

The modification of a servo



One of the limitations a servo brings with it is the angle of rotation. A normal servo will only rotate over 180 degrees. It is possible to modify the servo so it can rotate over a bigger angle but most of the people will not be eager to open a servo housing and have to cut away some plastic and unsolder the little pot-meter.

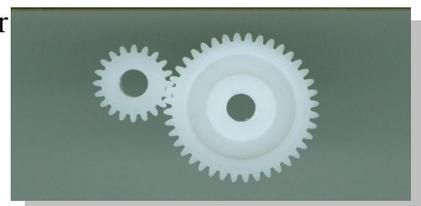
So this is the story how I modified servo's so they travel the full 360 degrees, enough for most of the gauges in a cockpit. For my F16 simulator I still have on stock a servo board from EPIC, one of the many to do lines on the still existing list ;-).

Here I will use a servo board from OPENCOCKPITS. Its a cheap little board, and unless its cheap you can hook six servo's onto it and four analogical inputs can also be attached.

For this project I bought a ferry cheap servo (\$5,--), two little gear wheels and I used a little piece of plexiglass.

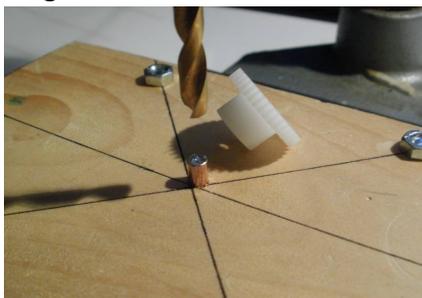
The big wheel has forty teeth and the smaller one twenty.

When installing the big wheel on the servo he only has to travel 180 degrees to let the smaller wheel rotate 360 degrees.



To install the big wheel on the servo I had to drill a wider hole.

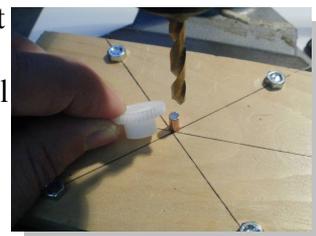
The axle on the servo is 5.5 mm in diameter, the hole in the wheel is 4mm. To drill an exactly straight new hole in the wheel I made a little tool under the drill.



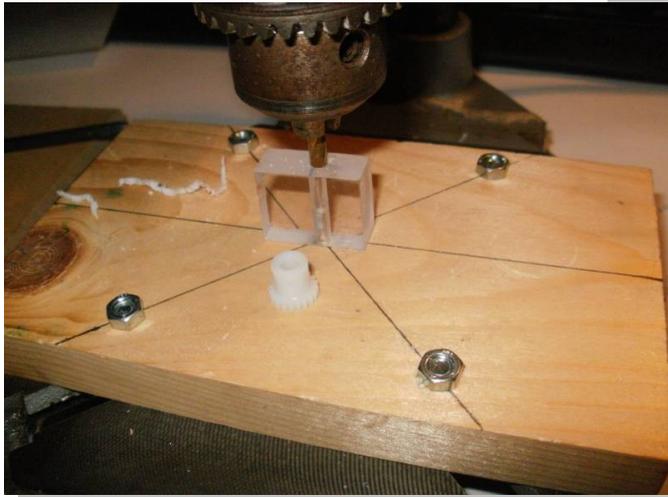
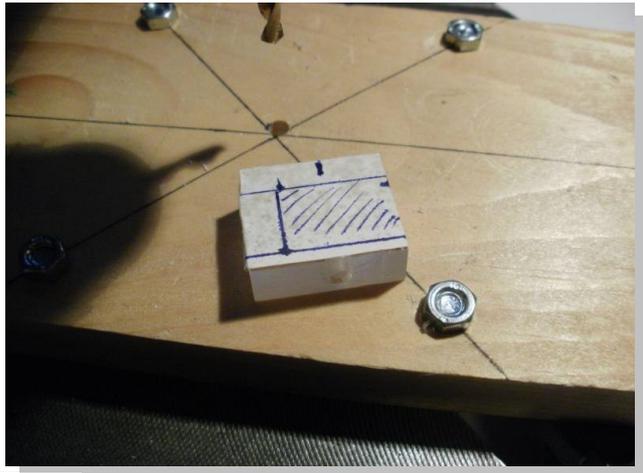
Added a little wooden board under the drill and drilled a 4mm hole into it. (I will use 4mm axles in this project.)

Then I placed a little metal support axle in the fresh drilled hole.

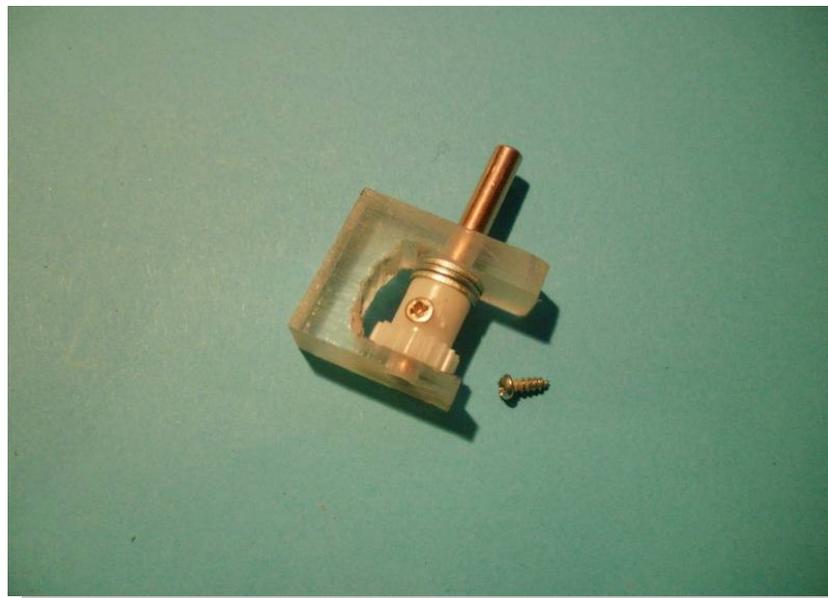
In that way you will be able to drill exactly in the middle of the gearwheel. In this example only a few mm, so it can be placed over the servo axle.



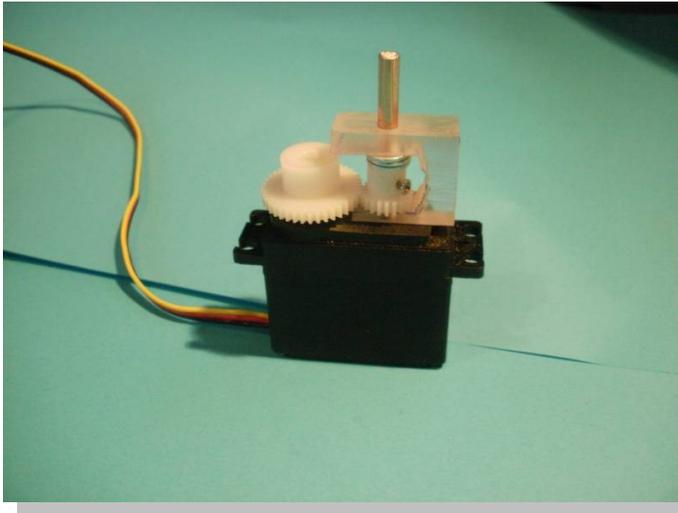
Now we have to make a support housing for the little wheel and the axle which will be used to bring the gauges to live. I used 10 mm thick plexiglass, but all other material which can be cut easily and is hard enough to keep his original shape will do fine. On the right you can get an idea what I had in mind.



First of all I drilled a 4mm hole through this little box of plexiglass. Then I used a vertical band saw to cut away the material where the little wheel should be installed.



When all the material was out of the way it is easy to assemble the part as seen above. Just used three little washers between the support and the little wheel. I drilled a little hole through the little wheel into the axle, in that way you are able to secure the wheel whit a little screw onto the axle. After a last check to be sure everything is moving fine it is time to place on the servo for the real test.



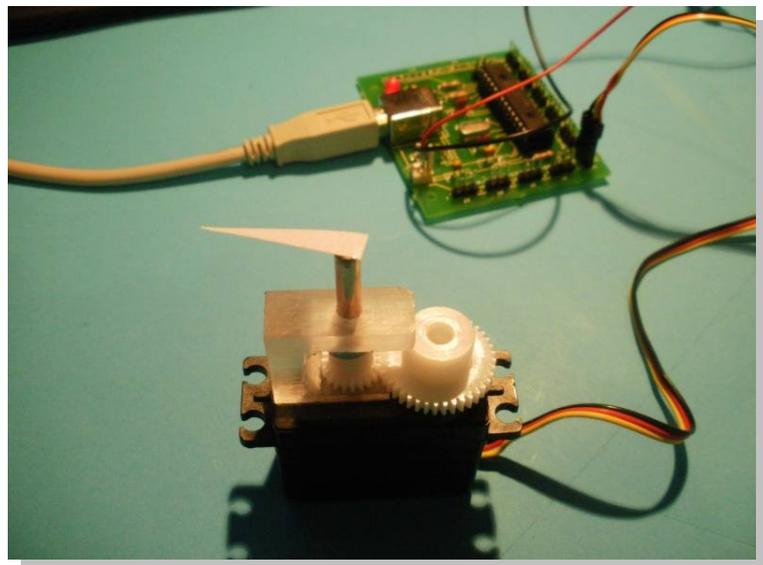
When placed on his final spot it looked great.
It all fitted well ;-).

Hooked the servo on the servoboard and after running the testprogram it turned out to work like a charm.

Now you can glue the support of the little wheel to the servo. I will use some hot glue for this purpose. It will hold very tight and when necessary with an old soldering iron its easy to heat up again and remove it.

For Falcon drivers you may use FAST, this little program will transfer the falcon data to the sioc program of opencockpits.

For FSX you can use the sioc program as supplied by open cockpits.



As always I keep asking all the others in this loony hobby, make some little pdf's with the pictures you make on the road, and share them with others.

They may make improvements and so we can build our dreams faster and maybe cheaper.

Keep 'm flying,

Rien "HAMMER" Heideveld

If questions or comments, please mail me.

email: info@f16simulator.nl

[HTTP://www.f16simulator.nl](http://www.f16simulator.nl)

Copyright ©2011 R. Heideveld