

THE

WRC is not a new company to the R/C world; they are a full size motorsport company based in Italy. Just recently they have produced an R/C F1 1/10th scale car kit, and I was lucky enough to be offered one for RRCi to review. But before that, I got the chance to ask the company owner how they got into R/C...

'ITALIAN ONE'

"Team WRC is headed by Franco Ghiotto and based in Brendola, Vicenza province, Italy and features a young, dynamic and technical staff. Founded in 1998, the Team made its debut in the Driver Trophy, subsequently moving on to the Italian Formula 3 Championship and then the Italian Sports Car Championship. In 2007 the Team was placed second in the Italian Sports Car Championship, and won the Constructors' title and the famous 6 Hours of Vallelunga.

In 2008 the Team won the Italian Sports Car Championship, with its cars placed first and second, and winning every single race. WRC models are the result of the passion and the experience that the WRC Team has acquired in the world of motor racing. The models were developed by the Team's staff of engineers and mechanics. The main aspect considered in the design was performance, followed by the high quality, finishes and the look."

Tiziano Fantin
WRC

"To power the WRC F-One, Team Powers UK sent me one of their plutonium 17.5 turned brushless motors, a model which is proving to be extremely popular in touring cars based both on its cost and performance. It features adjustable timing and excellent performance"



Above: The contents of the box

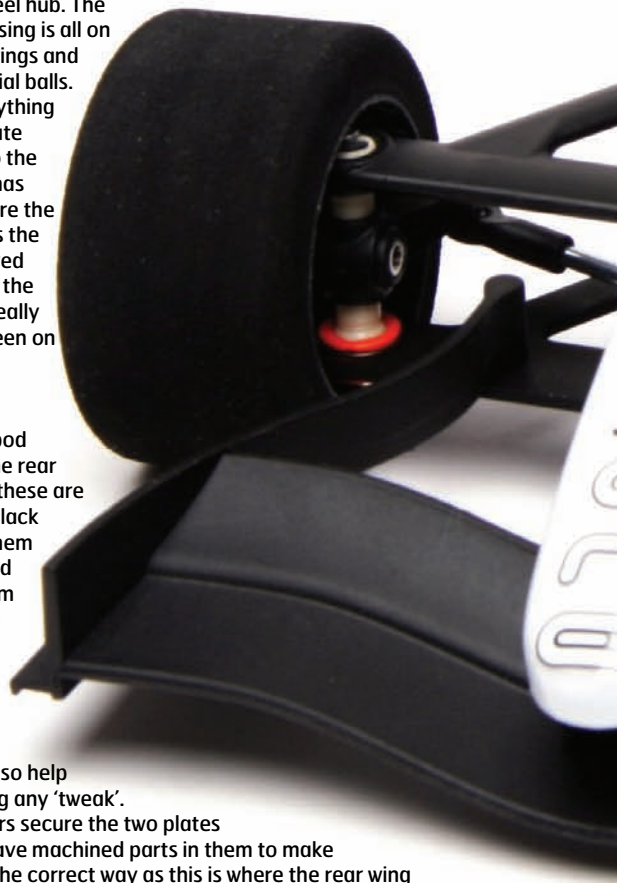
TRANSFERRING THE KNOWLEDGE TO R/C

Considering World Racing Car is a small company in the scheme of things R/C, the packaging of their kits is very professionally done. The instruction manual is black and white and uses CAD drawings for each build section. There are also scale drawings of the parts required. The build starts around the main chassis and motor plate. These are cut from 2 mm carbon fibre, which is extremely high quality with a superb gloss finish. With very neat cutting and no sharp edges I first applied a thin layer of superglue to fully seal the edges. This will also help prevent the de-lamination, which can be caused by an unwanted impact.

When you assemble the rear linkage, build everything up to the aluminium plate and use the pivot ball cups to retain the balls before you attach them to the carbon plates. This will allow you to get the retaining spring clips fitted then simply bolt the plate to the chassis. Fastened to the rear of the motor plate is a moulded rear aerodynamic diffuser. The next part of the build is the rear axle and differential assembly. I initially thought the rear axle was a carbon shaft, closer inspection revealed it to be aluminium with a hard coating. Differential components are machined from aluminium to a very high standard and the differential rings have been pre-ground which will give an extremely smooth differential action. A 98-tooth spur gear, which is 48DP, is clamped between the plates by the aluminium wheel hub. The spur gear and housing is all on precision ball bearings and tungsten differential balls. A nut clamps everything together. A separate part is attached to the wheel hub, which has the thread to secure the wheel – this allows the wheel to be removed without disturbing the slipper setting, a really nice feature not seen on other F1 cars.

LINE THEM UP

Aluminium rear pod plates attach to the rear suspension plate, these are hard anodized in black and when fitting them I would recommend not tightening them fully to enable you to line everything up and then tightening them a bit at a time so everything is aligned. This will also help to prevent creating any 'tweak'. Machined alloy bars secure the two plates together. These have machined parts in them to make sure you fit them the correct way as this is where the rear wing mounts to and the bars are offset. The rear axle runs in precision ball races, which locate in eccentric composite plastic bushes to allow different ride height positions from -2 mm to +2 mm.





KIT REVIEW



QUICK SPEC

Manufacturer World Racing Car
Type 1/10th Electric F1 Kit
Price £221.99 (excluding electronics)
www.team-powers.co.uk

Scale 1/10th
Power 2WD Electric
Length 418 mm
Width 190 mm
Wheelbase 269 mm
Weight 0.55 kg





Above: Each build step is numbered on the back of the parts required for that stage



Above: 2 mm thick carbon high-gloss chassis and the motor/pod plate



Above: Rear pod linkage, which controls side-to-side and forward suspension movement area

To power the WRC F-One, Team Powers UK sent me one of their plutonium 17.5 turned brushless motors, a model which is proving to be extremely popular in touring cars based both on its cost and performance. It features adjustable timing and excellent performance. This was mounted into the floating pod and a 25-tooth pinion, which is supplied, was installed to the motor. Hubs secure to the alloy axle by a grub screw. A pin secures the right-hand rear wheel nut adapter, the pin is secured by a 3 mm grub screw. I drilled the access hole out to 3 mm allowing more access to the grub screw with my Hudy driver. This allows you to remove the rear wheels without disturbing the diff settings, to adjust the diff loosen the grub screw, remove the pin and adjust the diff with the nut. The rear wing consists of five parts, the lower two parts clamped to the rear pod tubes, side plates bolt to the lower wing plate and the top winglet bolts between the side plates. The front upper wing plane has two positions to alter wing angle dependent on the amount of rear grip you need. Also mounted to the rear pod is a rear diffuser, which will help stabilise the rear of the car.

LOW PROFILE REQUIRED

Composite side plates are fixed to the chassis with aluminium posts, and these secure the top deck and also locate the battery pack. A 2 mm thick carbon fibre top deck is used and this holds the servo, which must be a low profile servo. I used an old Futaba 9550 I had lying around in my box. You will need to chop off the servo mounting lugs as the servo is taped and clamped by two brackets in place. Mounted below the top deck is another carbon plate, which clamps the front plastic nose cone in place. Below that the lower wishbone plate is mounted. This is an aluminium part and when assembled gives a very scale looking assembly.

Lower pivot balls mount to the aluminium plate and are held in place

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Above: Rear differential components



by two parts, which clicked together and are then secured by a steel clip. The pivot balls are made of white plastic, which is stiff but feels very smooth. Kingpins retain the front coil springs and the steering hub is mounted with spacers above and below to allow ride height adjustment. The steering hub is of the centre line meaning the axle is in the centre of the kingpin.

F1 DESIGN CONTENT

Moulded composite upper wishbones, which look like the full-scale F1 shape, allow the upper arms to move with the suspension. The inner balls mounted on the top deck can be raised to alter roll-centre or they can be slid out for less camber and in for more camber. To change castor the lower aluminium plate needs to be replaced with one of the optional parts available from WRC.

Aluminium turnbuckles connect the steering hub to the servo-saver. This has two springs and needs to be assembled. Take care to move the servo so the spine is in the centre of the servo-saver hole in the carbon plate, this will give the correct Ackerman and prevent the servo-saver fouling on the chassis.

Mounted to the rear float pod is a plate, which will carry the shock absorber. This needs to be assembled. Take care to remove the excess moulding from the piston. I used some Associated Green Slime, if you don't have any grease such as Green Slime to lubricate the O-rings with then use some shock absorber oil. Unfortunately the main damper spring was missing from the kit and the nearest spring I had was a 1.4 diameter spring instead of the kit 1.3. This was fine in use and offered a smooth action once built up and the shock correctly bled.

A small body post mounts to the rear of the top deck and through the nose cone. This will give a good base to mount the body from. The front wheels run in rubber shielded ball races and are held in place with an M4 nut. The rear wheels slide onto hexes and again are held by an M4 lock nut. The front tyres are 45 shore and the rears are classed as just 'mediums'. We now have a rolling chassis and all that is needed is to fit a speed controller, transponder and receiver.

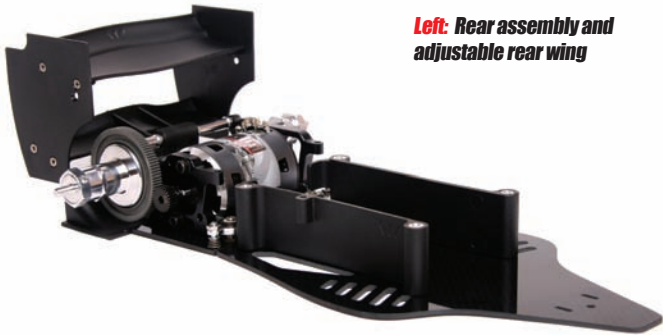


Above: Differential adjuster nut

Right: Team Powers plutonium 17.5 brushless motor mounted in the rear pod



Left: Rear assembly and adjustable rear wing



RULES, RULES, RULES...

Due to current BRCA rules we need to be able to remove the battery to use a LiPo charge bag trackside. To remove the LiPo from this F-One there are two options. The first is undoing the four balls that retain the side plate between the top deck in the chassis, so you can slide out the LiPo, and second you can remove the four top deck screws, the shock absorber rear mount, and one screw on the front of the underside of the chassis. This actually breaks the WRC F-One in half... not something I will want to do on a regular basis, so I will be using the first method!

To allow me to move the side plate I used a piece of Lexan folded to 90° and actually stuck it to the plate. This allows the receiver and transponder to be moved with the side guard allowing the LiPo to slide out. This then keeps the car as one assembly making it easier to work on if you are required to do so during qualifying heats. The front wing is a one-piece moulded assembly which screws to the front nose cone and two trailing side plates screw to the lower wishbone. Not only is this an aerodynamic aid it is also the front bumper and seems strong enough to be able to withstand impacts.

Above: Front assembly with low profile servo and lower Castor/suspension plate



Above: The rear diffuser in all its glory!



Left: Front steering and upper arm where camber is adjusted



Below: Make sure the servo shaft is central to fit the servo saver



Below: The wide low front wing... it doubles as a bumper!



Above: The optional parts sent from WRC



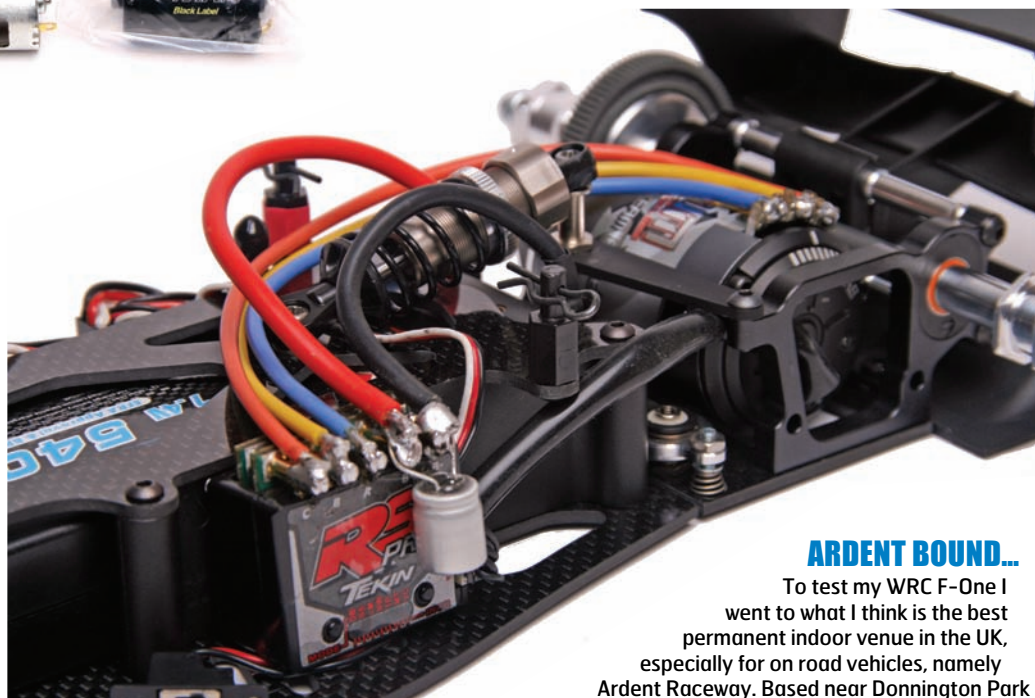
Above: Three Racing F1 tyre truer arbour

ADDING SOME GO!

With the car now built up I needed to install my chosen speed controller. I fitted my Tekin RS pro set-up in 'blinking mode' so there was no on-the-fly timing. I calibrated my servo and speed controller to my KO Helios transmitter and installed my MRT personal transponder. The body that comes with the WRC F-One requires the side points to be cut out and extra mouldings to be installed. The body is moulded from clear Lexan and comes complete with a driver's helmet and wing mirrors, both are moulded from white ABS plastic. I sent the bodyshell to my usual painter, which is RCS Graphic Worx (www.rcsgraphicworx.co.uk) for Jon to do his usual high quality work.

This time I wanted the car painting to replicate a plastic model car kit that Dremel, my sponsor, produced with Revel. When I received the body back Jon had also taken the time to cut the necessary parts to allow him to let the paint theme flow into all the body parts once assembled. The body really does look as I wanted it to. Along with the Team Powers Brushless motor Chris at Mardave had sent me a brushed G2 motor and Keith at Much More Racing had sent me one of their new Clubman black label motors. To control these I used my MRT MX pro speed controller. The reason I had taken time to obtain all these was a group of F1 drivers had arranged to carry out a test day to help select a suitable set of motor rules for the BRCA Nationals.

Finally, before I left for my testing day I fitted my Three Racing tyre truer arbour, which www.rcracinguk.com had sent me, and I trued the front and rear tyres to make sure they were perfectly round. I can say that WRC had trued them extremely accurately but the adapter will be used to keep the tyres clean, fresh and tidy.



ARDENT BOUND...

To test my WRC F-One I went to what I think is the best permanent indoor venue in the UK, especially for on road vehicles, namely Ardent Raceway. Based near Donnington Park motor circuit the venue is run by John Dawson and his band of volunteers. The venue has pit tables and chairs, mains power for everybody, a permanent on site shop run by MB Models from Leeds, a cafe and of course, a permanent carpet circuit. All in all this is a great venue and they are soon hosting the first indoor series solely for Pan cars, which includes the F1 chassis. If you have never been, take a good look at their website which can be found at www.ardentracing.co.uk

Once I had set-up my pit-base I ventured out on to the track and trimmed the transmitter so the WRC F-One tracked in a straight line and set each turning circle to be equal for left and right. After a few steady laps to bed the tyres in and clean off the excess additive it was apparent that the WRC had a large amount of front-end grip, as the car would dive into the corners. I reduced my end points and set -10% negative exponential on my steering curve, this helped a little but I was still struggling with the car pivoting around the front axle. Back in the pits several drivers gave some advice and I fitted harder front springs to the kingpins and a softer one to the rear side spring.

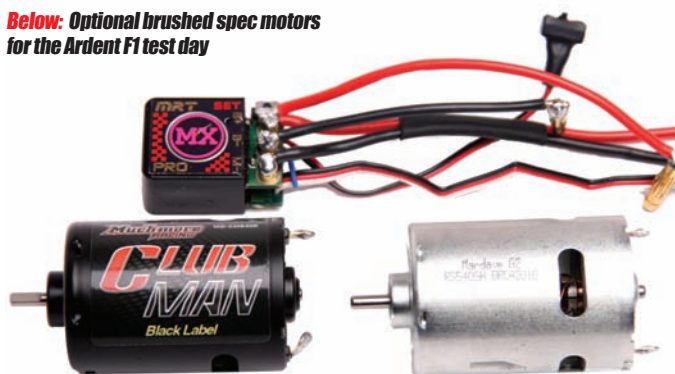
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Back on the track this made the car better but I could still not push through the corners as fast as the other cars. I then had a mishap and hit the barriers quite hard, which broke the aluminium kingpin. To be fair the impact was a high-speed hit and something was going to break. As I had some hinge pins in my pit box I cut one to the correct length and cut two slots for E-clips with my Dremel so I could carry on testing. Back in the pits I fitted a softer centre rear spring and thinned the oil to 35 weight. I applied full additive to the rear tyres and a third to the front tyres on the inside edge. The WRC F-One was still fairly twitchy and would pick up the inside front wheel if turned in hard.

I feel this was due to the lack of side damping. I do know WRC are looking into producing a side damper of some form. The Team Powers 17.5 turn motor proved to be very quick with a smooth power band. It was probably too quick for me trying to learn the set-up of the car so I went back to the pits and fitted my MRT speed controller and G2 motor.

Below: Optional brushed spec motors for the Ardent F1 test day





TECHNICAL SPEC

TESTER'S EQUIPMENT

*Team Powers platinum 17.5 Brushless motor
 Muchmore Clubman black label motor
 MR33 Marc Reinhard indoor additive
 Tekin RS Pro speed control
 KO Helios with Spektrum
 Spektrum Micro receiver
 Mardave G2 motor
 Futaba 9550 Servo
 MRT MX Pro*

LIKES

*Designed and produced by a full size motorsport company
 Build quality and specifications
 Tuning ability and 'feel'*

DISLIKES

*Can be tricky to set-up at first for F1 newbies
 Still a small following in UK*

CONTACT

www.team-powers.co.uk

This calmed the car down and I could be neater with my lines. At this point 'Pan Car Guru' Pete Winton turned up to witness the test session. Pete spent a lot of time with the F1 drivers giving advice and spent some time prodding and pushing the WRC F-One. After adjusting the ride height and suspension droop at the rear, adjusting the tweak on the side springs I went on to the track again. The car now cornered a lot better with more control and the only place I was struggling with was turning in to the fast sweeping corner at the end of the straight where the car still wanted to dive in to the apex.

When I had contacted WRC to inform them the centre spring was missing, which they replaced, they also sent me a new option called a front torsion bar. This is used to fully stiffen the front castor plate/lower arm of the F-One. I have to be honest and say I did not think this would work as the front arms are fairly stiff however after fitting it, the part totally transformed the way the car turned in at speed, and calmed the steering down perfectly. I could now turn into the bend at the end of the sweeper with only a very slight amount of lifting of the throttle and the WRC F-One car was far easier to drive consistently.

As I had been at the venue all day I called an end to my testing feeling very happy with what the car and myself had achieved, and I knew there was still more to come. Anyone looking at joining the F1 class, with realistic looking cars I can highly recommend you visit Team Powers' website www.team-powers.co.uk and seriously consider taking the WRC F-One car as your weapon of choice.

Many thanks go to WRC, Team Powers UK, Mardave, Much More Racing and RCS Graphic Worx for their help and assistance in completing this review. **RRCi**

