1. Idler body assembly

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Step 1 — Tools necessary for this chapter

- Please prepare tools for this chapter:
  - 2.5mm Allen key(s) for M3 screws
  - 1.5mm Allen key for nut alignment

  Note there are two types of the 2.5mm Allen keys. Use the longer one for screws, which are difficult to reach as this Allen key has a ball end.

  You can use your own tools if you find them more suitable for the build.

Step 2 — Idler parts preparation

- For the following steps, please prepare:
  - mmu2-idler (1x)
  - 625 bearing (6x)
  - M3x10 screw (2x)
  - M3nS nut (2x)
  - Shaft 5x16sh (5x)

  Note you need 6 bearings, but only 5 shafts ;)
Step 3 — Idler bearings assembly (part 1)

- **WARNING**: read the instructions carefully, you have to **assemble bearings in the correct order**, otherwise you will encounter problems later!

  - Take the first bearing and place it in the middle of the idler. Insert the shaft as in the picture, make sure you are using the opening on the top.

  - Slide the shaft in using 2.5 mm Allen key. **Make sure the shaft is all the way in** and not blocking other slots for bearings.

  - Take the second bearing with the shaft and assemble it in the same way as the previous one.

  - Take the third bearing with the shaft and place it in the idler.

  - Make final a check, ensure all three bearings can rotate freely.

  - There are small openings on both sides of the idler, which can be used to push the shaft back.
Step 4 — Idler bearings assembly (part 2)

- Turn the idler around and continue with the bearing assembly.
- Start with the slot closest to the centre of the idler.
- Finish bearing assembly with the slot on the right side.
- Make final a check, ensure both bearings can rotate freely.

Step 5 — Idler nuts assembly

- Take two M3nS nuts and slide them in the idler all the way in.

  - Ensure proper alignment using a 1.5 mm Allen key.

- Grab two M3x10 screws and screw them slightly in the idler, just to catch the nuts. Five or six turns are enough for now.
Step 6 — Idler centre bearing assembly

- Take the remaining bearing and slide it in the centre of the idler.
- Make sure the bearing is aligned with the idler surface.

Step 7 — Final check

- Before proceeding, check following:
  - All five bearings are able to rotate freely.
  - The sixth bearing is aligned with the surface of the printed part.
  - Both nuts are inserted.
  - Screws are just slightly tightened.

Keep the idler close, we will need it soon.
Step 8 — Idler-body parts preparation

For the following steps, please prepare:

- mmu2-idler-body (1x)
- M3x10 screw (5x)
- M3nS nut (2x)
- Shaft 5x16sh (1x)
- Extruder motor* (1x)

* In case of the MMU1 to MMU2 upgrade use the motor from the disassembled MMU1. This motor is not included in the MMU1-MMU2 upgrade package
Step 9 — Inserting M3nS nuts into idler-body

- Take the M3nS nut and insert in the slot of the idler-body, all the way in.
- Turn the idler-body to the other side, take the second M3nS nut and insert in the slot, all the way in.
- Ensure proper alignment of both nuts using 1.5mm Allen key.

Step 10 — Inserting the idler in the idler-body

- Slide the idler into the idler-body. Mind the correct orientation of the M3x10 screws.
- Push the idler down.
- Using fingers rotate the idler back and forth to ensure smooth movement.
- Rotation of the idler is limited by the stop on the idler-body.
Step 11 — Extruder motor assembly (part 1)

- Before we assemble the motor to the idler-body, we need to rotate the shaft properly.

- Check the idler opening, which **ISN'T ENTIRELY CIRCULAR!** There is a flat part, which matches the shape of the motor's shaft.

- Rotate the shaft as in the second picture. To match the opening in the idler.
Step 12 — Extruder motor assembly (part 2)

- Move the motor towards the idle-body. If necessary **ADJUST THE ROTATION OF THE SHAFT** to match the opening in the idler.

- Make sure the **CABLE** from the motor is **FACING UP**.

- Slide two screws M3x10 in the opening on idler-body and tighten them slightly.

- Turn the entire assembly upside-down and insert second couple of the M3x10 screws, again tighten them slightly.

- Make sure the motor is seated properly (in direct contact with the idler-body), then tighten all four screws. Tighten screws on a diagonal.

- Use the longest 2.5mm Allen key to reach the M3 screws on the underside better.
Step 13 — Extruder motor assembly (part 3)

- Insert the shaft 5x16sh into the idler-body and align it with the surface. Make sure the shaft reached the idler.

- Ensure the bearings are in the middle of the grooves in the idler-body and you can rotate the idler easily, if not slide the entire idler.

- Check there is a small gap between the idler (barrel) and the idler-body. In case the parts are grinding you might have issues with the filament loading!

- Screw in the M3x10 screw as a safety.

- Tighten both M3x10 screws until you reach the motor’s shaft. Tighten carefully, as you might crack the printed part (idler).
Step 14 — It’s Haribo time!

- Stop for a while and treat yourself ;)
- Idler assembly is quite easy, 10% is enough.

Step 15 — Final check

- Make sure the shaft rotates freely. The rotation is limited by stops, but within them it should be smooth.
- Make sure both M3nS nuts are in.
- Ready for more? Let’s proceed to the 2. Pulley body assembly.