

# Scale Slot Car Racing

Magnets are for Motors!

## Introduction

**A lot of people are always asking on different Forums I frequent, "How do I go about building a Slotcar?", so I decided to document how I go about it. As my favorite material for cars is resin....it will be based on a Resin Shell.**

**This is not the only way of building one, and I don't pretend it is the best way, but it is how I do it !.**

**I hope to show not only the building method but also the tools required to do the job and suppliers of essential materials. My apologies to non-UK readers as I can only list suppliers that I use and most, (as I am) are based in the UK.**

**There is nothing difficult about building a slotcar, I would suggest that anyone can do it. But in order to build a car that goes well and looks good there are some basic skills you need to develop and the more cars you build the better at it you will become.**

**I apologise to any experts out there, but this article is really aimed at the novice builder, so come on you "first timers".....have a go. There is NOTHING like watching a car you've built tearing around the track.**

**The car I'm going to build is the AC Ace that ran in the 1959 Le Mans Race. A great car that in later years developed into the Shelby Cobra. OCAR make the shell for this car and I will use the PCS 32 Chassis.**

**This is a photograph of the real car :-**

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## Tools Required

As with all projects there are certain tools required to get the best results. None of the ones I use are expensive and they can, of course, be used time and time again.

The most important tool for any modeller is a Dremel type mini tool. I use a genuine two speed Mains Powered Dremel with a cutting disc and a small drum sander. I also have a set of mini drills which fit the Dremel. Although I have many other accessories that came with the Dremel I find I only use these. You can buy Dremels from Homebase or similar DIY stores also from Ebay . Other options are "clone" type dremels and rechargeable types. I don't like either but the option is there. The cost of a decent Dremel is around the £40 mark. I have found that it is best to use genuine Dremel replacement cutting discs, even though they are more expensive they tend to last a lot longer than cheap imitations.



**The next requirement is for miniature files. I have two sets, one I use for resin, plastic and fibreglass and one I use only for metal. I buy mine from local Pound type stores. They sell six different files for the sum of £1. You can pay as much as you like but mine have lasted me for several years and are still as good as the day I bought them.**



**Another very useful file to buy is a standard 1" rough file. These are great for filing wheel inserts and "heavy" body shaping. Again £1 from your local Pound Store.**





You will need a decent set of jewellers screwdrivers. I don't recommend the Pound Store for these, as the ones they sell have very soft tips and tend to "round-off" very easily. Buy a decent set from Homebase for around £6. Their set also includes miniature tweezers which are useful for applying decals and picking up small parts.



A soldering iron is required to attached motor wires to the motor. If you don't intend to get into brass chassis building then a cheap low wattage iron is all you need and should cost you no more than £5 (I think mine came from Woolworths). Decent multi-core solder again can be purchased from Homebase or equivilent, together with Flux.



**A good knife is essential for cutting, trimming etc. Do buy a decent one. I recommend the Exacto knife which you can obtain from your local Hobby or Craft Store. Cost is around £6.**



**A pair of long-nosed pliers is also a great buy and as well as the obvious reasons can be used for stripping wire. From your Pound Store again for £1.**



**There are also some specialist items I use, which although a little expensive to buy are more or less essential in order to build a good slotcar.**

**The large tool is a pinion press from MB Slot which I purchased from Pendle for the sum of £15. This press will handle all types of motor from the long can Ninco type NC5 motors to Mabuchi style motors and older 16 D type motors. A good alternative is the pinion puller sold by Ninco which is cheaper, but in my opinion not as good.**

**The smaller tool is a pinion remover, again from MB Slot, and again purchased from Pendle's for around £10.**

**The third item is a HUDY screwdriver for 4-40 set screws as used in BWA wheels. The other end of the device is used for tightening nuts on top of TSRF Guide Posts or other Jet Flag Type Guides. I bought it from AB Slotsport for around £10.**

**What is not shown, but is required, is a standard Slot.it Allen Key. This is needed for tightening the Crown gear.**





**Another item you will need is a Tech Plate. This is really only a setup plate so that you can make sure that your car sits squarly on all four wheels and that the body is correctly located on the chassis. I have two of them. One I purchased from AB Slotsport and one I made myself from three sheets of 8"x4" PCB.**





**The only other material you will need is some mesh to make the front grille. I use some bodyfiller mesh from Halfords, it has a small mesh pattern and is easy to cut and shape with scissors.**



## The Kit



**This is the Ocar kit in all it's Glory!**

**It comprises of a resin shell, lexan cockpit with driver torso, resin drivers head, lexan windscreen section, decals and some whitemetal/plastic parts for headlights, rear over riders and number plate housing. One of the things I like about the OCAR kits is that they include the small parts that other ranges don't so it saves money.**

**You can also buy a complete chassis kit for around £16, but you will get plastic wheels and not the best tyres. It is , however,a very cheap way to build a complete slotcar.**

What else is needed?

**In order to build the car you require some additional parts that will enable you to make a running chassis.**



Time to take a closer look at the parts to be used.

The chassis is the well tried and tested PCS 32 unit. Very cheap and simple to use. With a few simple modifications it can also perform very well. It is readily available from Pendle Slot Racing. There are two versions of the chassis now available. The one I have chosen for this car is the standard unit. Other options would be to adapt a chassis from the Ningo Classic range, or the superb brass chassis kits from BWA . It may also be possible to use the Ralph Parker "CanAm" chassis, available from AB Slotsport.

I have a "bit of a thing" about wheels, I really don't like using plastic wheels, they can be very mis-shaped and they tend to fly off their axles at the most inappropriate times!. I always try to use set screw type aluminum wheels. The ones I have chosen for this car are the BWA 32002 wheels from BWA . They are superbly made and have the added advantage that the set screw is located within the rim which means the wheel takes up much less space than a more traditional hub fixing set screw system. I also used the wonderful BWA resin wire wheel inserts. In my



**opinion the very best available.**

**The only problem I have with these wheels is getting hold of them! There is no UK distributor for BWA products, so you either have to buy them directly from BWA in Canada or from a USA Distributor like Professor Motor.**

**Alternatives available are numerous. AB Slotsport sell some excellent Monoposto wheels and inserts and Pendle sell the superb PRS wheels with etched inserts which although expensive are superb. Other options, if you wish to use plastic wheels, are Ninco Classic wire wheels, Pink Kar Wires or A2M wire wheels. If you must go for plastic, I recommend the Ninco Classic wire wheels.**

**I'm also pretty much "set in my ways" regarding tyres. On my wooden track I always use the superb Ortman range of tyres on the rear of cars. They give great grip, are easily sanded or "trued" and look good. For this car I used the 7mm wide Ortman "Classic" tyre. I buy all my Ortman tyres from RS Slotracing. Highly recommended.**

**Alternatives would be Silicon or Urethane tyres from AB Slotsport, Ninco, Pink Kar, PRS and many others. The front tyres to be used are standard Ninco 7mm Classics available from Pendle Slot Racing or MRE, Get Slotted etc.**

**You also need a suitable guide and braids. For this car I used a standard Ninco guide, but you can use the Ninco "Spring" guide or, indeed, the excellent TSRF Fly/Scalex replacement unit. I buy my guides in packs of four from Pendle Slot Racing.**

**For axles and gears you have a choice. You can either use a standard Scalextric rear axle and bearings, (as shown in the photograph of the components) or you can use some better quality parts from the Slot.it range. For this car I decided to go down the Slot.it route.**

**For axles I always use the standard Slot.it 54mm Drill Blank, they are always straight and true, very hard and can be easily cut to size with a Dremmel equipped with a cutting disc. I also use the Slot.it bearings as they fit the PCS32 chassis very well and because they are such a good fit with the Slot.it axles, because of**

**this fit there is no "axle slop". They also fit the BWA wheels very well. (Note if you use Scalextric, Ninco or Fly axles you will need to reduce the diameter of the ends of the axle in order to fit these wheels.**

**For the front axle I again used a Slot.it drill blank and bearings, (a lot more on why you need bearings for the front axle to follow in the construction phase).**

**Pinion and crown wheel used are again Slot.it items. As far as gear ratios are concerned I always try to use a ratio of 3:1 as I find it works best on my track. This can be achieved by using a pinion with 9 teeth and a crown wheel of 27 teeth.**

**If you are confused by gear ratios, this simple statement from Pendle's web site, may help you :-**

**LOWER GEAR RATIOS = MORE TOP SPEED / LESS ACCELERATION / LESS BRAKES (SUIT LONG FAST TRACKS)  
HIGHER GEAR RATIOS = LESS TOP SPEED / GREATER ACCELERATION / MORE BRAKES (SUIT SHORT TWISTY TRACKS )**

**One of the most difficult choices you have to make is which motor to use. The PCS 32 chassis is designed to accept a standard Mabuchi can, (as used by Scalextric, Fly, Slot.it, Scale Auto etc. Although you can adapt the chassis to take other types of motor, that is beyond the scope of this article, (if you want to know how to do it then drop me an email).**

**I always try to make the relative performance of any car similar to other cars in it's class. It makes for closer racing and you won't end up having one car much faster than the others. This particular car will race with standard Ninco "Classic" cars, which in my collection are all fitted with Ninco NC1 motors. Now we have a problem, as ideally I would use an NC1 in this car, but it won't fit the PCS32 chassis, and it is also a fairly expensive motor, retailing around the £10 mark. So what are the alternatives?. Luckily a good alternative is available in the Scalextric Motor as fitted to Pre-1980 Scalextric cars. These motors are not as powerful as current Scalextric offerings and can be purchased from Slotbug at the "give away" price of £10 for 10, or £1 each.... 10 motors for the price of 1 Ninco NC1. This is the motor I will use in this car.**

**More items you need (but not shown in the photograph) are 3 body mounting screws and a selection of wheel spacers. I always like to use the Ninco short mounting screw if possible, especially when screwing directly into resin. These are available in packs of ten from Pendle or your local Ninco distributor. Although you do get some spacers or washers supplied with the PCS32 chassis, you will also need some thin spacers to get the axle width correct. I buy my spacers in bulk from an online shop called Nut's and Bolt's and Things. The size of washer you need is M2 and a pack of 25 retails at £2.20. You can, of course, buy your washers from Pendle's or AB Slotsport but they tend to be more expensive.**

**The last items you need are 2 motor wire eyelets (to fit in the Ninco Guide) and motor wire. The eyelets I used were Ninco ones, (available in packs of ten from your local Ninco Distributor) and the motor wire was from JK Products, (available from AB Slotsport). In truth you can use almost any wire but a thicker diameter wire is better as it minimises voltage drop between the guide and the motor. A very good alternative is Slot.it cable. The last item you need is some lead to "tune" the handling of the car. I prefer to use sheet lead which is used as roof leading and is available from your local Builders Merchants in a roll. Alternatives are lead balance weights as used by your local Tyre Fitting Depot. You can also buy these balance weights at a Car Supermarket.**

Let's get started building!

**The first thing you need to do is tidy up that bodyshell by removing all excess resin and smoothing out rough areas.**





Here you can see the shell as purchased. Areas that need attention are removal of material below the sill line, tidy up the inside of the grille opening, removal of material around the rear of the shell and tidying up the cockpit area.

For larger amounts of material that needs removing use your sanding drum and dremel, for smaller areas the needle files are used.

Remember to stop frequently to check on your work. It is very easy to remove additional resin, it is not very easy to replace it if you remove too much.

You should also run around the wheel arches with your sanding drum to get a neat finish.

It is also useful to remove any obvious areas of excess resin inside the shell . The more you remove the lighter the shell will be and performance of your car will be improved.

Check the body for any "pin holes" that may have been formed during the casting process and if present fill with Modellers Paste (available at your local Hobby Shop or online at MRE) or car body repair paste from your local Halfords.

Resin Dust is not very pleasant so I suggest you wear a face mask when sanding. Better safe than sorry.

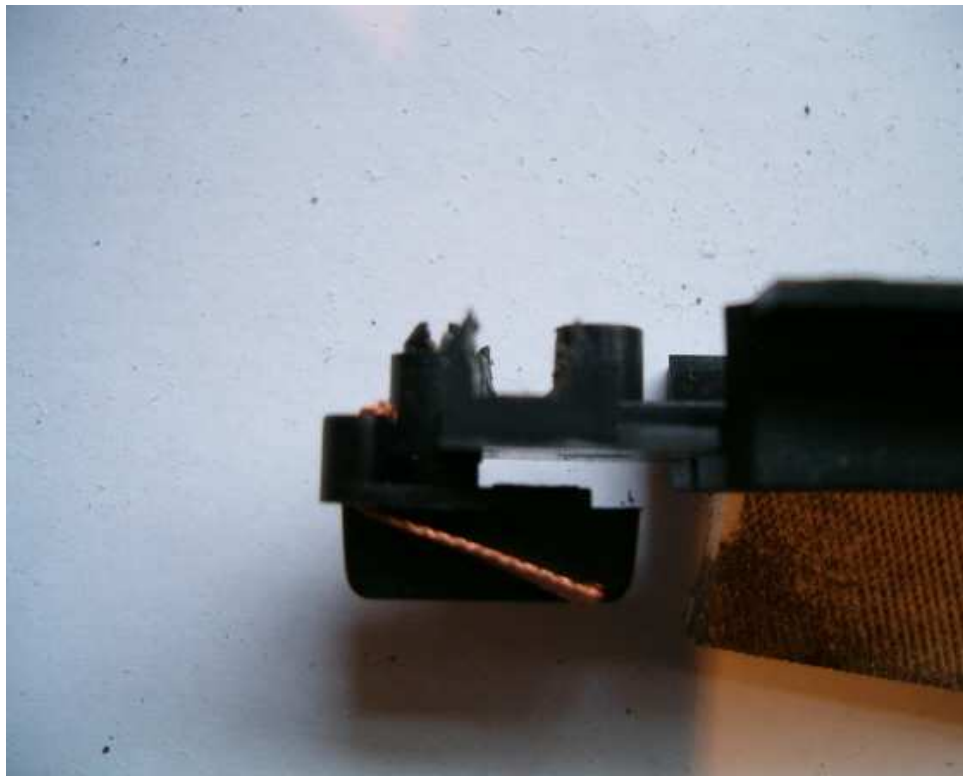
## The Chassis

**We now need to put together the chassis.**

**The first thing we need to do is cut the guide tongue to the correct length. This does not need to be 100% accurate as final adjustment will be made prior to glueing the tongue in it's final postion. I normaly just loosly insert front and rear axles, temporarily attach the wheels and fit the body over the chassis.**

**On this particular car you need to remove about 10mm from the rear of the tongue. Use a cutting disc in your Dremel to do this.**

**One of the few week points with the PCS32 chassis is the front axle mounting. The fixing used allows a lot of vertical movement of the front wheels which causes bodywork clearance problems, and makes the car unstable on corners, especially on wooden tracks. The solution to this problem is fairly easy and invoves enlarging the openings in the axles shoulders in order to fit bearings.**



**The photograph shows the profile you need. I use a**

cutting disc fitted into a Dremel to form the approximate shape and finish off with your small files. It is essential that, once the work is done, the bearing can move up and down freely. Now we need to set up the front axle height. First fit the rear bearings, axle, wheels and tyres. Next fit the Ninco guide. Place the chassis onto the Tech plate with the Guide fitted into the slot. Now thread the front axle into the two front bearings and fit the front wheels and tyres. You can then place the completed axle into the new axle shoulders you have created in the chassis.



It should look something like the photograph above, (apart from the axle width and the placement of spacers). When you are sure that all four wheels fit squarely on the Tech Plate, (with the guide in the slot), add drops of Superglue each side of the bearings. As soon as the Glue is dry remove the wheels and axle and allow the Glue to set.

Now is the time you need to set the correct axle/wheel width.

The BWA wheels I am using on the car will require inserts to be fitted to give the appearance of wire



**wheels, and therefore the axles need to terminate flush with the inside of the finished face of the wheel.**



**The actual length of both axles required is 41mm, so mark this on the axle and use the cutting disc on the Dremel to slice through the axle. Now you can fit the axles to the chassis and using spacers. You do get a few spacers with the PCS 32 kit but you will require some more, especially some thinner ones. You can obtain these from Pendle Slot Racing or your local Hobby Shop.**

**(See the front bearing photograph for placement of spacers).**

**A good alternative is to buy some standard M2 washers from your local electrical store. You can buy these in bulk and effect a large saving over specialist stores.**

Drive Train

**Time now to install the motor/pinion, add motor wires,**

**install crown wheel and axle/bearings.**

**The first thing to do is fix the pinion to the armature shaft of the motor. If you want to use Scalextric components it is easy, you just push on the pinion with your fingers!....**

**To install Slot.it Pinions you need to use a pinion press, (as shown in the "Tools Required" section). The Photograph below shows how to use the MB Slot Pinion press :-**



**When everything is lined up all you have to do is turn the handle and the pinion will be pressed onto the shaft.**

**Now all you have to do is clip the completed motor and pinion into the chassis. Do not glue the motor in at this stage, you may need to change it after testing.**

**Next install the rear axle bearings, they will just clip in place. Insert the axle and crown wheel. The motor shaft will fit in the groove on the crown wheel hub. It is important that the motor shaft does not touch the crown wheel hub. After tightening the grub screw on the crown gear check everything rotates smoothly. This picture shows the above items installed :-**



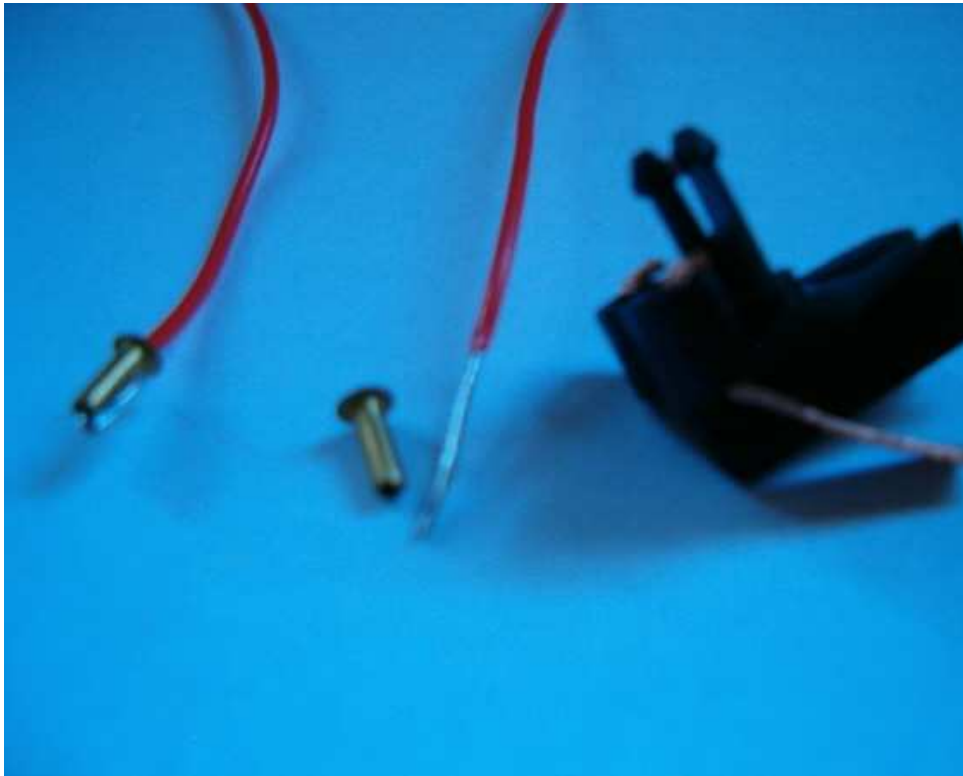
**The next task is to solder on the motor leads and install the leads into the guide.**

**You can use any suitable wire for this operation. I use either Slot.it or JK Products, available from Pendle and AB Slotsport respectively.**

**These wires are considerably thicker than the normal wire used by Scalextric or other manufacturers, as in theory, they should provide less electrical loss between the guide and the motor. In practice I have found very little difference.**

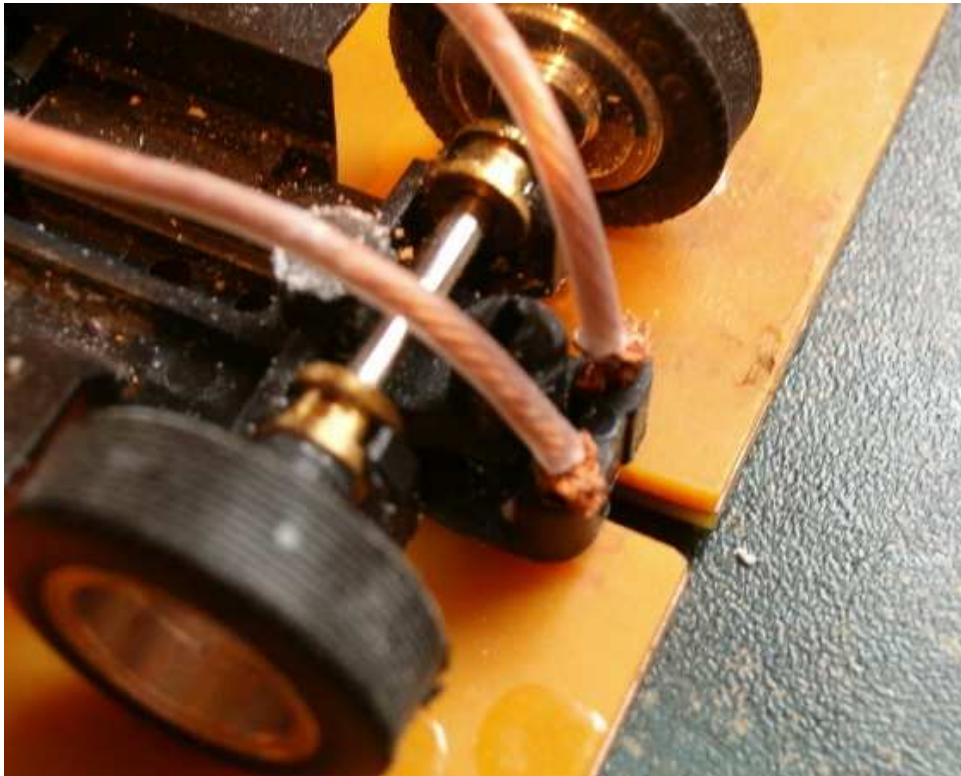
**First cut two pieces of motor lead to the required length. In the case of this particular car the leads should measure between 75-80mm.**

**Next you need to strip the covering material from both ends of the leads. At the guide end you need to strip approximately 8-10mm and at the motor end 5mm. The photograph below shows the components required for the guide end of the wire. Do this end first.**



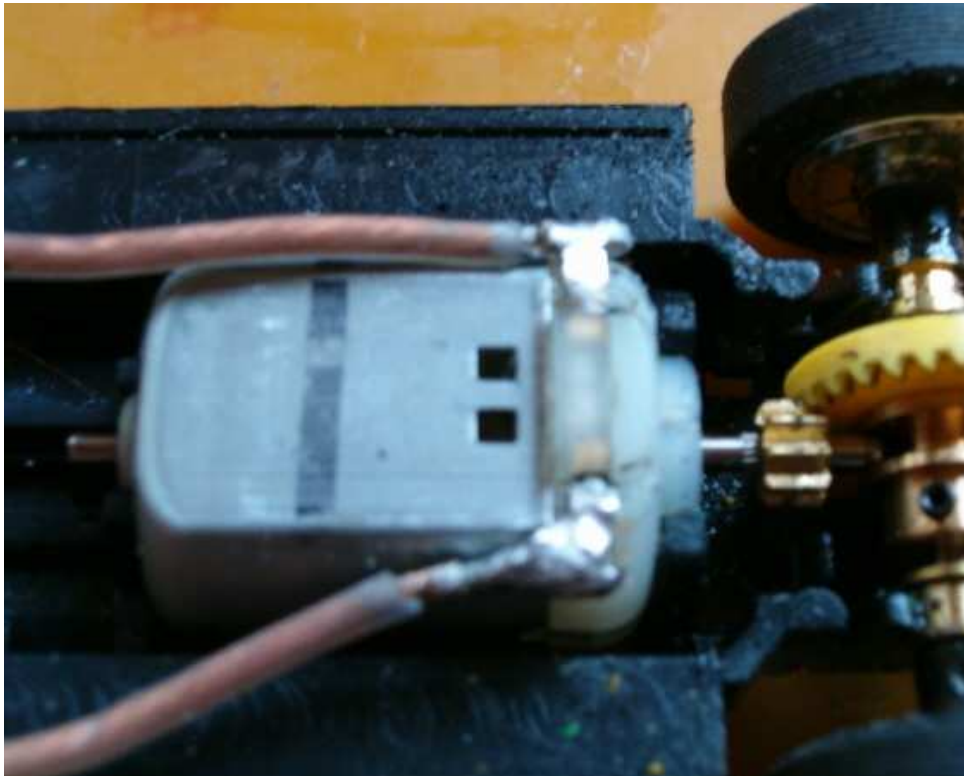
**Thread the wire through the eyelet and just turn up the end so that it sits flush against the eyelet. There is no need to solder this end or use any form of glue. Next place the eyelet, complete with lead into the top of guide and push it to the fully into the guide. You may need to use pliers to seat the eyelet correctly. The photograph below shows the eyelets correctly fitted to the guide :-**





**Next you need to solder the leads to the motor, so plug in your soldering iron and get it good and hot!. Do make sure you use a soldering iron stand or rest the iron on some suitable heat-resistant material. These things get very hot.**

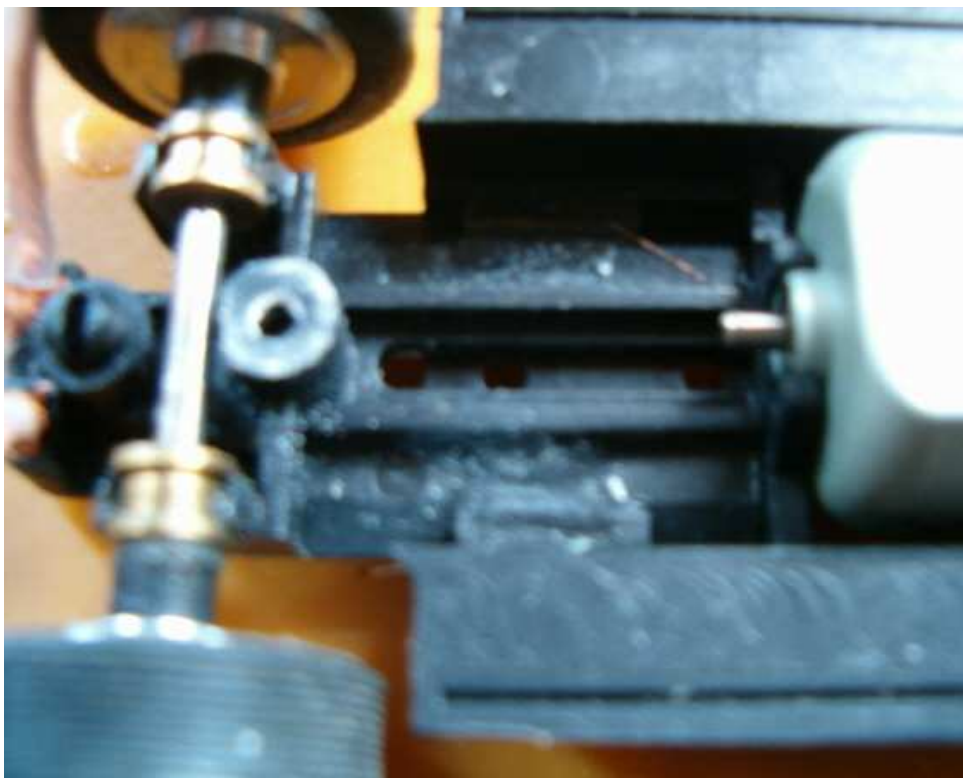
**Now apply a small amount of Flux to both the bare ends of the leads and the motor tabs. Apply a small amount of solder to the tip of the iron and gently "tin" both. Place the lead onto the motor tab and apply the iron, the solder will start to liquefy, then remove the iron and hold the wires in place. When it's cool you should have a decent joint.**



**The chassis is now complete, apart from securing the guide tongue to the main body of the chassis. The easiest way to do this is to loosely fit the front section to the rear and place the body over the chassis. Adjust the wheelbase to suit the body and it should look something like this :-**

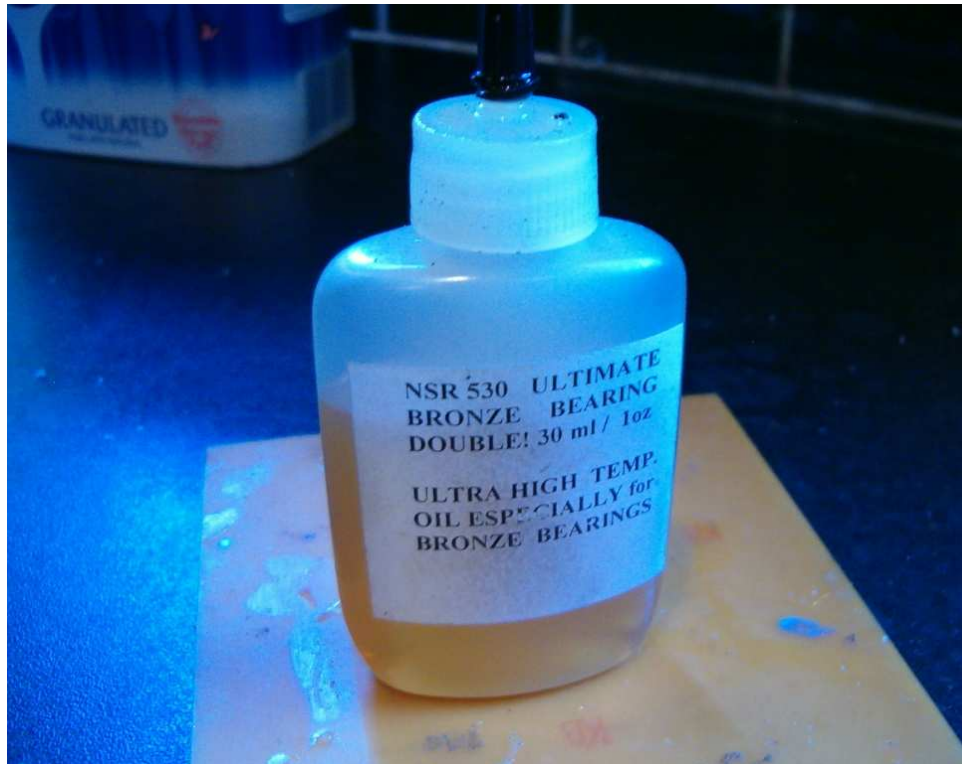


**Now carefully remove the body and apply two drops of Superglue to the tabs on the guide tongue, as shown below :-**



**The chassis now complete, and once the glue has set**

**you can test run the chassis. First you need to lubricate all the bearings and axles and put a drop of oil onto the crown wheel. The oil I always use is from NSR, and you can obtain it from ABSlotsport.**



**You may find the chassis a little light at the front, but don't worry about that at the moment. This test is just make sure everything works ok.**

## Back to the Body

**Time to get back to the body and to mount it onto the chassis.**

**First you need to drill three holes into the resin mounting posts to accept the Ninco screws.**

**The body must be aligned correctly with the chassis so that all four wheels are in their correct position in the wheel-arches and the chassis must sit squarely within the bodywork. When you are satisfied that all is correct, apply masking tape over the bottom of the chassis and around the bodywork making sure nothing**



**moves.**

**Next turn the shell and chassis upside down and recheck everything is aligned. If it is ok, drill three small pilot holes through the resin mounting points and finally, using a drill bit slightly smaller than the diameter of the mounting screw re-drill the holes.**

***(Quick note....The question of body mounting seems to have raised a lot of questions. So I decided to construct a new section dealing with the various body mounting methods that can be used. Please see here:-***

**<http://www.freewebs.com/atadd/bodymountingmethods.htm> )**

**Back to the AC Ace it should look something like this photograph:-**



**In order to determine that the car will run well and not foul any part of the car we need to test fit the interior.**

**This particular car has a lexan (clear thin plastic) interior supplied with the kit. Carefully cut it to shape with scissors and secure to the inside of the shell with masking tape. You can also position the drivers head by drilling a small hole in the lexan torso and pushing the head into place.**



**You can now fit the shell to the chassis and tighten the screws. Check to make sure that the body sits correctly on the chassis and the wheels or guide do not come into contact with the bodywork.**

**Your car should now look similar to this one :-**



**If all is ok, you can now run the car on your track to make sure you are happy with it.....this is the fun bit!.**

### Preparation for painting

**Now you've had fun thrashing your car around the track, it's time to get back to work!.**

**Remove the body from the chassis and take out the lexan interior of the car. Store the screws and interior carefully they can easily get lost.**

**You may have noticed some small holes in the body, these are needed to attach lights, number plate housing and a mirror, (not supplied in the kit). These holes need to be opened up so that these small parts can be fitted, once painting is completed. The easiest way to do this is take a drill bit and wrap some masking tape a round the end, insert the bit into the hole and just twirl it. This will form the hole and you don't run the danger of a drill slipping and marking the surrounding resin.**

**The photograph below shows the procedure :-**



Once this is complete it is almost time to paint the shell. But first you need to wash it to get rid of any stray resin bits and remove any release agent that may remain from the casting process. Use warm water and liquid soap, then rinse in warm water. Pat the shell dry with a lint free cloth and allow to dry.

## Painting

A lot is written about painting model cars, but all you really need is some very basic equipment.

Let me show you what I use.....promise not to laugh!.

The first thing you need is a stand to place your model on during spraying. I made one from the top of an old tin and two coffee stirring sticks. The car is fixed to the support sticks with Blu-Tac.....





**I've used this one for the last few years and I would love to change it, but I've never found anything better.**

**You will also need a "spray booth".....Now you can spend a fortune on one of these, they can have heaters and fume extraction equipment. My solution is simpler:-**



**It's a Budweiser 24 pack carton.....Again this one is over two years old and I am actively looking for a replacement!**

**The method I use for spraying is to spray one side of the model, turn the base through 90 degrees and spray that face, repeat until all four sides have been covered.**

**As far as paint is concerned I use Auto paints from my local Halfords Store. I always use Grey Plastic Primer for the base coat. The colour chosen for the top coat is Nissan Red.**



**A few points on spraying with these cans.**

**First before you use it warm the can for a few minutes in warm water, this thins the paint and allows a much better finish to be achieved.**

**Wear a face mask when you spray, this paint is pretty nasty stuff.**

**Spray with even pressure on the spray nozzle and move slowly from left to right until covered.**

**It is better to use several light coats rather than one heavy coat, (you won't get runs.....)**

**I do all my spraying in my shed with the door open to let out excessive fumes. The "booth" stops paint covering the walls.**

**Alternatives are available in the form of airbrushes, I understand these are great bits of kit and I must get round to trying one out one of these days.**

**This is the shell following the first coat of primer. This will be touch dry in 30 minutes. Spray the underside of the car first.**



**Leave for about an hour, or until really dry, then turn the shell over and re-attach to the spray base and you can now apply the top coat.**



**The paint is touch dry after about an hour so you can**



**turn the shell over again and apply the paint to the top side. The photograph shows the shell after two coats. Nissan Red is a fairly "dense" paint, so coverage is good, and if applied correctly gives a good gloss finish. If you get any runs in the paint, then I'm afraid all you can do is wait a day or so until the paint is fully dry, rub down the affected area and then respray. Don't worry, we've all done it before!.**

**The shell should now be put aside in a warm area for at least two days. This will allow the paint to fully harden and will allow you to handle the shell without damaging the paint. Cover the shell with a clean box to stop dust settling on your paintwork.**

### More Painting

**While you are waiting for the car body paint to dry properly, it is time to get on and paint some of the other parts of the car, namely the interior and drivers head.**

**The interior is just a section of clear lexan with a moulded in driver torso. The drivers head is a plastic moulding.**

**I have an old section of corrugated plastic I use for a painting base, and I just stick the part I'm working on to the base with BluTac. I have had this setup for several years and although it's fairly messy with old paint etc., it is still very serviceable.**



**I always use Tamiya Color Acrylic Paint for painting lexan, plastic and also for adding small details to the finished bodyshell, it is available in small jars from your Local Hobby Shop or from MRE online. The colours we will be using are XF-15 Flat Flesh, XF-1 Flat Black and XF-2 Flat White.**

**I bought a 00 size paintbrush from my local Hobby Shop 3 years ago and I've had it ever since, although it is very thin I use it all the time. Do buy a good quality brush, there is nothing worse than a cheap brush dropping hairs onto your paintwork!.**

**You also need a small container to hold white spirit, (to clean your brush) and a old cloth to wipe it dry.**



**Let's get started!**

**First attach the interior to the base with a small blob of BluTac and paint a thin layer of Flat Black on everything except the driver's torso.**

**Paint the top surface, if you don't you will end up with a gloss interior!**



**When this is dry paint the drivers Torso, in this case I used Flat White. Then paint the drivers head again with Flat White and Flesh for the face. When the head is dry attach to the lexan base, as in the photograph below :-**





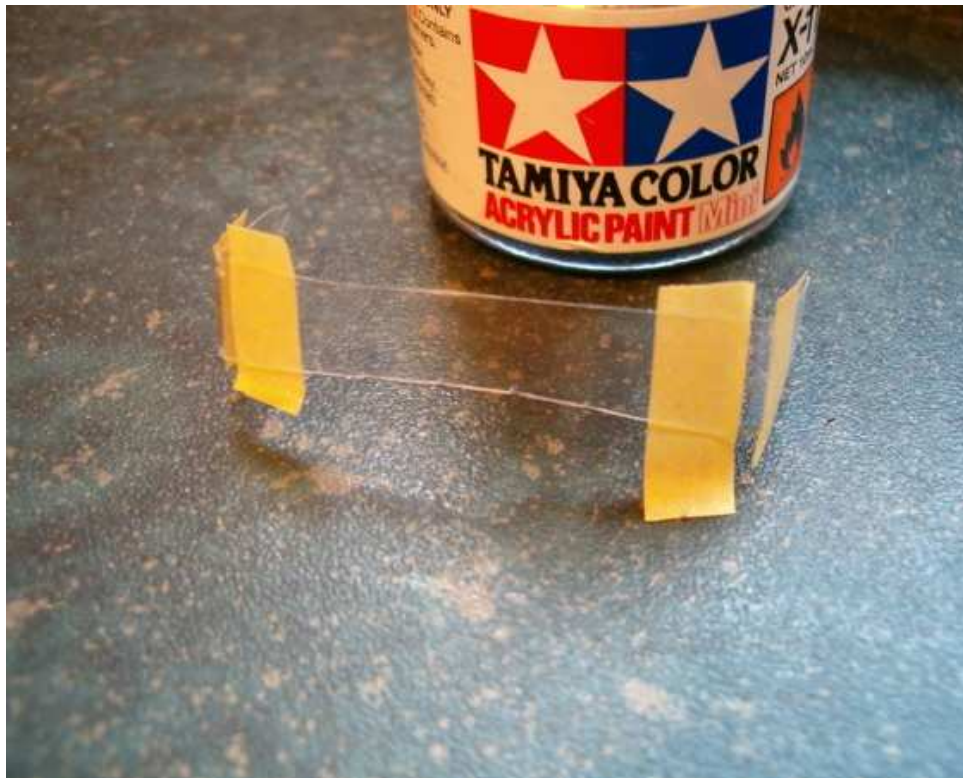
**The next item to paint is the windscreen surround, on this particular car you need to paint three sides of the screen.**

**I always use Tamiya tape for masking. It is more expensive than traditional masking tape, but provided it is pressed down fully on the subject matter, it does not "bleed" paint. It is available from most Local Hobby stores or online from MRE.**



**First you need to mask the vertical screen supports :-**



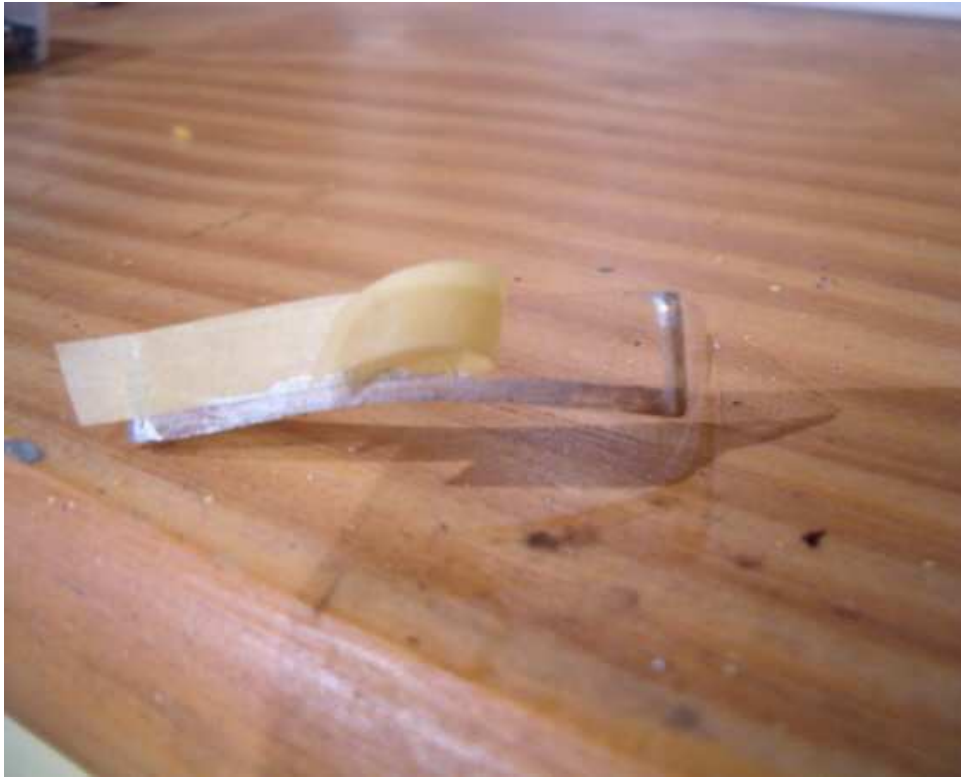


**Paint with Flat Silver and remove the masking tape after two or three minutes, it should look something like this :-**



**Allow this to fully dry then mask and paint the lower**

**horizontal edge of the screen. This photograph shows the masking tape being removed to reveal the completed painting :-**



### Grille and Wing Mirror

**You now have the option to make a front grille for your car, or if you wish you can leave the front of the car open.**

**I think a car looks much better with a grille and it prevents anyone from actually seeing any of the chassis.**

**The grille is made from Auto repair mesh, which is available from local Auto chains, such as Halfords. You can now either paint the Grille Flat Black or leave in it's natural colour.**

**Cut the mesh slightly larger than the opening, it should look something like this :-**



**You may have noticed in your OCAR shell that there is a small hole in the top of the front wing (fender). This is for the placement of a rear view mirror, which unfortunately, is not provided with the kit. So it is necessary to make one.**

**The method I use is to take a standard pin (with a head), cut it to length (about 10mm) and place in a small piece of BluTac for support.**

**Next using Model Filler Paste make a blob on top the pin head as shown in the photograph below:-**



**When dry this can then be filled and sanded into the correct shape and painted with Tamiya Flat Silver.**

**The Humbrol Filler is available at most Hobby Shops, there are however many alternatives you can use, but I find Humbrol to be the best.**

## Wheels and lead

**The last things you need to get ready, while you are waiting for the paint on the shell to dry is completing the wheel inserts and adding balance lead to the chassis.**

**The wheels are one of the most important areas on a finished model, so you want to do a good job on them, it is well worth the effort.**

**The inserts I'm going to use are made by BWA and match the wheels from the same Company. The inserts are made from resin and are very detailed, they do require a little work before fitting.**





**First you need to paint the vertical face of all four wheels with Flat Black paint, this is necessary as this paint will show through the inserts when fitted. I suggest you apply two coats of paint as this seems to give the right density.**

**Next, place an insert onto your flat file and rub the insert up and down to thin out the back face.**





**You need to make the insert as thin as possible, without destroying the very delicate spokes on the casting. Stop frequently to check on the progress of the work. You may also need to check that the insert fits inside the wheel OK, if it doesn't then you need to file the rim of the insert. When you have completed all four inserts, place them on blobs of BlueTac and paint them Flat Black all over. When they are dry you then need to highlight the individual spokes Flat Silver. This is not as difficult as it sounds as you can use a technique known as "dry brushing". This involves adding paint to your brush and then wiping most of it off until the brush is almost dry and then wiping it over the insert, the paint will only adhere to the raised surfaces, (such as the spokes), leaving the background of the insert black.**

**When dry place the inserts into the wheel, they should be a fairly tight push fit and you may need to push in the rim with a small screwdriver, no adhesive is required to fit these inserts.**

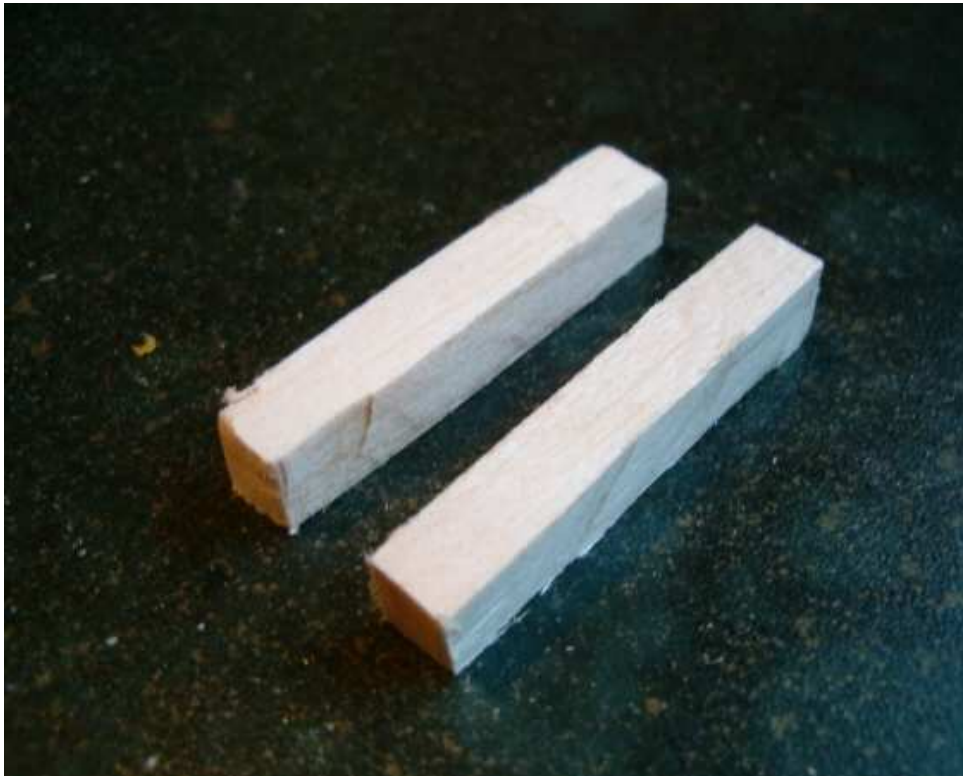
**This is a finished wheel :-**



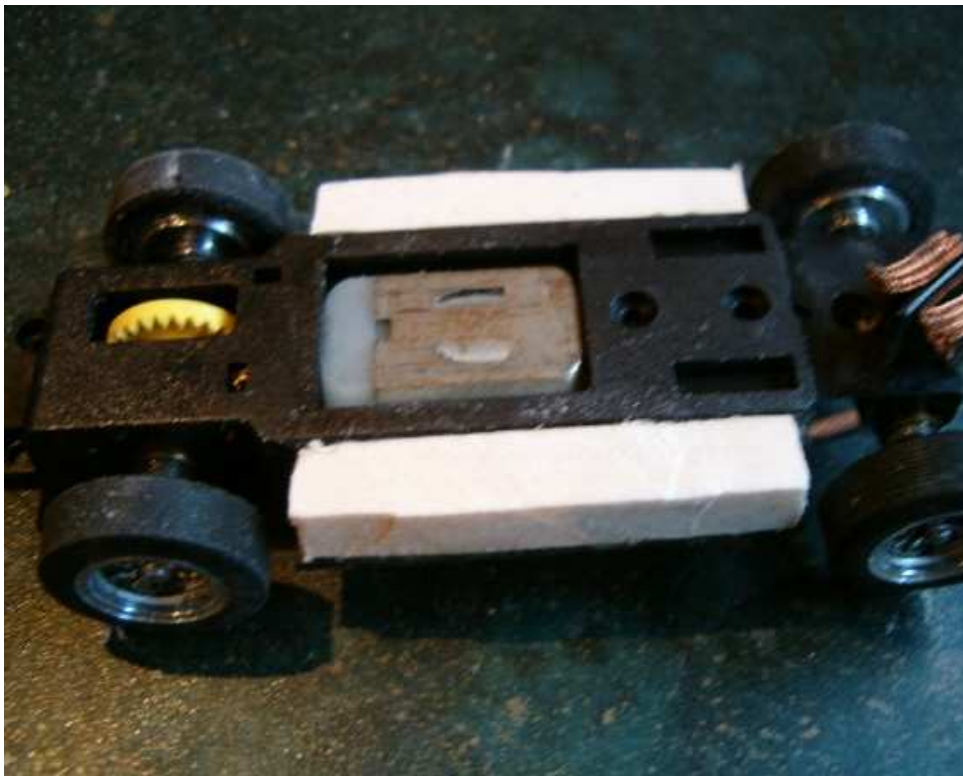
**The last thing you need to do before attaching the chassis to the shell is to add lead to the chassis, to improve handling.**

**I have built many PCS 32 chassis in the past and I know where to place the lead to maximise performance on my track, and I suggest it will probably work for you as well.**

**First we need to add some lead to the sides of the chassis. The PCS32 chassis has raised side pans which means if you added lead directly to the underside of these pans, the finished Centre of Gravity of the car would be pretty high, making tipping a problem. The solution is to make some Pan extension sections so that the lead can be placed flush with the bottom of the chassis. This gives a much lower centre of gravity. I use small sections of Balsa Wood, cut to shape.**

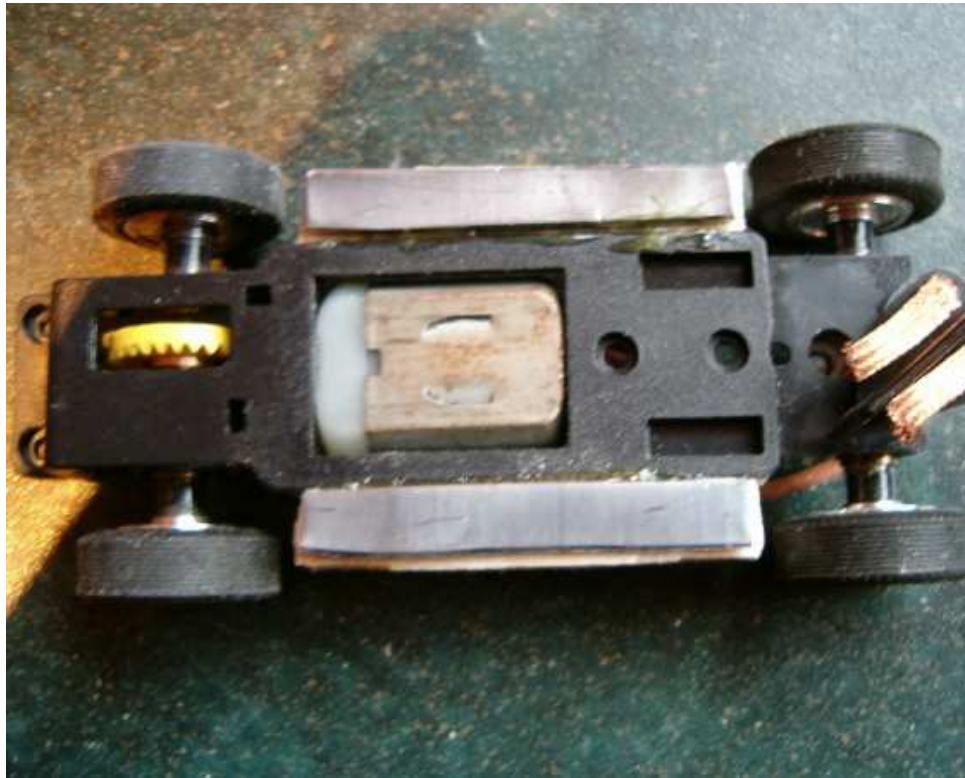


**Next Glue the Supports to the underside of the chassis with Impact Glue :-**

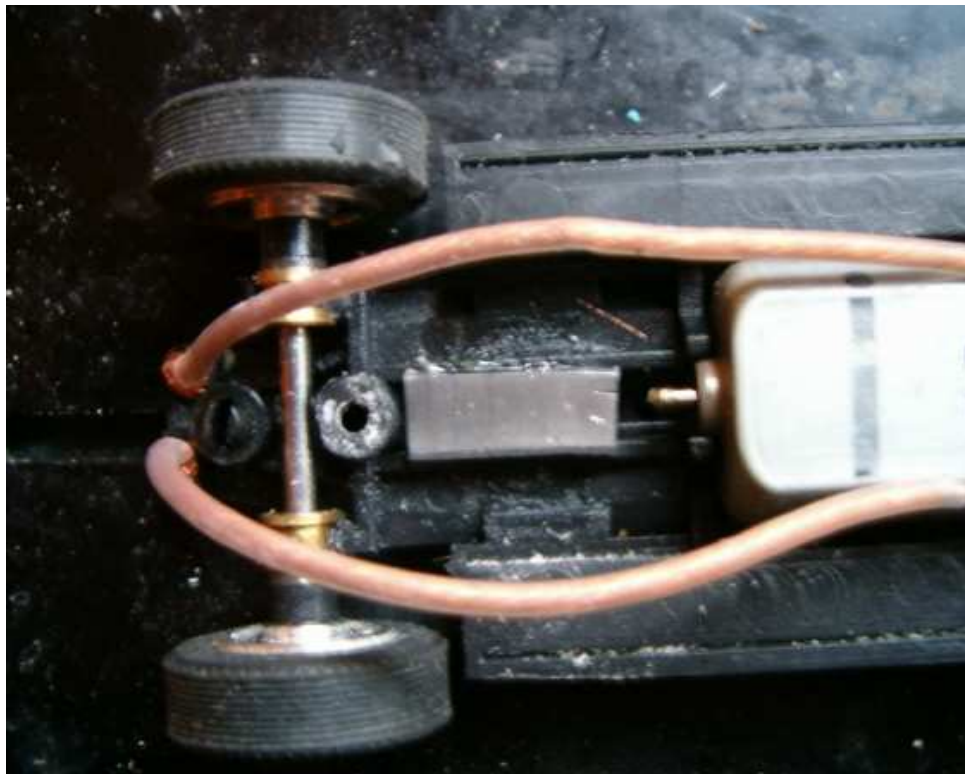


**When these are dry cut two small sections of lead to cover the bottom face of the supports and fix with**

**Impact Glue :-**



**The final section of lead is required just behind the front wheels and again is fixed with impact glue :-**





**You can now test run the chassis, and I'm sure you will find an improvement in handling over the standard chassis, if not then experiment with different positions for the lead.**

### Fitting Out the Shell

**We are nearly there!.....**

**First we need to attach the lexan interior, turn the interior over and attach two strips of masking tape, as shown below :-**



**Place the interior into the shell making sure everything is square and looks right, and then press the masking take down, making sure it will not interfere with the gear wheel.**



**The shell by now should be thoroughly dry, so we now need to attach the front grille.**

**Using the head of an old screwdriver lightly smear some superglue onto the inside face of the grille opening, place the shaped mesh and push into position.**

**It should be something like this :-**



**You can now attach the shell to the chassis, using the three Ninco or similar body mounting screws. Make sure all four wheels turn OK without rubbing on the bodywork and that no part of the interior touches the chassis.**

**Now you can attach the small detail pieces. I suggest you use Superglue, but applied with the head of an old screwdriver, do not apply directly from the bottle or tube, as it can go everywhere and ruin your paintwork. Attach the front headlights and surround :-**



**Now attach the rear number plate housing and over riders :-**



**I suggest that when it is dry, you paint the inside of the number plate housing with Flat Black Paint, it will**



look a lot better.

Finally attach the wing (fender) mirror, and the windscreen.

For fixing this last item I always use a product called Micro Kristal Klear. It is a white PVA type glue which when dry is clear. **DO NOT USE SUPERGLUE**, it will cause fogging of the windscreen glazing.



The Glue is applied with a brush as below :-



**Now you can carefully fit the windscreen, make sure it sits squarley on the shell.**



**When this is dry you can now paint in the small body features such as the bonnet clips, front sidelights and**

rear number plate light in Flat Silver.

The bonnet (hood) and boot (trunk) badges can be represented by a small blob of Flat white. You can add a small squiggle of Flat Black if you like to represent the AC logo...You need better eyes than mine to do it!. Paint the rear light cluster in Flat Silver and when it is dry paint the individual lights red and orange to represent the Stop lights and indicators.

## Decals

The Decals on this car are very simple, comprising of three racing numbers and roundels only.

Cut the decal from the sheet with scissors, cutting tight to the edge of the decal and then place the decal in a dish of cold water. These decals only need to be soaked for about 10 seconds.



Next transfer the decal to the car, either with tweezers or your hand. Gently slide the edge of the decal from the backing sheet and position on the car. When you are satisfied that it is correctly located slide out the

**rest of the backing sheet and dab the decal with a soft cloth to remove any excess water. Repeat for the two side decals.**



### Clear Coat

**You now need to add some form of clear coat to the car to prevent damage to the decals and the paintwork.**

**There are several alternatives you can choose from to achieve this finish. You can coat the model with Klear (Future in the USA), floor cleaning fluid or you can use a specialist sealing spray as sold by Tamiya or Humbrol. Whichever method you choose you must make sure the decals are completely dry. I suggest you allow at least 24 hours from the time of decal application.**

**I always use Klear, it is easy to apply and gives good protection to both paintwork and Decals. It also dries to a good gloss finish.**

**To apply the Klear you need a decent fairly broad**



**brush and a small container, (for the Klear).**



**Klear is self levelling, so I apply it in fairly generous coats onto the top of the car, (don't paint the interior!), use bold paintstrokes and make sure you don't get airbubbles in the finished coat. Allow 30 minutes between coats until you are satisfied with the finish (two should be fine). When you have finished allow 24 hours for the Klear to dry properly before handling the car.**

**You've finished!**

**Congratulations !.....Your car is now finished.**

**I hope you enjoyed building it, or at least reading about building it!**

**There are many cars out there just waiting for you to get started on, but first a warning.....Once you start down this path it does become very addictive!.**

**Here is a photograph of the finished car:-**



**And one with a suitable Racing Partner.....The Lancia D24 (Shell from Resilient Resins)**



**If you have enjoyed reading this article, please leave me some comments in my Guestbook. If you need clarification on any part of the article please contact me via Slot Forum, (My Forum name is BEEJAY7), or you can e-mail me at [alantadd@hotmail.com](mailto:alantadd@hotmail.com)**

**Details of suppliers used in this article can be found in the Links section of this Website.**

**Many Thanks to Rob Edwards for "proof reading" this article and correcting my many spelling mistakes.**

**Have Fun!**

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