ThunderSlot

McLAREN
MOTOR RACING TEAM

Dave West

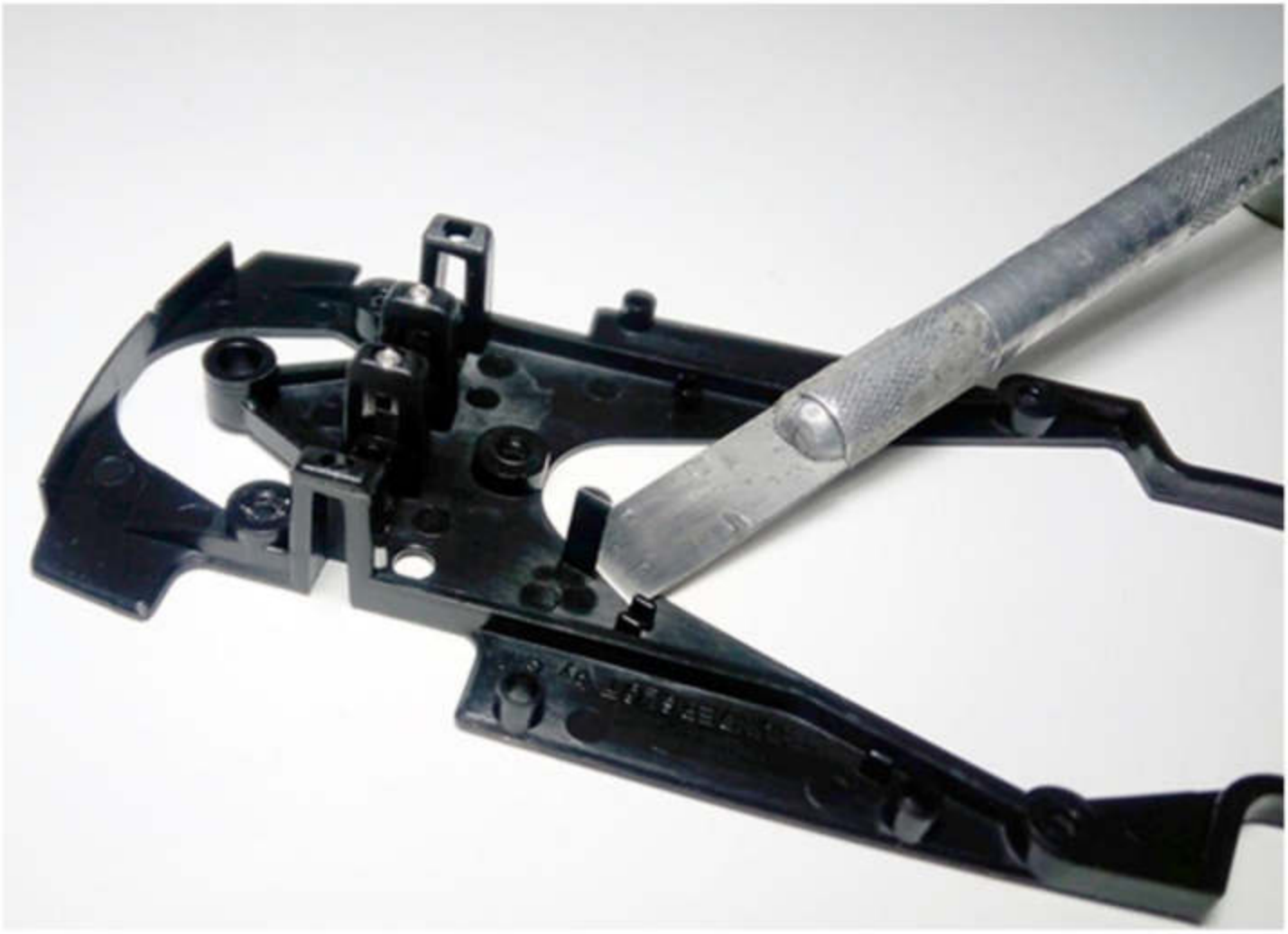
THUNDER SLOT

Set up tips for Thunderslot cars...
(well at least the way I have done it)

First of all let me mention that I make no claim for any instant cures for those cars that do not run as expected. I too have some cars that require a lot more attention than first expected to get them to run well. I am happy to show what I do and explain why I do it this way as this is what works for me. I'm sure there are other ways of achieving a similar or maybe a better result but once again this works for me and isn't too hard to do for us guys that are used to some of the intricate workings of a high performing slot car. We are very lucky that Thunderslot have created this brand of cars, we get to drive great looking cars at a great pace.

The first thing I do when getting my hands on a new Thunderslot car is to completely strip it down into parts. Keep referring to the parts as you follow this blah, blah, blah on what I do to achieve a smooth running slot car set up for wood racing.
If you race on a plastic track and you were to carry out some of these tweaks then you will still be improving on what you start with. These tweaks will also work for other brands of cars but for this project I will be focusing on the way I set up a Thunderslot McLaren M6A.

The chassis gets what I call the 'mould feed spike' removed and also the words get sliced off with a sharp chisel blade.



The spike is removed so that the lead wires don't catch on it and removing the words allows for better adhesion of the lead when glued to the sides of the outer part of the

chassis between the holes where the adjustable body rest screws can be fitted.

If the car is to be raced with magnets for grip then the lead may not be required to be fitted to the pod, just on the sides of the chassis. This is a guess but I do expect having some lead on the sides would really help, magnets can be fitted to the motor pod instead of fitting lead for plastic track racing.

The pod also goes under the knife, the magnet holding clips get removed to allow fitting of lead, even the one under the rear axle.

The areas where you remove plastic should be as flat and smooth as possible, no bumps is best to allow the glue to hold the lead properly.

If you look at the finished chassis, you will see the areas where lead is fitted. On the motor pod I glue a big slab of lead, 1.5mm thick just in front of the motor.

This piece of lead should weigh 6-8 grams and gets cut to fit that area of the pod. I normally have 8 grams in this position in front of the motor but for this car I am going to try 6 grams and see how stable it will be, I can always add more if needed. The way I cut the lead is to have a sharp blade from a box cutter that gets hammered into the top of and then through the lead the same way as a guillotine works, a few gentle blows does the job.

Remember when handling lead, it is a poison so wear gloves and don't inhale any dust and wash hands thoroughly afterwards.

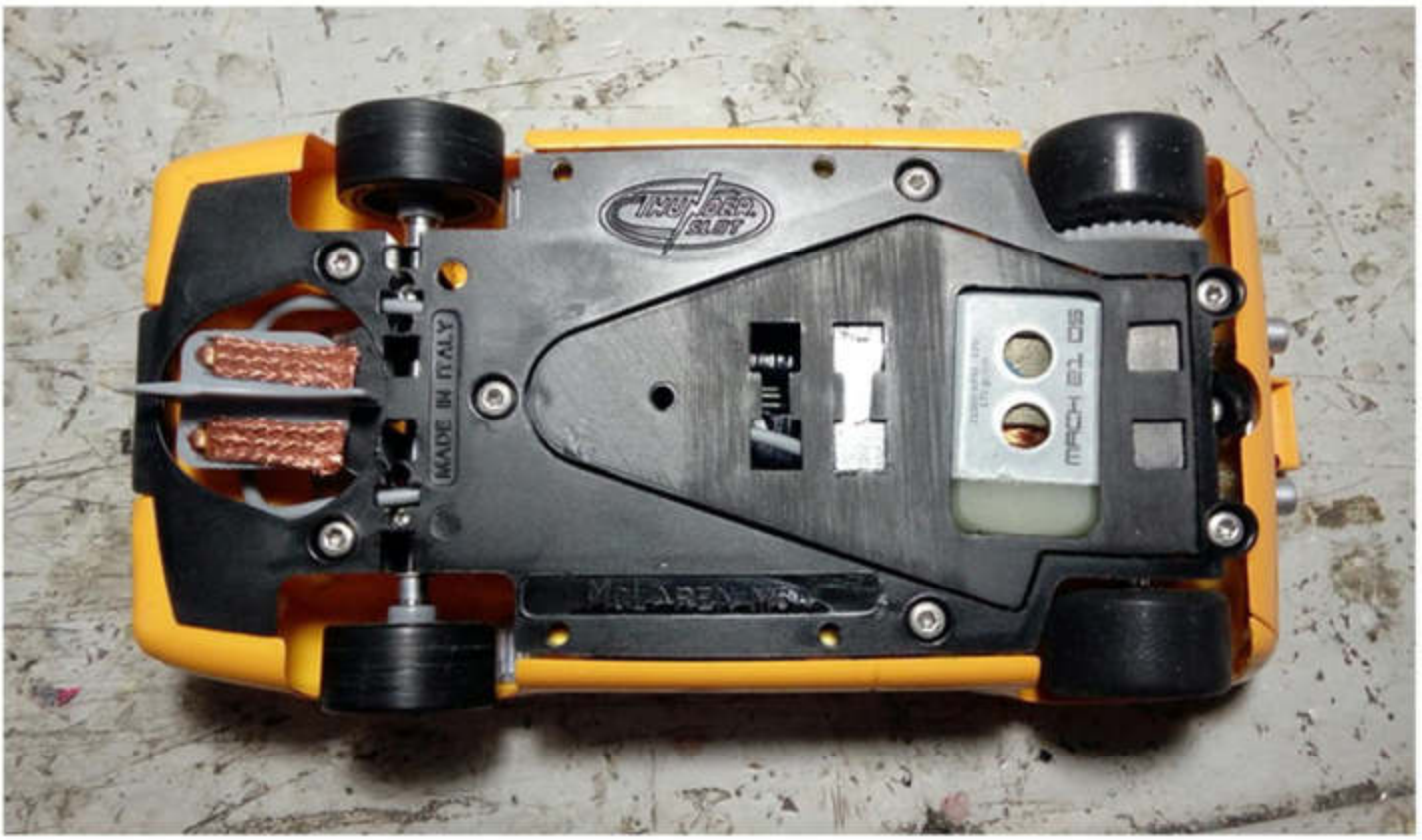
Before the lead is glued in place, I make sure it is flat by belting it on a hard and flat surface with a block of wood on top, this helps flatten the lead. The block of wood

here is the handle of a small wire brush, any flat block of wood will works great. Best to also scratch the surface of the lead so it becomes clean and shiny, this is to remove any oxidation so the glue bonds to the clean lead and not the oxidised surface. The clean surface helps for a better bond making it less likely for the lead to become loose during racing.

The super glue I use comes from a local 2 dollar shop, cheap and cheerful works well

for the lead and front tires. For the lead that goes on the sides of the chassis I use 1.5mm lead. These bits of lead are glued to the sides of the chassis between the holes where the adjustable body rest screws can be fitted. These bits of lead weigh

approximately 2.5 to 3 grams each side. Another piece of 1.5mm lead gets fitted under the rear axle where the magnet can go, it too should be 2.5 grams.



This last piece of lead helps to keep the car planted a bit more, the 2 pieces on the sides of the chassis help to reduce tipping in corners. If you don't usually use this much lead you can use 1mm lead of the same size and see how that goes, remember you can always add more lead if the car isn't stable enough, lead is your friend for good handling cars.

No matter what track owners will tell you, grip depends on the track conditions as much as it does the car set up. You could have a car that is an absolute killer on you home track, the track you keep clean from dust (including urethane dust). When you run that car on a track that is not clean, your 'fast and grippy' car will collect that dust and wipe the track clean. This is great for the other cars but yours will be like its driving on snow. Even the front wheels collect dirt and dust and need cleaning.

With what I have seen, good rubber like NSR, N22, MRRC SP002 and Thunderslot will give great grip even if not treated. Even more grip if treated with a 'special shampoo'. More on that later. Silicones are good if everyone is using them and the track is clean. Urethane tyres will work well and can handle some dust and you don't run a motor that has heaps of torque. Urethanes have less grip than a good rubber tire and that is why they work well on most tracks, the dust doesn't seem to collect on them as much. A good rubber will always provide quicker laps than urethane tires. This is just my 10 cents worth based on what I have seen and done over the last few years with having a track at home, club racing and proxy racing.

Back to your Thunderslot car..... What you should have in front of you is the chassis and pod with some lumps of plastic removed and lead glued in those places as seen in the pix. The guide can now be fitted, no tweaks to the guide are needed, they are great just as they are, just the usual things like make sure the braids and wires are gonna stay in place and the guide rotates freely.

Fit the motor and pinion to the pod with the motor mount screws. Grab an axle and test fit the axle bushes in the pod. They are usually a good fit and may just need to be glued in place. If they are a bit loose for your liking then you can knurl the bushes to make them a tad larger to fit in the locating holes, add glue if required. To knurl the axle bushes, fit them on an axle, hold one end of the axle and place the other end of the axle on the edge of the work bench or jam in the vice if you have an axle you can spare. Then run a clean file on the axle bush as it rotates on the axle. The file gets pushed down hard onto the bush and run along the outer surface of the bush where it locates in the pod. This knurling action makes the bush a tad larger and will then fit in the hole tighter, it can then be glued if needed. Use a straight axle to align the bushes, apply the glue to one bush at a time and only do this if the motor is screwed in place to keep the alignment good as the pod may distort a little when the motor screws are tightened. Fit the motor and pod to the chassis. If you have a spring kit then fit it in place and have the screws fully nipped up, not tight, just seated snug. If not using a spring kit fit the stock pod screws and have them nipped up snug.

Then do the rear wheels.....

Spin the rear rims on a tire truer, lathe, drill or whatever you have to spin the rims.

Spin the rims and scratch the area where the tyres sits with a file or sanding board to make the surface a little rough, enough to lose the polished surface, this gives the glue something to bite onto and hopefully it will grip better than on a smooth alloy surface - pic 7, wash away any dust before fitting the tire to the rim.

I also wash out the inside of the rear tires with a tooth brush dampened with methylated spirits, just to remove any mould release agent and to clear out the dust, wait till dry before fitting tire to rim. Fit the tire to the rim with the dimple to the inside of the car, don't want that on the outside as it will cause bouncing while cornering.

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I use UHU gel glue. There are other glues out there but I know I can trust this one.

The quick setting glues can attack the seam where the tires is joined and they sometimes split within a few seconds, it seems to be a chemical reaction to what vulcanises the ends of the tires together. I have a steel block with a 3/32 hole through it that I put in a drill press vice to hold an axle so I can spin the rim while I apply the glue.

This tool comes in handy as it allows one hand to spin the rim while the other hands applies the glue. The block can be made from a square piece of wood or plastic or even an old chassis can be used.

Glue the outside of the rim first by applying the glue while rotating the wheel - this pic shows how the tire is opened to allow the glue to be applied.

Wipe away the excess glue with a clean rag or q-tip and then make sure the tire is seated as close to true as possible, you will have a few seconds to 'align' the tire as best as you can before the glue sets hard.

Thunderslot tires are very good and it doesn't take much to get them to run straight. Once the glue has set for a few hours (don't want to risk upsetting the bond) I will then turn the wheel over and glue the inside edge of the tyre to the rim the same way.

I leave them over night or for a few hours at least to be really safe before I start truing them on my Hudy truer. I set my power supply to 5.0 volts (the lowest it will go) and start truing with a very gentle pressure on the tire. Too much friction will result in over heating the rubber and they will 'ball up' or become chewed up real bad. You don't want that. This friction can be avoided by lower revs, if your power supply can go down to 2 volts then that would be a great start. Also keep the pressure very light as that too can cause too much friction and it doesn't take much to become too much. Lately I have been squirting methylated spirits on the tires as it rotates (some guys use water) just a small squirt every minute or so. This helps to keep things cool and wash away some of the rubber which also reduces the friction. So far the methylated spirits has not had any effect on the rubber or the glue.

Once the tires are both the right size, you should still have a good sized outer curve to them. The size of this curve is very important when cornering and Thunderslot have got it right. If the tires have squared edges the car will shudder and bounce when cornering hard and fast. With the right shape curve the tires will slide gently and progressively through the corners. The Thunderslot tires have just the right amount of curve to work well.

Sometimes you can hear the tires screech as the car drifts, just like real car tires do. Sounds crazy but it's true. It can be a sign of a good set up too. If the tires screech evenly then the car is set up well. If the screech is not even, expect the car to screech for a spilt second and then de-slot due to bouncing. NSR tires can have a lot of overhang, another great tire if trued correctly. I completely remove the overhang as it can pinch when leaning on the limit of the tire and once the load goes off the tire it will release quickly and cause the car to bounce, making the car shudder while cornering. To trim the curve I use a plain old nail sanding stick. Like any sanding device, it leaves the curved edge rough but that is polished out with a soft cloth and turps.

Polishing the tires…….
Once the tire is the right shape and size, I then apply turpentine to a soft clean rag that is wrapped around my finger and very gently rub the turps across the tire, over the entire surface, curve and circumference while it is spinning slowly. This will polish the tire and get it all smooth, the lines from the grit of the truer will vanish. You have to be gentle! If you are not gentle the tire will shrink too much and may also go out of round. Wait a while before using the polished tires, they will be very tacky from the turps and the extra grip may overload the motor, best to let the turps leach out over a few hours till they are 'dry' before using them. If you have a track that you can run your car on at a low voltage so the tires can run dry for long enough they will also become smooth from just doing laps but it does take time.

Treating the tires can make the tires even smoother while running if permitted by the rules you run with. By adding oil or a blend of oils to the rubber you can make them softer, it does take a long time but worth the effort. I have seen guys 'dope' the tires so much that the tires expand and are as soft as gummy bears making them very sticky. They can also fly off the tires as the oil can cause the glue to let go. I do treat my tires but not to a large extent. I do this by having my special blend in a small

squeeze bottle and I apply a thin ring around the tire, I then massage the oil into the rubber with my thumbs. This is also a great way to clean the dust and dirt from the tires. After a few doses of oil, the tires start to look shiny, the shine does go away as more laps get done. A thin oil type liquid like WD40 or CRC 556 and a basic thin motor oil will work well, try 50/50 and go from there if you want to treat your tires. These cars will go well without the oil but will perform better with some treatment if it is permitted.

Front wheels……..
The first thing I do is remove any burrs or mould slag from the rims - and tires.

Sometimes the flash can be in the way enough to cause the rim to become out of round once the insert is fitted, best to remove the flash so the insert will fit without distorting the rim.

I glue the inserts to the front rims, just a drop in each of the four holes and job done.

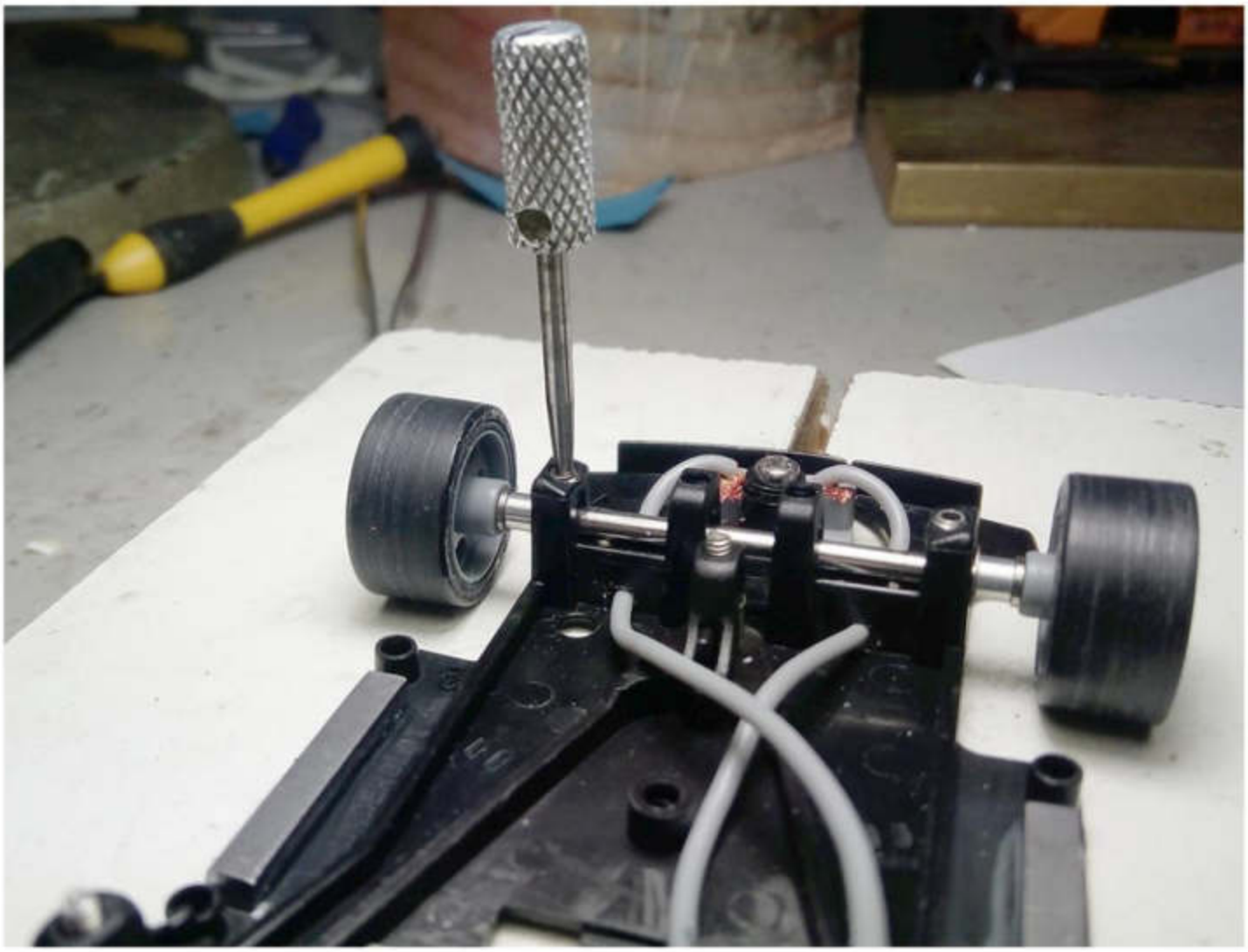
Fit the tires and then glue them to the rims - pic 15, open the tire a tad and apply the glue much like the rear tires, the cheap super glue is fine with the front tires.

If the front wheels do not run perfectly true then they will need to be trued like the rears have been. Once they have been trued, then apply 3 or 4 layers of super glue or clear nail polish to give them a zero grip finish to reduce friction in corners.

To do this I fit the front wheels on the axle in my steel block in the vice.

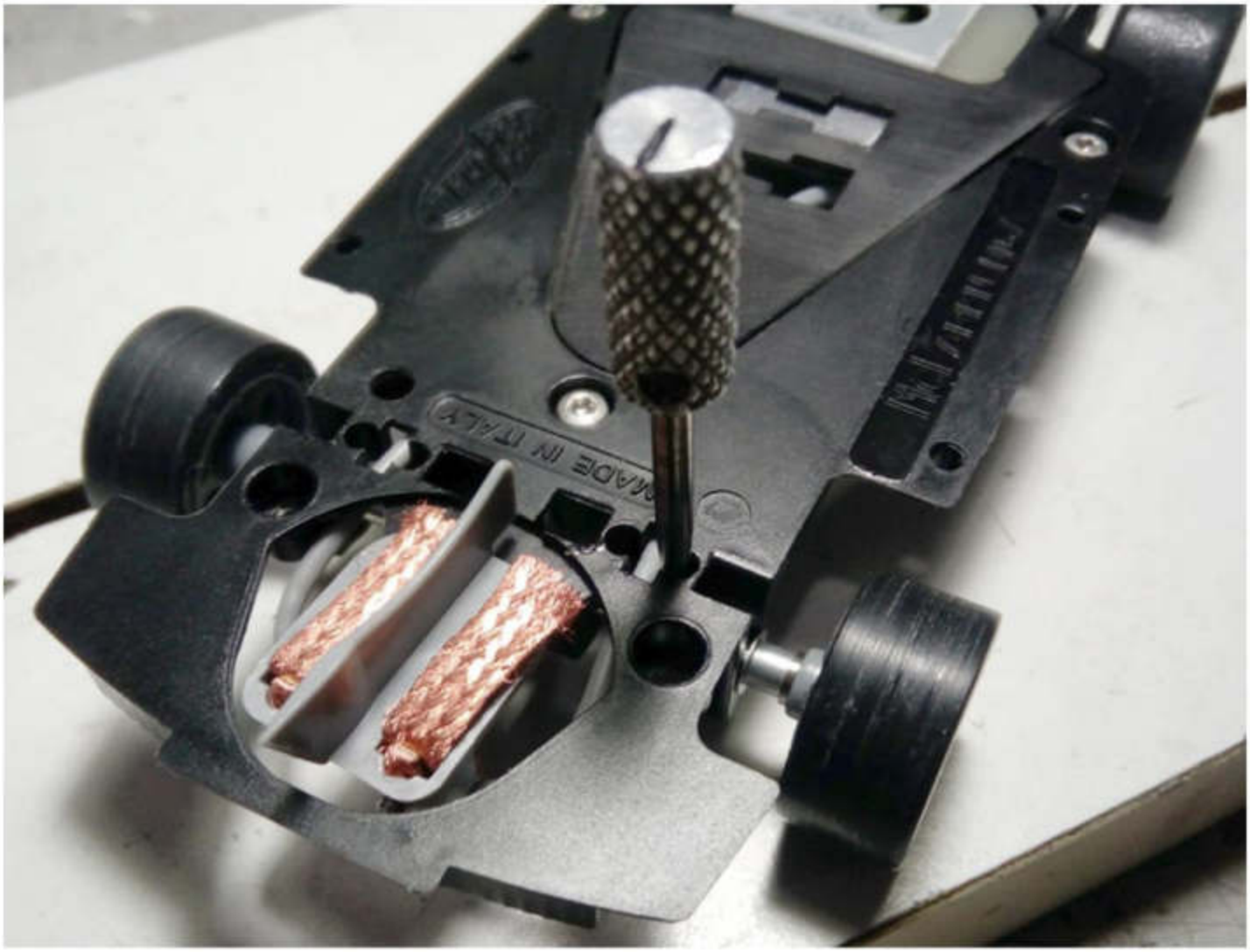
This way I can spin the axle/wheel assembly with one hand and apply the glue with the other hand, it takes a few coats to get an even layer around the tire. Once the coating has set, the front wheels may need to be re-trued to get back to perfectly round, take off a tiny amount at a time so the friction free coating remains. If you go too far then recoat the tire with more glue or polish and re-true when set. This friction free coating helps to stop dirt from the track sticking to the front tyres and also greatly reduces the friction while cornering. It is very important to have the front wheels run true because the car leans on them for support while cornering.

That brings us to the final chassis stage of setting up the screws.
With the all of the wheels in place, motor and guide assembly etc, the next thing to do is to set the front axle height screws. Both Lola chassis' and the McLaren chassis



have the same set up. The McLaren chassis has the top of the outer posts trimmed to allow the body to fit and the holes are too big for the 2.5mm screws. I fit 4/40 screws in the top hole on the outside posts (nearest the front wheels). The intention is to use the inner top posts but the effect is not the same in my book, that's why I fit the bigger 4/40 screws in the top. I don't use the inner posts at all. For the Lola the stock 2.5mm screws fit in the top outer position to set the axle top limit.

Set the braids as flat as you normally would for the track you race on and have the lower limit screws wound down away from the axle. Place the chassis on a good



level board and then adjust the front axle upper limit screws so that the weight of the chassis is resting lightly on the front axle. I gently tap each post and see if the chassis drops down before it comes to rest on the front axle. Just a light tap will show if the screws are set right. Sometimes you can hear the sound of the upper limit screws tapping on the axle, if so there will be a gap between the axle and the screw. Check both screws and adjust each side till the screws are both sitting on the axle. When that is done the weight of the car should hold the front wheels on the track.

Once that is sorted you can then adjust the bottom limit screws from underneath the chassis, adjust one screw at a time and set the screw so the tip is just a few thou form touching the bottom of the axle. Do this to both lower limit screws. The tips of the bottom screws should both be just a whisker away from the axle. Just .25mm is a great set up to start with. Check to make sure the front wheels rotate freely and both front wheels are touching the track at rest. They should be. If they are not, check the wheel diameters and correct if not the same. Check the pod screws are nipped up evenly. Readjust the front axle screws again, to do this, back off the bottom screws, set the top screws and readjust the bottom screws again. Check to see if the chassis is twisted, if so tweak it the other way to correct the twist, the lead will help hold the new position if glued well. Check the front wheels again and correct if necessary. Reset the front axle again if both front wheels are not touching the track. It is important to have both front wheels touching the track and with very little up and down chassis movement to allow the car to have maximum stability while cornering. The last thing to do is to fit the body, check to see if the body binds on the screws when it is lifted, do this for front and rear of the body. If there is any binding then trim the body screw holes in the chassis slightly so that the screws are not rubbing on the inside of the holes. Once the body is on you can fit longer axles and spacers to gain extra width for even better handling if the rules you race with allow.

All done, go try it out.