

Tech Article - Slot.it Group C car into sidewinder

Group C cars made by Slot.it have been one of the most popular club classes all over the world for well over a decade.



- They run well out of the box; are easy to set up for optimised running on both wood and plastic, and there is a wide variety of models and liveries. Porsches, Mercedes, Toyotas, Nissans, Alfas and Jaguars. Most clubs in NZ race them as a class, and they have been used both for the 12 hour teams enduros and are a "Nationals" class here in NZ.



They come standard as inline configuration; and most clubs race them in the standard configuration, both to keep costs down, and to offer an easy class for new members to master set-up out of the box.

Having set one up in sidewinder configuration for a proxy series (car builder's competition) in the USA a few years back with some success; I thought it would be interesting to set one up the same way as an example of what sidewinders handle like in general, as there are a lot of inline and angle-winder podded cars out there which can easily be converted to sidewinder. So this is not just about this Group C car, but about sidewinder configurations in general.

The model I have chosen is the #36 Toyota at right above. These are the parts I am using in the upgrade – plus some miscellaneous items I will list later.

The picture following shows the main parts required.

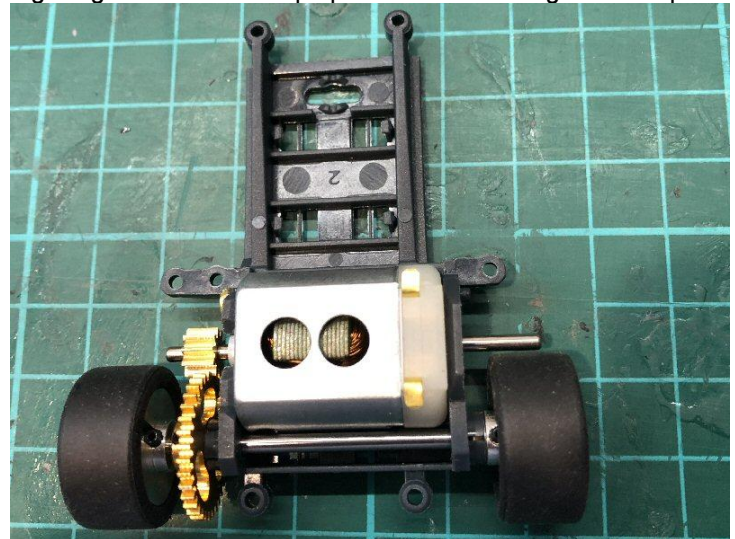
- CH67 sidewinder pod with the same 0.5mm offset as the original inline pod.
- An MX17 motor
- 6.5mm 10 tooth pinion for sidewinder pods.
- 35 tooth 18mm Sidewinder Spur gear.

There are some miscellaneous items, Motor fixing screws, as I like to lock my motors tight and make that part of the drive train as rigid as possible. Grub screws to set the front axle ride height as I always do, soft braid, numbers of axle spaces to set width and create sliding surfaces to minimise friction.

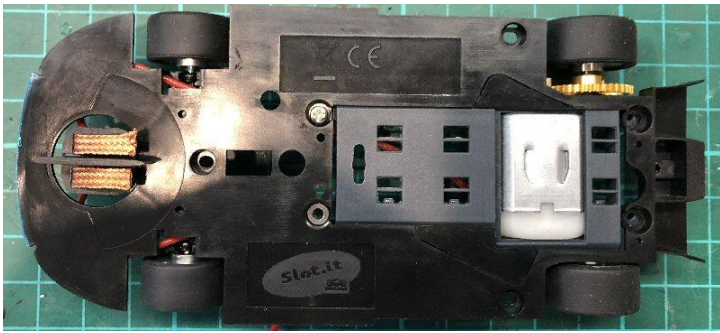


If you are wondering why I chose this low gear ratio of $10/35 = 3.5:1$, when the standard car has $9/28 = 3.1:1$. This is my reasoning. I am upgrading the motor. The MX17 has 26% more revs than the MX16, but a little lower torque, for overall power increase of 19%. I need to be able to stop the car from higher terminal speeds, and I still need short punch acceleration. With this gear ratio I have a 12% higher top speed, and 6% better braking torque. On a medium to larger track, I feel this is about right, especially given I have added 16 grams weight around parts of the chassis and pod.

But if it isn't quite the right gearing for the track, I can gain one more tooth to a 36 tooth, or the more likely scenario or dropping to a 34 or 33 tooth spur to quickly experiment with higher gear ratios and top speed. But this is a good start point.



The assembled pod, prior to fitting and glue and true.



Pod fitted. The pod screws are about ¼ turn off of tight, to allow the pod to slide, and have just a half a millimetre vertical play. I will later dampen that play by taping the underside of the chassis and pod.



Note at the front, I have removed the riders from inside the vertical axle uprights, and the chocks that sit on the chassis prongs under the axle. I want only the grub screws contacting with the axle and defining ride height and play. I use 6mm grub screws under the chassis and 3mm in the holes in the uprights.



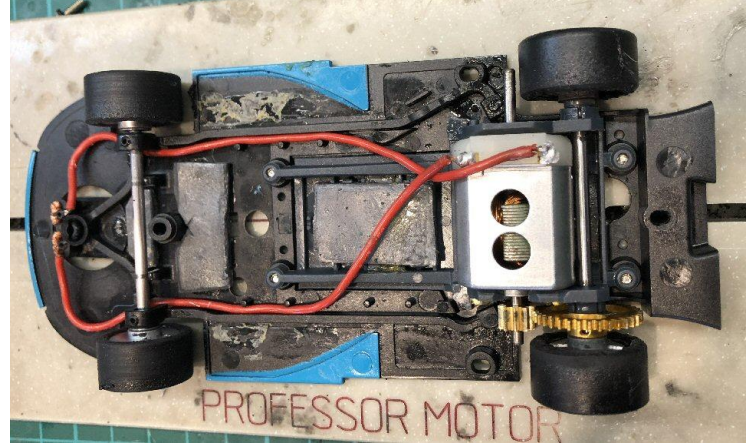
Original front tyres get glued to the original plastic hubs, trued, and the edges slightly more profiled. The ride height gets set for maximum guide depth, and the braid and front wheels sharing the front weight.

I want the wheels to turn as the car moves, but I want plenty of weight on the braid as well, to ensure good electrical contact, in a straight line and in corners.

I had fitted with my go-to tyre, PT1171N22 glued and trued to the stock 16.5mm rims. They lacked a little grip, and needed a polish anyway; so I just dabbed on some NSR tyre oil and spun the wheels on a wet sanding block. A 30 second "treatment" nothing much

The net result was so much grip, that when the car did (try to) let go, it shuddered and deslotted, often pointing inwards on the track.

I played around with lead placement and amount, and ended up with most lead in the pod, and none on the chassis wings. The 8 grams front lead anchors the guide under acceleration, and the 12 grams scatter around the pod is to stabilise that against body chassis roll.



But still it shuddered. After trying an identical set of wheels off my regular Group C car which is fast and smooth, and getting the same results, I reached the conclusion that the rearward weight of the sidewinder, was giving me too much grip, so I swapped out the tyres for a set of untreated N18 on the slightly smaller 15.8 diameter wheels.

The problem all but went away and a slight tweak of the pod and front body post screws to give 1 full turn off tight on all, resolved it. This car at front, very low.



I can now crack under 5 seconds on my 63 foot white lane, and drive consistent 5.0s and 5.1s; which is 3/10ths faster than my stock, blueprinted club car to Nationals and our local club rules. - Almost the same as a tuned GT1 or NSR Classic at 4.8s

