

Designing and building a winning 1:10th Off-road racing car has, arguably, got to be the hardest arena of our sport to succeed in. Just think of the environment they have to operate in, tracks from Donnisthorpe to the Moon, astro turf, clay, grass, mud, you name it. Consider the stress's and strains these 3 pound monsters take landing from a table top at say 25 mph. Just keeping the wheels in contact with the ground has to be a major achievement, and the speed they seem to produce is simply breath taking. Well here in the UK Tenth Technology do seem to have found the secret, in recent years they have been almost totally dominant at the top of the BRCA National 4WD off-road championship, using the driving talents of Kevin Moore and latterly, William Mitcham. Evolving a very high tech racing machine along the way, in fact the Predator is a totally unique car, very much a 'wolf in sheep's clothing'. In '97 Predator ran a very much updated car to win the UK national championship, and to celebrate their victory they have released the Mitcham XK98 which is almost a total replica of William's winning car. With thanks to TTech this is the car RRCi have to review.

Changes, what changes?

What's Changed? Well quite a lot on fact, the basic layout of the '98 is still the same as all the previous Pred's, the moulded tub chassis, long slender double wishbone inboard sprung suspension, motor position, transmission, aerodynamics etc. But there are also some very major changes. The obvious change being the shift to a front mounted saddle pack nicad-cad layout. This for me was quite a surprise, I always felt that TTech had got the weight distribution correct with their in-line 'side saddle' layout, this being born out by the latest Cat and Yokomo MX4 models. But TTech felt this gave far too stable a car, the new XK98 set-up does give a lot more 'steering', it will traverse the ruts better, and is much improved over the jumps, a comment that was doing the rounds at last years World Championships in the USA.. Most of the other changes to the XK98 also live within the confines of the chassis. At the front four degrees of 'Pro-squat' is now built in, very much an American concept. This means the rear inboard pick-up of the lower wishbone is positioned higher than the front pick-up. This has several effects. Under power the front of the chassis will now be forced down, this will give more traction in the middle of a corner as power is applied and thus more steering. Also the car will be far more stable over any really

rutted tracks. Next the motor is mounted lower in the chassis, got to be better hasn't it, well as we all understand about the 'polar moment of inertia' don't we? (not). Now we come to the rear, TTech have made the move to in-board toe-in, so now the bottom wishbone angles forward, which gives a slightly shorter wheel base. Again this will improve, and balance, the increased front end grip under power and over any really bumpy tracks. That's just about it for the major changes, as ever it seems with the Predator, TTech state that the current transmission has once more new and improved materials, lubrications and tighter tolerances for the already impressive low loss drive system. The steering has had some minor improvements, to make it stronger, also the main suspension joints now have massive 4 mm

we have the RRCi 24 point guide to a better Predator:-

1. Propshaft.

A fully assembled prop comes with the '98 kit, all that was needed was the fitting of the pinion gears. Both gears needed the 'flash' removing before the bearings would sit flush. The operation of the one way bearing was checked and the very excellent slipper clutch was adjusted for 2 turns pre-load. TTech recommend 1.0 - 1.5 mm end float on the prop, but as it was pre-assembled no adjustment is available, the test car having 2.5 mm end float

2. Differential Installation.

TTech factory build both differentials which reduces the build time considerably. Although quite acceptable in operation, for the ultimate in smoothness the addition of tungsten carbide

predator on the prowl

studs/balls and stronger wishbones. Finally TTech have replaced the rear wing with what appears to be a copy of an Associated high downforce rear wing. Although not new parts it's worth mentioning that the XK98 comes with a 'one-way' front drive, a really excellent slipper clutch, Proto shocks and is fully ball-raced as part of the 'Mitcham' spec' a really total package.

Build Sheet

Before starting the build it's well worth purchasing a new No1 pozidrive screwdriver, as there are a great deal of threading to do. With the large volume of screws it's very tempting to use 3 mm alloy screws to loose some of the weight, but I wouldn't really recommend that route. Also you will need some form of accurate measuring device, I used a plastic vernier, but a good steel rule will do. A rather plain 15 page photo copied manual is supplied with the kit, some of the information being out of date, and very little set-up information was included, which I found quite surprising. However, enough detail is given to build the car. So here

balls is recommended, something TTech themselves advise. Personally I would have thought with a kit of this quality and cost they should have been included as standard, I have no doubt William uses them (?). The front diff' did not need any shims to adjust the running clearance, the rear just one gold shim. Don't worry at this point if the transmission is tight it will free off once the car runs. Add plenty of the supplied grease to the gear mesh, also use it to seal the gearbox tops to the chassis. I would recommend that the composite bearing bushes are replaced with the red anodised alloy ones, as they are much stiffer and will not wear as much.

3. Gearbox Covers.

Just make sure you use the correct length screws.

4. Rear Shock Mounts.

Add some Loctite or thread lock to the red alloy damper mounts. Also I fitted the stiffening brace for the motor mount to the front mounting plate at this point, again add a little thread lock to the bolt. I must say I was very impressed with the quality of the carbon used for the plates.

5. Upper Rear Wishbones.

At this point TTech recommend the assembly of all the ball joints, I did find that some of the fits were very tight. Swapping the balls around did improve them. Do spend time over this as it is critical to the final handling of the car. All the joints need to be free but not loose. When fitting the square pivot points to the carbon plates, make sure you have them fitted in-line and angled to give the correct level of anti-squat. The M3 x 6 screws were all too long and required an extra washer to allow them to be fully tightened. Remember the thread lock.

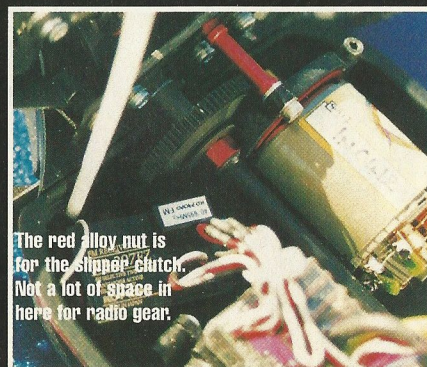
Tenth Technology Predator Mitcham XK98

"The latest version of the Predator is a real gem"

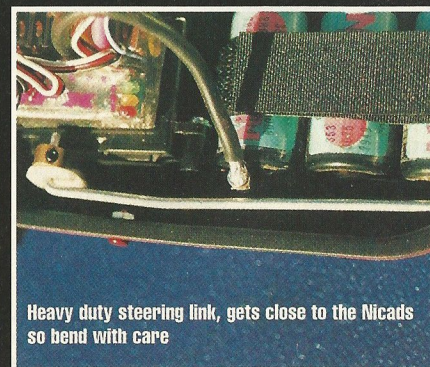
It could only be a



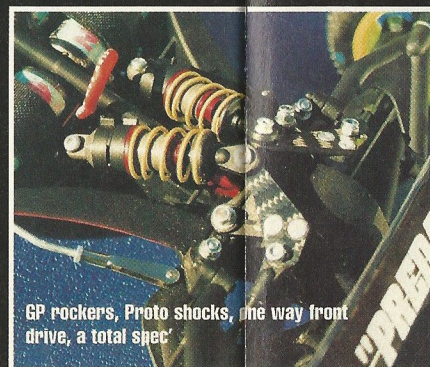
Although not mentioned the XK98 comes with a rear anti-roll bar



The red alloy nut is for the slipper clutch. Not a lot of space in here for radio gear.



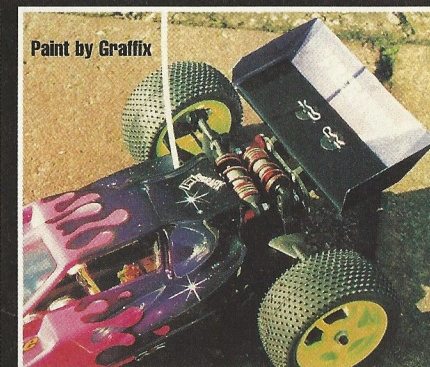
Heavy duty steering link, gets close to the Nicads so bend with care



GP rockers, Proto shocks, one way front drive, a total spec



Another big change, 'Inboard' Toe-in



Paint by Grafix

