

Report 2: Improved Precise Filament Pressure to the transportation wheel

PAN, Dec 30th, 2020

1. Introduction

Following the Felix assembly guide (see pictures 69 and 112) it was not possible to adjust the pressure between filament and extruder drive wheel correctly!

- 1: Even with fully compressed spring the pressing of filament to extruder drive wheel was too hard, provoking many rasp at the extruder drive wheel and environment.
- 2: After a long investigation it came out, that the ball bearing touches the wall of the bracket (picture 76), even without mounted spring, pressing the filament by the ball bearing very hard to the extruder drive wheel. See Fig. 1!

2. Conflict Ball Bearing with bracket

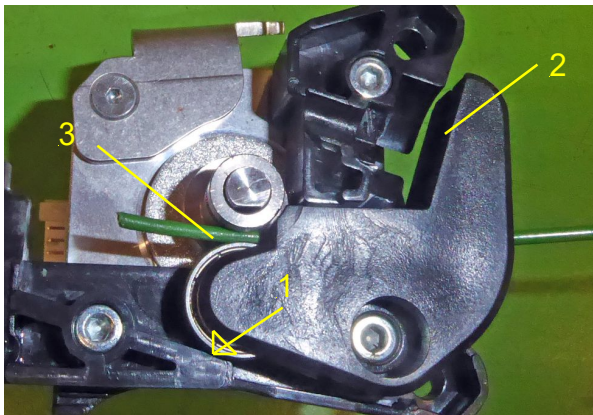


Fig. 1: Ball Bearing conflict to wall !

- 1: Ball Bearing touches the wall of the bracket
- 2: Extruder arm (Picture 70) completely free, without mounted spring
- 3: Filament inserted: hard pressure between ball bearing and extruder drive wheel

The ball bearing is blocked!!

Game over! Needs rework at the bracket!

3. Rework on bracket

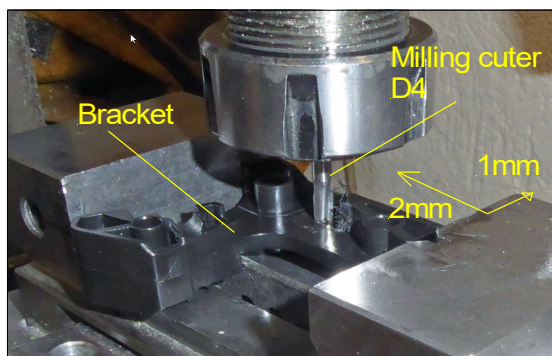


Fig. 2: Post work milling on bracket

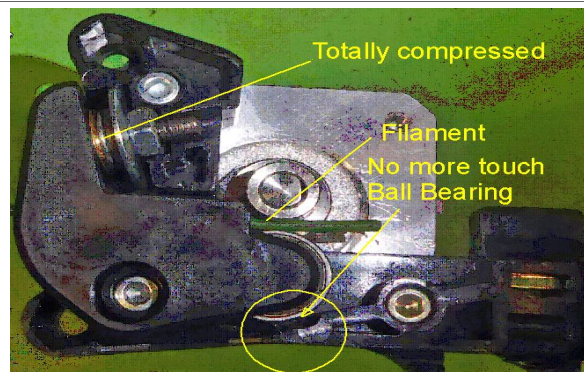


Fig. 3: No more conflict with ball bearing!

4. Improved Washer for Spring guiding

Modification for FelixPrinter Tec4
Precise Filament Pressure Washer for less friction
Replacement for upper washer D15.8x0.8

Material:
Optimal: Brass
Alternative: ABS
(with draft shield!)

The original spring is not well guided by the original washers.

Here a proposal for better washer, guiding a better spring (see later Fig.5) perfectly

Fig. 4: Improved washer

5. Improved springs

The original spring is a little bit too hard!

Fig.5: Springs Type Felix and Peter
Both springs shows a similar spring characteristics, but the Peter spring is better guided by a brass washer, see Fig. 4: D10/7.8x 2.8

Spring Characteristics

Type:	Felix	Peter
Da mm	15.3	9.28
Length mm	14.8	13.8
Wire da mm	1.25	0.8
Nr. of turns	3.75	4

6. Final Comment

With these modification the pressure between filament, extruder drive wheel and ball bearing can be now adjusted step by step

However, the test in practice has shown that the pressure is not hard enough!
The spring should be stronger or shorten the original spring by about 0.5 mm
Use the THIN Nut M4 as shown in Fig. 69 of the application guide mounting.