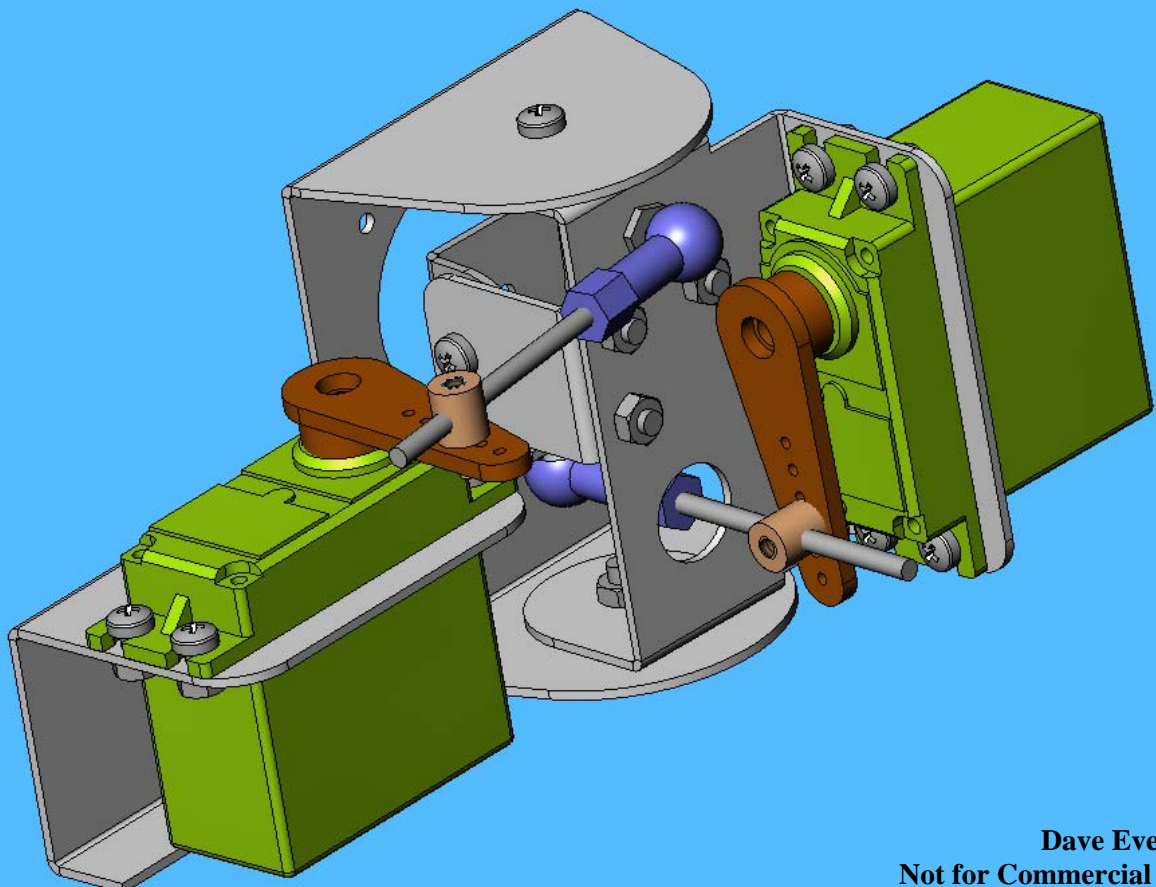


K9 Tail Mechanism

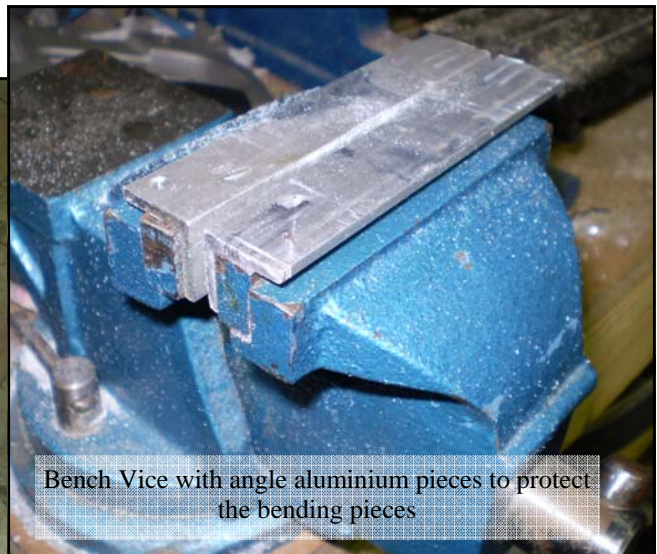


To construct this mechanism, you'll need the following tools:

- Nibbler—this tool cuts out the shapes in the aluminium sheet. Jaycar TH1768
- Step drill 2mm—12mm. Jaycar TD2436
- 3mm drill bit
- 2.5mm drill bit
- Centre Punch
- Hammer
- File
- Removable spray adhesive
- Phillips head screwdriver
- Pliers
- Bench vice—for bending aluminium parts

And the following materials:

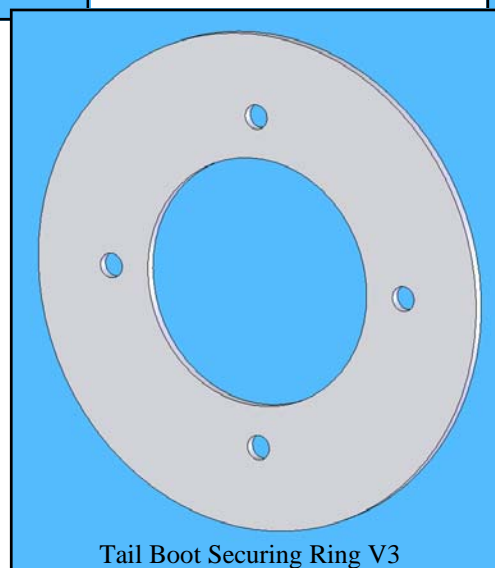
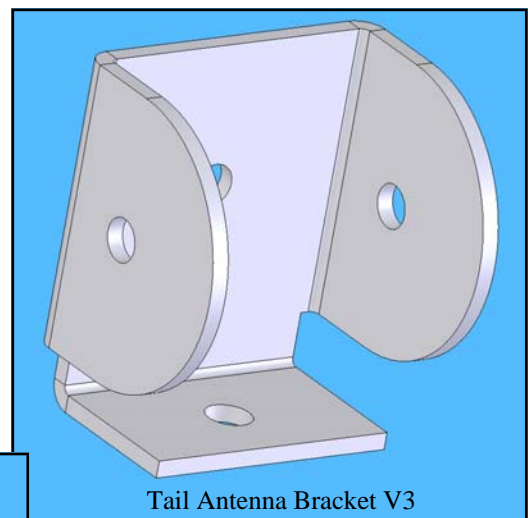
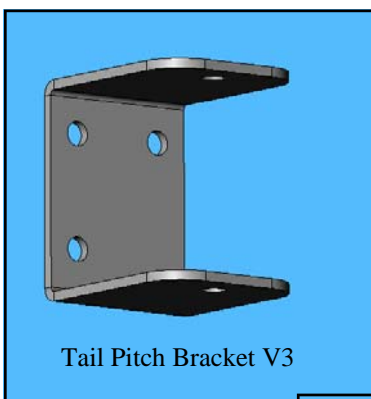
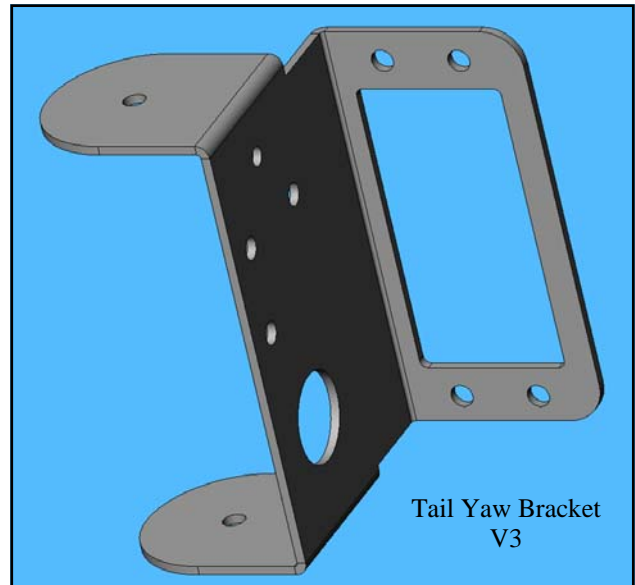
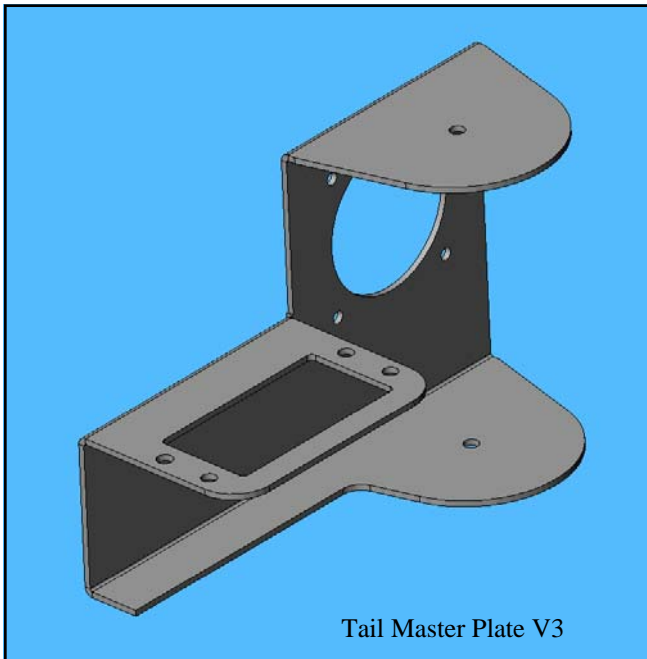
- 1.2mm thick aluminium plate - I got mine from Jaycar Electronics Part HM9500
- M3 pan Phillips screws 8mm long, qty 15
- M3 hex nuts, qty 11
- M3 Nylock nuts, qty 4
- 2 standard servos. Mine were from Jaycar, all metal gears and 13kg-cm torqueYM2763
- DuBro 4-40 ezy connectors
- DuBro Heavy Duty Ball Linkages
- 4-40 threaded rod
- Self adhesive felt pads used for feet on furniture. If you can get felt donuts, even better. They should be no bigger than 8mm in diameter.

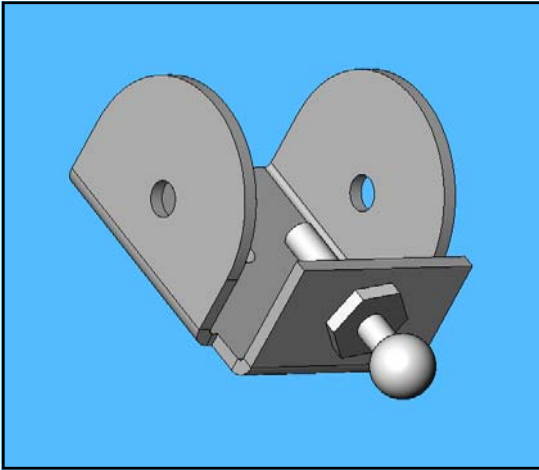


Begin by gluing the templates to the 1.2mm aluminium plate with removable spray glue. The shapes can then be cut out with the nibbler tool. Use a file to smooth up the edges and remove any sharp burrs. The holes should all be drilled at this time. Open up the 30mm holes with the step drill, then use the nibbler and file to finish them off.

I bent my parts in a bench vice. Use some aluminium angle on the jaws so you get a flat surface which will not damage the sheet aluminium. Take your time and bend to the dashed lines on the templates.

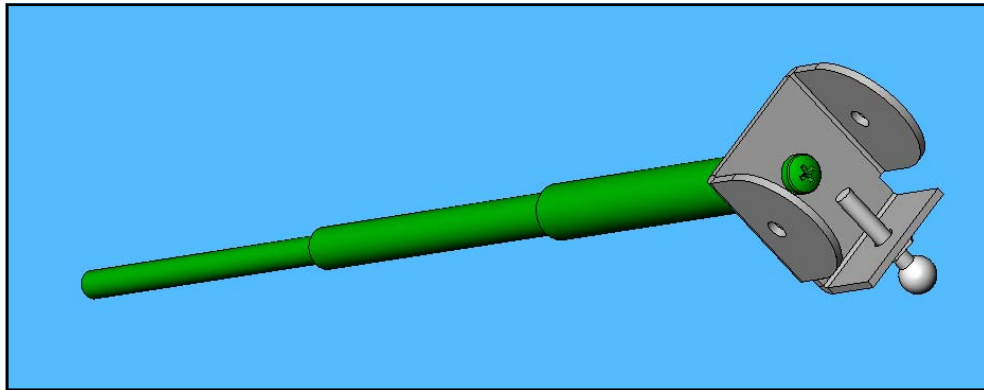
Pay attention to the images below so you bend the parts the correct way. Some bends will have to be made with pliers, for example the ones on the Tail Pitch Bracket and Antenna Bracket.





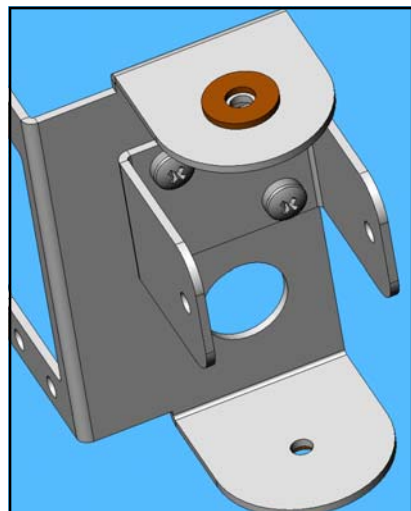
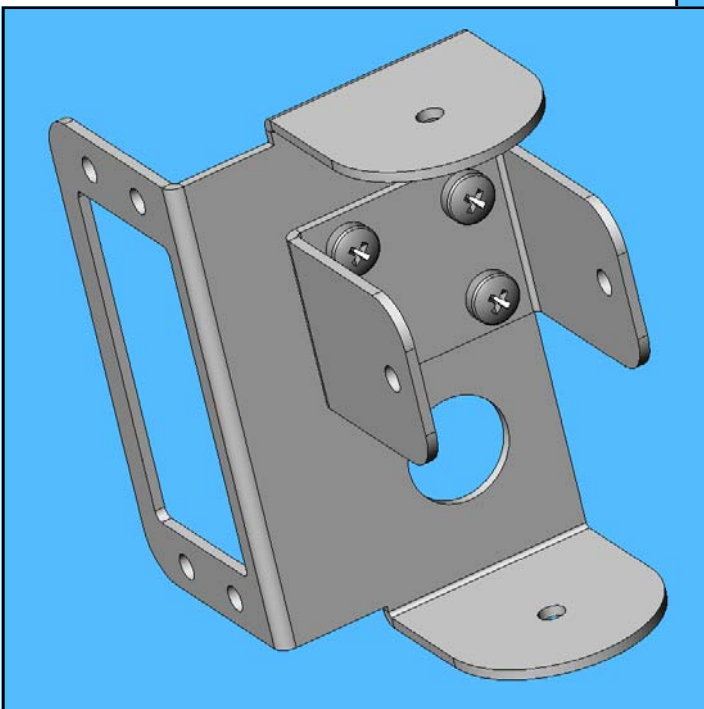
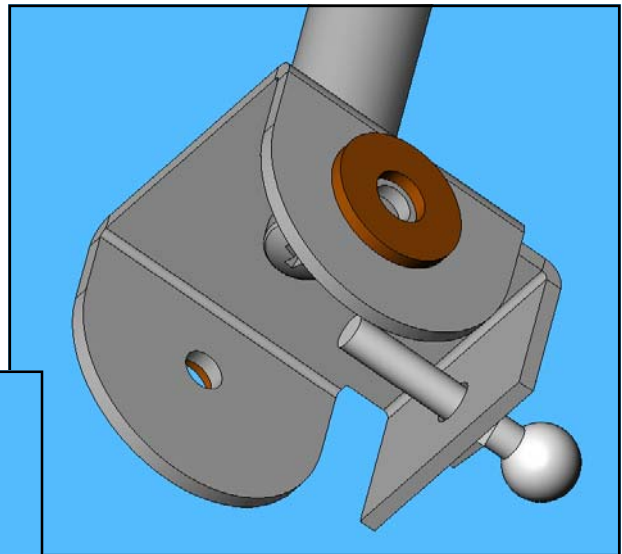
Start by securing one of the Heavy Duty Ball Link Screws to the antenna bracket with it's associated nut.

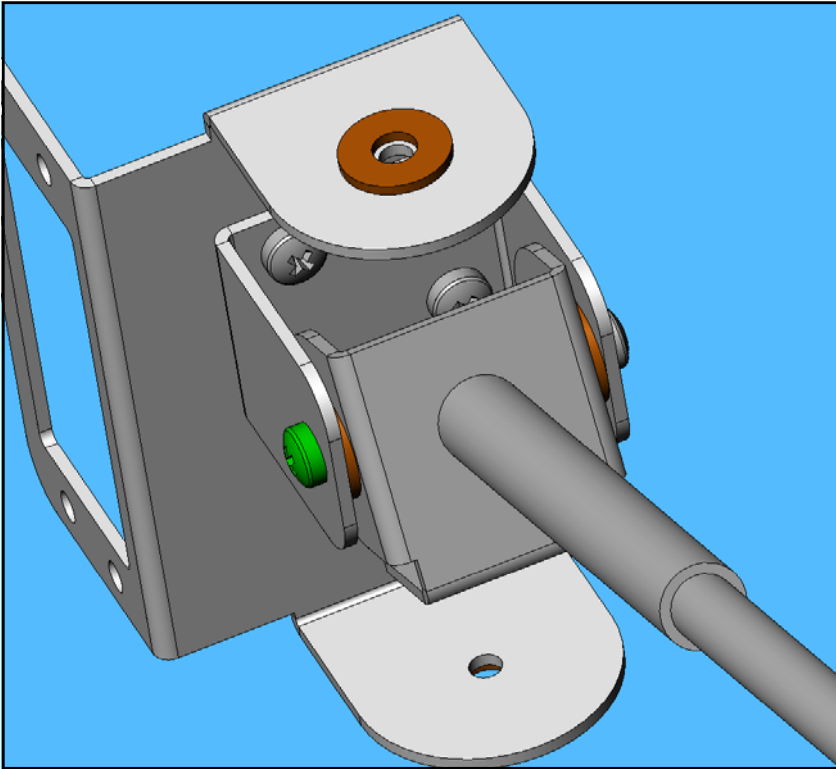
If you are using a magnetic pickup tool for the tail, it probably has a pocket clip on the side attached with a screw. Remove the pocket clip and attach the tool to the bracket using the original screw. Remove the magnetic part now as you will install a piece of wire later for the loop on the end of the tail.



Stick a felt pad to each side of the bracket. If you have square pads, then trim them down before sticking them on and drill out the hole.

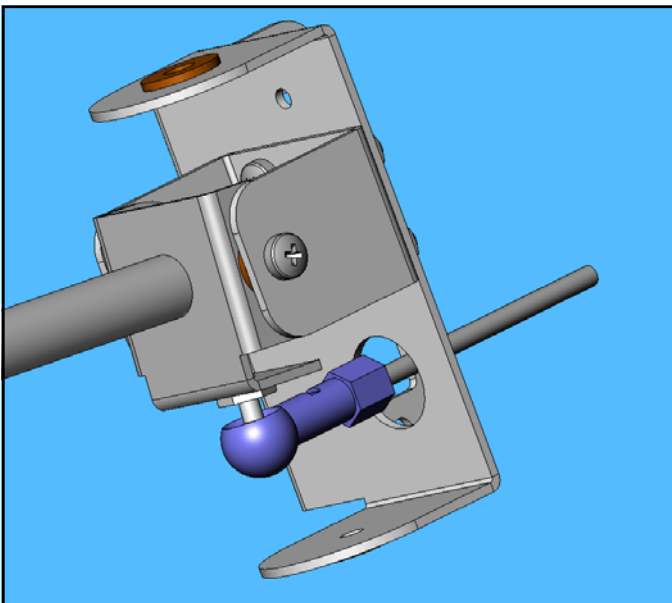
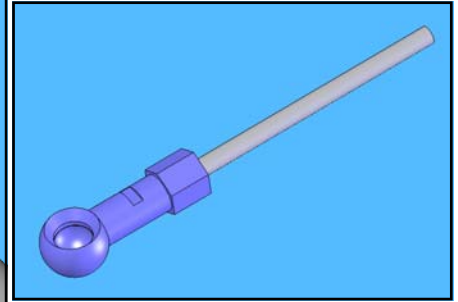
Next screw the Tail Pitch Bracket to the Tail Yaw Bracket with 3 screws. Then attach the remaining 2 felt pads to the Yaw bracket



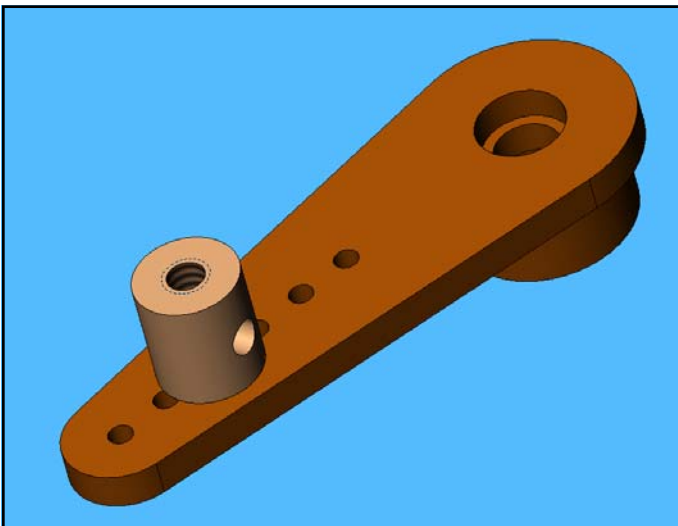
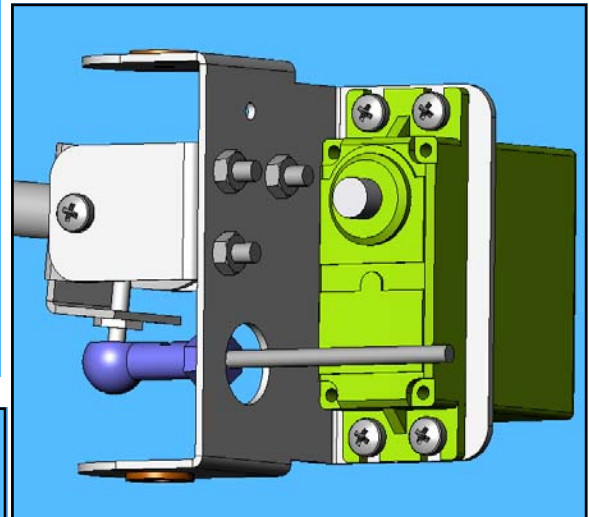


Now attach the antenna bracket assembly to the tail pitch bracket. Use nylock nuts on the screws and do them up so the bracket can still swivel but is not too loose.

You should now screw a length of 4-40 rod into the Heavy Duty Ball Link and push it onto the ball screwed into the antenna bracket. Make sure the rod goes through the access hole in the Yaw bracket



Now you can attach the servo using 4 M3 screws and nuts to the Yaw bracket. The servo horn then needs to have a hole drilled out to 2.5mm to take the EZ connector. Drill out the 3rd hole up on the horn, insert the connector and push the retaining clip on to the pin. Make sure the connector can swivel freely. Do the same to the other horn.

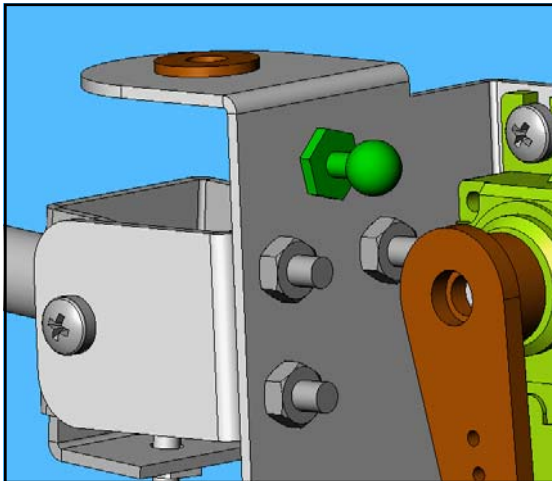
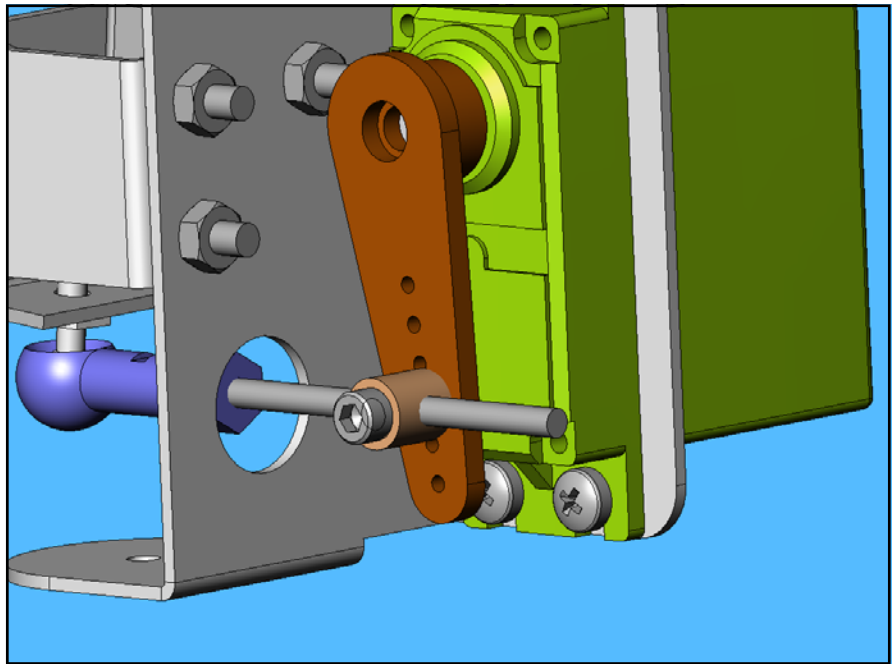


Drive the servo to it's Mid position. The controller I will describe in a future tutorial will do this automatically when turned on, however you should be able to roughly determine this position by hand.

Push the threaded rod through the EZ connector, then push the horn onto the servo and screw it up.

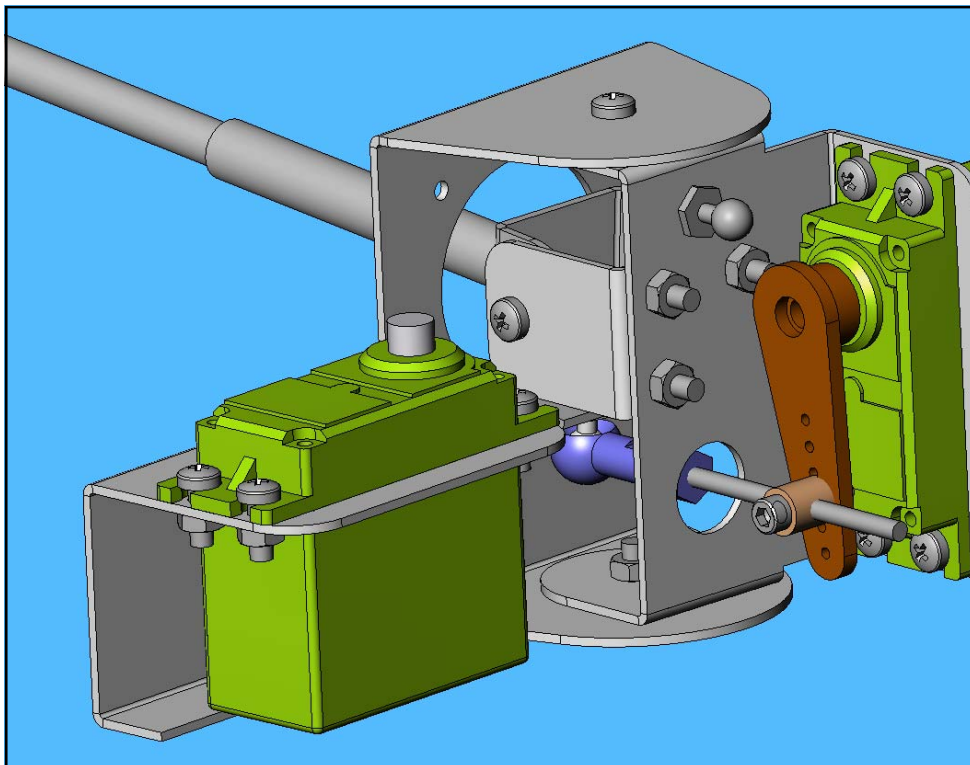
Screw in the EZ connector retaining screw.

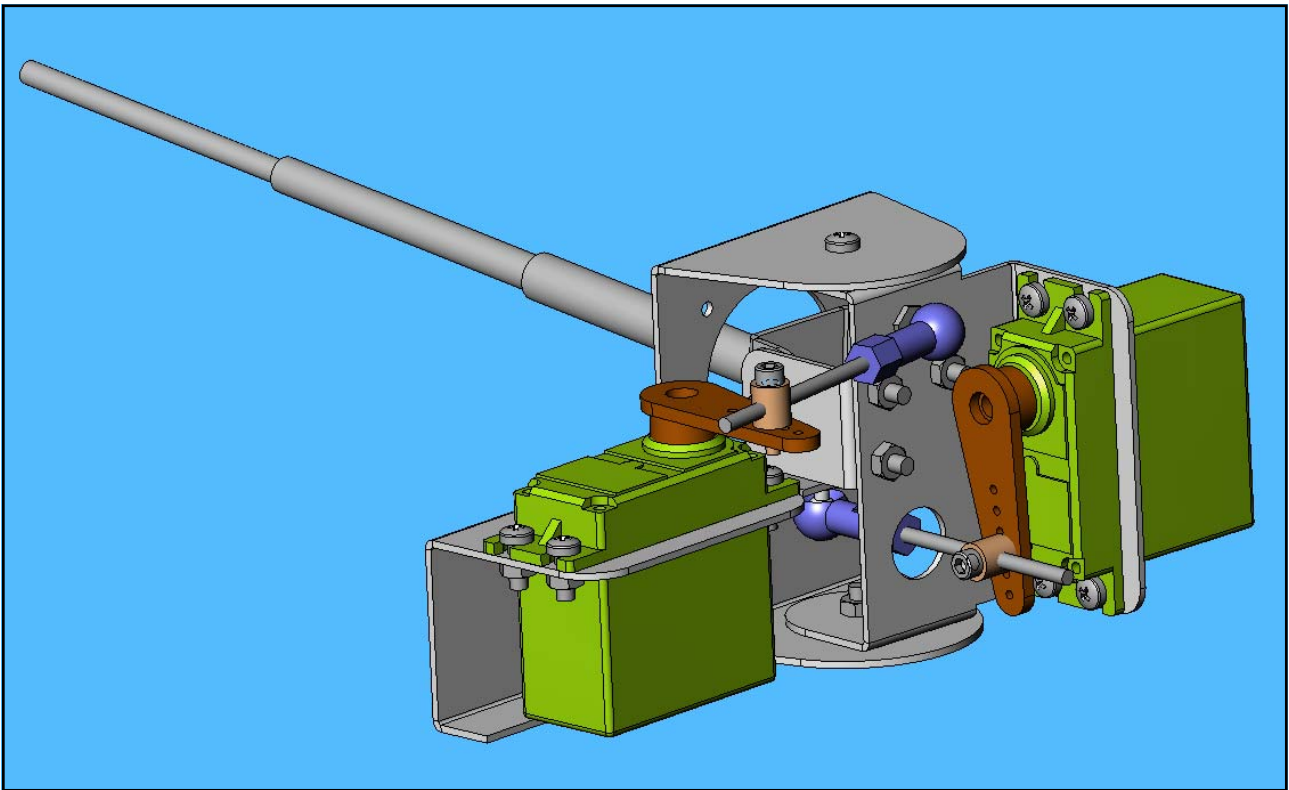
Centre the antenna bracket and do up the EZ connector retaining screw. If you have the tail controller or an RC receiver, you can check the tail pitch motion now.



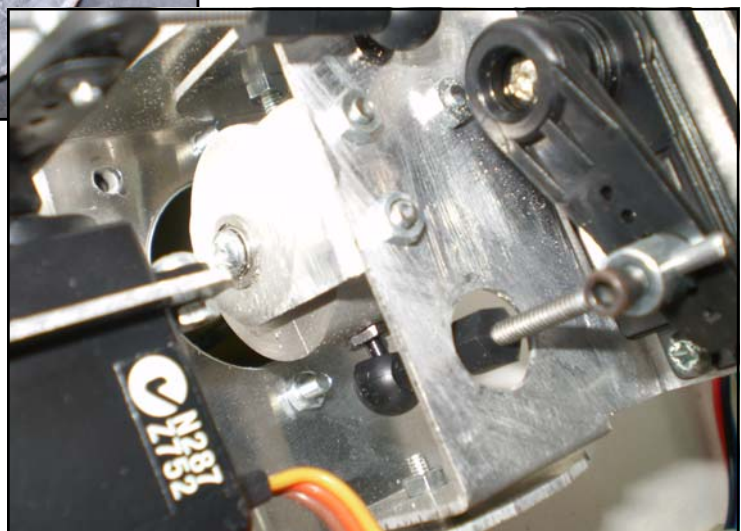
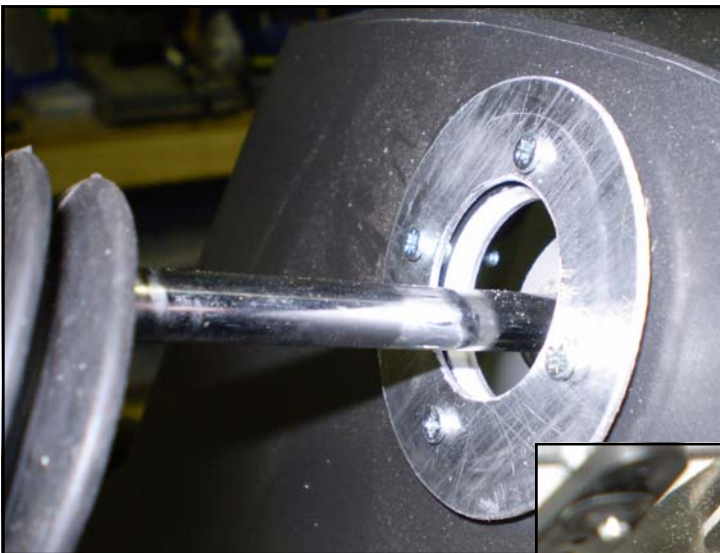
Now screw the remaining servo into the Master Bracket, attach the Master Bracket to the Yaw bracket using screws and nylock nuts so it can freely rotate.

The ball linkage and rod can be attached to the remaining ball now and the servo horn attached to the remaining servo. Remember to centre this servo as well before screwing everything up.

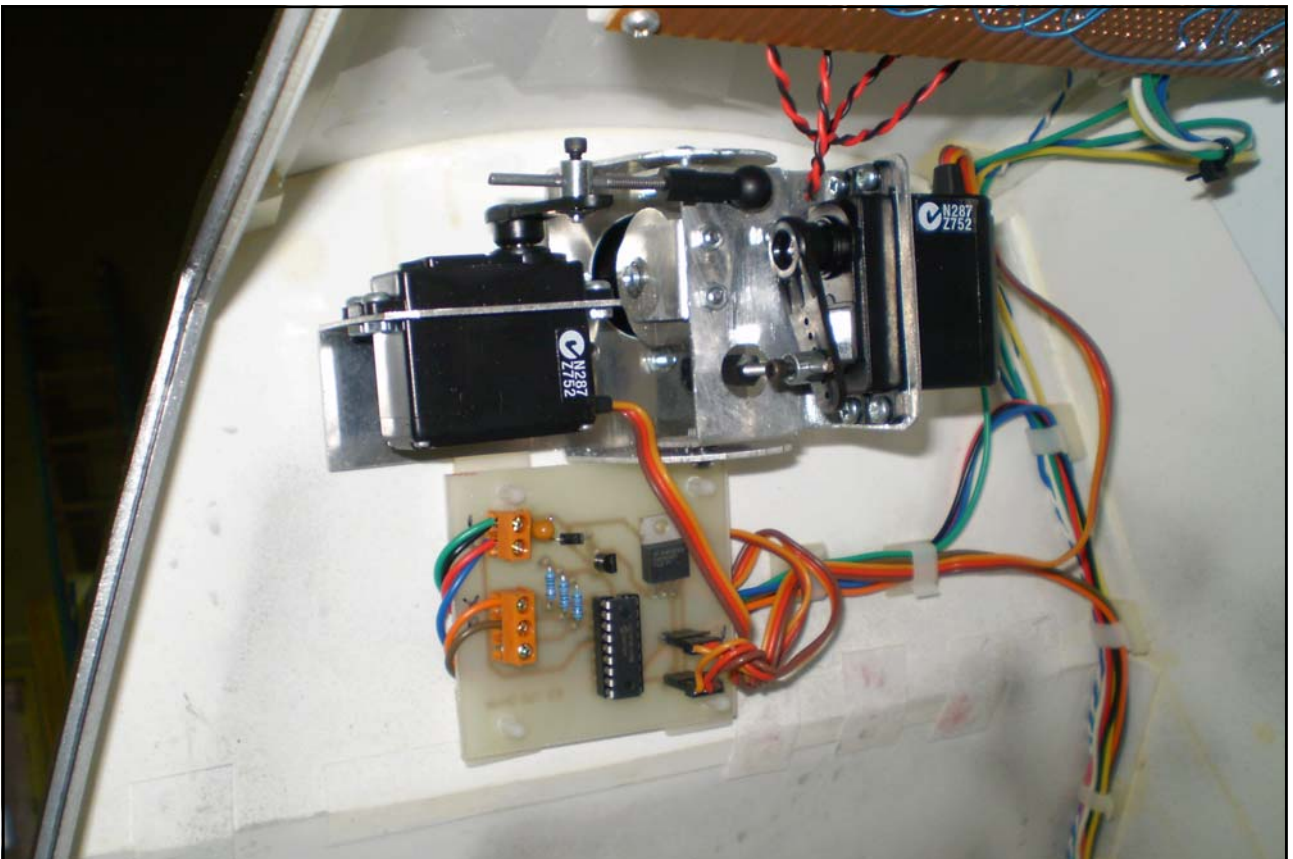
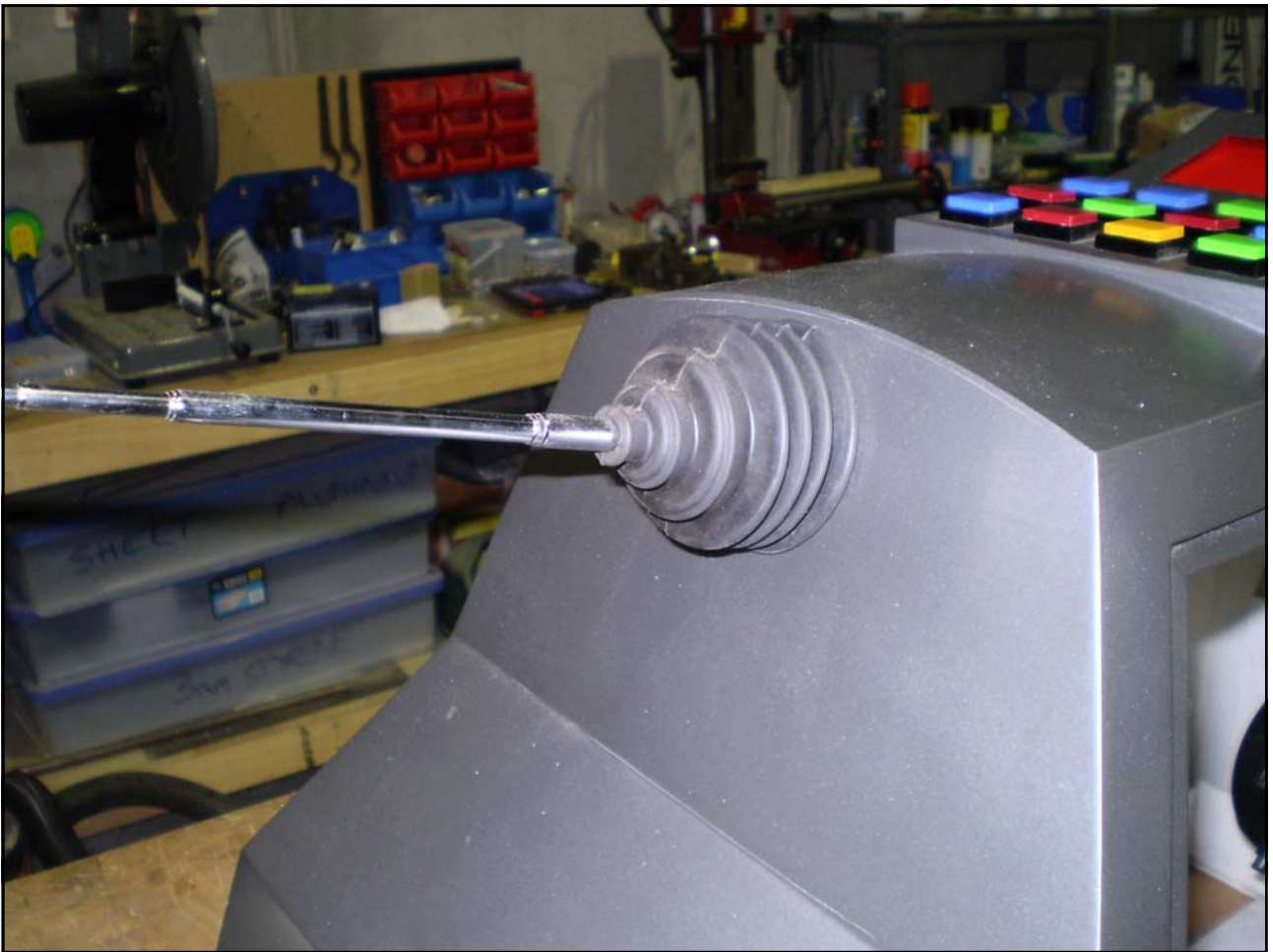


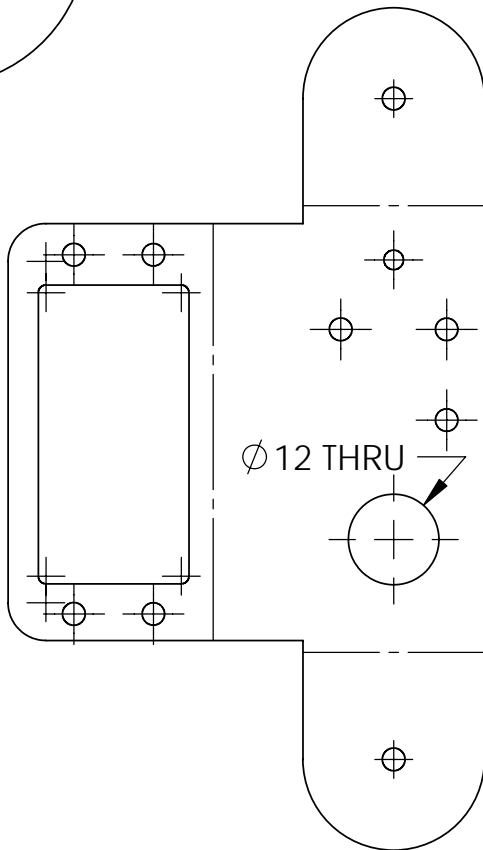
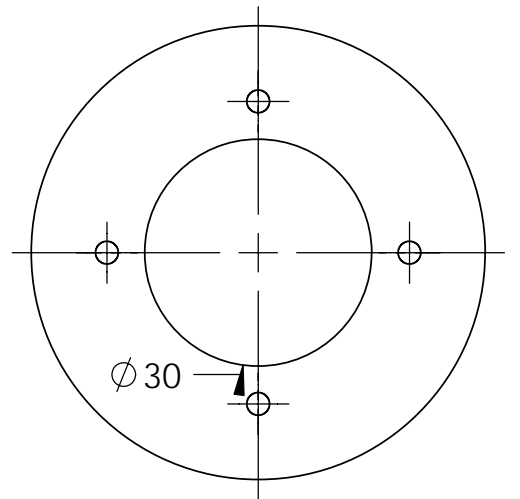
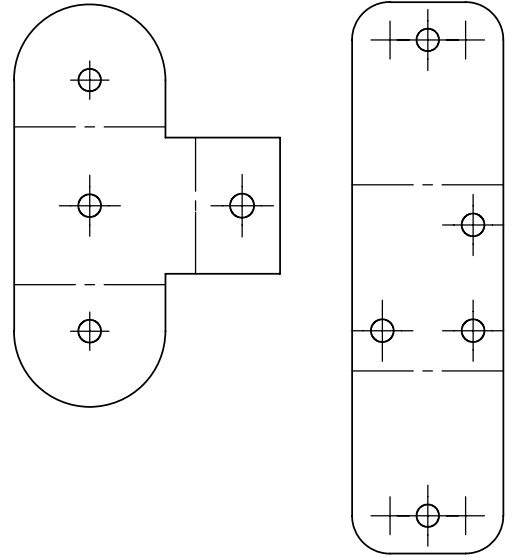
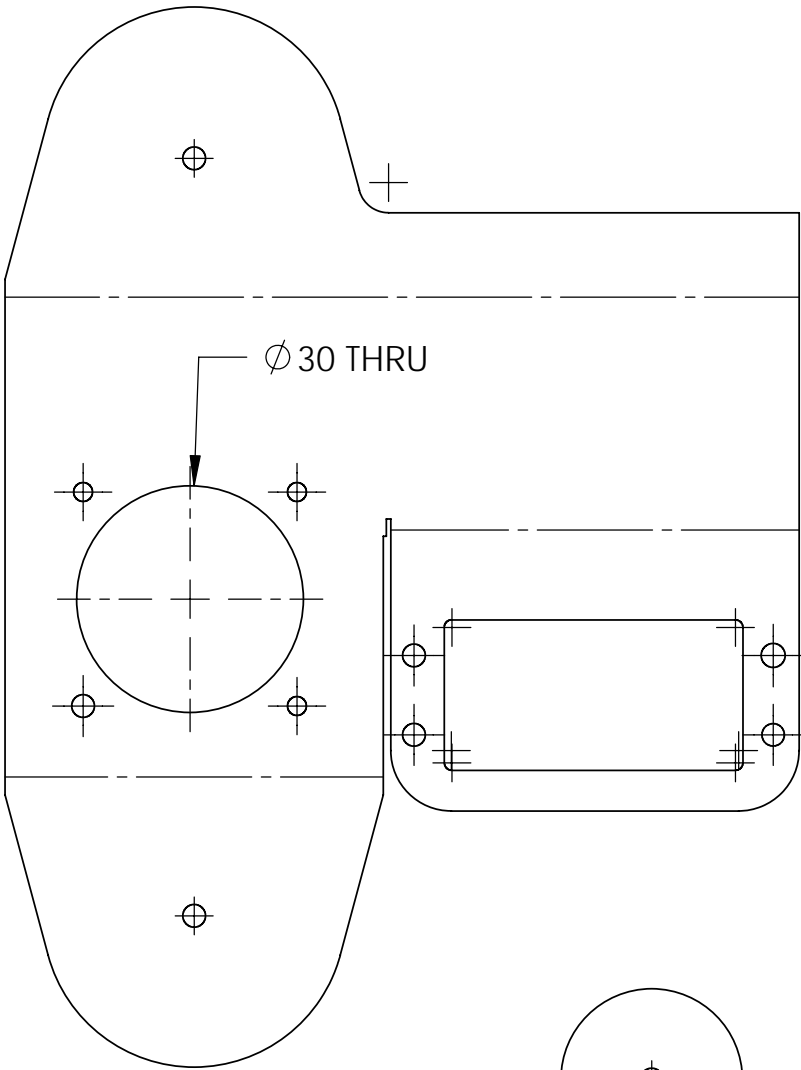


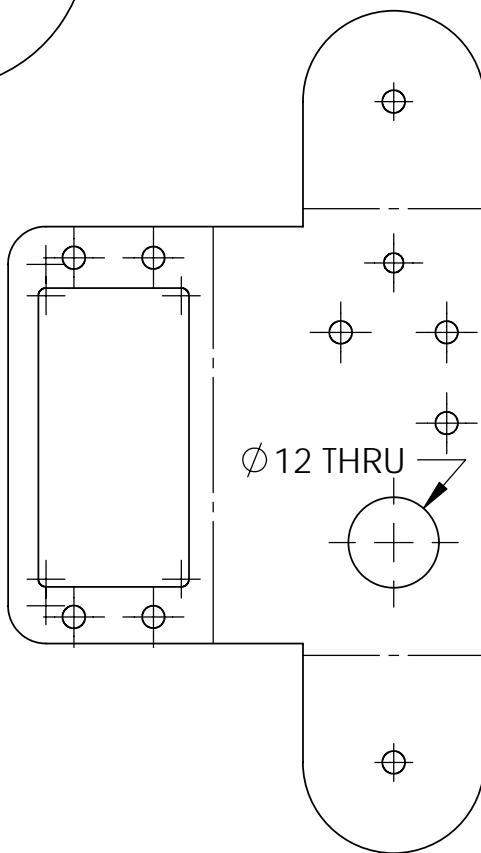
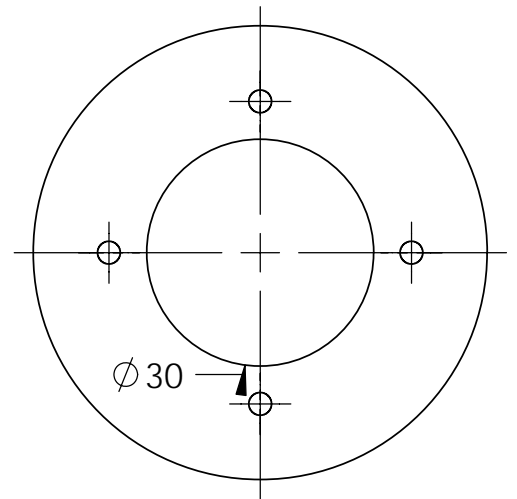
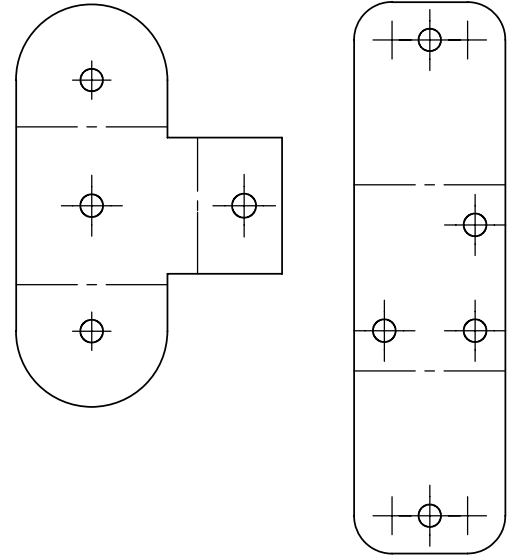
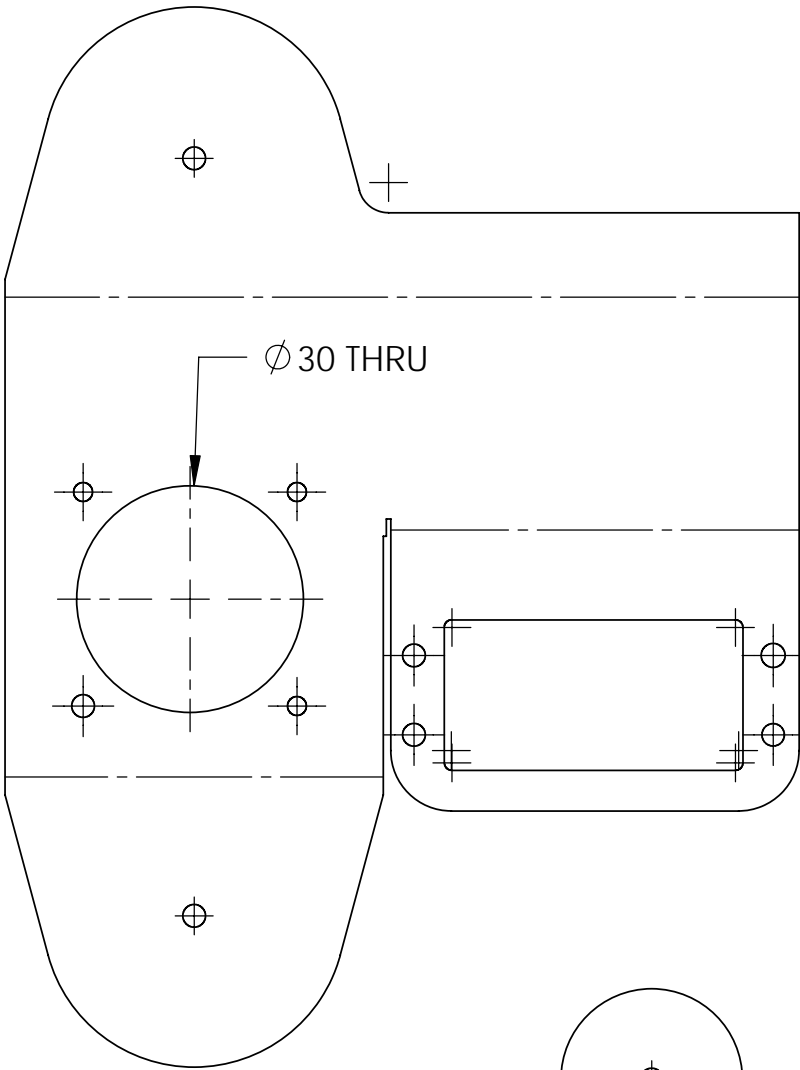
The last remaining step is to screw the assembly and boot retaining ring onto the body. You'll need 4 M3 countersunk screws of about 12mm length. Put the countersunk screws through the retaining ring, then place 4 or 5 M3 washers on the other side. Now stick all 4 screws through the body. The tricky part is getting the nuts on and screwing everything up tight



This is a view of the assembly from the inside of the body. Note this is version 1 which required a lathed part.







All holes 3mm unless otherwise indicated