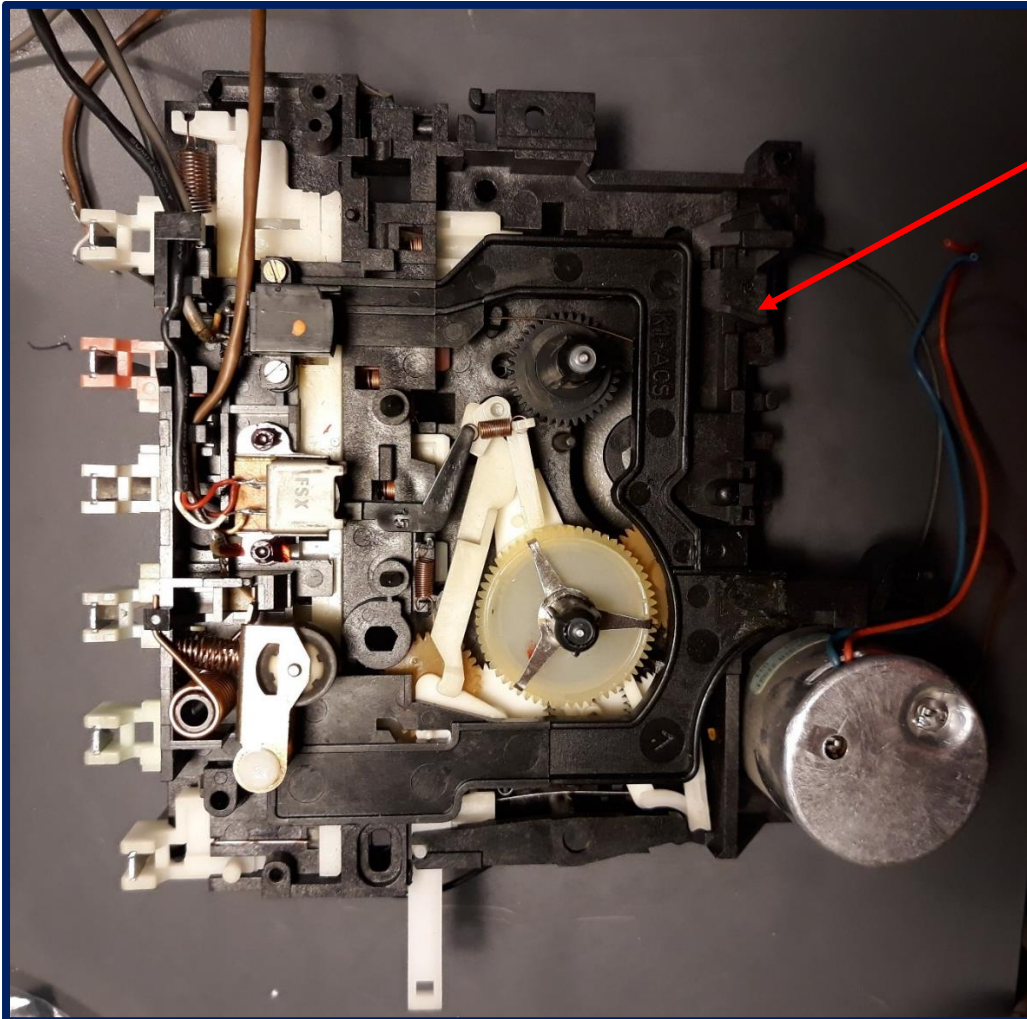


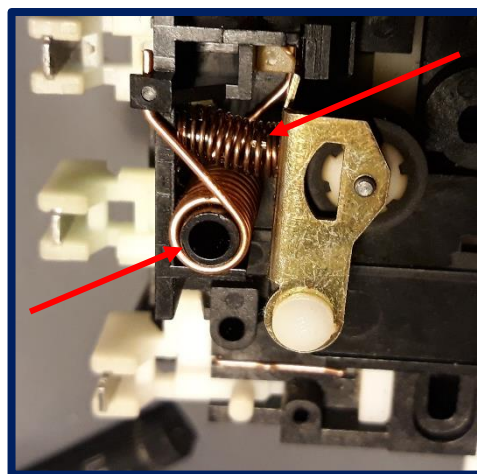
# Philips D8814 Cassette Module (by: Stagdriver)

## Dissassembly:

- The Complete Assembly (Carriage arrowed)

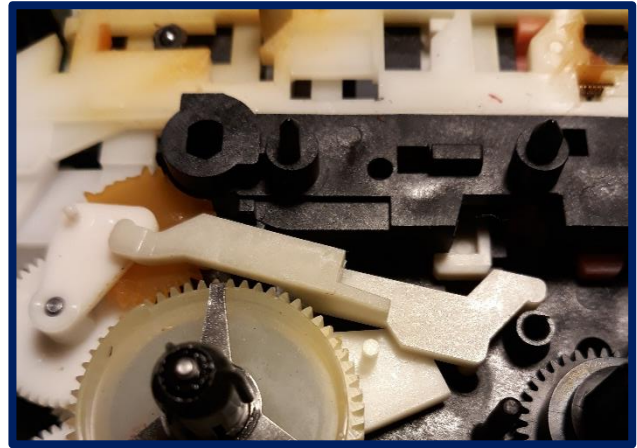
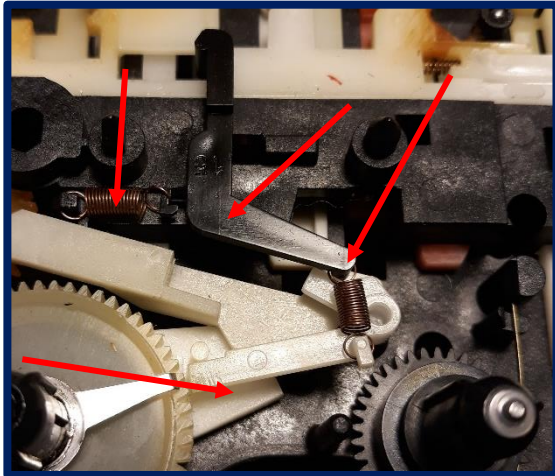


- Remove the two springs on the tape pinch roller.

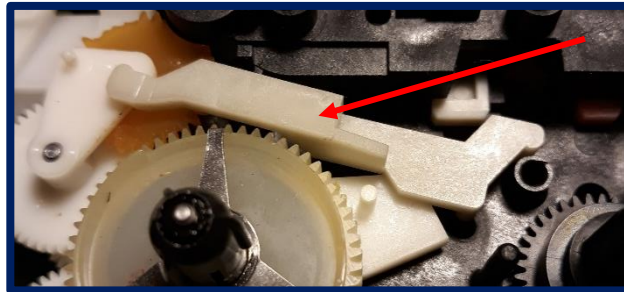


- The tape heads and carriage will then simply lift off as a complete unit.

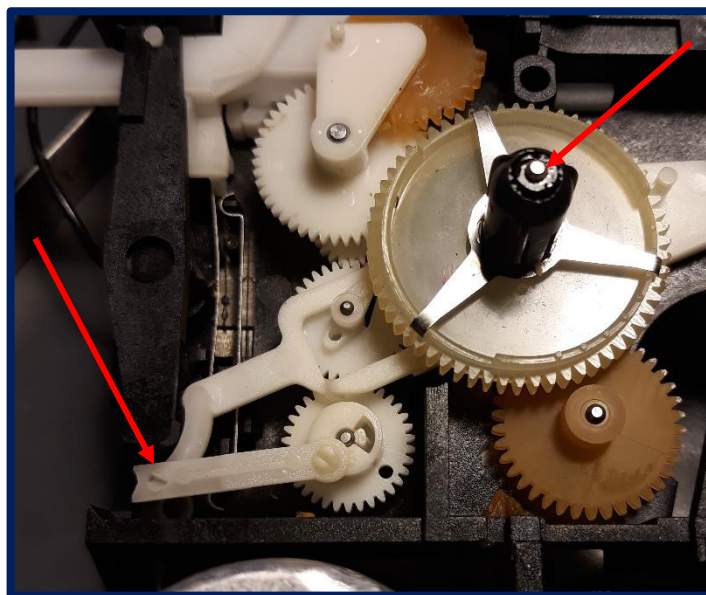
- Remove the tension springs and remove the white link arm (squeeze the underside of the pivot to release the link arm). Then also remove the black link arm by the same method.



- Remove the white arm. (Squeeze the underside of the pivot to release).

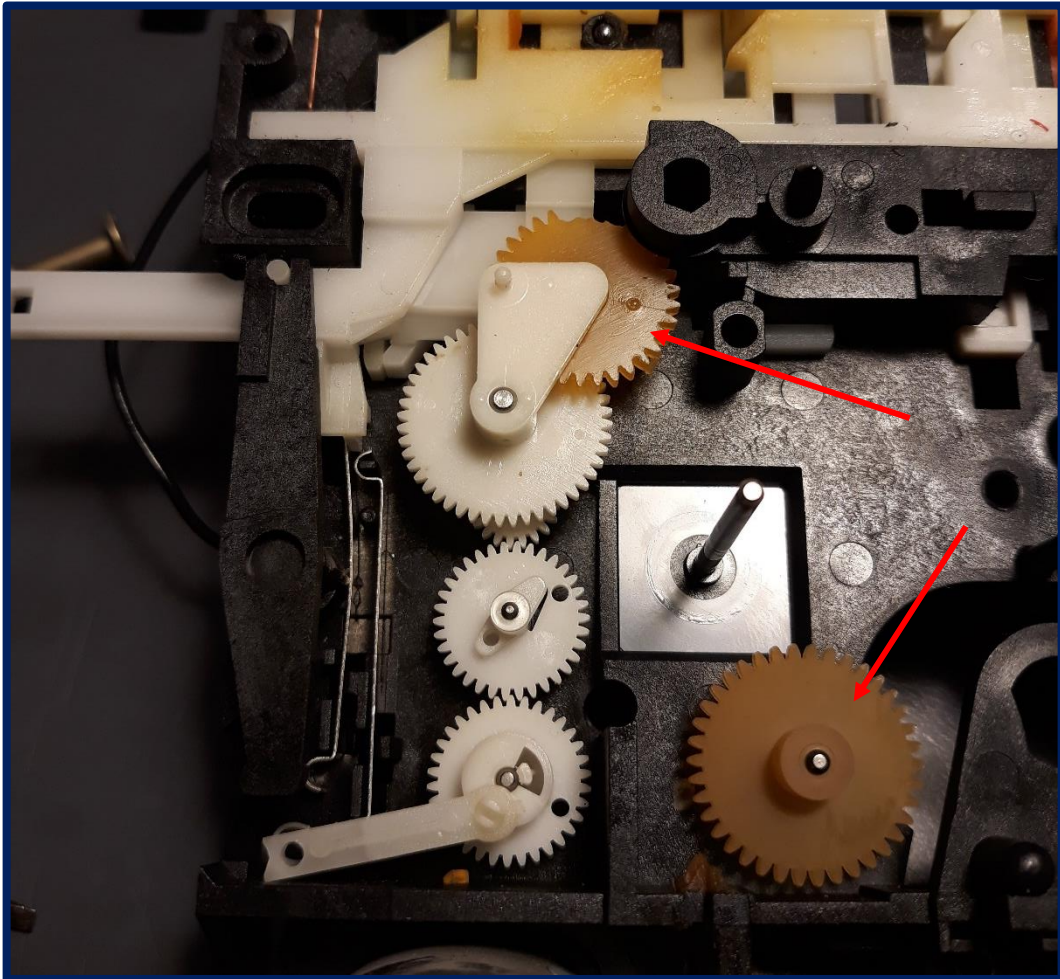


- Carefully lever off the plastic retaining washer on the left-hand spool, then release the pivot by squeezing the pips.
- Lift the gear and linkage away as one.



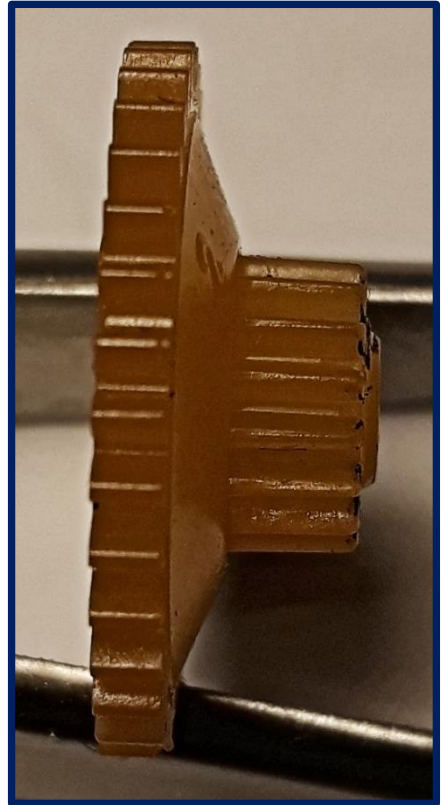
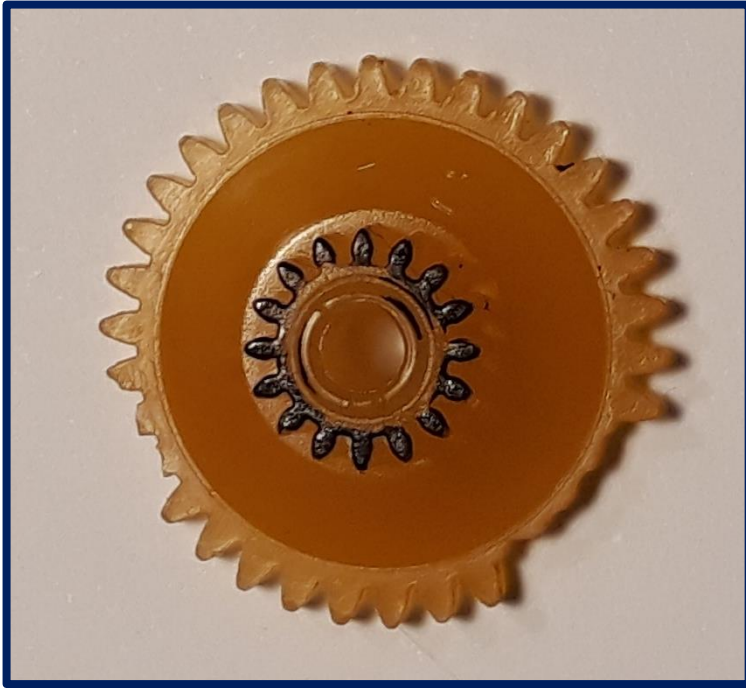
- There is one clearly fractured gear and one other of dubious lifespan judging by the colour.





- Lift off the damaged gear, it is a duplex gear with a pivot bracket attached, do not lose the tint white washer on the top and black one underneath. (the black one is tight and acts as a retainer to stop the duplex gear rising on the shaft).
- Once the black washer (retainer is removed the damaged gear slides off. Plastic has gone soft and damage is clearly evident.





- Measuring the big gear on the duplex, outside diameter = 18mm with 34 teeth, smaller gear = 7.4mm with 16 teeth and the inputting into a gear estimator such as the gear size calculator on <https://www.technobots.online.com/gear-size-calculator.html> I got the following results:
  - Modulus 0.5 (100% certainty) and Modulus 0.4 with 97% certainty).
  - Checked with spare gears of modulus 0.5 and mod 0.4 and the mesh was good.

Making the new one.(as hard to purchase mod 0.5 with 16 teeth).

- Designed and built a gear cutter from scrap, prob better designs out there.
- 



- Cut the Mod 0.5 Gear 1<sup>st</sup> using machinable Nylon 66.
  - 1<sup>st</sup> attempt. There is a shallow chamfer to the other side as per original gear.



- Machine 0.4 Mod gear from nylon 66 machinable grade. After a small mod to the tooling.

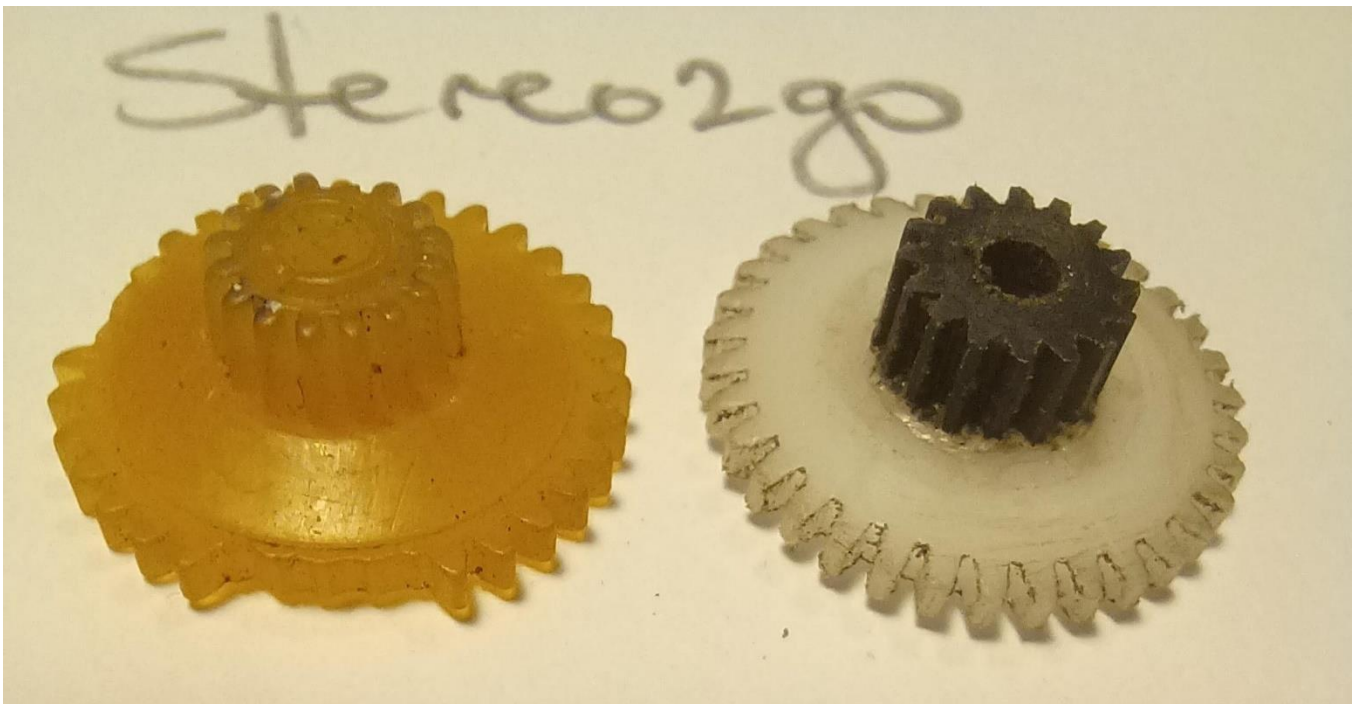




- Press and glue two gears together (rough and ready for test only, needs a bit of detailing, de-burring and a good ultrasonic clean.



- A quick before and after



- Assembled into the deck for testing and operated fine using the reverse of the above instructions for re-assembly.
- Now to titivate the cutters to get a cleaner profile and correct radius to the gear tips and add the washer faces, then re-machine the gears much cleaner and neater possibly trying acetal as it is likely to have a less hairy finish and be more free machining.

A successful project and I now have gear cutting jigs for small gears.

