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MK1 Lotus Cortina

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A scratch build walkthrough

By Phil Wicks.

The Ford Mk 1 Lotus Cortina is regarded by many as one of the Legends of motor racing. For good reason too I might add, this car ranks along side a small but distinguished host of cars that found success in many fields of motor sport. Road racing and Rally being the most notable. It was also adapted to compete in several other categories including Grass track and Drag racing. It was the platform under some world famous drivers including Jim Clark and Graham Hill and took part in events across five continents.

The car itself was one of the first adventures into outsourced tuning specials for the production line. These were cars built in the Ford production schedule using licensed tuning specs. Other

similar cars were The Mini Cooper (BMC), The Holbay Rapier (ROOTES), and the Brabham Viva (GMUK) to name a few. The Cortina had the support of many after market tuning companies and the sky was the limit for the owner who wanted to compete.

As a consequence, there was a period in motor sport when it would have been hard to tell if there indeed were any other makes in motor sport. Outside of European motor sport there were other unlikely successes, Cortinas' along with Alfas' successfully contended the ASCC Trans Am series in the mid sixties sending a bit of a wake up call to the US Behemoth manufacturers. The Swedes decided that on snow there was nothing else to be seen in and even humble and obscure African safaris and South American Pan Am races had their fair share of Colin and Henry's creations.

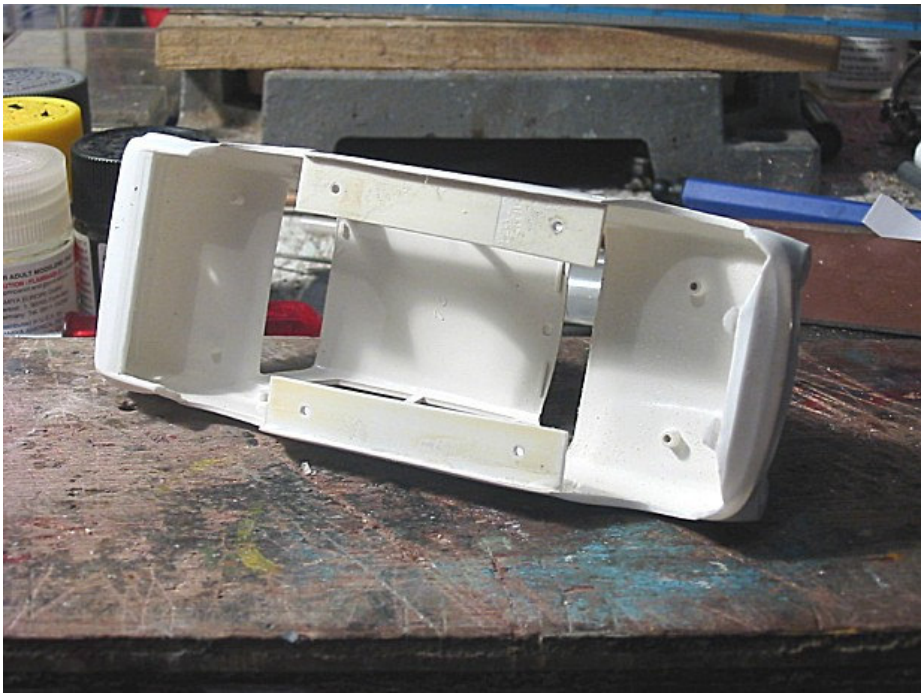
Here in Australia the Lotus and the GT models in the hands of some of Australia's greatest drivers did the deed and vanquished products twice as big in size and capacity. The Cortina's excellent balance and footprint for its time assured a place in motoring history. By the time other manufacturers caught up, the myth had become the legend and it had 'all been done before'. Even the excellent Mk 2 Lotus Cortina struggled to achieve as much popularity.

Lotus Cortina - The Legend

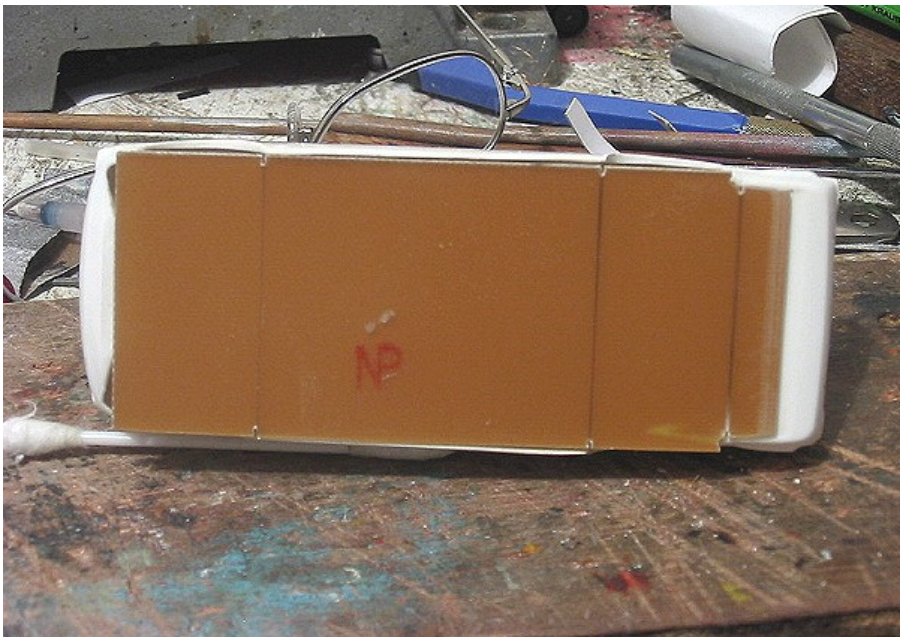
So a Lotus Cortina it is to be. I have an original Airfix Cortina which commands a pretty penny these days but from a drivers point they are slow and outdated. So, it was my aim to build a Mk 1 that is good to drive and a pleasure to watch on the track. I didn't want to build a pocket rocket with all zip and no grip so I plumped for an NC 1 motor and would concentrate on the car looking scale yet still driving well. I drive predominantly on wood so no thrill killing traction magnets for this beauty. Just a well balanced car and good tyres!

First up was to locate a body, This was sourced from Traffic Model Cars in the UK. I bought two bodies just to make the postage worth while! The body is a reissue of the Airfix model Circa 1964. As well as the body, it was necessary to buy the clear parts, screen etc. and drivers tray to get the front and rear valances. This all came to 7 pounds ($18.00) and postage and packing was 5 pounds ($13.00) for two models.

The front and rear valances were cut from the drivers tray and glued to the model being careful to get them to sit in the exact spot as there are no locating pins. Also, I noticed early on that the body had a strange gloss to it. This has to be scraped at gluing points as the glue doesn't seem to take otherwise. After allowing a couple of days curing time (I have plenty of other stuff on the go so I don't rush any of my models) I then glued two 10mm wide strips of 2mm polystyrene sheet to either side. This is to hold the sides straight as they had a slight bow in them and it is also to give the chassis something to sit against in the rest position. Once these had cured I then fettled all the joints and flash from the moulding process. Special care not to overdo it. It's easier to take a bit more plastic off later than to have to put it back on.



Next was to cut out the basic chassis. This is going to be made from PCB as it is the simplest to work with and small files, drills and a model saw are all that is needed, plus a Superworks 'Dremel' type drill and attachments. A basic oblong is cut and fitted to the opening and wheel arch positions are marked.

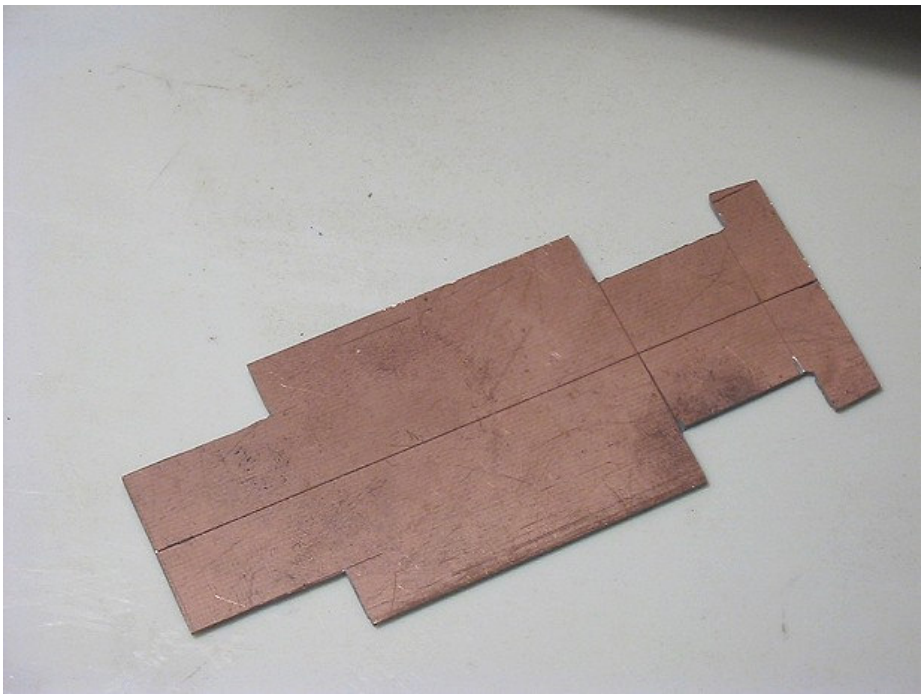


Stage 2

The chassis is trimmed to fit the under body. In this case I have made it fit flush with the floor base. In reality, cars of this era had a deeper floor pan than the bottom of the sills but to avoid complications I have left it as flush.

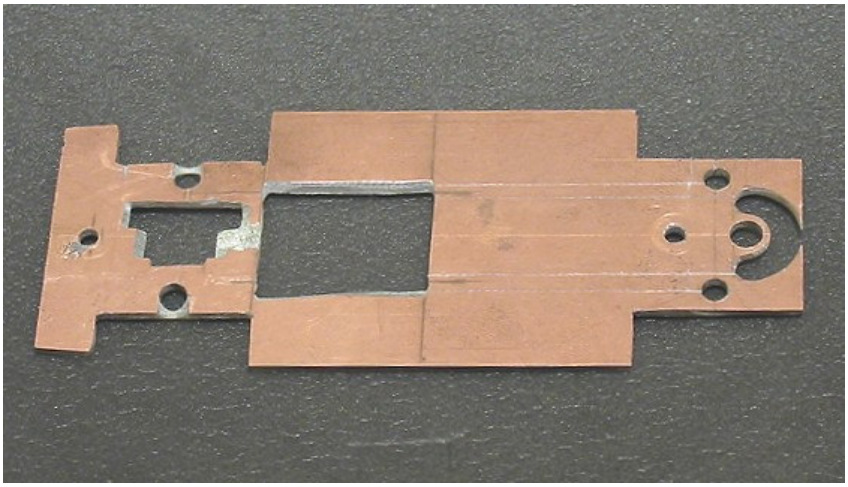
I next decided to put the base coat of paint on the body. This is Tamiya Acrylic Flat Neutral Grey. The idea of this coat is to show up the blemishes and other faults in the moulding which are not as clear when glossy. The paint is thinned by about 10% with acrylic thinners. The offending bits are filled or flattened and the repaired areas then given a light dusting with the grey again.

The body is mounted on what I call a ‘Lolly Stick’. This is basically a length of 6mm hardwood dowel with a flat top attached to make a ‘T’ piece. The flat top is slightly smaller than the body underside and is conveniently taped to the body to hold it. This allows a lot of work to be easily carried out on both wet and dry models. It comes into its own when it’s time to apply the decals.



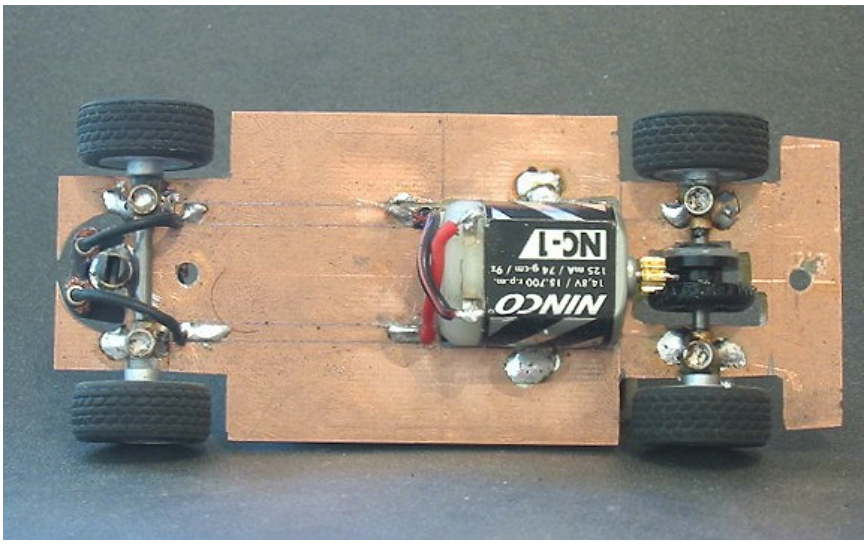
Next it’s time to get the business end mounted to the chassis. Firstly, the wheel arch regions are marked and cut out. The axle positions are carefully marked and the axle bearing holes are marked and drilled. Next is the guide hole. The guide is going to be mounted in a short piece of brass tube so the tube hole is marked a little way in front of the front axle and is drill to match. I use a vertical drill stand to ensure the holes are drilled at 90degrees to the board. The stand is simply an electric drill accessory whereby you mount a standard drill in an after market drill press jig. I also decided to mount the body by two screws only as this is proving

successful with other models. The mounts being two circuit board threaded mounts and screws.



The rear axle is mounted loosely and the motor position is marked out. This is then cut and cleaned up to take the choice of motor. On this model, because I have opted for the Scalextric Caterham wheels and tyres, I have canted the motor slightly up towards the front to give slightly more track clearance. Not a problem as such but when the tyres are trued and worn it reduces the risk of the motor hitting bad joints on plastic track.

The axle mounts are very simple. The axle tube is 3/32 i.d. brass tube cut to 5 mm lengths. The uprights are 1/8th i.d. brass tube. This tube is marked and cross bored to 1/8th dia. to mount the cross tubes. The overall length of these varies from model to model but is usually in the 12 mm range. The uprights and cross tubes are mounted on the chassis and positioned. Each axle mount has a 1/16" hole bored through the cross tube from underneath down the centre of the upright tube. This is to allow ease of oiling without removing the body. I then place a dummy axle through both and solder them in place through the open top end. They are then slid onto the axles and the wheels added. These are positioned on the circuit board chassis for set up but are not soldered in place until everything is ready.



Once all the components are ready to be fixed the rear axle height is set relative to the body and fixed. The front axle is next then the guide height. This is a Ninco sprung guide and clearance has to be allowed for the spring. Once the Car is sitting nicely, the motor is soldered in place. On this model you can make out to scored channels in the copper. This is to take power from the guide to the motor. The motor wires are soldered at one end and short pickup wires are soldered at the other. This also gives enhanced self centring action to the guide. Note! The wheels are removed from the axles before soldering. The axles can get hot and even melt the wheel hubs if not careful, causing the wheels to go eccentric!

This picture shows the underside view with all components in place. The chassis will get a coat of dark grey or satin black to finish off. The chassis was extensively tested to remove small glitches and then it was run with the plain body to make final adjustments to the wheel clearances, these being kept to a minimum.

Next, the paintwork!

Stage 3

I have been using Tamiya acrylic paint for some time now, firstly because it doesn't throw an orange lustre when it ages as do some enamels and secondly it is easy to manage. Spray guns wash out in warm water and cleaning in general is easy. It comes off your clothes too! The only caution I would add is not to apply it too thickly. It will take weeks to harden if you do. So thin it generously and apply thinly.

The body had already been prepared with a coat of flat grey and blemishes repaired so it was now time for the top coat. Lotus Cortinas should really only be one colour and that's white with a green stripe! The body was given a coat of white and left to dry for a few days. Pimples and other blemishes were smoothed out and another coat of white was applied. Next was the hard bit. For some reason, acrylic doesn't like being masked and you can bet your life that when the masking tape is removed there will be marks in the bottom coat! To overcome this I gave the body one coat of clear and left it to cure. The green stripe areas were carefully masked and the green was mixed and sprayed lightly as two coats. When the masking was removed, the area where the tape sat was lightly sanded with 1200 grit wet and dry.

The grille and 'C' post trims were covered with "Bare Metal Foil" and received a brush on coat of clear. When they were dry enough to handle, the mating surfaces were scored lightly and parts were epoxied into place with five minute clear epoxy. Using polystyrene cement of any kind at this stage is tempting fate. There's been too much time spent on preparation for something to go wrong! Once set, the little Lotus decals were applied and the body was given its final coat of clear.

Whilst this has been going on and in between stage, the drivers tray was constructed. A piece of plastic card was cut to fit the drivers tray area. After measuring the space available in the window moulding a dashboard was constructed by laminating some 1mm plastic and after it had dried it was cut and sanded into the shape of a dash. Finally it was cemented in place on the tray. At this stage the tray and dash were painted.

The driver's torso is a Fly driver and the head was from the bits box. The steering wheel was constructed from the bits box too and cut and offered into place. The driver was drilled from underneath and its position on the tray was marked and drilled with three 1/16 holes. After painting, both the driver and wheel were epoxied into place. The holes in the driver and tray serving as a key.

Finally, care was taken to fit the clear screen parts. These had been tested on the primed body but now there was a couple of layers of paint to deal with! The rear of the moulding passes over the rear window opening and the side glasses clip onto the door openings. Care was taken not to chip paint from these areas. Once in, the drivers tray was offered into the body cavity and held in place by spotting epoxy in several places around the edge. This will hold no problems but it doesn't fix it totally in case there is a need to remove it sometime down the road.

Lastly, the chassis is fitted into place! The model has already been run so it is not an unknown quantity. The car looks very nice and almost a shame to race but the acrylic is quite durable and will take a good pounding.

I've been a long time in making this model, waiting for parts from overseas, waiting for paint to cure and a whole bunch of other things. But I do usually have five or six things on the go at any one time and the most important thing is DO NOT RUSH! There's no point in racing them while they're wet!

Parts

The body was from onethirtysecond.co.uk (in the MRRC section)
The Caterham wheels were from slotbug.co.uk
The Caterham tyres and driver were from Scalexworld.com
The Guide was a Ninco sprung guide from Scalexworld.com
The Contrate was a standard Scalextric 27z from Scalexworld.com
Other parts were sourced from local hobby shops.

I'll be giving the model an airing on my local board track soon and will post the lap times accordingly. That only leaves a few models to finish before I try a track! A Mk1 3.0lt Capri, an Aston Martin DBR1, a Studebaker Avanti and I still have decals to make for a "Dick Johnson" '82 Mustang !

Edited by: wixwacing at: 16/10/05 12:57 pm

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