower arms anti-roll bar

Below: The two bar tail chassis and the rear aluminium plate are evident here.



allen bolt and moving a ball joint inwards for stiffer anti roll properties or outwards for softer.

At this stage the dampers were disassembled and filled with the oil supplied. Although after several test runs it soon became apparent that this oil was too thick so the charge was made to 3 in 1. This improved the handling of the car on rough ground no end. The general quality of these dampers appears extremely good and they provide smooth and progressive damping without having to mess about with too many different oils.

The spring tension of the shocks can be easily adjusted by screwing a plastic collet, which is threaded over the thread cut in the damper barrel. Screwing the collet inwards hardens the suspension and outwards softens it. This makes it possible to dial the



The car ready to hit the track.

suspension strength to the exact requirements of the individual track.

The two rear dampers are mounted almost horizontally and one held in place by ball joints at the piston end and a pin and 'e' clip arrangement at the other. This is much the same as the slightly shorter front damper except the front shocker is mounted across the chassis, unlike the rear shocker which are mounted parallel to the chassis.

A two bar rail chassis covering the front $\frac{3}{4}$ of the car and a 2mm thick aluminium plate at the rear, could be described as the basis of the car onto which the suspension and other components such as the radio gear are mounted, although some of the radio gear is mounted above this on a GRP plate. The radio batteries, if used are positioned just in front of the gearbox and are secured in place by servo tape and a tie-wrap.

Moving forward the drive battery is mounted between the GRP plate and the rail chassis and is held in position with two

releasable tie-wraps. Above the drive battery the speed controller is mounted. This resistor controller has three forward speeds, two brake strengths and full speed reverse, providing a good enough range for most purposes, whether it be racing or otherwise. The speed controller is worked by a horizontally mounted servo which is also tie-wrapped to the G.R.P. plate. In front of this the receiver is servo taped to an aluminium plate, which is screwed between the two bar rail chassis, and to finish off the radio gear mounting the steering servo is screwed into place in front of the receiver.

The front suspension has a double wishbone set up with a mono-shock. The lower suspension arms are made from 3mm thick aluminium. The top arms made of 3mm diameter ball-joint-equipped tie rods, with one end connected to a plastic upright, the other to the mounting bracket of the lower suspension arms. This set up allows for long throw suspension and this

certainly aids the car's handling and helps to produce a better straight line speed as the chassis is not rubbing the ground.

The front anti roll bar is of the same diameter as the rear one, the only difference between the two being their mounting positions.

When looking at the front bumper you may well be justified in asking if it is actually supposed to be a bumper as it is rather small. Even though it is small this piece of Kydex seems to do its job quite well in protecting the front suspension and wheels from damage.

The body of the Bobcat is made of lexan and is very low in profile. It is mounted onto the top of the servo saver at the front by an 'R' clip and onto the roll bar at the back. If you want a change then the Buffalo body can be directly fitted.

With the car ready to run it weighed in at a respectable 1500g with scope for further lightening.

Performance

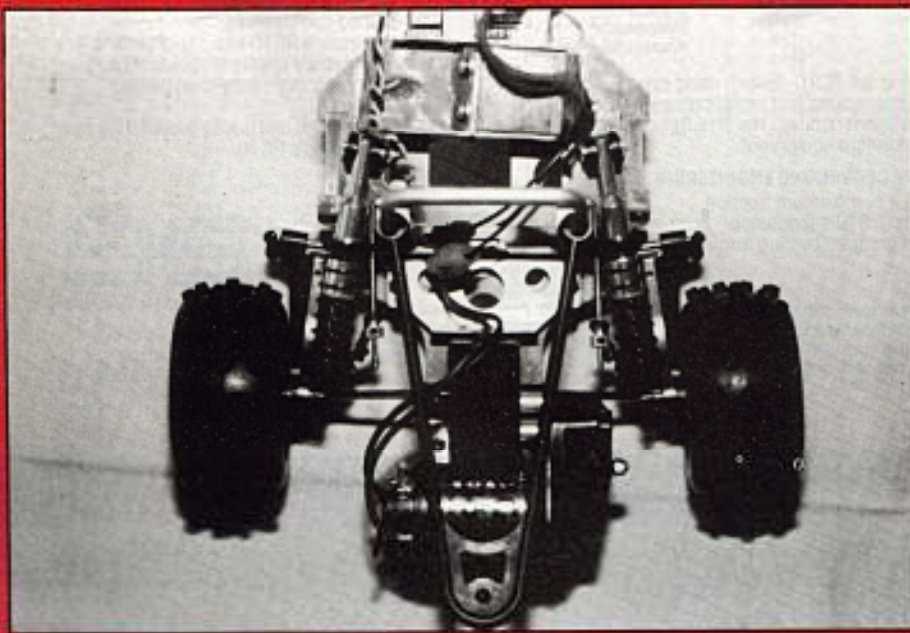
From the outset it was obvious that this car was going to be quick, but to say this is an understatement. As the performance is extremely good, in fact one could venture to say that this is probably the fastest mass produced $\frac{1}{16}$ th off-roader on the market. Having said this though one must stress that this is mainly due to the kit motor which provides very good low down torque, through to a smooth top end.

Straight line speed is not the only impressive feature of this car, as it also corners with great predictability and ease. The anti roll bars obviously help in this area and should be adjusted to suit the individual



Close up of the gearbox showing two reduction gears and the motor mounting position.

Birds-eye view of the general layout of the gearbox and suspension.



track conditions much the same as the dampers. The only slightly disappointing driving characteristic of the car is the large amount of understeer when the car comes out of a corner. This is mainly due to the narrow front tyres, but this can of course be easily rectified by either fitting wider tyres or ones with better grip and should not be a factor to deter anyone from buying this car.

The suspension works well even on the roughest ground. The rear trailing arms are smooth and free in action, much the same as the front double wishbone set up.

To sum up, this car should be a very good seller for the importer Irvine Engines, as it is easy to set up, drive and maintain. These features should appeal to both racers and first time buyers alike and with a price of around £B4.00 how can you go wrong.