

# WORLD CHAMPIONS YOKOMO

have got "Cookin' On Gas" with their latest  
4wd 1/10 IC car!

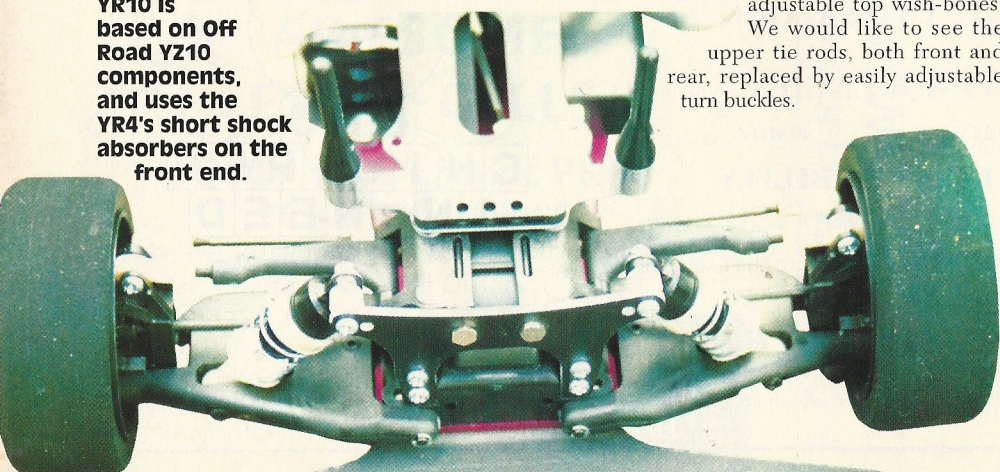


Given that they had a World Championship winning 4 wheel drive electric car in their line up, that with minimal changes to the suspension set-up would be perfect for On-Road racing, it's obvious that it was only a matter of time before Yokomo made use of that potential and adapted it to gas power.

Yokomo have in essence taken their YZ10 4wd car, and successfully transplanted their RX-12C pull start engine (as used in the Associated RC10GT) with the minimum of changes to the basic design.

The long length, high strength wishbones, have their outer pivots situated well inside the wheels as per current full-size suspension technology, and should therefore offer the maximum control over the outer edge of the tyre during hard cornering.

**Does this look familiar to you? The YR10 is based on Off Road YZ10 components, and uses the YR4's short shock absorbers on the front end.**



## A Feeling Of 'Déjà Vu'...

If you're familiar with the Yokomo YZ10 Off Road car, then immediately upon opening the YR10's box you will notice the parts that are universal to both cars.

The same limited slip differentials are used both front and rear. The pulleys however are wider, to accommodate the 5.5 mm wide belt between the layshaft and front drive pulley.

The latest nylon moulded diff housings are used, horizontally split through the centre line for ease of assembly and maintenance.

Incorporated are the very strong, almost zero flex lower wishbones, but in this instance a hole is moulded into the wishbone for insertion of a socket head set screw for ride height adjustment.

The front and rear uprights are retained from the YZ10, along with the steering arms and adjustable top wish-bones.

We would like to see the upper tie rods, both front and rear, replaced by easily adjustable turnbuckles.

# THE YOKOMO YR-10



This would make camber adjustment much easier and quicker to achieve.

This same argument would apply to the track rods, the supplied studding being replaced by turnbuckles, especially with the cost of the kit in mind.

The same hardened, universal jointed driveshafts from the YZ10 put the power through to the wheels, via the alloy hub carrier complete with that well known square location for all Yokomo hubs. We are informed that there are still hub carriers available with various degrees of offset, allowing the car's track width to be adjusted if so desired.

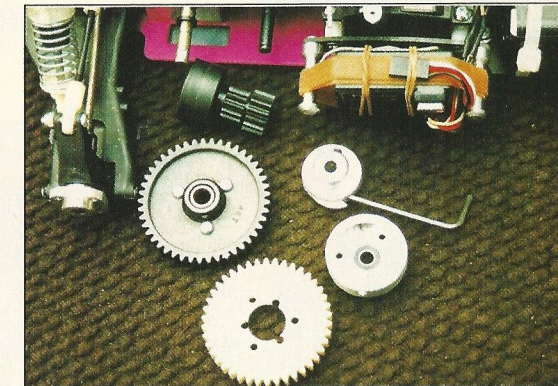
Coil over oil-filled shock absorbers support all four corners of the car, and a closer inspection shows that the front shock absorbers come from the Yokomo YR4 Scale Saloon kit, with the rear ones being the Off Road YZ10's short stroke versions.

## A 2 Speed Box And Disc Braking On A Yokomo?

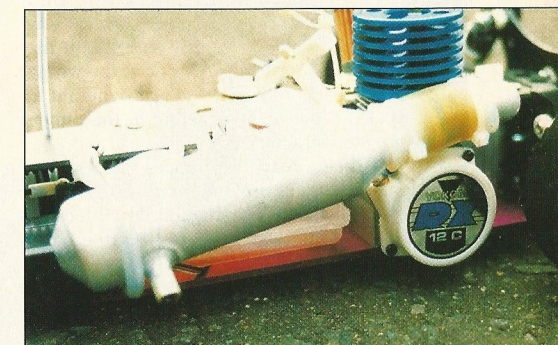
So much for the readily recognisable bits, let's look at the new and revised parts that distinguish this kit for what it is, namely a two-stroke gas powered, 2 speed, On Road car.

The car is built around a 3mm thick, anodised alloy chassis plate. Although it is a pressing, all of the edges are free from sharp corners, and it needs no further attention before assembly begins (there aren't any battery slots to file etc).

The rear layshaft assembly, incorporating the disc brake and 2 speed gearbox, forms a



The gearbox in component form. The pawl, seen next to the allen key, flies out with centrifugal force to engage with a pin in the outer casing, to which second gear is fixed. Note the receiver is mounted with rubber bands to absorb vibration and shocks.



The YR10 kit was supplied complete with the Yokomo RX12C pull-start engine, exhaust header and tuned pipe silencer.

strong box section, with its machined alloy support blocks clamped between the alloy chassis and the fibreglass top brace.

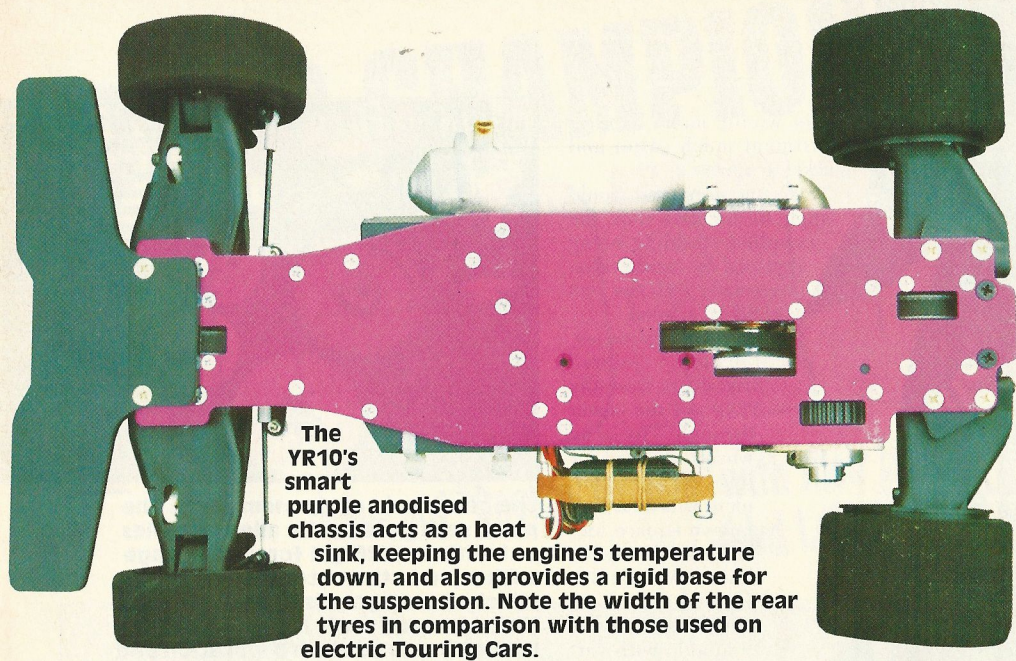
The cam operated disc brake has twin hardened steel brake parts with a single carbon fibre brake disc. Does it stop the car? Our initial runs showed that perhaps it stops it too well, so we are presently trying out a selection of softer springs on the brake adjuster assembly. With the full 4wd offered by the YR10, you do get braking on all four wheels, and as we want the car to slow down appropriately and not lose traction and steering at the end of every main straight, this is one area that does need a little experimentation.

The two speed gearbox is a standard fitment on the YR10. Coarse pitch 32DP gears are used, and give a safe depth of mesh to cope with the potential power output, especially if the engine is upgraded from a .12 to a .15 size, a Yokomo .12 being supplied with the kit.

We aren't as yet aware of the availability of any alternative gear ratios from those supplied with the kit. Somewhat surprisingly, there is no provision for adjustment of the gear mesh, as the engine is located on the chassis by means of countersunk screws. At this point we would mention that purely clamping the engine to the chassis won't necessarily give the correct gear mesh, so try to use whatever clearance there is in the mounting holes on the engine mounting blocks until there is a small amount of backlash between the spur gears and the pinions, which should revolve freely when spun by hand.

The pinion gears on the clutch's bell housing are screwed onto an extra fine pitch thread. With





The YR10's smart purple anodised chassis acts as a heat sink, keeping the engine's temperature down, and also provides a rigid base for the suspension. Note the width of the rear tyres in comparison with those used on electric Touring Cars.

the 32DP tooth form, this gives a very thin section to the pinion, which has a "correct" way to be fitted: Assemble the small pinion with the thread's relieved end first. Try to do it the wrong way, and you may be tempted to overtighten it in order to seat it correctly, resulting in the pinion ending up in several bits!

The two speed gearbox operates via a spring loaded pawl that flies out due to centrifugal force until it locates against a hardened dowel located in the alloy housing, on which is fixed the outer spur gear (2nd gear). This gearbox is similar to that used by BMT, the 1/8 IC circuit World Champions, and is simplicity itself. Adjustment of the change point is via a socket head grub screw that increases or decreases the spring's pressure on the pawl. For those who have never handled or set a two speed gearbox in a gas car, don't try to undertake any adjustments to the gearbox until the engine is set up and tuned correctly. Only when the engine is run in properly, and the acceleration and top end settings are spot on, can the gear change point be set accordingly.

Suitable accessories are supplied in the kit for the installation of the steering and throttle servos, battery pack and receiver. No problems were encountered here, except that we noted that there were alternative locating holes for the throttle servo brackets and an alternative, forward located clearance hole for the servo horn. We presume that the alternative locations would be for those who decide to fit engines with a slide carburettor, with its movement 90° to that of a barrel carburettor.

Yokomo's RX-12C high performance engine, complete with an exhaust manifold or 'header', is supplied as standard in the YR10 kit, and looks remarkably similar to an OS motor. The tuned silencer, pressurised fuel tank



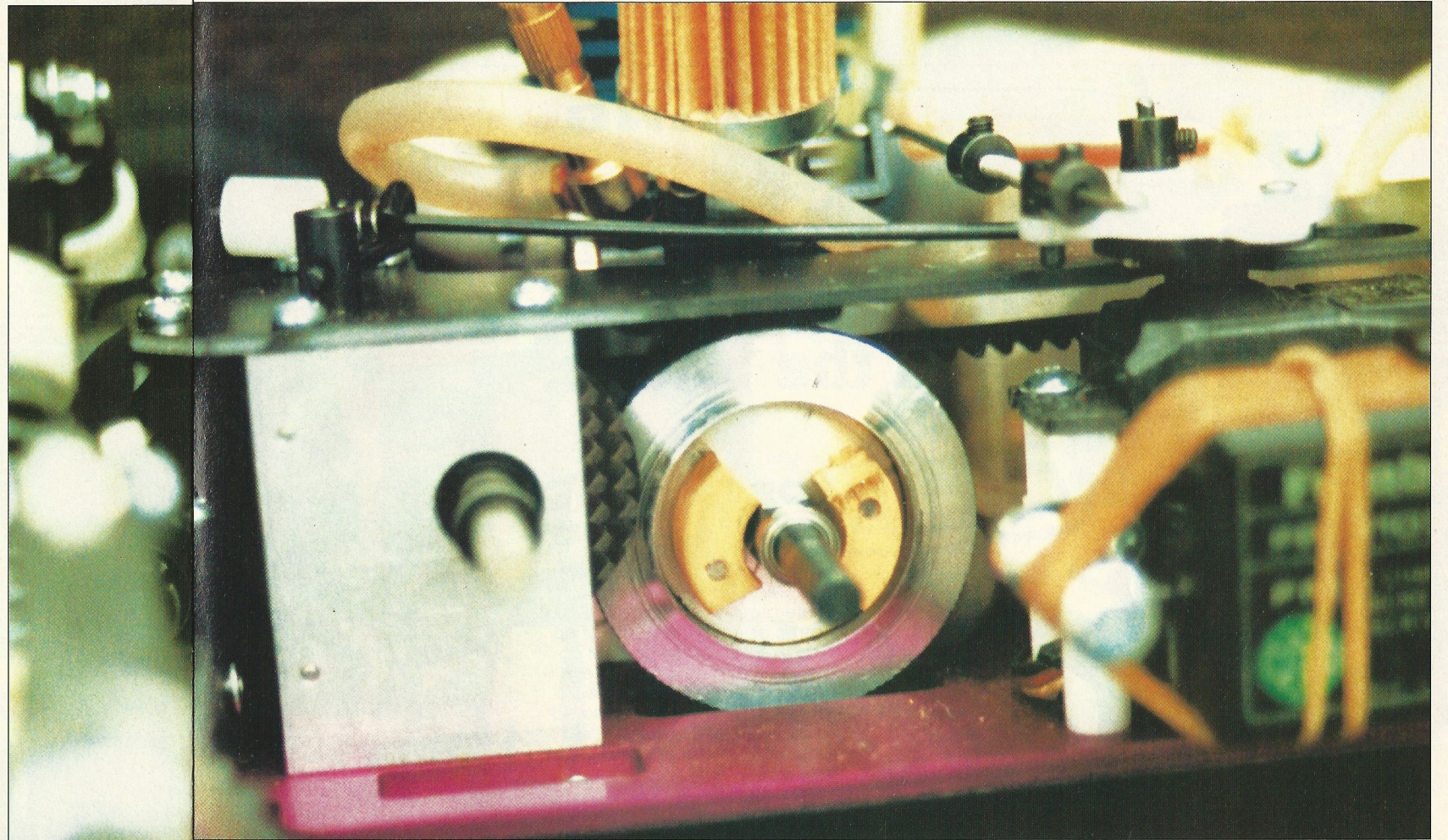
and throttle linkages for the carburettor would all appear to have found their way into the YR10's box from Associated's RC10 GT kit. The kit supplied for review didn't have English instructions (they will by the time this reaches publication) but the manual had enough exploded views to render the written word unnecessary.

Any engine can prove troublesome to the uninitiated, but the factory settings for both jets were pretty close, and allowed the first tankful or two of fuel to be run through the engine on a suitably rich mixture. The pull-start mechanism worked well, the engine initially starting without any fuss once lightly primed. Once reliable running has been achieved, adjustment of the main jet to obtain an acceptable top end setting is the main priority. Adjustments to the secondary jet, installed in the carburettor barrel, should be very small, otherwise you will jeopardise starting, slow running and pick-up. If you are in any doubt, talk to your local model shop, or preferably take the car to them for on-site advice on jet setting.

### The All Important 'Track Test'

With our YR10 clothed in a Frewer BMW M3 shell, every screw double checked, the supplied tyres glued on to the BBS style wheels and our engine run-in and set up

# THE YOKOMO YR-10



The twin shoe clutch - perhaps three or four shoe versions will provide improved 'bite'? The carbon fibre brake disc can just be seen here, protruding from behind the alloy upright.



Yokomo's 2 speed gearbox is very simple, with effectively only the one moving part. The point at which the change occurs is adjusted through the hole in the outer casing.

statically in the workshop, we ventured out to try the car for real.

With only the one set of wheels and tyres at our disposal, it was considered best to try the car out on the local car park rather than travel the considerable distance to our nearest established track. With the engine idling smoothly, we then established the top end setting and a smooth, untroubled pick up when the throttle was opened. If the gearbox doesn't show any tendency to change with the engine set correctly, don't continue to run the engine up whilst the car is stationary, because you will only increase the engine's temperature, and could cause damage. Make suitable 1/4 turn adjustments at a time until the gearchange suits your requirements. It's best it changes a little early rather than late until it's fully understood how the car should perform on various tracks and conditions.

Initially a little slow to accelerate, the YR10 performed well, with high grip from the soft kit tyres, and acceptable turn-in, even with full time four wheel drive.

The disc brake was, in a word, exceptional, and we are now, as mentioned earlier, making this a little more user friendly!

We improved the clutch's take-up by polishing out the clutch bell with fine emery cloth, and used the same cloth on the clutch shoes to remove any burrs from the surface that could impair the grip between the shoes and the clutch bell housing. Having carried out these small 'tweaks', the acceleration from a standing start

continued to improve, and should get better once a few more miles have been put on the engine.

### Perfect for IC Beginners?

With hindsight, it must be more beneficial for newcomers to the gas car ranks (or those who've taken the plunge into r/c cars with an IC to start with) to sample a 'soft' car such as the YR10, before getting to the point of having more power than grip available, as might be the case with one of the highly developed out and out racers now available. December's weather conditions, in which we tested the YR10, bore this theory out well.

Presumably a revised 'competition' clutch will soon be available, in either a three or four shoe configuration, then, as the saying goes — we'll be 'cooking on gas'. Very apt don't you think?

There is a definite niche in the market for the Yokomo YR10. Already successful in Asia and America, there is no real reason why preconceptions shouldn't be shelved here in Britain, and perhaps an "out of the box", no modifications or additions Class, to cater for people racing low powered four wheel drive cars of this type ought to be brought into existence.

Whatever, the best thing about the YR10 is that we didn't have to charge any batteries...

The Yokomo YR10 1/10 IC 4wd car is distributed by CML Distribution, P.O. Box 3563, Rednal, Birmingham. B45 9TF. Tel (021) 457 7768/7549.