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Modifying a Pentel Orange Nero mechanical pencil with a push-knock function

이리스 카페매니저

+ 구독

1:1 채팅

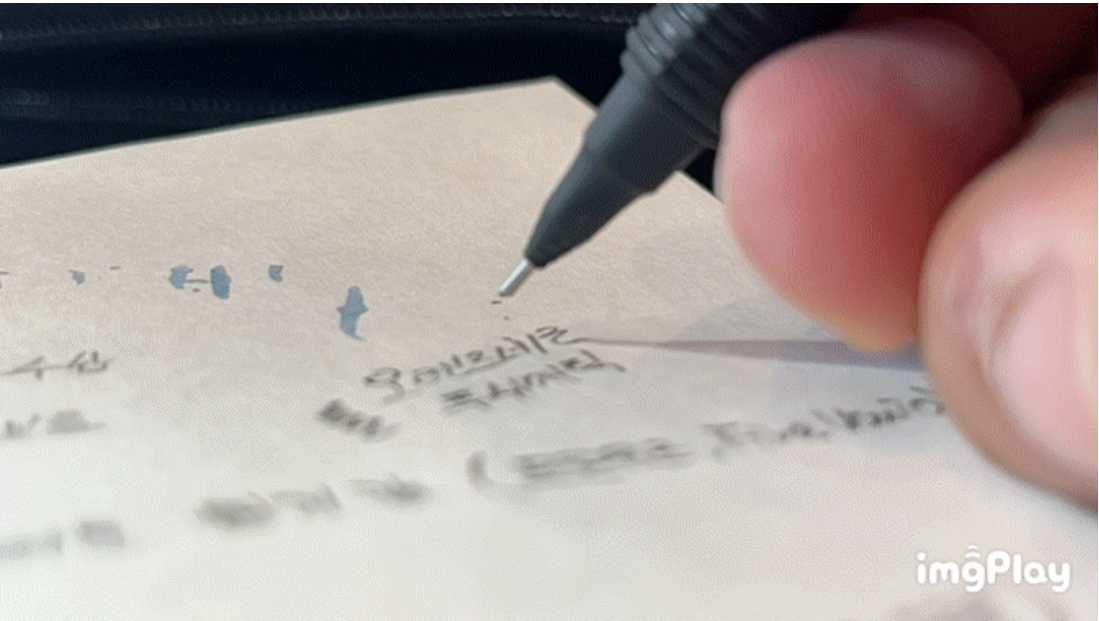
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Pentel Orenz Nero

This high-performance flagship mechanical pencil features an automatic lead ejection feature that eliminates the need for manual tapping, a nib storage feature, and a choice of three lead thicknesses: 0.5mm, 0.3mm, and 0.2mm.



Recently, a method of adding a pushmatic function to an Orenz Nero mechanical pencil has become popular on Japanese Twitter. I'd like to share it with you.

The Pentel Orenz Nero features a cushion function in addition to its automatic function, allowing for modifications that increase the range of the cushion function and convert the nib retraction function to a pushmatic function.

Detailed operating principles of the automatic and pushmatic mechanical pencils will be explained at the end of this post, following the modifications.

This modification cannot be applied to automatic mechanical pencils like the Orenz AT or Pilot S30, which lack a cushion function. The 0.2mm Orenz Nero model is too thin to utilize the pushmatic function, so I recommend modifying only the 0.3mm and 0.5mm models.

Furthermore, since this modification involves cutting off parts, it voids Pentel's warranty and after-sales service.



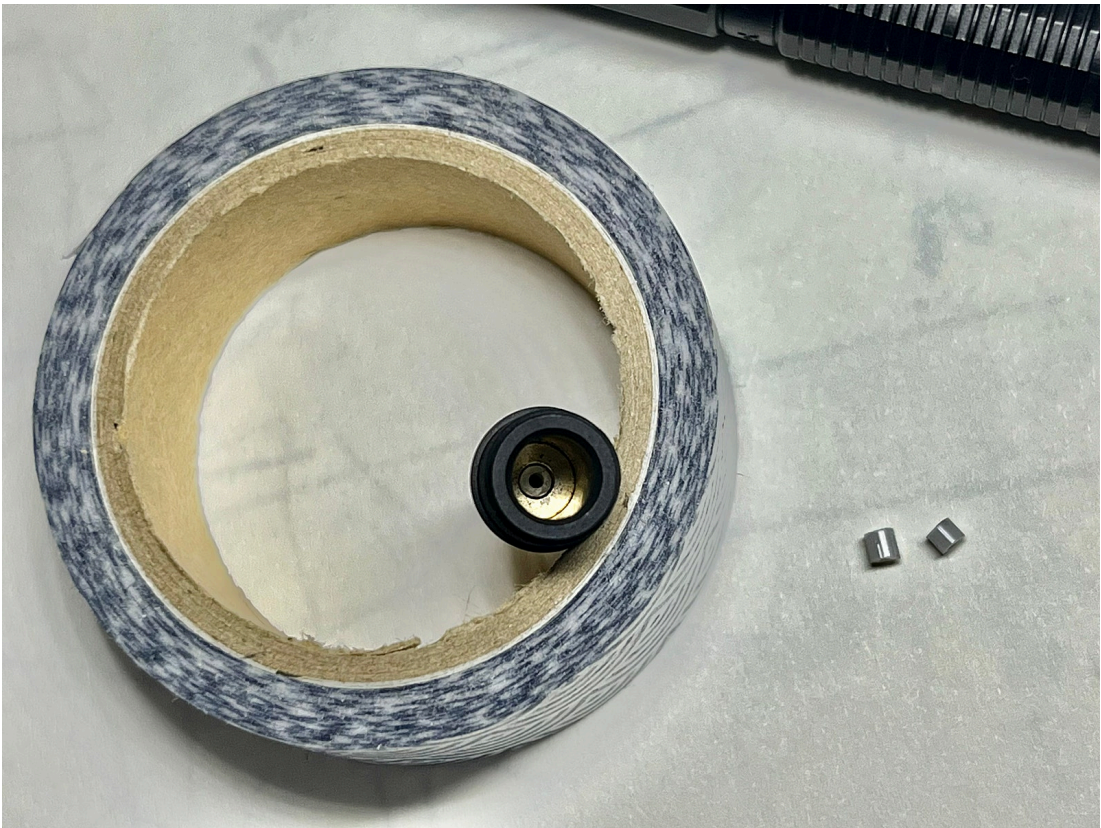
Modification involves two steps.

First, a small pipe is inserted into the nib storage space inside the tip of the Orenz Nero mechanical pencil, eliminating the nib storage function and enabling a cushioning mechanism to be activated when the nib is pressed.



Cut the connecting part of the multi-pen's mechanical pencil unit (circled in the photo) to approximately 1.2mm.

I used Zebra Prefill mechanical pencil refills. Multi-pen parts without plastic parts, like the Jetstream 4 +1 multi-pen in the photo, cannot be used.



Insert the manufactured part into the tip of an Orenz Nero mechanical pencil.

The length of this part determines the length of the lead ejected when the tip is struck.

If the part is made 0.02-0.05mm **longer** than the standard 1.2mm length, less lead will be ejected, while if it's made 0.02-0.05mm **shorter**, more lead will be ejected.

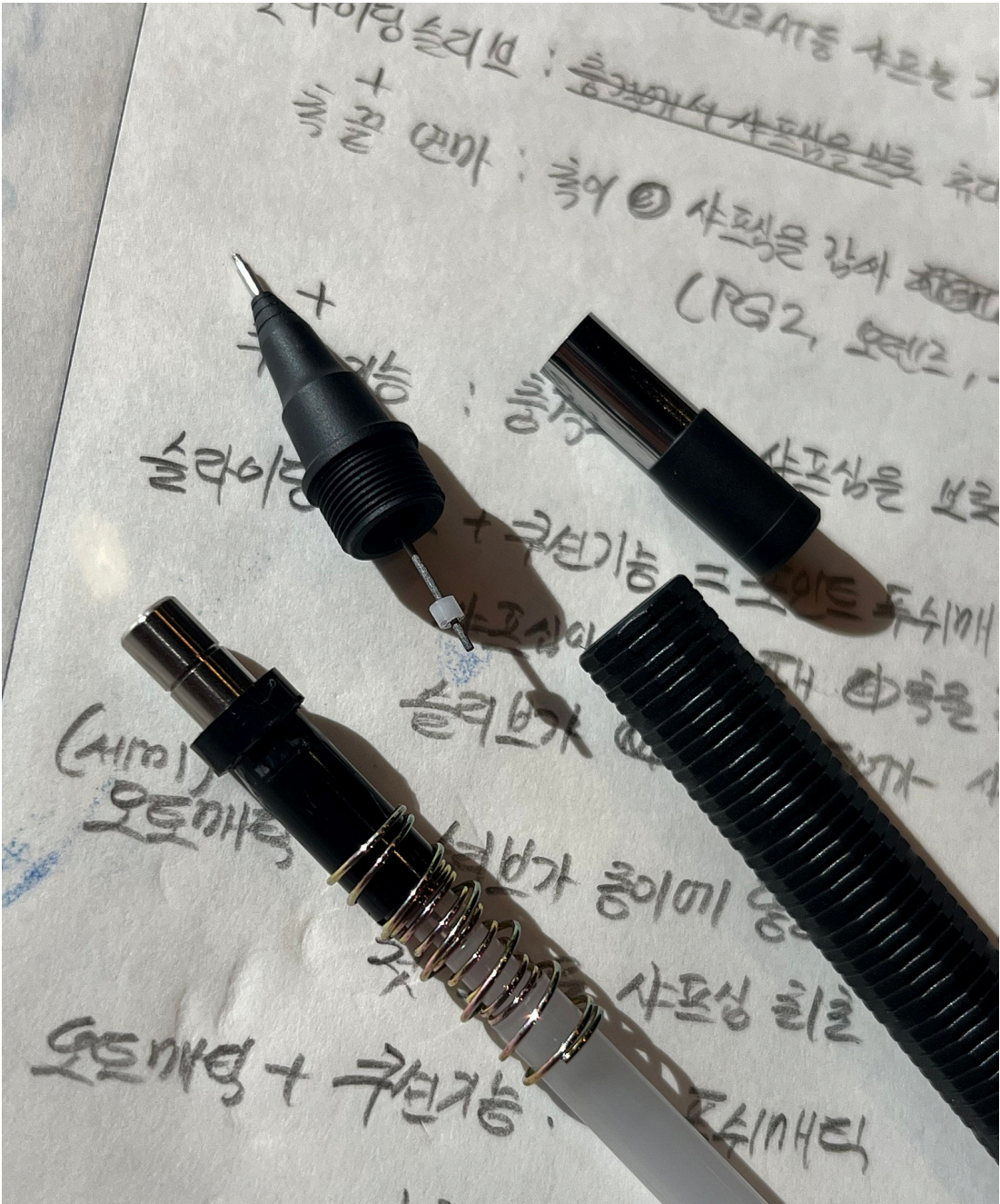
Therefore, for a 0.5mm mechanical pencil, the part needs to be **slightly longer**, and for a 0.3mm mechanical pencil, the part needs to be **slightly shorter**.



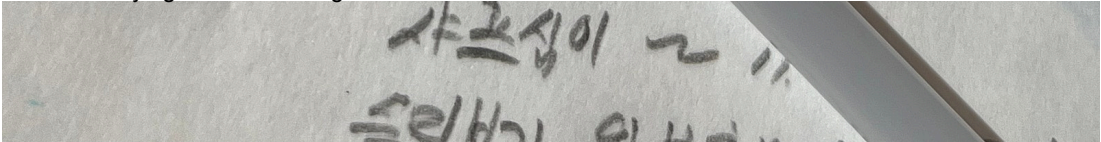
Second, the cushion spring of the Orenz Nero sharp mechanism is trimmed by about 2mm (the area shown in the photo). This increases the operating range of the cushion mechanism, allowing for a nib knock.



The cut-off part must be neatly trimmed to the same thickness as the back part to ensure that the spring can move properly and does not get caught inside the barrel.

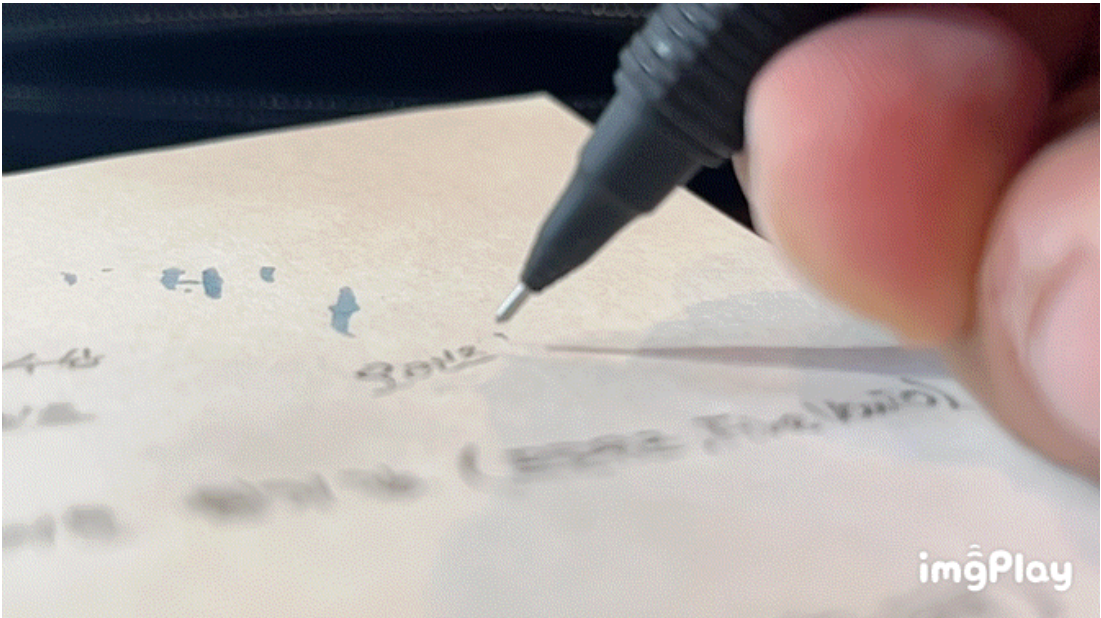






Once the two completed parts are reassembled, the original automatic function of the Orenz Nero will be retained, allowing you to write without knocking. However, the nib retracting function will be removed, replaced by a nib knock function.

Introducing Automatic, Pushmatic, and Point Pushmatic



Semi-automatic mechanical pencils, such as the Pentel Orenz Nero, Orenz AT, and Pilot S30, have a spring built into the nib (sleeve). This spring automatically adjusts the lead length by retracting and retracting as the lead wears. This subtle movement repeats as you write, giving the illusion of continuous lead ejection.

The appeal of automatic mechanical pencils lies in their ability to write uninterrupted, without the need to reposition the pencil for a knock.

**How the Pilot Automac Sharp (Semi-Automatic) Works**

대한민국 모임의 시작, 네이버 카페

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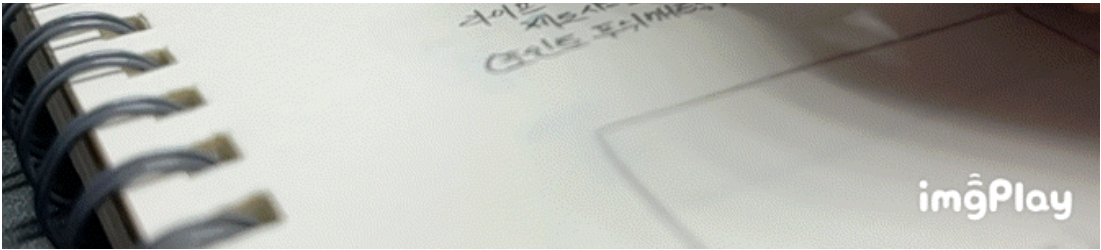
A typical mechanical pencil is used by knocking the lead out of the nib, about 0.3-0.5mm.

Meanwhile, an automatic mechanical pencil operates by completely enclosing the lead and contacting the paper with the nib. While a well-made automatic mechanical pencil has a smooth, polished tip to prevent scratches, it still has drawbacks compared to a standard mechanical pencil, such as paper pressure, blurry writing, or a poor writing feel.

Therefore, depending on the paper condition or writing style, some people knock the lead out, just like with a standard mechanical pencil, to write.

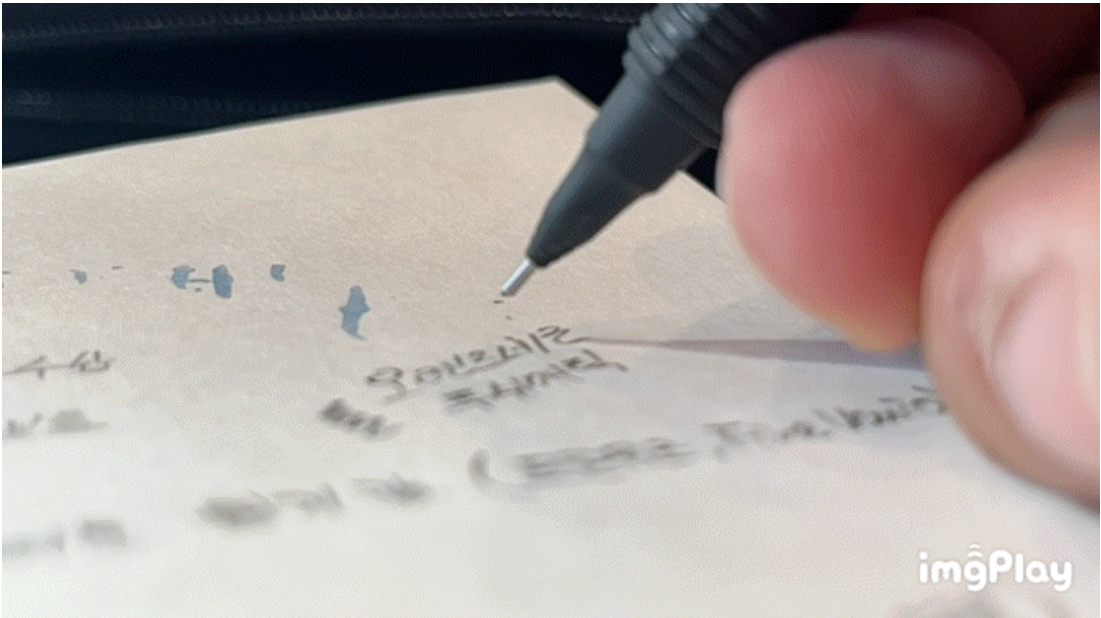
The push-matic feature is useful in this situation. By pressing the pipe tip vertically against the paper and then releasing it, the lead ejects at the appropriate length.





The Pushmatic function combines a cushioning function, which pushes back the clutch mechanism that holds the lead, and a sliding sleeve function, which moves the nib according to the length of the lead.

When the cushioning and sliding sleeve functions are added to a standard mechanical pencil mechanism, it becomes a "Point Pushmatic" mechanical pencil, which "fits the pipe nib to the length of the lead" (allowing approximately five nib knocks per backward knock).



When a cushioning function and a spring-loaded sliding sleeve are added to the automatic mechanical pencil mechanism, it becomes a "Pushmatic" mechanical pencil, which "releases the lead according to the length of the pipe" (allowing unlimited nib tapping).

Both the Pushmatic and Point Pushmatic mechanical pencils share the same principle. The post below by Magic Pen provides a detailed explanation of the operating principles and structure of the Point Pushmatic mechanical pencil.

**[PLATINUM] 하야이 포인트 푸쉬매틱 600엔 (Hayaai Point Push...**

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**"유사" 오토매틱 샤프.. 플래티넘 하야이 1000**

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**프라치나(Platinum) 하야이(Hayaai) 0.5mm**

중복이지만...

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Representative models of mechanical pencils by function introduced in the post

Automatic mechanical pencils:  
Pentel Orenz Nero, Orenz AT, Pilot S30, etc.

Cushion mechanical pencils:  
Platinum Pro-Use, Faber-Castell TK-Vario, etc.

Point Pushmatic mechanical pencils:  
Platinum Hayai, Life & Pieces drafting mechanical pencils, etc.

Pushmatic Automatic mechanical pencils:  
Dong-A Autopia 3000, etc.

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