

Alfonso : 历时四个月终于复活的Bessa RF相机维修记录 (voigtlander Bessa RF Repair)

 dujingtou.com/article_27492.shtml

这是来自西班牙巴塞罗那的摄影爱好者Alfonso的一段艰苦的维修记录，包括了维修的过程和与毒镜的邮件沟通记录，最终Alfonso完美的修好了对焦故障的Bessa rf相机并且拍出了完美的照片，我们这里把寻找问题和维修的记录整理发布出来，方便遇到同样问题的朋友可以用来参考，这里同时保留英文版用于参考。

先看一下维修之前和之后的照片。



BESSA RF维修之后的样片，可以看到对无穷远对焦，远处清晰



上一张图片的100%截图，可以看到锐度很好



这张图片是维修之前的照片，可以看到远处景物不清楚，同时还有一点光轴不正。

在今年的五月我们收到了Alfonso的邮件，在按照之前的文章 [《voigtlander Bessa RF 黄斑不准维修，黄斑校准》](#) 调整维修Bessa rf的时候遇到了问题

This is a hard repair documented by Alfonso, a photography enthusiast from Barcelona, Spain, including the repair process and email communication with me.

Finally, Alfonso perfectly repaired the focus failure of the Voigtländer Bessar RF and took perfect photos, Here we explain the problem and log all the messages exchanged, so that friends who encounter the same problem can find some reference information. The English version is also kept here for reference.

Comparison of photos before and after repairs.



The sample after BESSA RF repair, you can see the focus on infinity, the distance is clear



100% screenshot of the previous image, you can see the sharpness is good



This picture is a photo before maintenance. It can be seen that the distant scene is not clear, and there is also a little optical axis that is not correct.

In May of this year, we received an email from Alfonso, who encountered a problem while repairing the Bessa RF according to the information from a previous article in this web.

问题：

我正在尝试调整 voigtlander Bessa RF 的测距仪，我发现了你的有趣文章。我已经检查了当顶部焦点顶部轮子处于无限远和 1 米时相机对焦是否正确。我可以在无限远时调整测距仪，但是当我尝试在 1 米处对焦时，它就失焦了。如果我在 1 米处调整，则无限远失焦。你能告诉我调整无限和 1 米的最佳程序吗？您显示有两个螺钉可以水平调整测距仪（一个是箭头 2，另一个是左箭头）。左箭头上的螺丝是什么用途？您还说，在螺钉 2 的顶部，您可以垂直调整镜子。最后一次调整的效果是什么？

QUESTION:

I am trying to adjust the rangefinder of a Vöigtlander Bessa RF and I have found your interesting article. I have checked that the camera focus correctly when the top focus top wheel is at infinite and at 1 meter. I am able to adjust the rangefinder when it is at infinite but when I try to focus at 1 meter it is out of focus. If I adjust at 1 meter then the infinite is out of focus. Can you tell me the best procedure to have both infinite and 1 meter adjusted? You shows there are two screws to adjust horizontally the rangefinder (one is arrow 2 and the other is on the left arrow). Which is the purpose the screw on the left arrow? You also say that on top of screw 2 you can adjust the mirror vertically. Which is the effect of this last adjustment?

解决建议

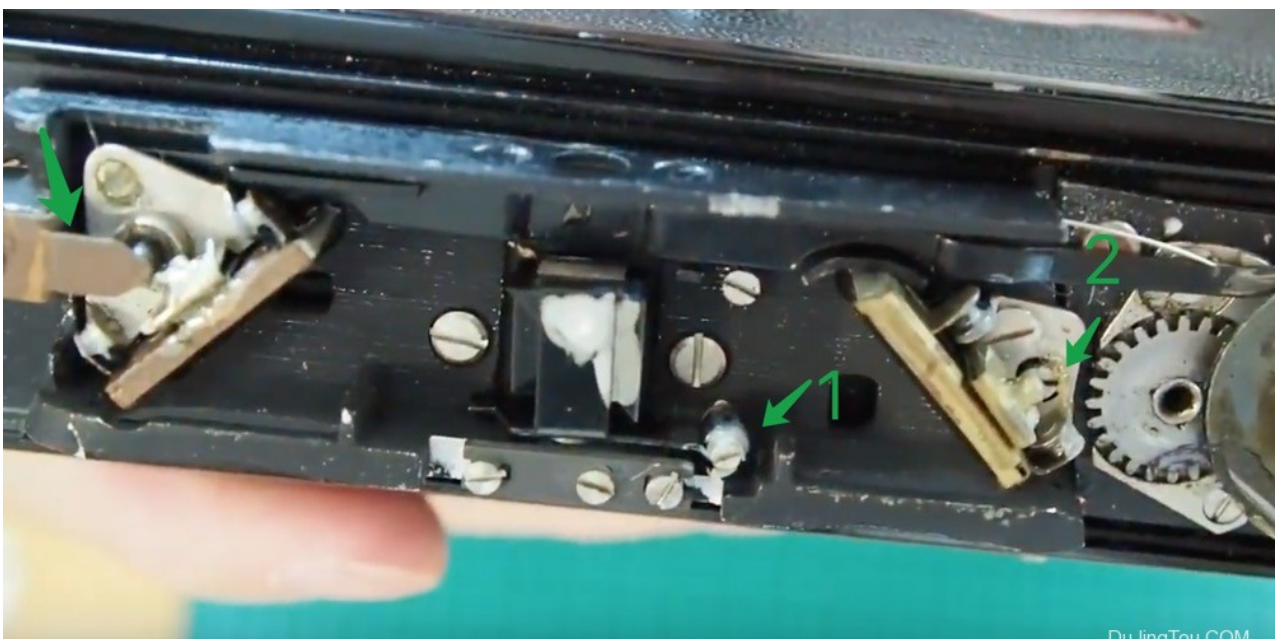
- 1.在焦点无限远的位置上，上下左右调整黄斑焦点准确。
2. 每次调整都要从黄斑窗观察。 你需要注意固定相机以及调焦位置。
- 3.不要让对焦齿轮脱落（否则会很费力） ps：这个问题 其实基本都会遇到
- 4、无限远位置调整完成后，即可安装。 最后，使深无限位置与聚焦无限一致，即拉到最近的位置时候 景深指示也是最近的。
- 5、如果要测试黄斑是否准确，可以无限远打开后盖，用磨砂玻璃（或半透明塑料膜）贴在贴膜位置，用放大镜观察。

<https://www.dujintou.com/wp-content/uploads/2019/12/bessa-rf-repair-9.jpg?v=1576823672>

位置1是调整上下黄斑，位置2是调整左右黄斑。 同样，在左箭头处也有一个类似的螺钉。
2上面有一个螺丝可以调节反光板的垂直角度。

Solution suggestion:

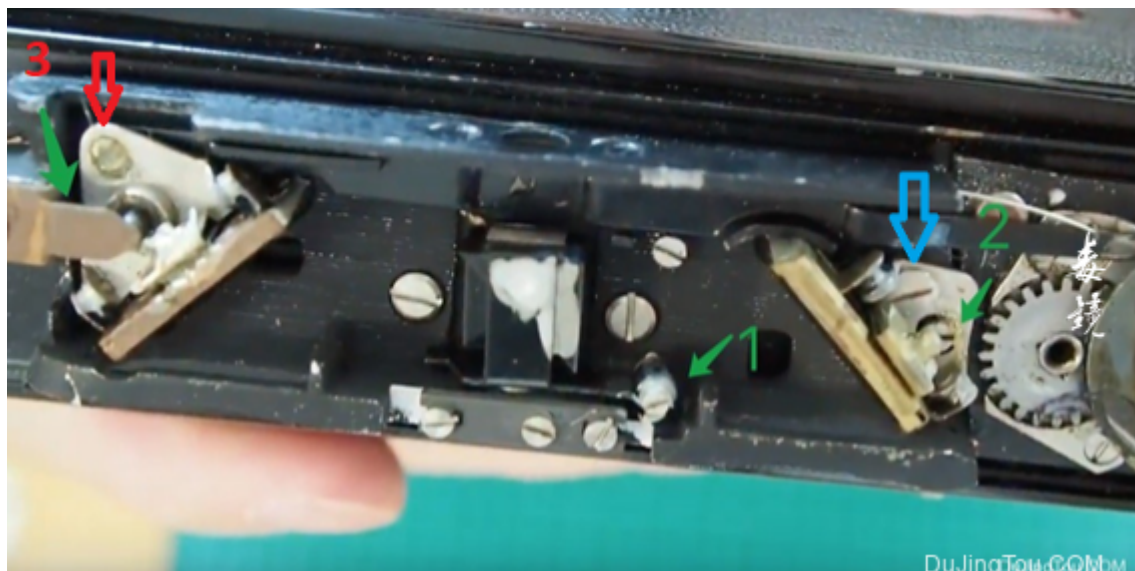
1. Move the focus wheel at the infinite position and look a faraway object. Adjust the rangefinder image to be accurate up, down, left and right
2. Each adjustment should be observed from the rangefinder window. You need to pay attention to fix the rangefinder as well as focus position.
3. Don't let the focus gear fall off (otherwise you will have to start again)
4. After the infinity position adjustment is completed, you can mount everything again.
5. To check if the rangefinder is accurate, you can open the back cover, set the focus to infinity and place a frosted glass (or translucent plastic film) where the photographic film should be and observe if the projected image is in focus using a magnifying glass.



<https://www.dujingtou.com/wp-content/uploads/2019/12/bessa-rf-repair-9.jpg?v=1576823672>

Position 1 is to adjust the upper and lower rangefinder image, and position 2 is to adjust the left and right. Similarly, there is a similar screw at the left arrow. There is a screw above 2 to adjust the vertical angle of the reflector.

修理完毕后来自ALFONSO的建议



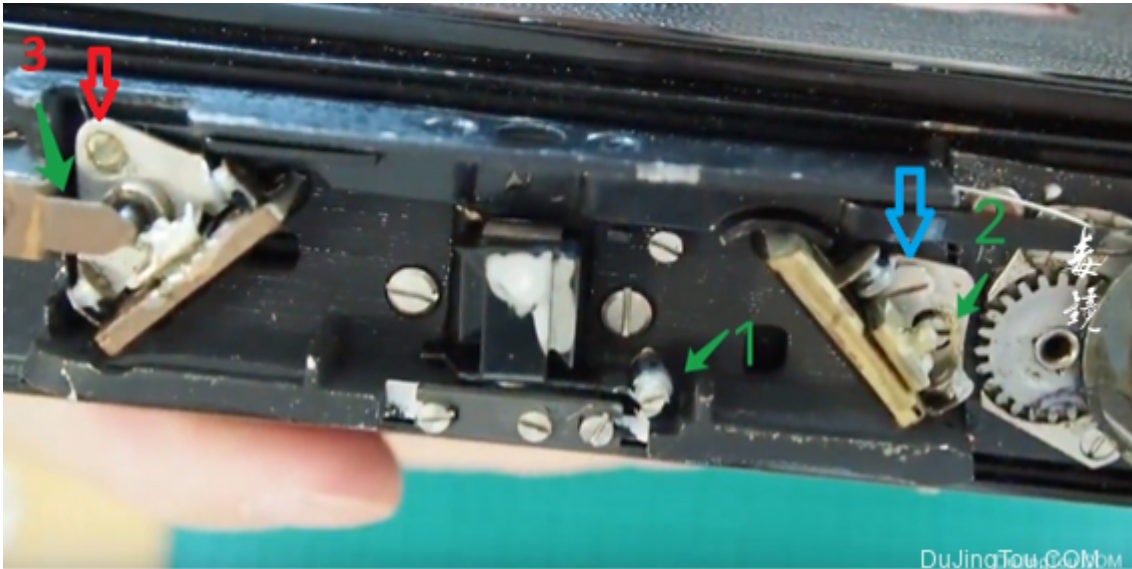
我发现调整活动镜（我用红色数字3标记）比调整固定镜（你用数字2标记）要容易。

至少在我的情况下，为了移动2号，我不得不松开我用蓝色箭头标记的螺丝。然后，我不得不再次拧紧它，在这样做的过程中，我移动了一点镜子，再次错位。

对于3号（红色），这种情况没有发生。

也许2号镜子允许初始调整，而3号镜子是用来做更精细的调整。

COMMENT FROM ALFONSO AFTER FINISHING THE REPAIR



I found it easier to adjust the movable mirror (which I marked with the number 3 in red) than the fixed mirror which you marked with number 2.

At least in my case, in order to move number 2 I had to loosen the screw that I have marked with a blue arrow. I had to tighten it again when I finish and, in doing so, I moved the mirror a little bit and misaligned it again.

Adjusting with the screw marked with 3 (red) this did not happen.

Perhaps the mirror 2 allows an initial larger adjustment and the 3 is used to make a finer one.

问题：（这时应该是对焦的偏心轮已经错位了，这就要整体调整了）

当我把对焦轮从无限大移动到20英尺左右时，测距镜不动，因为对焦机构杠杆臂不动。
Problem: (At this point, the eccentric wheel for focusing should have been misaligned, which would require an overall adjustment)

When I move the focusing wheel from infinity to about 20 feet, the rangefinder does not move because the lever arm does not move.



我看到，使对焦机构杠杆臂移动的偏心轴在无限远和20英尺左右之间有一个平坦的区域。然后我试着改变偏心轴的位置，这样当我聚焦到无限远时，对焦机构杠杆臂就会正好在偏心轴平坦区域结束的地方。在这种情况下，当我从无限远处移动调焦轮时，我看到测距仪正在移动，但....

但是，当我转到最小焦距时，我达到了一个点，对焦机构杠杆臂也没有再移动！这时，我就会发现，对焦机构杠杆臂也在移动。

我看到，在这种情况下，对焦机构杠杆臂与偏心轴失去了接触。你也遇到过这种情况吗？用偏心轴的平坦区域的末端调整无限远，以确保在近距离对焦时，对焦机构杠杆臂仍然与轴接触，这是不是非常复杂？

I found the problem but I do not know the solution. Maybe you can help me.

I have seen that the my camera, when I move the focusing wheel from infinite to around 20 feet, the rangefinder mirror do not rotate because the lever arm does not move.

I have seen that the eccentric shaft that makes the lever move has a flat area just between infinity and 20 feet or so.

I then tried to change the position of the eccentric axis so that when I focused to infinity, the lever would be right at the point where the flat area of the eccentric axis ends. In this case when I moved the focus wheel from infinity I saw that the rangefinder was moving but....when I turned to minimum focus I reached a point where the lever arm didn't move again either!

I have seen that in that case, the lever arm loses contact with the eccentric axis. Is this something that has happened to you? Is it very complicated to adjust infinity with the end of the flat area of the eccentric axis to make sure that when focusing close, the lever still has contact with the axis?

解决建议

和我最开始的遇到的一样，这是最繁琐的工作和测试要等着你做了。

我尽量来讲解一下这个位置的结构，当你了解了这部分的结构后可以不断的测试找到正确的位置。

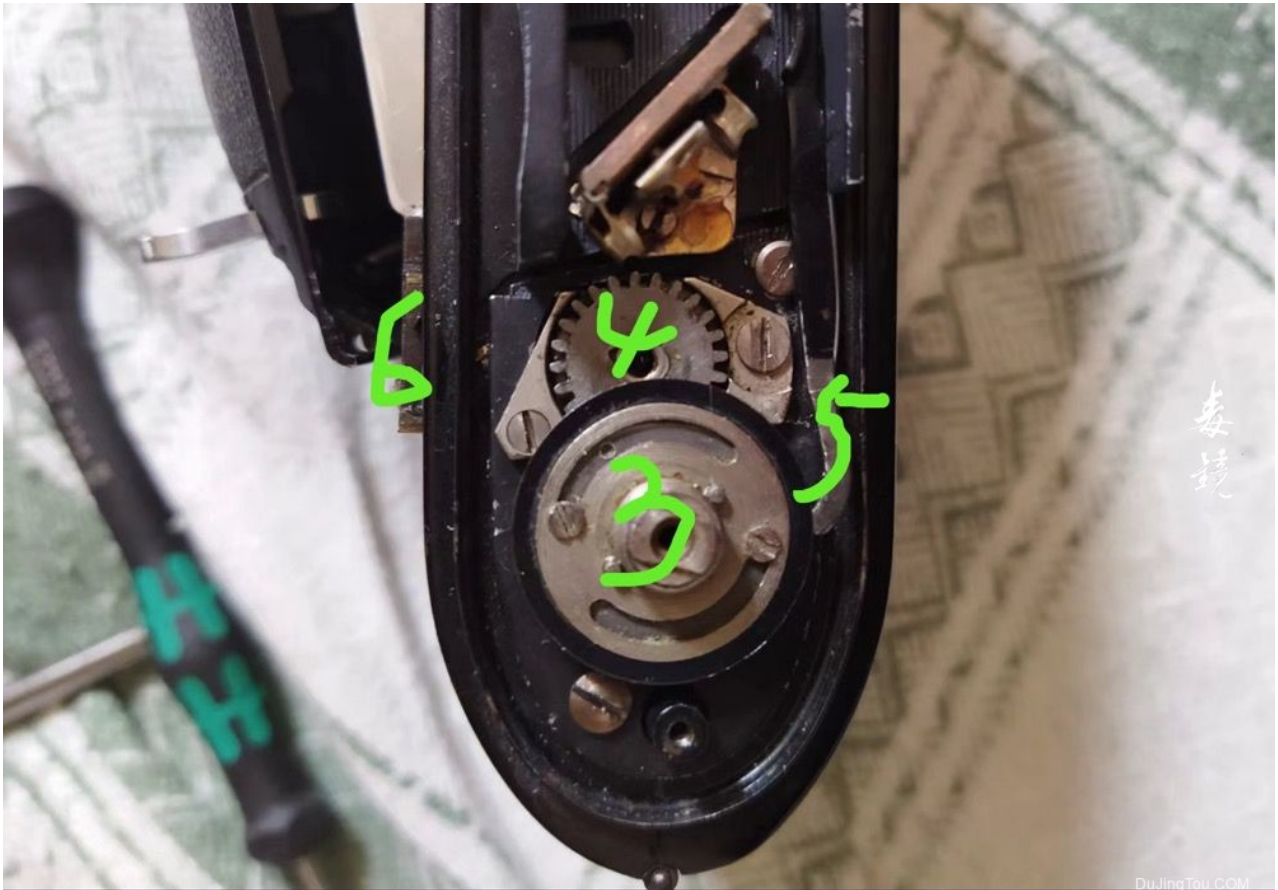
A、外部：这个是最后一步安装



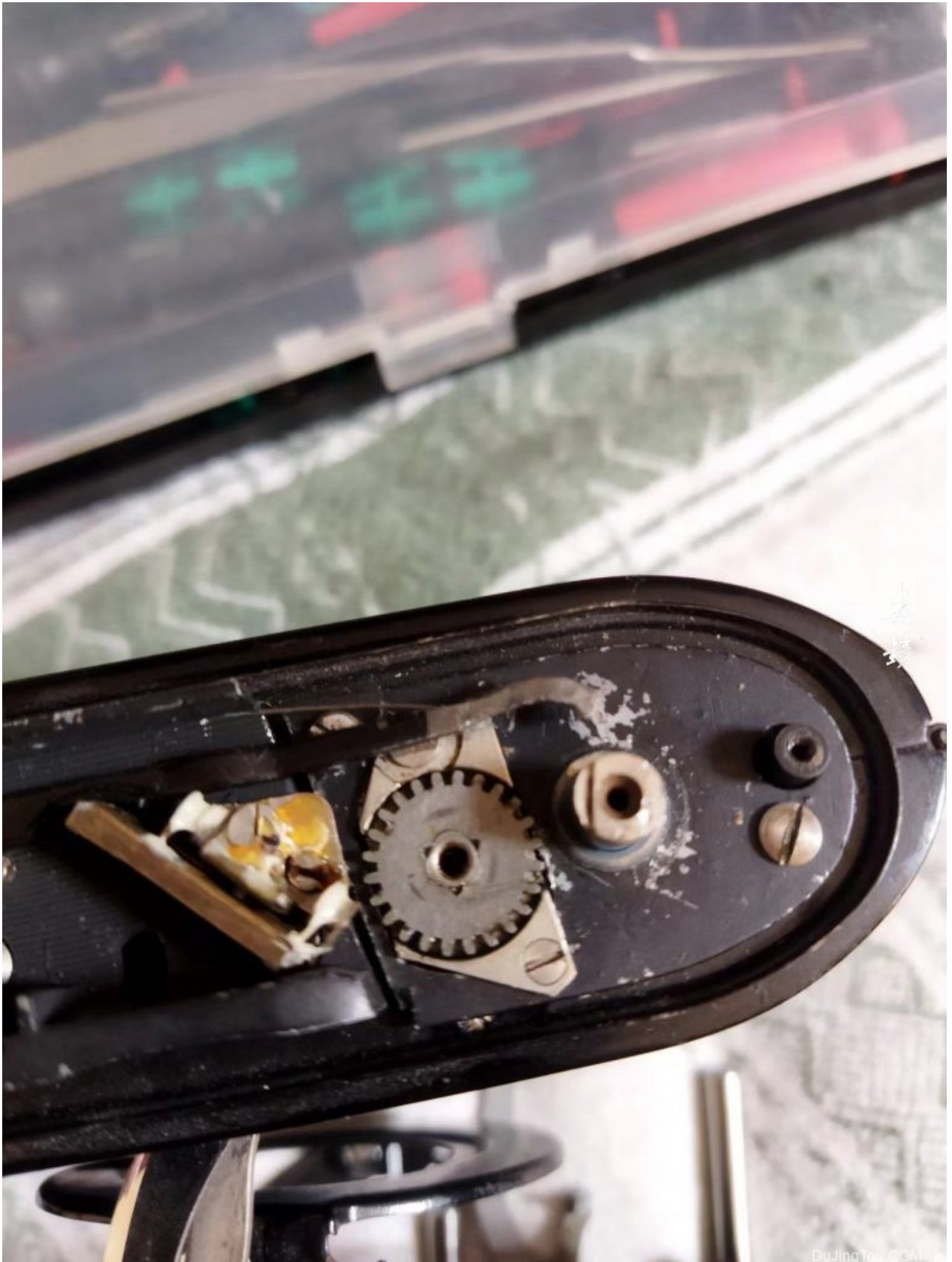
1、对焦转盘固定：这个螺丝用井字扳手固定，任意位置即可

2、对焦限位机构：这个位置很重要，如果固定不正确会出现最近对焦距离后螺丝脱开的情况，然后一切从头开始。观察下面有五个螺丝孔 这五个孔可以根据需要，选择合适的位置 拧紧限位机构。

B、调焦结构：你遇到的问题发生在这里，因为对焦轮在最近对焦距离后脱离了联动结构，所以一切都不正常了。



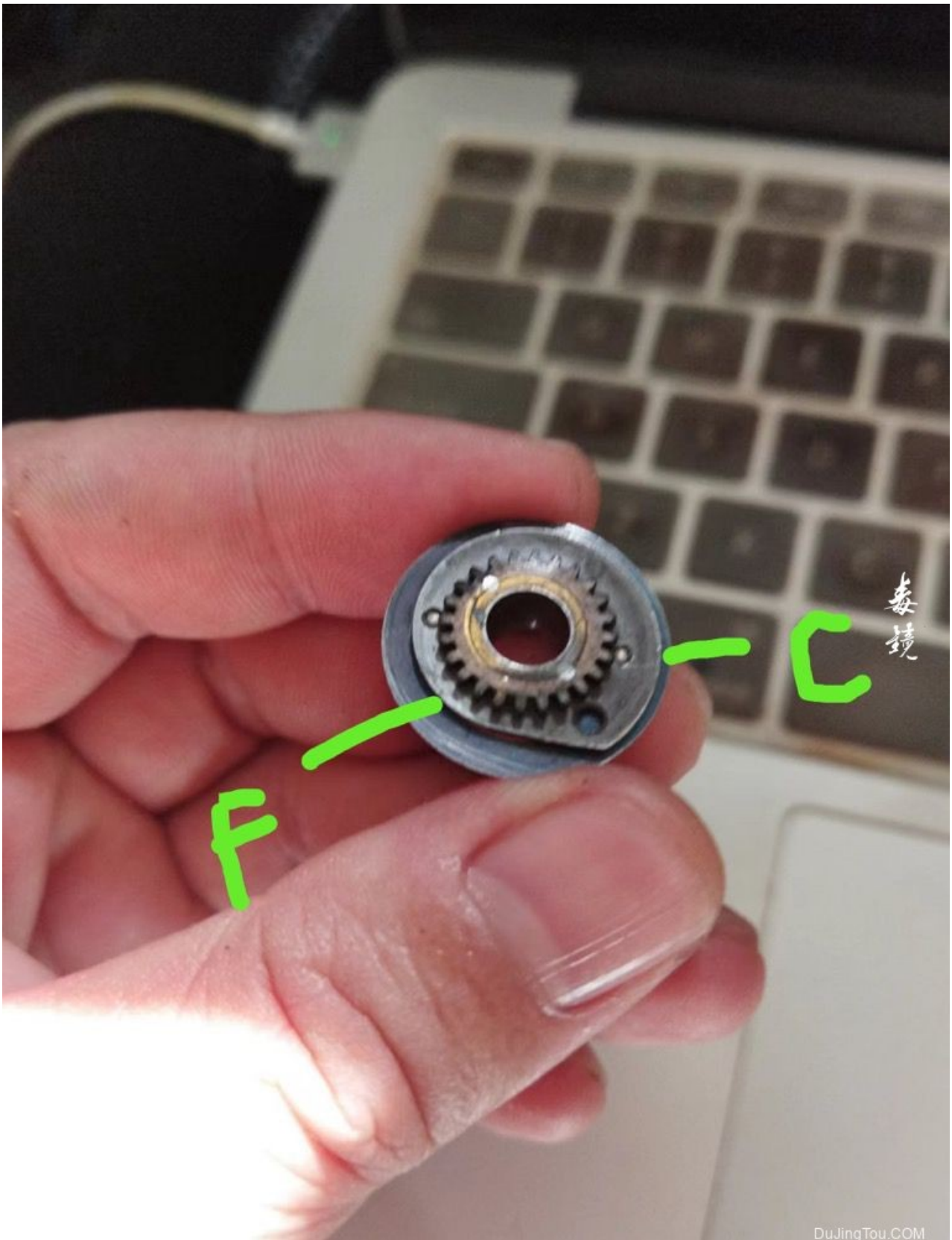
- 3、对焦轮：负责对焦的传动齿轮，也负责黄斑对焦的联动，主要是这个东西的位置，后面我会详细说。
- 4、传动齿轮：不需要处理
- 5、黄斑对焦杆：当他向3接近的时候就是靠近无限远位置，当他远离3的时候是近距离对焦。（你可以仔细观察 尝试会发现规律）
- 6、最近对焦的位置：这个位置之后 旋转3 就会脱出对焦机构，一切校准测试要重新开始。



这是移除了对焦齿轮3的样子，5为接近无限远的位置（但是不是精确的），这个位置的时候6应该全部收缩进去，就像下面那张图。



下面我说一下3对焦轮结构。



F 是指着接近无限远的位置，5应该靠近这个位置。

C是指着最近对焦的位置，这时候5靠近这个位置，这个需要测试找到。

这部分的传动方式 参看附件视频。

下面我说一下完整的测试过程，只是一个大体思路，具体细节需要你测试时候发现。

- 1、旋转对焦轮3 把6的位置设置为最内侧，无限远位置。
- 2、打开镜头快门的B门，用半透明玻璃观察无限远位置是否正确，图像是否清晰可见，如果可见那这个位置就是无限远位置。如果不是则把6小幅度向外移动找到无限远清晰的位

置。然后 标记

3、这时候3应该把F位置给到5，也就是最近位置。固定。

4、校准 黄斑结构左右上下，为无限远位置。

5、安装，固定1，然后旋转到接近最近对焦距离时候，观察6，不要脱落。然后固定2为合适位置。

1-5需要重复多次才能真正的测试精准

As with my first encounters, this is the most tedious work and testing waiting for you to do.

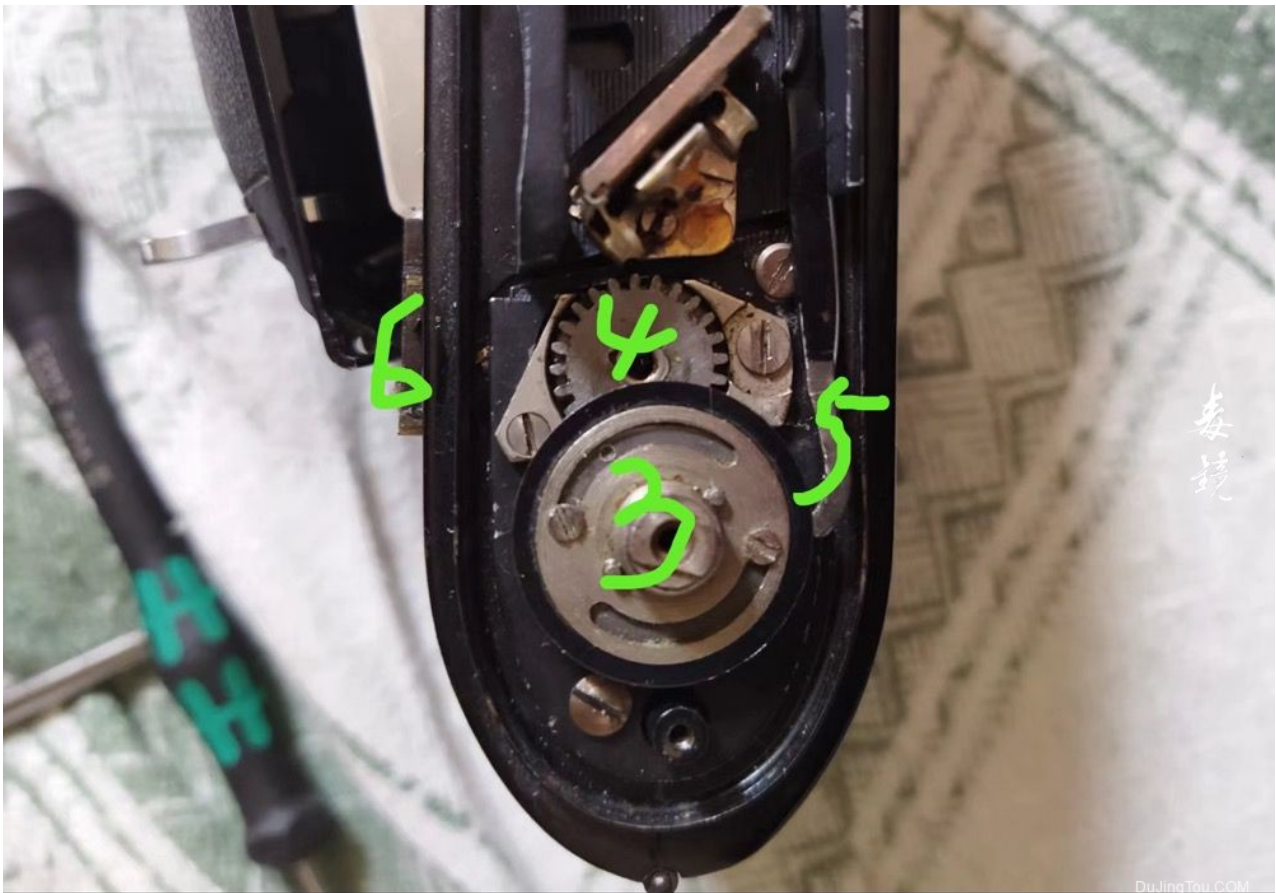
I will try my best to explain the structure of this position. When you understand the structure of this part, you can continue to test to find the correct position.

1. External: This is the last step of installation



1. Fix the focus wheel: This screw can be removed with a tic-tac-toe wrench and can be fixed at any position
2. Focusing limit mechanism: This position is very important. If it is not fixed correctly, the screw will be disengaged after the closest focusing distance, and then everything will start from scratch. Observe that there are five screw holes below. These five holes can be selected according to the needs, and the limit mechanism can be tightened.

B. Focusing structure: In the following image you can see the problem you encountered occurs here. If you turn the focusing wheel too far to the closest distance, the optical mechanism and the rangefinder mechanism is disengaged from the rangefinder mechanism..



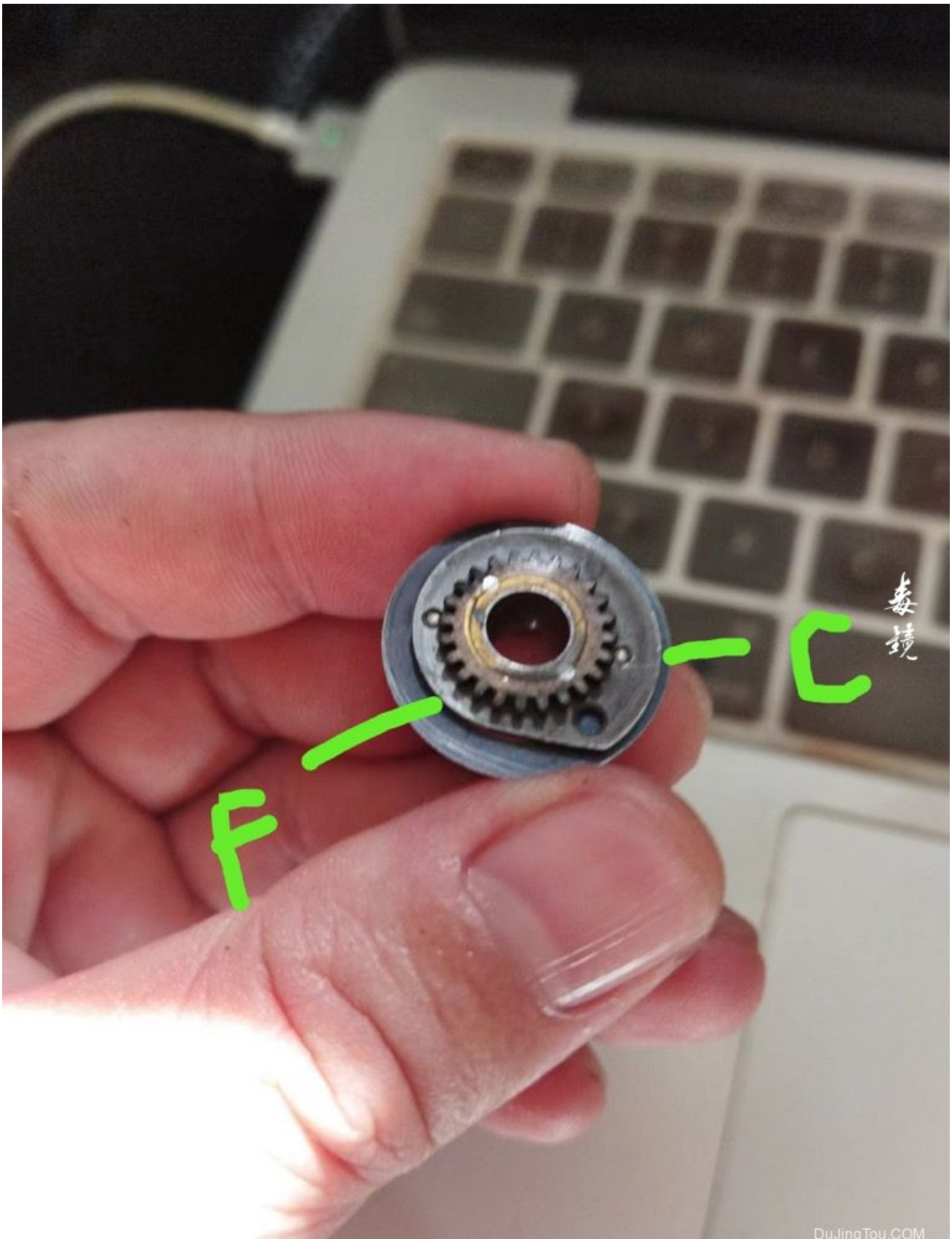
3. Focusing wheel: The transmission gear responsible for focusing is also responsible for the linkage of the rangefinder mechanism, mainly the position of this thing, which I will discuss in detail later.
4. Transmission gear to the optical mechanism: no need to deal with
5. Rangefinder linkage lever: When it is close to 3, the focus should be close to the infinity position, and when he is far away from 3, the lens is in the closes possible focus. (You can observe carefully and try to find the pattern)
6. If this mechanism is visible as in the picture, the focusing wheel has rotated too far and the lens displacement mechanism is disengaged from the focusing wheel. You can engage it again but all calibration should start again!



This image shows the mechanism when the focusing gear 3 is removed. The lever arm (5) should be at this position near infinity (but not exactly). The focusing lens engaging mechanism (showed in 6) should be all contracted like the picture below.



Now I will talk about the 3 focusing wheel structure.



F refers to a position close to infinity, and 5 should be close to this position. C refers to the position of the most recent focus. At this time, 5 is close to this position, which needs to be found by testing.

Next, I will talk about the complete testing process, which is just a general idea, and the specific details need to be discovered when you test.

1. Rotate the focus wheel 3 and set the position of 6 to the innermost, infinity position.

2. Open the B door of the lens shutter, and use translucent glass to observe whether the infinity position is correct and whether the image is clearly visible. If it is visible, this position is the infinity position. If not, move 6 small steps outward to find a clear position at infinity. then mark
3. At this time, 3 should give the F position to 5, which is the nearest position. fixed.
4. Calibration The rangefinder left and right, up and down looking and object far away (infinite) and using the screws 1 and 2
5. Install, fix 1, then rotate to close to the closest focusing distance, taking care that 6, do not fall off. Then fix 2 in place.

1-5 need to be repeated many times for the real test to be accurate

维修在继续，过程很漫长

问题：

我曾试图按照你的指示去做，但没有成功。

但我想我已经找到了原因。

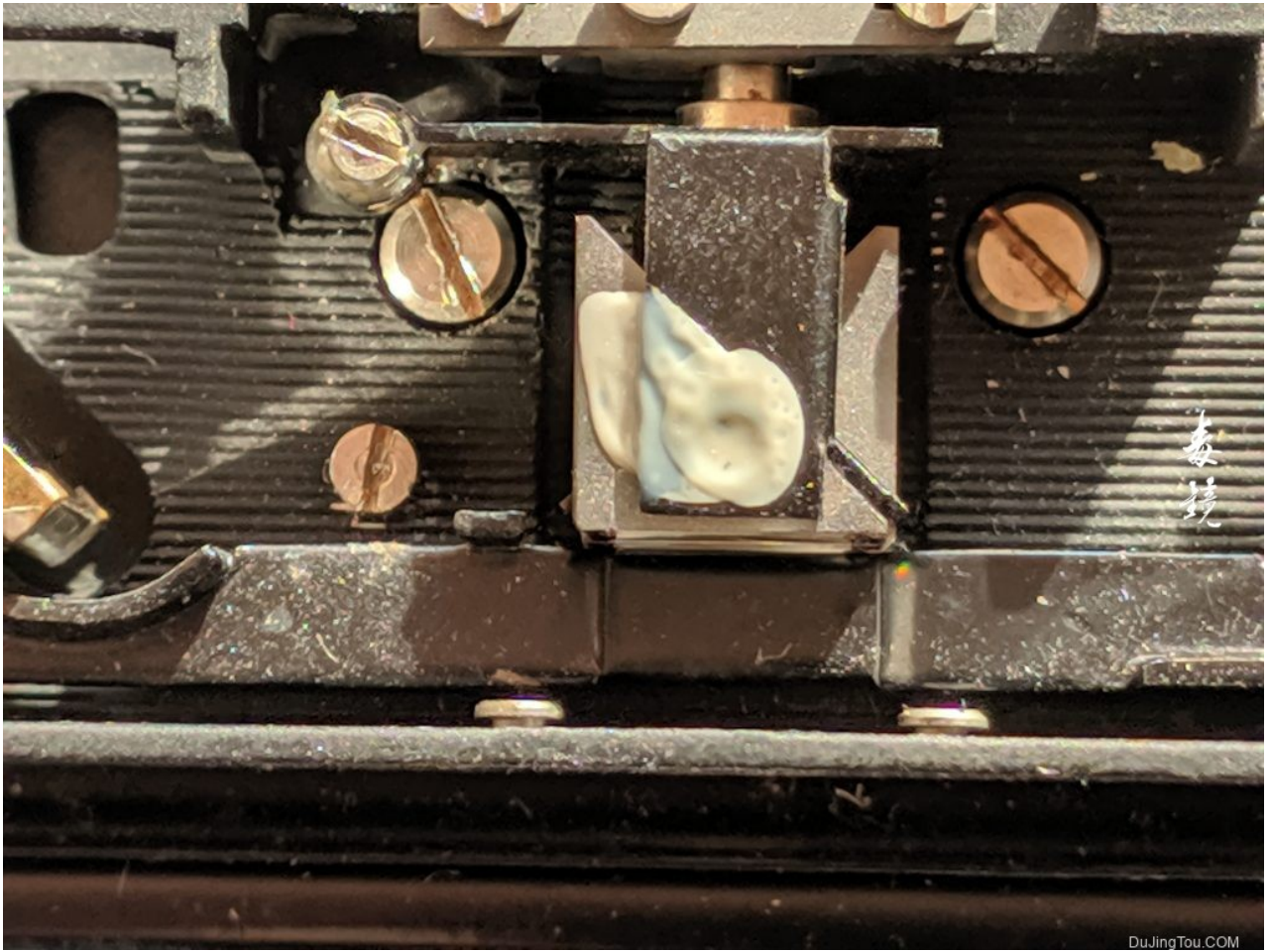
请看所附视频，你可以看到凸轮接触到中央玻璃（我放了一张纸，我在拉伸它，直到它可以很容易地被移除）。如果你看一下凸轮不再接触玻璃时偏心的位置，你会发现它离你在详细手册中显示的F点太远了。

我认为需要移动镜子以使凸轮有更大的发挥空间，你认为呢？如果是这样，你知道哪颗螺丝可以移动中心玻璃吗？

我还看到，偏心件允许一些光线通过（见所附照片）。我不知道这是否正常（这恐怕无法调整）。

我还附上一张完整机构的照片，如果你看到与你的有什么不同（一开始我怀疑凸轮变形了，但我认为不是这样的，因为我看到中央玻璃的占有率有这个问题。

再次感谢。我想我已经接近解决这个问题了。



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I have tried to do as you instructed without success.

But I think I have found the reason.

Please watch the attached picture and you can see the lever arm touching the center prism (I put a piece of paper and I am stretching it until it can be easily removed). If you look at where the lever arm is off-centre when it no longer touches the glass, you'll see

that it's too far from the F point you showed in the detailed manual.

I think the mirror needs to be displaced to give the lever arm more room to move, what do you think? If so, do you know which screw moves the center glass?

I also saw that the eccentric allows some light to pass through (see attached photo). I don't know if this is normal (it can't be adjusted, I'm afraid).

I've also attached a photo of the full mechanism, if you see any difference from yours (at first I suspected the lever arm was deformed, but I don't think so since I've seen this problem with the central glass position and the interference with the lever arm

Thanks again. I think I'm close to solving this problem.

这里毒镜漏看了邮件所以没有回复，这里Alfonso 通过不断的测试已经了解了整个对焦系统的原理和结构。

我终于找到了问题所在! 中央棱镜移位了，与凸轮接触了。只需用螺丝刀移动棱镜，我就能校准测距仪了。

我做了一些测试，但仍然没有得到正确的结果。我附上一些实例图片。

我在室内用f4进行了测试，我可以看到对焦效果一点也不好。

也许它需要再调整一下。我用数码相机和400毫米的镜头（APS-C的270全画幅）做了一个设置，对焦到无限远。对焦看起来并不坏，但我认为还有改进的余地。

我还在压板上补充了泡沫，以确保对底片有足够的压力，并尽可能使其平整。

我有一个问题要问你，在你的Voigtlander Bessa RF相机上，你是否能够在f3.5-f4下正确对焦，或者在这些光圈下，景深太窄，任何测距仪/焦平面的误差都会使照片失焦？你们的相机在f3.5下拍摄时，是否有足够好的校准？

以下是同一文本的英文版本

Hi. I haven't contacted you until now because I've been busy trying to adjust the camera.

I finally found the problem! The central prism was displaced and was contacting the lever arm. It was just a matter of pushing the prism to the right position with a screwdriver and I was able to calibrate the rangefinder.

I have done some tests but I still haven't got correct results.

I have tested indoors at f4 and I can see that the focus is not good at all.

Maybe it needs a little more adjustment. I have made a setup with a digital camera and a 400 mm lens (270 full frame on an APS-C) focusing to infinity. The focus didn't look bad but I think there is room for improvement.

I have also supplemented the pressure plate with foam to ensure that there is enough pressure on the negative and that it is as flat as possible.

I have a question to ask you, on your Voigtlander Bessa RF cameras, are you able to focus correctly at f3.5 – f4, or at those apertures, is the depth of field so narrow that any rangefinder/focal plane error makes the picture out of focus? Your cameras are enough

well calibrated to shoot at f3.5?

这里Alfonso 已经解决了大部分问题，但是发现对焦清晰度不够，通过对比样片我们发现是黄斑校准还没到位，所以根据Alfonso用的工具和方法给出了进一步的建议。

很高兴听到你的新的进展。

关于中间透镜变形的问题，我觉得不是变形了，这个问题我应该也遇到过，实际上就是调整那几个螺丝将取景器，以及裂像屏幕的位置校准即可，那几个螺丝不是很听话。

齿轮那块也不是变形，实际上这个就是我说的需要调整的地方，

转动齿轮当齿轮到达无限远的位置，对应传动到裂像屏幕是不是也是无限远焦点重合（需要眼睛看，可以用三脚架固定），先做这个操作，然后再去看裂像屏幕是不是向上向下方向不重合，再次调整螺丝，因为齿轮那个位置找到正确位置之后是不需要再次调整了，固定就好。

我觉得你快要成功的完成了。

关于在bressa rf以及bressa II 相机上当拍摄的距离过近的时候，最大光圈设置情况下，我都很难得到清晰的画面，这也是我遇到的问题，但是我测试了，当最大光圈的时候镜头是可以拍摄出锐利的数码照片的，所以我觉得这个问题还是因为调焦机构没有完全的调整到位导致的，不过 目前来讲这机器基本可以满足正常拍摄的要求了

PS：有时候，胶卷没有压紧也会导致拍摄模糊，我曾经遇到过两次。

附件是可能的最大光圈的拍的不模糊的照片，大多数都模糊了，因为没有参数 我不确定是不是最大光圈，因为是傍晚拍摄（bessa rf helomar）

Great to hear your new progress.

Regarding the deformation of the middle lens, I don't think it is deformed. I should have encountered this problem. In fact, it is just adjusting the screws to calibrate the viewfinder and the position of the split image screen. Those screws are not very easy to adjust.

The gear piece is not deformed, in fact, this is what I said needs to be adjusted,

Rotate the gear when the gear reaches the infinity position, whether the corresponding transmission to the split image screen is also coincident with the infinity focus (you need to see with your eyes, you can use a tripod to fix it), do this first, and then check whether the split image screen is facing upwards. If the downward direction does not coincide, adjust the screw again, because after the position of the gear finds the correct position, there is no need to adjust it again, just fix it.

I think you are almost done successfully.

Regarding the Bressa RF and bressa II cameras when the distance is too close to the maximum aperture, I have a hard time getting a clear picture but I think your problem is caused by the fact that the focusing mechanism is not fully adjusted in place, and at present your camera can basically meet the requirements of normal shooting.

PS: Occasionally, uncompressed film can also cause blurry shots, I've encountered that twice.

The attachment a photos taken probably at the maximum possible aperture because it was taken in the evening (bessa rf helomar) showas that a picture can be taken with no blur.

结果：最终结果终于维修完成

我花了几个月的时间，完成了奥伊格朗德测距仪的校准工作。

我想在去年7月去度假之前迅速完成，但由于时间仓促，我犯了一些错误。首先，我把一个100英尺外的建筑物作为参考（我想就在无限远处），所以无限远的参考并不正确。

另一方面，为了投射图像，我使用了一张半透明的纸，但我认为它并不完全平整。另一个错误。

夏天的节日过后，我又试了一次，我创建了一个像这里所示的系统，以确保焦点，而不是只靠我的眼睛。

https://www.youtube.com/watch?v=5VxW_-gDmls

有了这一切，在试拍了一卷胶片后进行了最后的调整。我现在又多了一台相机，我对人像和风景摄影都感到非常兴奋。

It took me a few months to calibrate the Vöigtlander camera.

I wanted to finish the calibration quickly before going on vacation last July, but due to the rush, I made some mistakes. First, I took a building 100 feet away as a reference (close to infinity but not enough, I think), so the infinity reference for the rangefinder calibration was not completely correct.

On the other hand, to project the image, I used a translucent sheet of paper, but I don't think It was perfectly flat. Another mistake.

I tried it again after the summer holidays and I created a system like the one shown here to ensure focus and not just my eyes.

I glued the translucent paper to a flat transparent glass to ensure it is completely flat.

Lastly, a final adjustments were made after shooting a last test roll. The results are incredible.

I now have another camera for my collection and am excited about the opportunities this camera opens up for landscape and portrait photography.

Thank you very much!

总结

整个维修过程是漫长的，但是结果很让人高兴，其实在过程中，由于无法直接看到调整过程，所以毒镜这边的建议也并不是很精确的，甚至有些都是笼统的，所以只能不断的把过程图片标精细，这样沟通的时候能够更清楚一些。

非常感谢Alfonso的支持与信任，是他认真的修复了BESSA RF相机并帮助我认真的完成了本篇文章的撰写，校对，以及英文的翻译工作，希望Alfonso可以拍出更多自己喜欢的照片。

Summarize

The whole maintenance process is long, but the result is very pleasing. In fact, during the process, because the adjustment process cannot be directly seen, the suggestions on the poison mirror are not very precise, and even some are general, so only I can constantly mark the process pictures finely, so that the communication can be clearer.

I am very grateful to Alfonso for his support and trust. He seriously repaired the BESSA RF camera and helped me to complete the writing, proofreading, and English translation of this article. I hope Alfonso can take more photos that he like.



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