

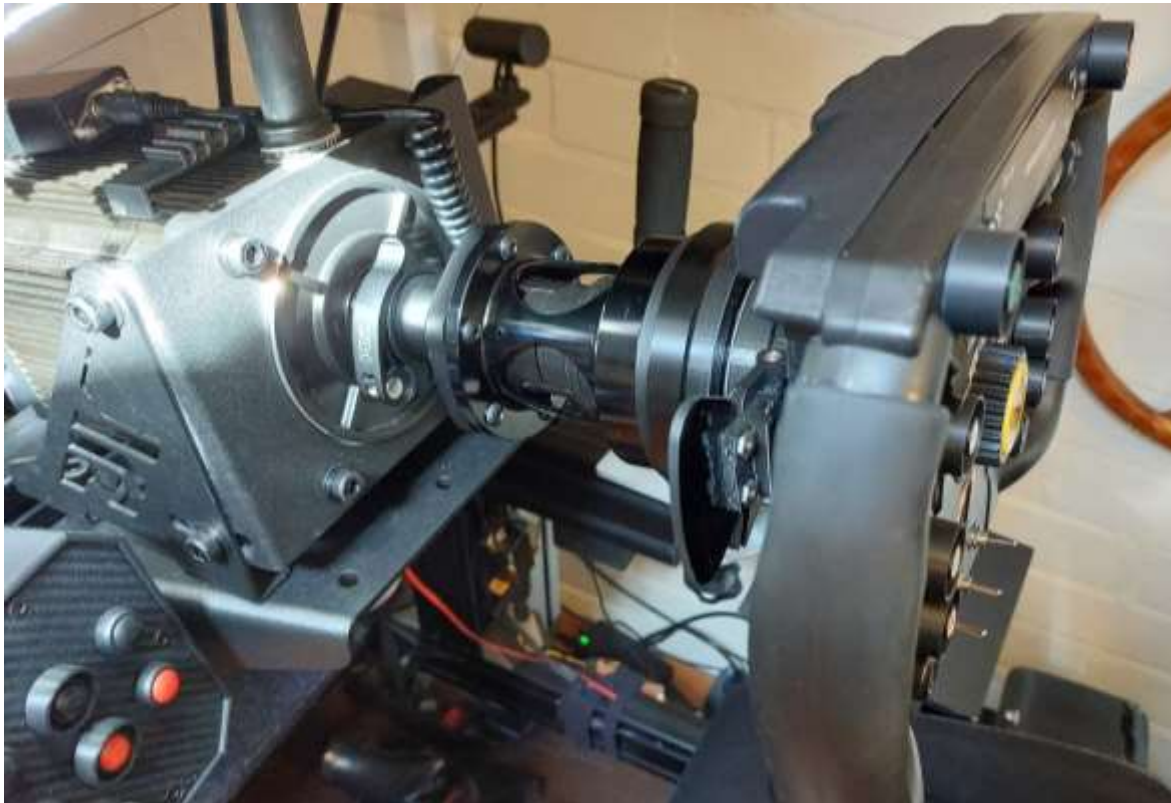
## Metal shaft with quick release for Thrustmaster wheels



Insert Coin

June 2022

Addendum version 1.0



This manual is an addendum for those of you who do not trust a fully 3D printed shaft and want a metal solution instead of the 3D printed steering shaft I mentioned here:

Racedepartment: <https://www.racedepartment.com/threads/diy-using-thrustmaster-wheels-with-qr-and-working-buttons-on-dd-wheelbase-like-vrs-directforce-pro-mige-130st.220278/>

GT Planet: <https://www.gtplanet.net/forum/threads/dyi-using-thrustmaster-wheels-with-qr-and-working-buttons-on-dd-wheelbase-like-vrs-directforce-pro-mige-130st.404309/>

The steering shaft is made of metal parts, with 3D printed parts 'sandwiched' between metal parts. A 3D printed inner shaft is made for the coiled cable + plug which rests on the SRC quick release and is mounted with bolts between de Chinese quick release and the hollow spacer. The metal parts carry all the load, the 3D printed inner shaft is only to support the Thrustmaster QR plug.

## Version history of this addendum

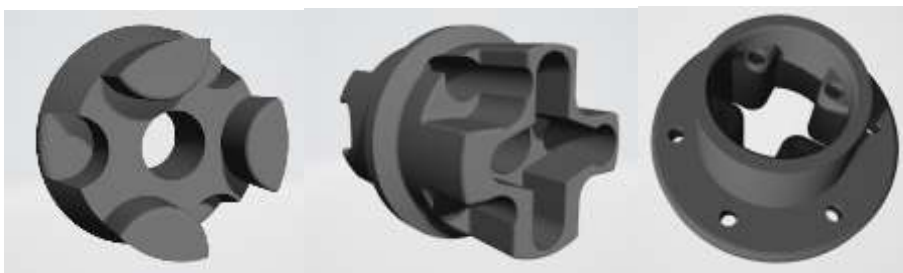
### 1.0 Initial release

#### Parts you need:

- 6 x M5 bolts 25 mm: [https://www.rvspaleis.nl/bouten/binnenzeskant/din-912/din-912-\[-\]-a2/din-912-\[-\]-a2-\[-\]-m5/912-2-5x25\\_1](https://www.rvspaleis.nl/bouten/binnenzeskant/din-912/din-912-[-]-a2/din-912-[-]-a2-[-]-m5/912-2-5x25_1)
- 12 x M5 bolts: [https://www.rvspaleis.nl/moeren/zeskant-moeren/din-934/din-934-\[-\]-a2/din-934-\[-\]-a2-\[-\]-m5/934-2-5\\_1](https://www.rvspaleis.nl/moeren/zeskant-moeren/din-934/din-934-[-]-a2/din-934-[-]-a2-[-]-m5/934-2-5_1)
- SRC quick release: <https://www.simracingcoach.com/en/contenido/quick-release-src-aluminium-black>
- FXP-LK76 hollow spacer (76 mm): <https://nl.aliexpress.com/item/1005003103344667.html>
- Electronics, coiled cable and Chinese quick release mentioned in the other manual.

## 3D printed parts

Print these 3 parts: <https://www.thingiverse.com/thing:5404015>



#### Settings:

- filament: 3DJake ecoPLA black: <https://www.3djake.com/3djake/ecopla-black>
- 50% infill, type: cubic
- bed temperature: 50 degrees
- nozzle temperature: 210 degrees
- retraction: length 6,5 mm, speed 20 mm/s
- layer height: 0.15 mm
- first layer height: 0.2 mm
- vertical shells: 8 perimeters
- horizontal shells: 8 layers
- brim width: 7 mm
- supports: yes (touching build plate only).

#### Sanding

The parts have a 'perfect fit', this can make it a bit difficult to assemble. You may need to sand down the edges and inside a bit so they can slide in.

Try mounting the adapter onto the Thrustmaster wheel. Sand the inside a bit if it doesn't fit. It should be a snug fit.



Note: there are 4 holes in this adapter for bolts and nuts to protect against delamination, but I don't think it is necessary (I left the bolts out).



When it fits properly, remove the adapter.

Mount the SRC quick release onto the servo shaft.





Mount the spacer onto the SRC quick release.



### Grinding the bolt heads

The Chinese quick release come with M5 bolts, but they are too short. Those bolt heads have an unusual thickness of 7.2 mm. Standard inner hex bolts have a head size of 8.2 to 8.5 mm, so they won't fit into the quick release.



We need to grind the bolt heads down to 7.2 mm. The easiest way to do this is to put two nuts onto the bolt:



Then put it into a drill:



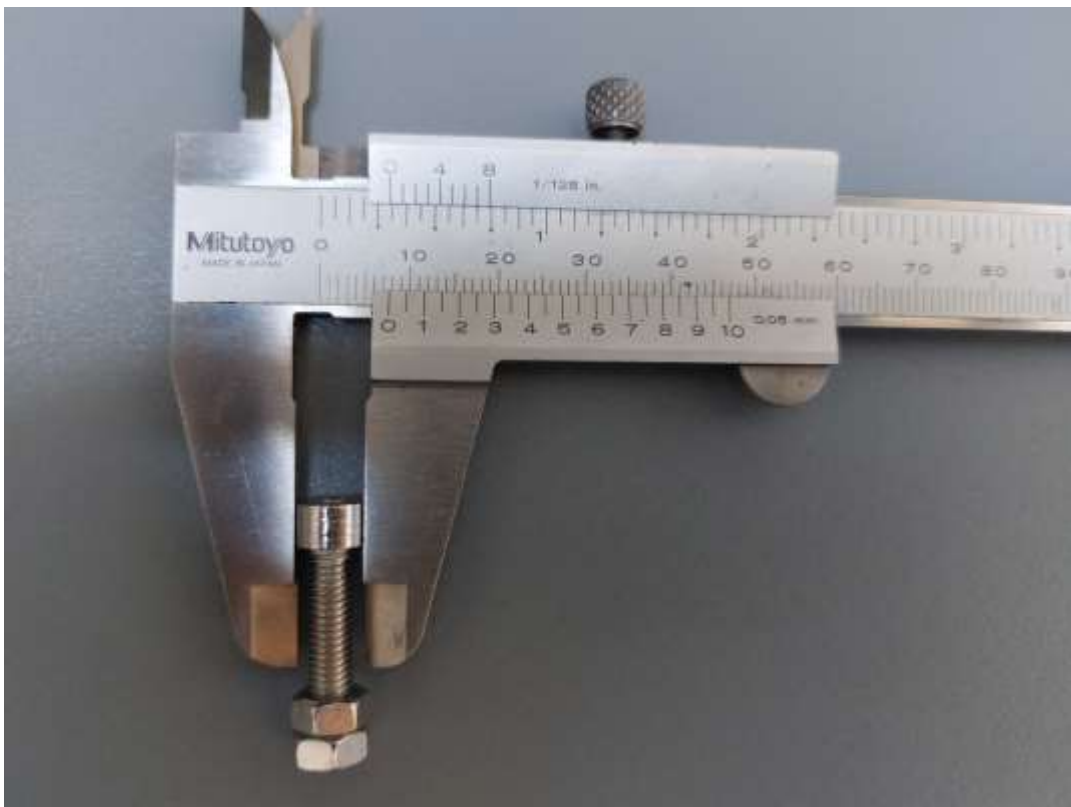
Put a file onto a vice:



Grind the bolt head down to 7.2 mm. Use a low RPM and move the bolt left and right while it is turning. Careful: the bolt will get **HOT**.



Check the size, or try mounting it into the Chinese quick release to see if it fits. Again, careful: **hot**.



When the size is OK, put the bolt aside to cool down. Mount new nuts onto the next bolt and repeat for all 6 bolts.

Check if they fit:



## Assembly

Glue the plug of the coiled cable into the middle part. See the linked manual on page 1 on how to do that (or reuse that part if you built it before using my previous manual).

The parts need to be assembled like this:







Guide the cable through a hole in the spacer and insert the assembly into the spacer:



Mount the quick release onto the spacer. Make sure you are using the correct bolt holes in the spacer: only one pattern fits.



Put the plug into the Sparcfun Pro Micro (see the other manual for the electronics):

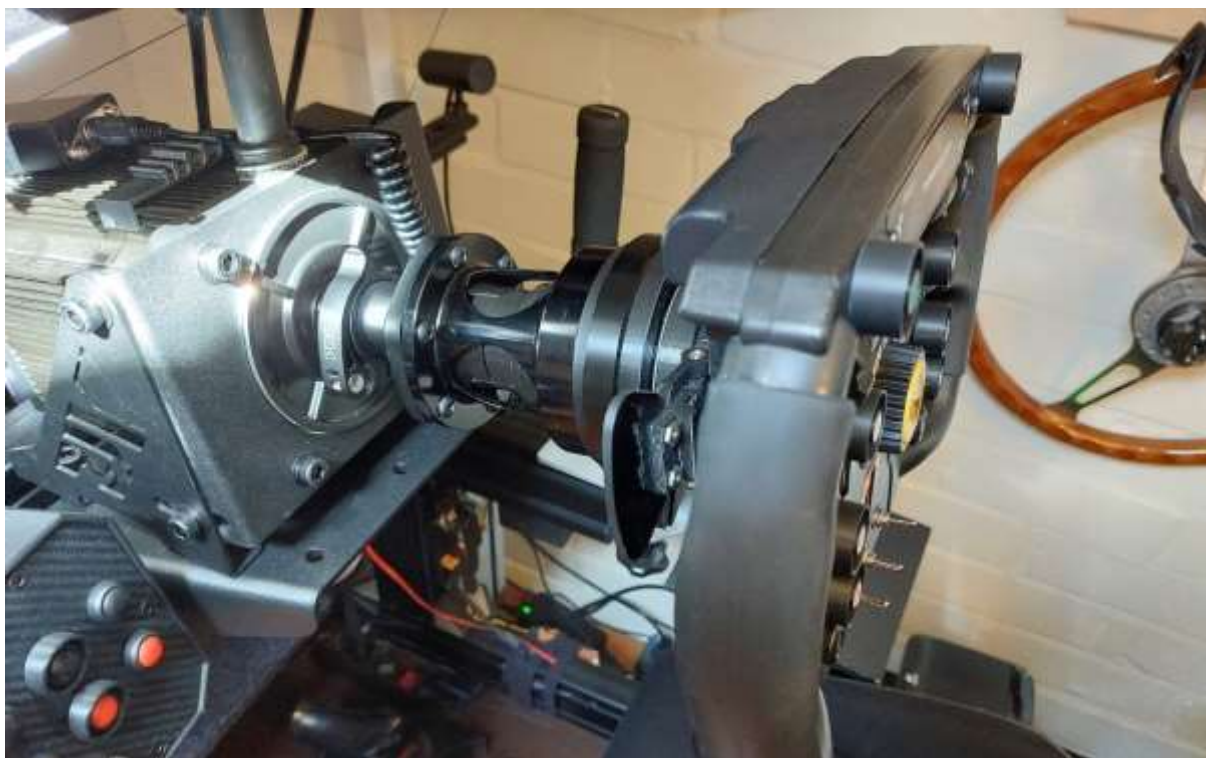




Make sure the coiled cable has enough slack.



Mount the wheel.



Happy racing!