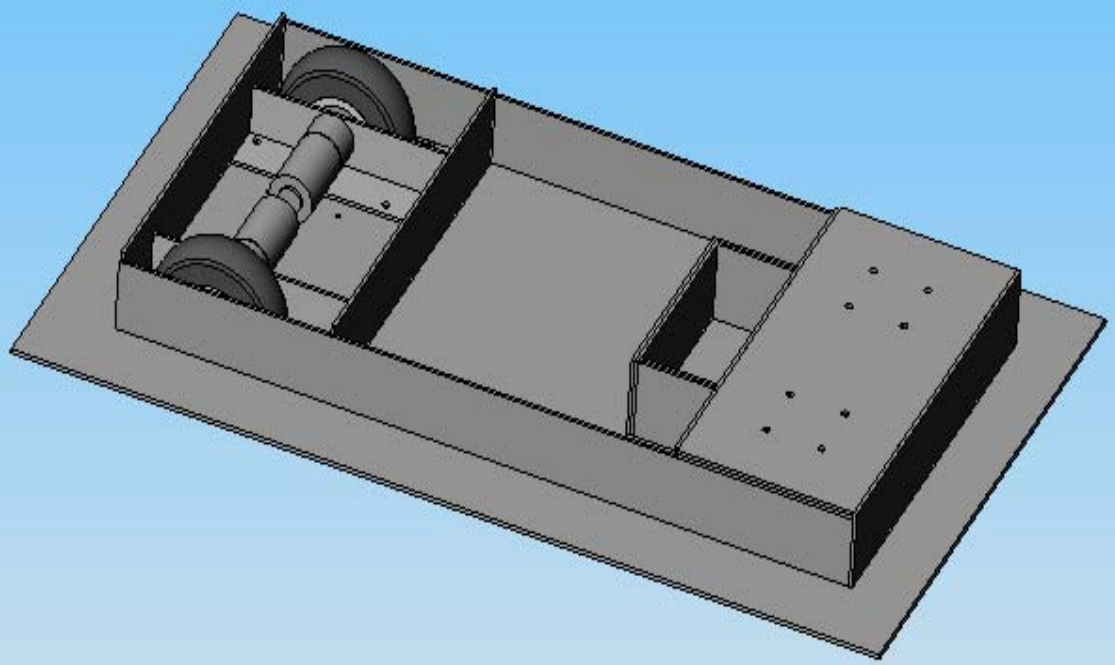
K9 Base Construction

Revision 2



Dave Everett
Not for Commercial Use
2010

I have 114mm diameter wheels on my K9 so everything is designed around that wheel height. The actual wheels are Du-Bro part 450TL. This is a 4.5inch diameter wheel with a solid foam wheel. These provide a bit of cushioning and grip which is nice.

However recently I have changed to the Banebots 4-7/8 inch wheels in 1inch thickness.

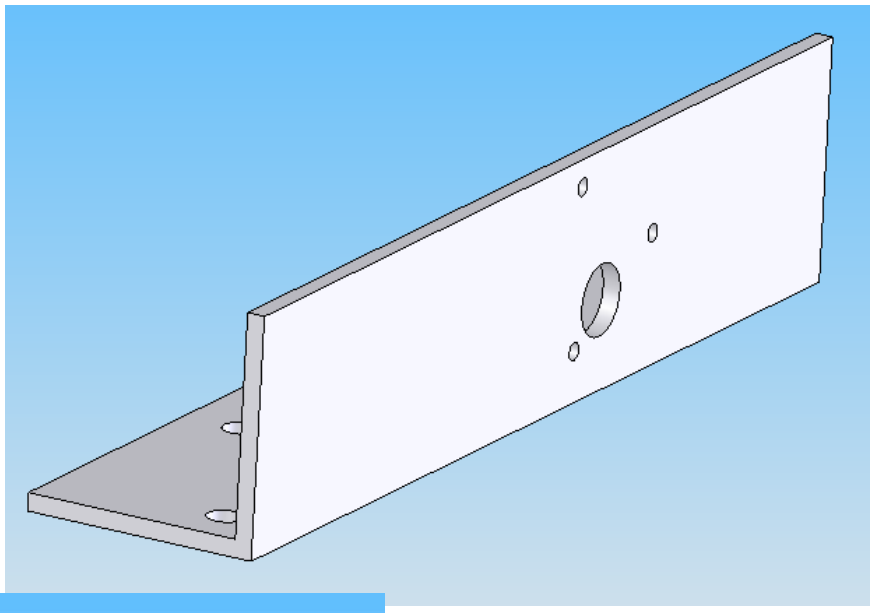
I use Jaycar gearmotors for the drive. I have found these to be reliable, strong and cheap. The part number is YG2738
http://www.jaycar.com.au

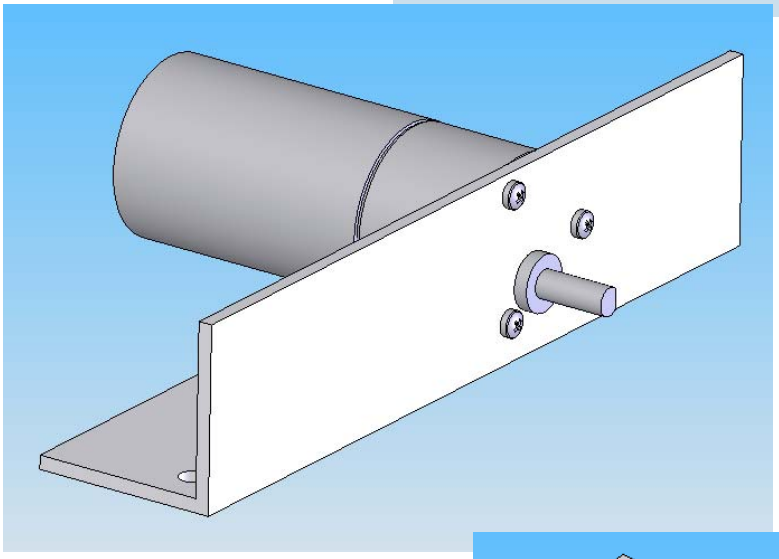
The base consists of 3 assemblies. The main base and 2 motor sub-assemblies. I decided to make the motor assemblies removable from the base in case something went wrong with a motor or a wheel. If they were not removable, you would be stuck as the base is glued into the body.

The motor mounts are very straightforward. These are new mounts as I found the old mounts could allow the base panel to flex. It was not serious but could have been a problem in the future. The motor mounts are made from 2 lengths of 40x40x3mm angle aluminium. Each length is 178mm long. The mounts are handed, that is one is left and the other right.

On the left is shown the Right side Motor Mount.

Note the orientation of the holes in relation to the angle aluminium.

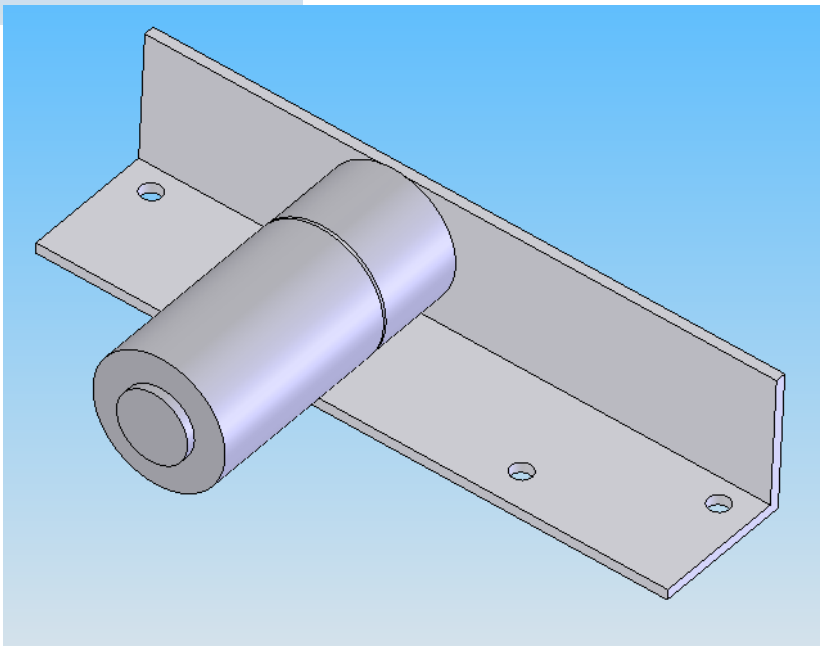




All holes are 3mm except for the large hole which is 12mm. Use a step drill to keep everything accurate.

The motor is secured with 3 M3 x 8mm pan screws.

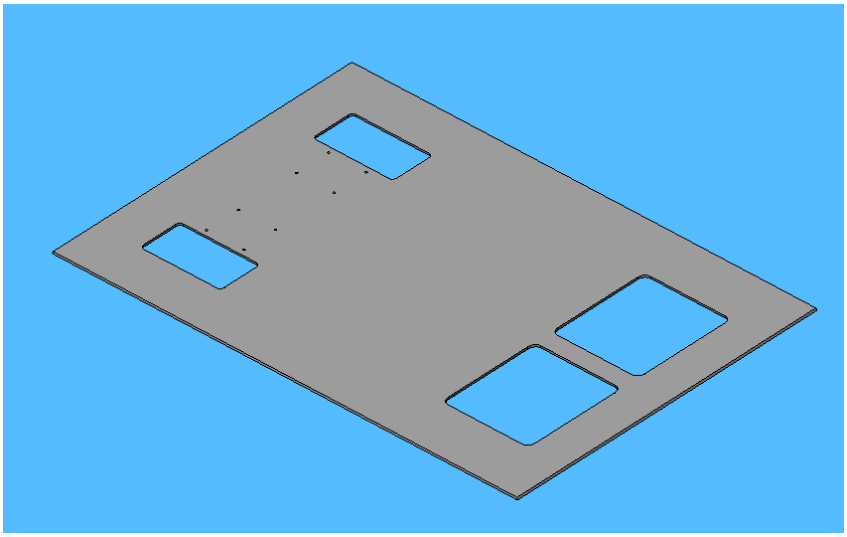
The mounting holes in the bottom of the mounts are 6mm. Drill 3, later you will drill through these and through the styrene base plate and secure the mounts with short M6 pan head screws.



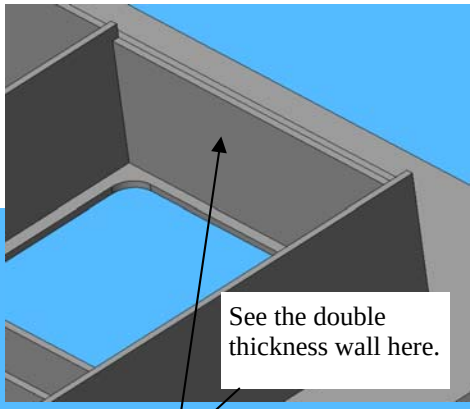
Begin by cutting out the base plate. Chamfer all the edges, it's a bugger of a job but necessary to make things strong.

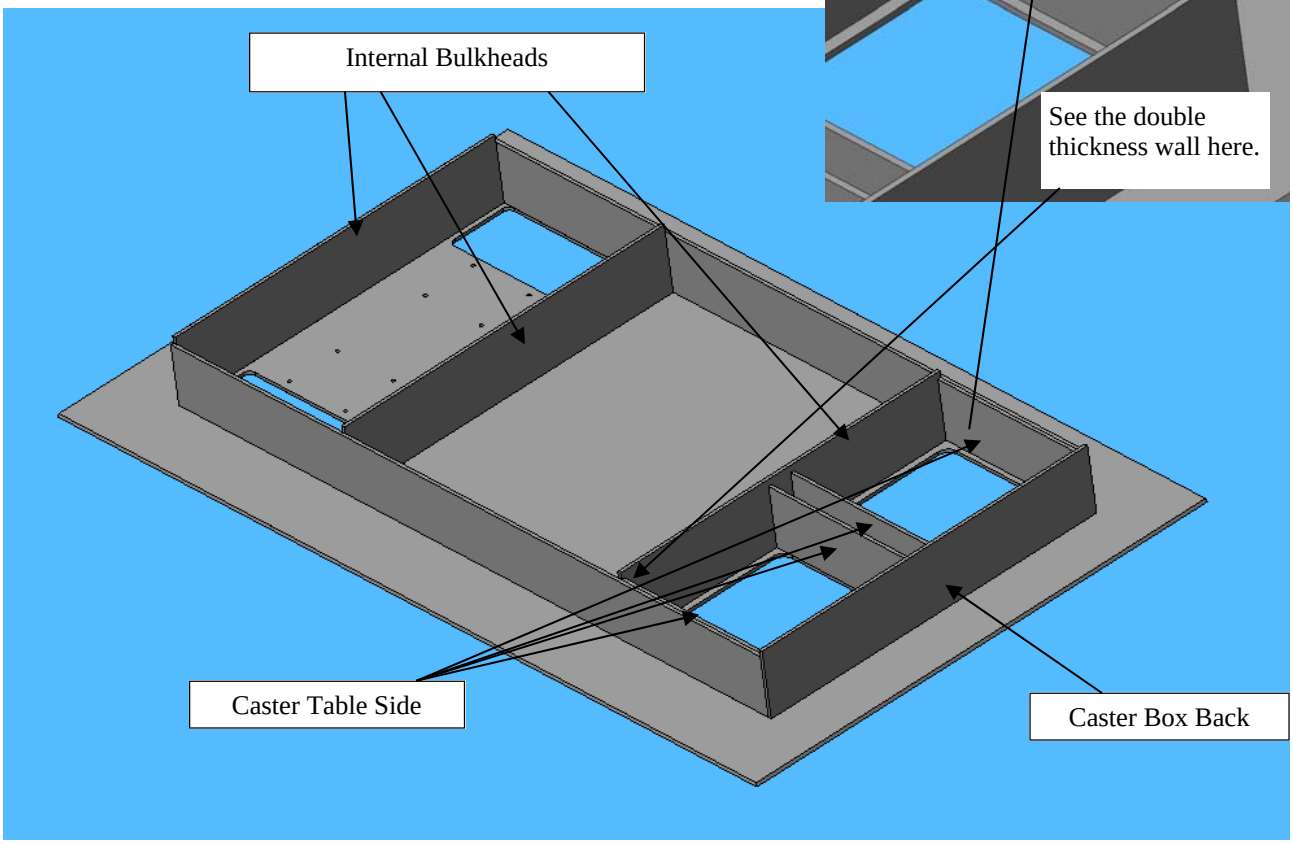
Test fit it into the body. You may find it's still too big, keep chamfering until it's a tight fit and flush along the bottom edge of the body.

DO NOT GLUE IT IN YET!!!

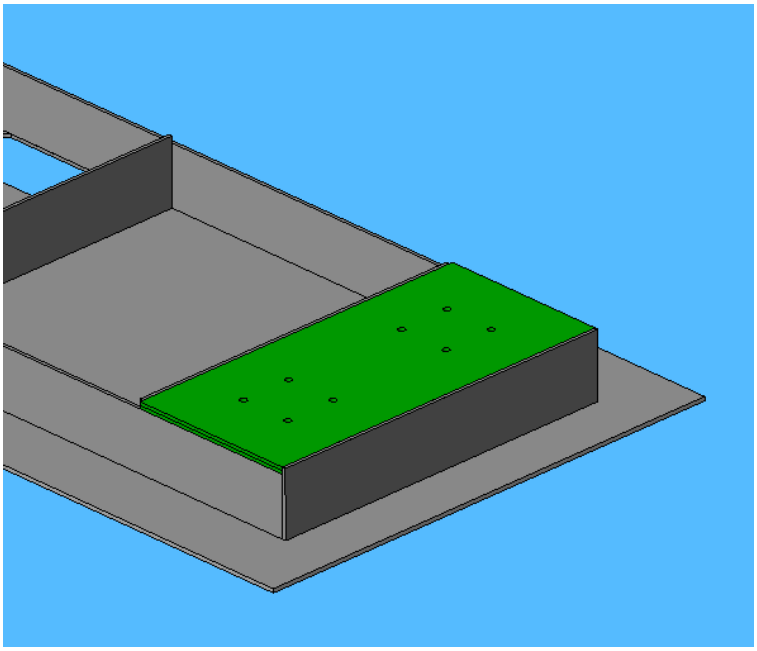


At the back of the base there is a box section that supports the casters. I have set this height to fit standard 75mm (3 inch) casters. You'll be able to find them off the shelf. In my case I used Fallshaw 20.75 forks and DuBro 3 inch wheels to give similar traction as the front wheels.





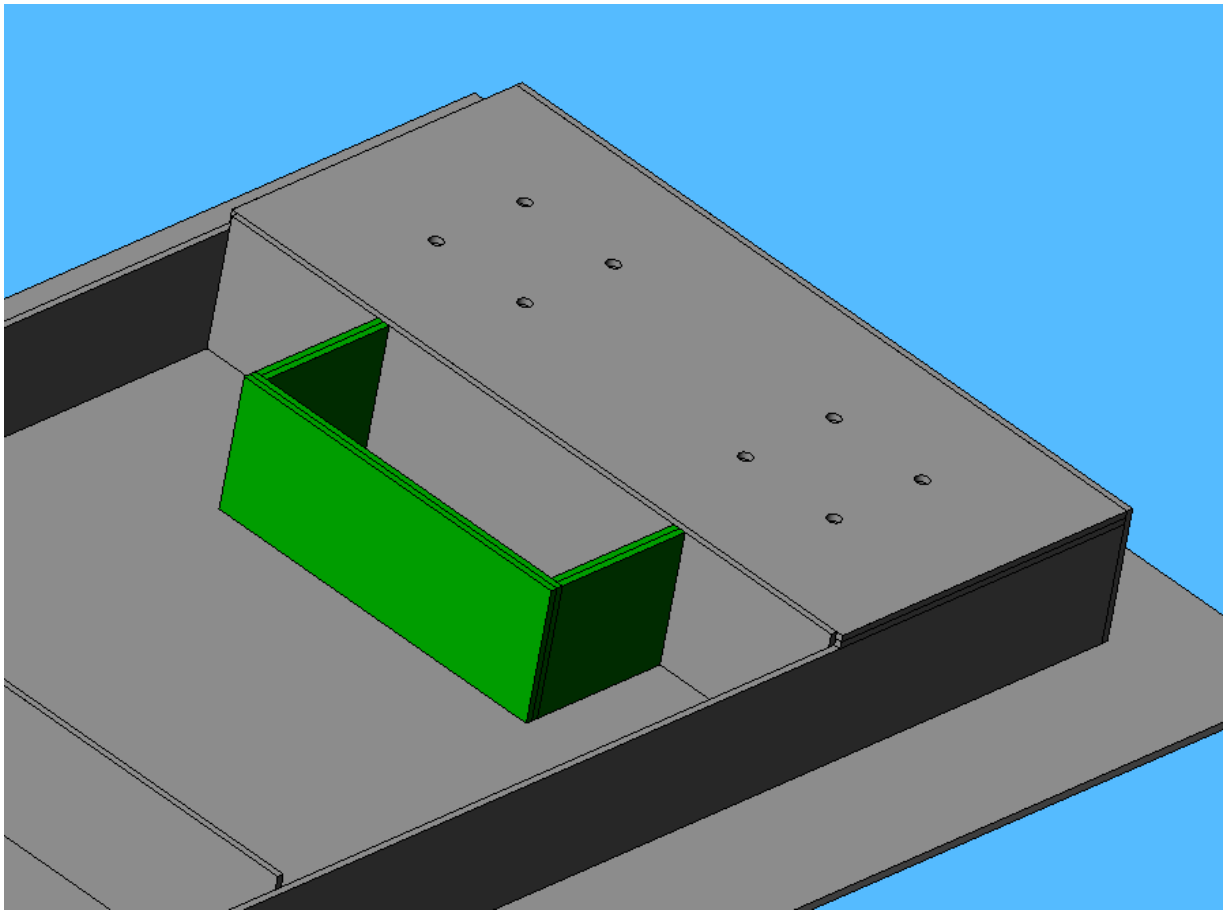
Assemble the pieces as shown, again the lengths and sizes make their location obvious, so no need for a step by step breakdown. Note the 8 holes near the wheels are all 3mm to suit the motor mount assemblies you made earlier.



Laminate the 2 Caster Tables together to form a single 6mm thick piece, then glue it into the space provided. From the other side, squirt plenty of glue into the gaps and give it a few hours to set up properly.

The last thing to build is the battery box. This will hold a single 12v 7AH battery which should be enough power for 4-6hrs of operation.

Notice the battery box is made from double thicknesses of 3mm styrene. The battery weighs a lot, you don't want it breaking free.



Once everything is setup, you can finally glue the base into the body. After I glued mine in, I cut up some thin strips of 3mm styrene and glued them in against the base and body to add strength. I flooded the area with glue and slid the strips back and forth until they melted into the join.

You will need to leave the body for a few days to make sure everything is cured.