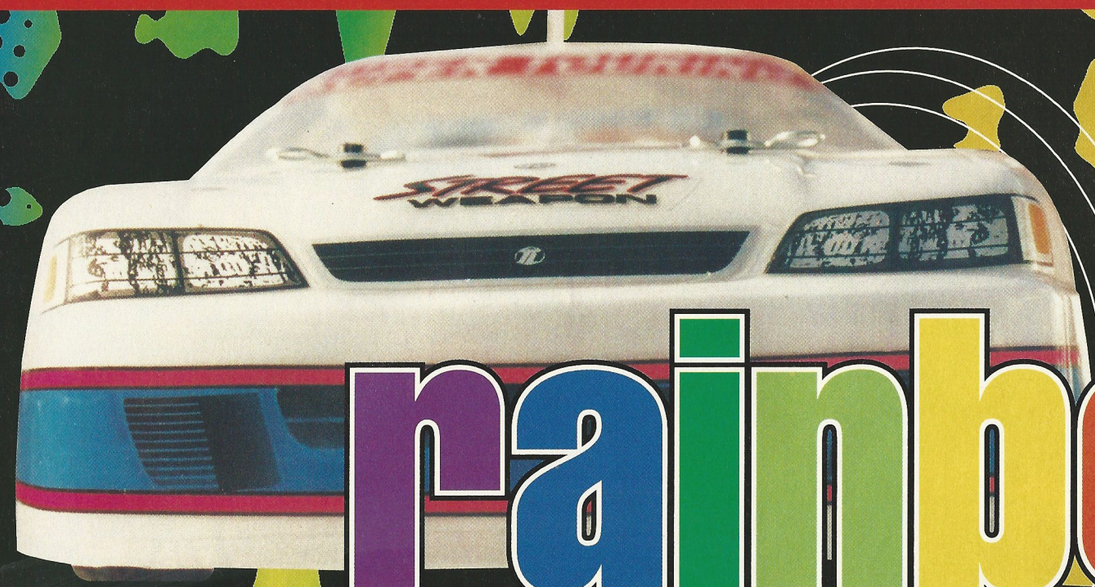
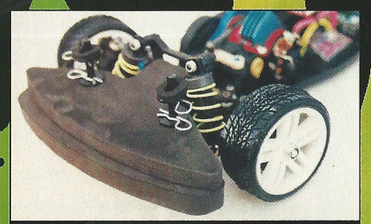
Chris Deakin



rainbow warrior

'damn yankees' - 'are you armed and ready?'

Losi XX4 Street Weapon Review



Losi foam bodyshell protector and the neat bodymounts

As most of you out there in Race Car land will no doubt know Team LOSI have an almost enviable reputation for building World class Off-road racing cars, 2wd Buggies, Trucks, and latterly with the arrival of the XX4, a 4wd Buggy. Until now they have never built a complete On-road Race Car, well this has all changed with the car we have to review.

With the arrival of Team Losi's XX4 a new 'standard' for the design of 4wd Off-road cars has been created, with its unique three belt drive system, front mounted motor, rear nicad position and high tech moulded tub chassis. On first viewing, and just like the UK's own Tenth Technology Predator, it really didn't take a clairvoyant to see that this set of mechanic's would be ideally suited for the only real growth area at present in our sport, a Scale Saloon race car, it was all just a question of time, enter the Street Weapon. But first a little story.

Once upon a time

All the way through '96 it was an open secret that Team Losi had built and were testing a 4wd Off-road race car. The only real secret being when, or at the time, if, they would actually go into production with the car, 'Pop' Losi stating then that they would only release such a car if they really had a winner on their hands. Rumours were rife of radical new layouts, nicad positions and drive systems. After some fairly entertaining denials by the UK's Losi distributor, Helger Racing, the first of the XX4 prototypes appeared at that years Off-road Euro' s held in France, there' s nothing like taking the bull by the horns is there! The rumours did in fact appear to be true.

The XX4 was radically new, although kept from the many prying eyes, it was all there, three belts, front mounted motor the whole ball of wax. First time out it came very close to taking the Euro title, in front of some very stiff competition from all the 4wd regulars, so the great deal of time taken by Team Losi with the development of the XX4 had indeed paid off.

At the time a lot of people were surprised just how good the XX4 was, Losi having only built 2wd cars up too that point, hadn't they? Well it would appear that a great many of them had indeed forgotten that Team Losi had several years earlier been the first point of contact with a then fledgling manufacturer, one Team Yokomo. Strange I seem to know that name from somewhere!

Gil Losi Senior/Jnr were more than instrumental in the development of the early chain and belt driven Yoke's, many of the early victories being down to junior's development and driving skills, prior to Team ASSOCIATED taking over as the US works team. Also 'junior' was at that time racing a 4wd (note 4WD) Serpent Quattro 1:8th scale gas racer, fitted with a great deal of Team Losi add on's, with a notable amount of success. From the word go when Losi finally went into production with their own range of Off-road cars, going head-to-head with Team Associated, it was clear that they would be a force to be reckoned with. Such was their dedication to building a competitively priced, quality race car. So really the speed of the XX4 should have come as no major surprise.

Large to Little

So what we have with the Street Weapon is a scaled down XX4, in essence anyway. Time for some detail then:

First big chunk is the moulded chassis, Losi have used their famous 'Stiffazell' carbon based composite material for all the Street Weapons moulded components, so all will be very strong, but of a very reasonable weight. The shorter 'tub' is quite an inventive and complex moulding, carrying the mountings for the front and mid layshafts (three belts don't forget) motor plate, the saddle pack nicads, the off-road XX4 has a choice of nicad positions, with it's shorter wheelbase the STW has a fixed nicad position, the bottom half of the sealed belt channel, which also doubles up as a stiffening web and the locations for the twin bellcrank steering system.

At each end of the tub a ball-diff is located, these are of the same basic design used in all Losi cars. Both have composite outdrives and a minimum of components, to keep their weight down. It was nice to see one-piece thrust races being used, no fiddly building or lost balls! The main drive balls are of tungsten carbide material, so they will be very smooth in operation, and maintenance will be kept to a minimum, provided you keep the diffs adjusted correctly. This is very handy as once the Street Weapon is built a major strip down will be required to get to the diffs. The only really bad point of the car.

On top of the diffs, layshafts, belts etc., a two piece moulding seals the total drive mechanism from alien bodies and gives a mounting point for the front suspension and motor mount. Whilst talking about the drive system I must mention the adjustable 'one-way' drive unit fitted on the STW. On the end of the main shaft/spur gear assembly is a moulded ratchet device, built into the front drive pulley. By simply tightening or loosening the tension on the ratchet more or less drive/braking can be passed to the front wheels. An invaluable tuning aid, especially in changing weather conditions. However, Team Losi do recommend in the instructions, you build the STW with a tube spacer giving permanent 4wd, only some track time will tell if this is correct.

Shocks and Suspenders

Once complete the four corners can be hung from the tub. At the rear 0 degree blocks, which the bottom wishbone swing from, mount either side of the diff housing, these blocks are the same as all the XX 2wd models. So a range of inboard toe-in adjustments are available from the parts catalogue. Slender wishbones run to XX style hub carriers, these are also straight drilled - '0' toe in/out - again a selection of carriers are available with different amounts of 'Toe'.

Short steel U/J drive shafts connect outdrives to wheels, all the STW shafts, diffs, axles run in the very latest low drag Teflon sealed, ballraces. Losi pattern hex drives connect to the wheels. These hex's are some what smaller than the industry standard Tamiya type, so if you are changing from another model you will have to buy new wheels, however. I expect it won't be long before some form of adapter is available to do the job. Finally a 'Stiffazell' frame mounts on top of the in-board blocks, making a very stiff mounting for the steel turnbuckle top link and the condensed alloy bodied Losi shocks, and body mounts. Rather cunningly Losi have used the rear body mounts as a wrap around protector for the dampers. The dampers being the normal Losi cartridge pattern, the seal cartridges in my kit were factory assembled.

Pure XX4

At the front other than the STW slim wishbones all the components come from the XX4. Twin solid nylon, steering bellcranks pass through the front belt cover, a solid draglink joins them, the optimum Ackermann angle being built in. No form of servo saver is included in the design, so some form of direct saver will be required (Kimbrough etc.). In a kit of this quality a strange omission. Steel track rods run to the hub carriers. A moulded bulkhead carries the bottom wishbones, and once trapped by the mini bumper, seals the front diff, forming a very solid unit. I must state at this point I was impressed in the way Team Losi have made use of an unitary style of construction, all the components joining together like one large jigsaw, each stiffening another, and so employing the minimum of constituents. Another 'Stiffazell' cage mounts to the top cover, locating the top links and the dampers, the mounting screws going through the diff housing and into the front bulkhead, strength from the top. XX4 hub carriers mount to narrow axle blocks, steel self-tapping pivot bolts marrying the assemblies. Longer, than the rear, U/J drive shafts connect hex to outdrive. Steel turnbuckles holding the wheels upright, the same size alloy dampers with stiffer springs are fitted to iron the bumps out. The mini bumper doubles up as the front body mount.

Things Electric

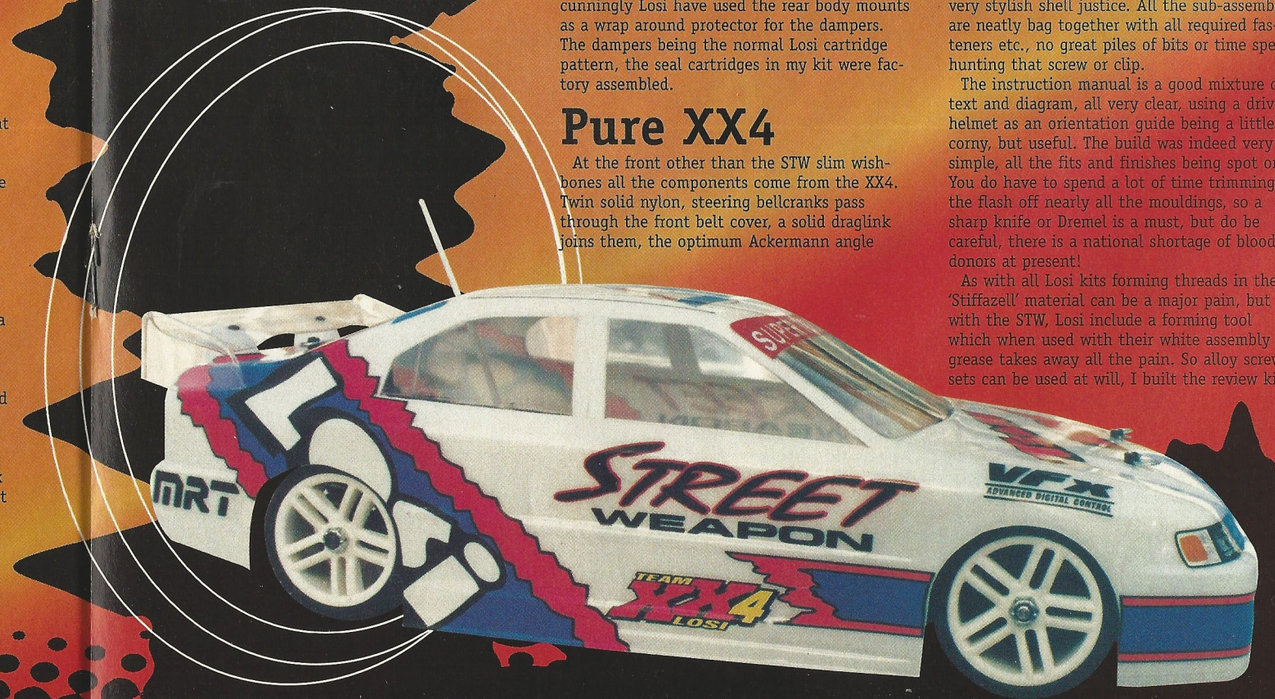
All that remains is to note the methods for mounting the electrical interface. A round alloy disc type motor mount, is located in a groove in the main chassis, trapped at the top by a moulded clamp. The motor is fixed off centre in this disc, so by rotating the disc the gear mesh can be adjusted, a very English system. An access panel in the lower belt cover allows a final visual check. The steering servo has a very solid mount on the central spine and a nylon bridge located on the side of the chassis. All the current range of servo's can be accommodated. Finally two very neat moulded straps clip the nicads down at the rear of the tub.

Put it Together

As the STW comes with a race weight Honda Accord bodyshell you are greeted by quite a monster box, the box art not really doing the very stylish shell justice. All the sub-assembles are neatly bag together with all required fasteners etc., no great piles of bits or time spent hunting that screw or clip.

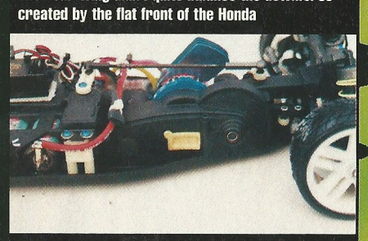
The instruction manual is a good mixture of text and diagram, all very clear, using a drivers helmet as an orientation guide being a little corny, but useful. The build was indeed very simple, all the fits and finishes being spot on. You do have to spend a lot of time trimming the flash off nearly all the mouldings, so a sharp knife or Dremel is a must, but do be careful, there is a national shortage of blood donors at present!

As with all Losi kits forming threads in the 'Stiffazell' material can be a major pain, but with the STW, Losi include a forming tool which when used with their white assembly grease takes away all the pain. So alloy screw sets can be used at will, I built the review kit



Front bumper, bulkhead, screws by Trinity

The rear wing didn't quite balance the downforce created by the flat front of the Honda

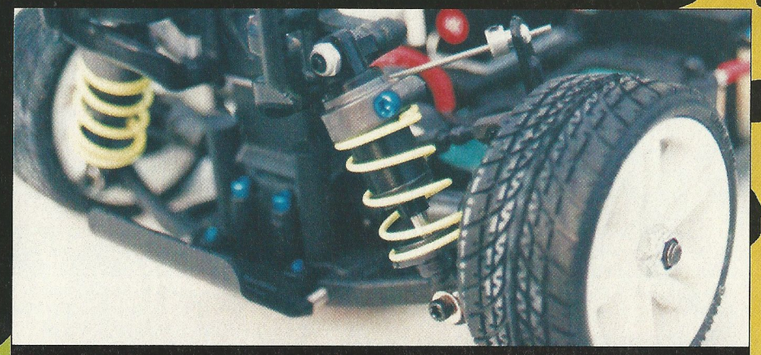


The yellow cover allows a visual check of the gear mesh. Note the Trinity motor clamp and heatsink

with a Trinity 'blue' assortment. They look good and save the odd few grams here and there.

With the fully enclosed drive system do take time over the transmission section of the build, as once the STW is fully built a complete strip will be required to gain access to any of the components. Make sure you have the rear belt tensioned correctly using the four positions afforded by the bearing block offsets, my kit needed the tightest setting, lets hope the Kevlar drive belts don't stretch to much. Also check if you need to change to a different spur gear to suit the wind of motor you intend to use, further down the line make certain that the motor pinion has the correct mesh before the car is run. On the review car I have fitted an alloy motor clamp just for that extra piece of mind, also it will help to keep the motor cool.

A little threadlock should also be used during the assemble of both front and rear drive shafts, again just for that added security. When assembling the dampers add a little gear grease to the seals, this will help them to bed in, also check the overall length of the four dampers is the same when they are built, a vernier or ruler will do the job.



The unloved shock clamps and Trinity rear roll bar

Before the radio gear was fitted I did add extra rubber sealing pads around the area were the nicads mount, mostly on the centre spine, with the high carbon content of the STW's chassis it will conduct even the smallest amounts of electricity, just enough to give radio interference. It would also be wise to check the condition of the shrink wrap on all your nicad packs. Whilst on the subject of radio interference, once mounted make certain that none of the motor wires, or if you use one Schotty diode can short to the chassis as well, again a small pad of insulating rubber could be stuck on the chassis below the motor can.

All the current range of radio gear can be fitted to the STW, a mini radio receiver really is a must though, I used a KO one, also a KO Fet servo was fitted, along with my trusty MRT VFX speed controller, which does look a little lost in the chassis.

Well other than gluing together the state of the art soft moulded tyre insert, and mounting the tyres with super glue, painting and stickering the bodyshell. A little note here, the Losi sticker sheet although a little on the bright side is one of the best I have came across and along with the pre-cut masking sheet makes it very simple to get a great looking car. And that's just about it for the build, a walk in the park really.

Tune Ability

In kit form the STW has pretty much the standard range of adjustments available, camber, front tracking, ride height, shock position, camber link position.

Although Team Losi suggest the car is pretty much set-up straight from the box, OK maybe for the dust of California though, but not I suspect for the good old damp UK. Just from bouncing the car on the work bench I think the kit Silver front springs are a little too firm, probably ideal in very high grip conditions. Most STW's I've seen running so far seem to cement this belief, so I fitted the softer yellow rear springs to the front as well.

The only other extra tuning aids being the front drive ratchet and some 2° rear anti-squat wedges, both can be used to give more or less steering. Last we have the travel limiters fitted to the dampers, these can play a major part in how the car performs, especially over bumpy tracks, I do think that it could do with a little more wheel travel, especially at the front, so the A-5050 limiter kit could be a wise buy.

While I was looking over the design of the car it became very evident that the Weapon has a very unique suspension geometry for a Scale Saloon. Both front and rear Roll Centres are set very low, effectively this will restrict the amount of chassis roll, and thus weight transfer. This should make the car very responsive to drive, but may lack overall grip, this may be why Team Losi recommend you build the car with full time 4wd, so that's how I built the review car, also at this time of year i.e. Winter, grip can be a very hard commodity to find.

In the depths of both Team LOSI's and Trinity' s catalogues can be discovered several more tuning aids, roll bars, springs, rear mounting blocks etc., none are very expensive, but all will be very useful.

Finally you have the mind blowing ranges of rubber tyres, from so many after market suppliers.

How fast is it mister?

Prior to the track test I ran through Losi's final check list, setting up the car as I went. Adjusting the diffs couldn't have been made any simpler, being able to lock the transmission and having an external adjusting diff screw in the outdrives, has been very well thought out, 10/10 Losi. Also just prior to the track test, with thanks to George Land of Helger Racing, a Mega box of Losi/ Trinity goodies arrived, the most important being a D3 Trinity motor (12D) and some BRCA legal 2000 nicads, there goes my pocket money again, do you take luncheon vouchers George?

In the box as well were some Losi blue compound slicks, a rear rollbar kit, and a foam front body protector, all parts used by the UK team drivers. This was going to be fun.

Once more the short journey to Ashby was made, tranny and charger to hand. On arrival the track was a little damp, so grip was indeed going to be hard to find, or so I thought. The first run being used to trim the radio and settle in the diffs. After the first run it's important to re-adjust the diffs, if you don't they will slip and do permanent damage.

Running on the kit blue compound treaded tyres (no additive) the grip was pretty good, definitely raceable, handling was very predictable. Turn in on most of the slow corners was sharp with just the smallest trace of understeer, mid corner grip was a little lacking, but it wasn't really twitchy. The main problem being a insufficiency of high speed stability. Changing to the slicks did improve matters a little, but not really enough to get the car into the grove. Finally, just before the weather broke I fitted a Trinity Touring car wing. That was it, the car was nailed, round the high speed banking I could just hold full throttle all the way round, then pile on the four wheel brakes, to get round the next right/left complex. But now it was howling cats and dogs, time for home.

After the first test I felt that all through the STW had performed well, I hadn't really scratched the surface of its capabilities. Enter DMS, while ordering some spare wheels for the car, Darren Boyle told me that the team drivers had found that by adding a small amount of rear toe-in the car could be transformed. Fitting a mixture of XXCR rear blocks and hubs, 1 degree of toe-in could be created. Parts ordered, wait for the postman.

Three Days later...

The rear 'Toe' conversion kit consisted of a 2 degree in-board mounting block and some 2 1/2 degree rear hub carriers. By fitting the right hub carrier on the left and left on right and then the in-board block, gave 1/2 degree toe-in per wheel, not much really. You will have to trim both blocks and the mount to fit. It took all of 15 minutes to assemble, you do need to space the carriers to the rear in the wishbones to get the correct wheelbase. Finally re-set the cambers and check the ride heights. At the same time I fitted the rear roll bar kit as well, using the softer of the two rear bars supplied.

Ashby take Two

Armed with some Voodoo Take Off HSA tyres and the 'adjusted' car I was greeted by an almost dry track, a major result in itself.

I really didn't expect the car to be so much better, rear grip was stunning, but as you would expect it really didn't want to steer. Connecting the rear rollbar helped through the chicane, but nowhere else. Some more front grip was required, this was very simple to find. By changing from 4wd to the front ratchet system, reduced the level of drive to the front wheels on turn in etc. and thus more steering. The STWeapon was really sharp now, loads of grip, but really satisfying to drive. Increasing the steering had reduced the level of tyre scrub in all the corners, so the car was carrying so much speed through the corners onto the straights, one of the secrets in making a quick car.

Just so I could prove the car was the improvement, not the rubber, I went back to the Losi slick tyres. Although the level of grip was less the balance of the car was just the same, very, very, fast.

Interestingly at no time had the three belt drive system given any duration problems, in fact the combination of car, Trinity cells and motor, were just a blur round the track, good job I'd painted it white. On the second test I had finally managed to brake the magic 18 lap barrier, just, a true 'A' final pace, and I would only class my driving as average, and I still think there is a great deal more to come from the Street Weapon as it is developed.

Last Lap

Team Losi have created quite a car with the Street Weapon, using the base mechanics from the XX4 every thing is of the highest order, materials, design and speed. It builds well and really looks the part, all the small details that make or break a car have been well thought out it really is a total package. Already the results are happening at National level with team drivers David Spashett and Ellis Stafford, and at club level with RRCi Champion Matt Huxtable, winning at several recent Bedworth meetings. At DMS's own indoor meeting at the Watford Leisure Centre seven of the 'A' finalists ran the Street Weapon.

Losi have chosen to join what has come to be the single most competitive arena in the World, most of the other manufactures have had a considerable time to test and race their products, but I think the Street Weapon is going to make a serious dent in the market. It will be a winner, and without a great deal of a fight, it really is a driver friendly Weapon. I would like at this point to thank George Land of Helger racing and Darren Boyle for their help with this review. The Street Weapon is lurking in the shadows now, identifiable by it's Damn Yankees ID Card, more details on the Street Weapon and the whole LOSI range are available from Helger Racing on 01279 641097, tell them you read about it in RRCi.

Final Set-up

Front:	
Camber:	1 degree negative
Tracking:	1 degree Toe Out
Ride Height:	6 mm
Spring:	Kit Yellow
Dampers:	Kit piston, 100w silatech oil, .030" travel limiter, No spring tension, Standard position
Tyres:	Kit, Losi Blue Slicks (all 27 mm), Voodoo Take-Off HSA Winter (23 mm Super Narrow...Fastrak Wheels)
Inserts:	Losi soft moulded foam (27 mm trimmed to 23 mm)
Rear:	
Camber:	2 degrees Negative
Tracking:	1/2 degree Toe In (XXCR 2 deg in-board blocks, 2 1/2 deg axle carriers)
Ride Height:	6 mm
Spring:	Kit Yellow
Dampers:	Kit pistons, 80w silatech oil, no travel limiter, 4 mm spring tension, Standard position
Roll Bar:	Thin Trinity. Set full soft
Tyres:	Kit, Losi Blue Slicks, Voodoo Take Off HSA Winter (27 mm wide)
Inserts:	Losi soft moulded foam
Motor:	Trinity D3 12 Double
Gear ratio:	26/78
Nicads:	Trinity 2000 (380 sec spec)
Speed controller:	MRT VFX Profile:- L1 60 amps, L2 40 amps, Ramps 30, Brakes min> 25 amps max.> 100 amps
Other:	
Front Drive Ratchet:	set as per kit instructions
Bodyshell:	Kit Honda Accord
Wing:	Trinity Touring Car Trinity Alloy Motor Clamp Trinity Clip-on Motor Heatsink Trinity Alloy Screw set Losi Foam Front Bumper

Quick Spec

4WD. Stiffezel Moulded Tub Chassis. Triple Belt Drive. Fully Ballraced. Adjustable Front Drive. Twin Ball Diffs. Sealed Drive System. Saddle Pack Nicads. Front Mounted Motor. Alloy Motor Mount. Independent Suspension All Round. Alloy Oil Filled Shock Absorbers. U/J Drive Shafts. Treaded Tyres. Honda Accord Bodyshell.

Testers Kit

Transmitter:	KO Vantage Esprit II
Receiver:	KO Vantage 40 meg Mini
Servo:	KO 1006
Speed Controller:	MRT VFX
Nicads:	Trinity 2000
Motor:	Trinity D3
Charger:	KO Bx 212 Advance
Paint:	Custom Colour Pearl White/Solid White

Likes:

Adjustable Front One-way clicker
Low Drag Ballraces
Simple Diff adjustment
One Piece Thrust Races
Sealed Drive Train
U/J Drive Shafts
Rear Body Mounts
Moulded Foam Tyre Inserts
Foam Body Shell Protectors
Engineering
Quality
Strength
It's Simply Too Fast.

Dislikes:

Drive Train/Spur Gear Access
Damper Spring Clamps
No Rear drive Belt Adjustment Left After Build
No Servo Saver Included

Rear Toe Settings

Total Angle (Deg.)	Inboard Block	Hub Carrier	Use for Grip Level
0°	STW Kit	STW Kit	High Grip
1°	3° XX CR	2.5° XX (9805) Reversed	Medium
2°	STW Kit	1° STW (9806)	Normal
4	3° XX CR	1° STW (9806) Reversed	Low
5°	STW Kit	2.5° XX	Low
6°	3° XX CR	STW Kit	Very Low
8°	3° XX CR	1° STW (9806)	Un-drivable?

Note that 5/6° will give greatly reduced top speeds, 1 - 2° should be normal range of operation.