



ROTATE

WATCH KITS



Watchmaking Guide Miyota 8215 Edition

The Eiffel
The Newton

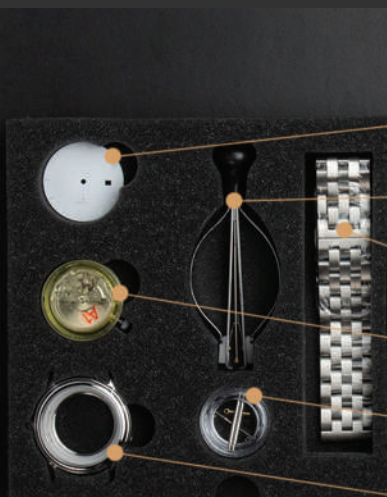
Table of Contents

Parts & Tools Checklist	3
About The Movement	6
A Brief History on Watchmaking	8
Watchmaking Guide	10
Final Checks	24
Warranty.....	25
Contact	27

Based on the PDF page number***



INCLUDED IN THE KIT



Dial

Hand Pulling Tool

Stainless Steel Straps

Miyota Automatic Movement

Small Parts (Screws, Stem, Hands)

Sapphire Glass 40mm Case & Crown

Cased with movement: Movement Ring

Cyanoacrylate Glue

Tweezers

Spring Bar Tool

Precision Screwdriver

Nitrile Gloves

Hand Pushing Tool (under)

Strap Adjustment Tool

Cutters



Not pictured: Watchmaking Putty

PARTS

Movement: Mechanical/hand, 21 jewel, Japanese Miyota movement

Hands

Case: Sapphire glass, stainless steel, 40mm diameter 22mm lug size

Straps: Stainless steel links, 22*20mm width, easy-open spring bars, adjustable length

Dial

Others: Dial feet screws, watch stem, crown

TOOLS

Screwdriver

Tweezers

Spring bar tool

Cutter

Glue

Strap adjustment tool

Hand pulling tool

Hand pushing tool





Putty

Gloves



Welcome to Rotate's assembly guide! We're so excited for you to get started building your watch.

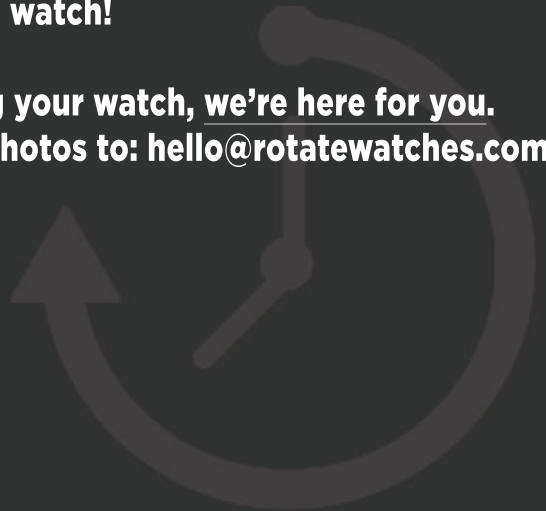
Watchmaking is a careful and patient craft. To ensure an accurate and functional watch, please follow the below guidelines:

-  **Wear gloves at all times.**
-  **Handle pieces with care and set them down gently.**
-  **Take small steps to ensure you don't overcut , overturn, scratch, or smudge the pieces.**
-  **Be patient and take your time. If you struggle, take a deep breathe and revisit it at a later time.**

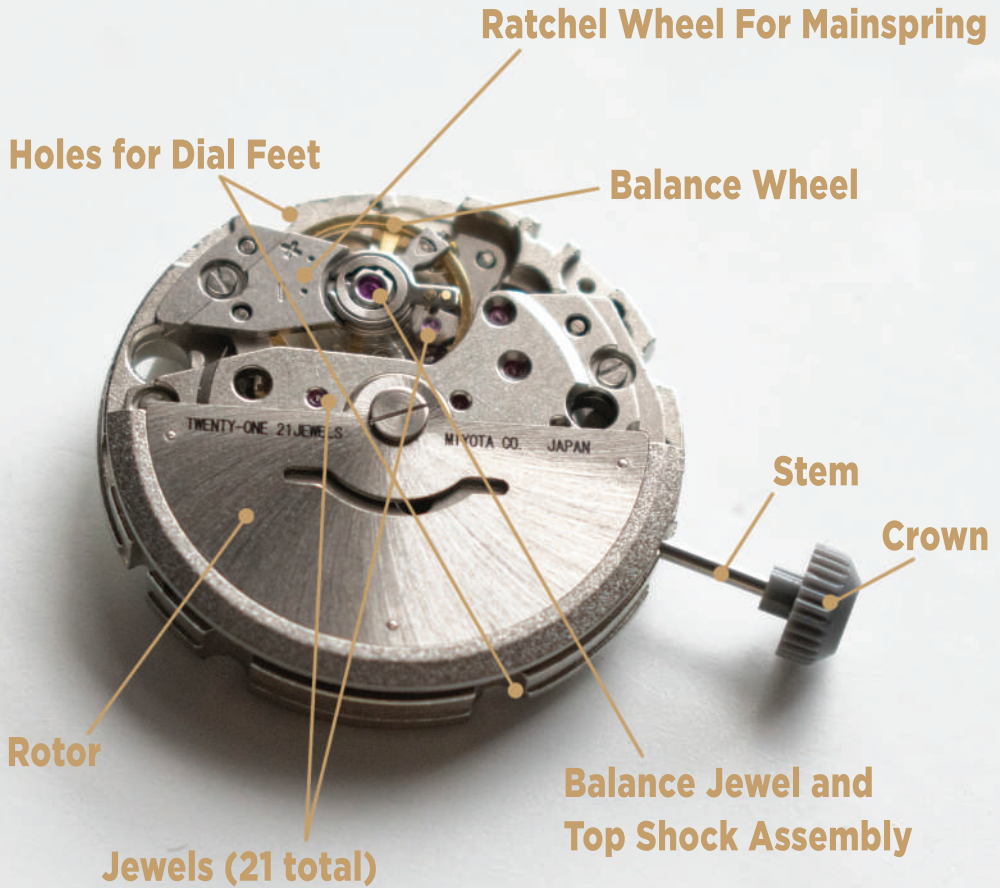
Most importantly, don't forget to enjoy the process! Watchmaking is a beautiful, dying craft. Take the time to learn about each piece, and how they contribute to a fully analog, mechanical watch!

For any struggles building your watch, we're here for you. Please email details and photos to: hello@rotatewatches.com.

LET'S GET STARTED!



Basic Anatomy of a Movement

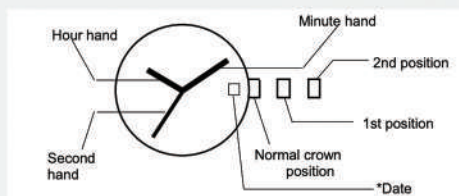


How Movements Work

(In a Nutshell)

1. Mechanical movements receive power from both kinetic energy and winding the stem.
2. Energy is then stored in the mainspring (inside the watch).
3. The mainspring turns a series of gears, the last of which is connected to the escape wheel, which regulates the speed of the entire chain.
4. Each turn of the escape wheel moves the pallet fork, which causes the balance wheel to swing. This motion is the easiest way to tell if a movement is operational.
5. The balance wheel powers the watch hands. When tuning the movement for accuracy, the balance wheel's speed is adjusted.

About Miyota's 8215 Automatic Movement



The Miyota 8215 is an automatic hand-wound mechanical movement that belongs in Miyota's 8000 series. It features quick date setting and 3 hands.

About Miyota

Miyota movements are assembled in Japan using only parts manufactured at their Japanese plants, enabling them to ensure quality. The movements undergo strict quality checks and are preferred worldwide for their durability, ease of assembly and disassembly, and high impact resistance. The major parts are all metal, enhancing the beauty of colors and textures.

About Automatic Movements

Automatic movements are mechanical movements that run without batteries. They harness energy through natural motion on the wearer's wrist. A rotor enables power to be stored in a 'self-winding' way so the wearer doesn't need to worry about winding the watch daily for constant operation.

Size 11.5 cm

Height 5.67

Accuracy (per day) -20~+40 sec

Running time >42 hours

Vibration Frequency (per hour) 21600

Jewels 21

To fully wind Turn the crown 40 times

A Brief History of Watchmaking

Forms of timekeeping have been in our history for thousands of years with sundials dating back to the 4th millennium BC in Ancient Egypt. Since then, we have come a long way in time-keeping. Now, we can easily keep track of time with the various devices inhabiting our lives. Due to this shift, one would think that clocks and watches would become near to obsolete. Yet, this is far from the truth. Although our devices have the capability to tell time, they do not provide the background of rich culture and artistry that is backed by clock and watchmaking.

Image: The Melanchthon's Watch (dated 1530)



This image depicts the oldest dated watch on Earth created by German locksmith Peter Henlein. Although more than 500 years old, the basic mechanics of this watch still remains the same in mechanical watches today. In fact, Rotate's watches also use the same fundamental spring movement to make the wondrous piece of technology come to life. So as you dive deeper in the art of watchmaking through this kit, you are helping to keep the antique craft of watchmaking alive and appreciated.

The First Wristwatch

The first wristwatch was created in 1868 by the Swiss watch company Patek Philippe for Countess Koscowicz of Hungary. Although perfectly capable of telling time, wrist watches were created as women's jewelry and status symbols. Interestingly, even though it was common practice for men to carry around pocket watches, wrist watches did not catch on initially because of the femininity attached to it. It was only until the first world war that men started wearing wrist watches due to the practical value that it provided as a hands-free time-telling device.



Image: Courtesy of Patek Philippe

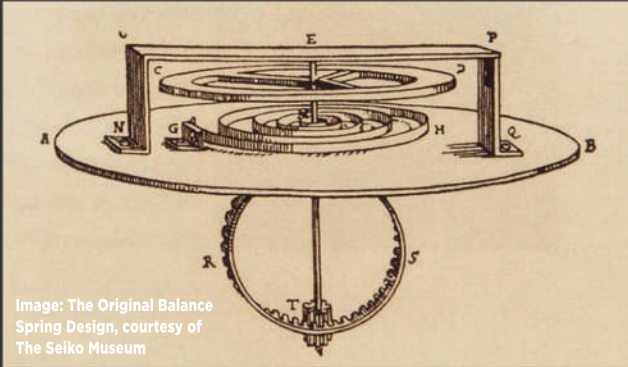
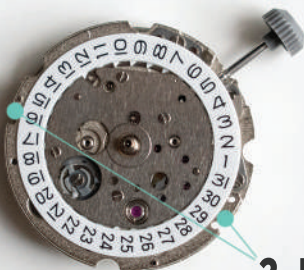


Image: The Original Balance Spring Design, courtesy of The Seiko Museum

The Balance Spring

One of the most notable steps in timekeeping and watchmaking history is the invention of the balance spring commonly attributed to British physicist Robert Hooke and Dutch scientist Christiaan Huygens. This addition, in collaboration with the balance wheel, created a harmonious oscillator that ensured oscillation at a precise period, which increased accuracy of watches greatly. Thus, the balance spring shifted the role of pocket watches as decorative novelties to essential timekeepers.

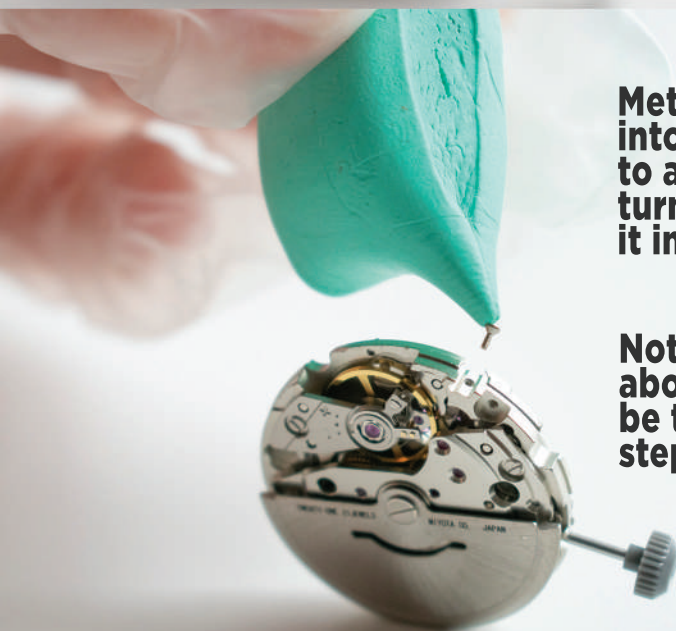
1. Make sure not to wind the movement. It's important the movement isn't ticking during assembly. If the movement was wound, wait a few hours before beginning.



2. Insert dial feet screws into the 2 corresponding holes in the movement.



Method 1: Use tweezers and the screwdriver to screw in the screws.



Method 2: Shape putty into a point and use it to align the screw, then turn the putty to screw it in.

Note: Only screw down about halfway (they'll be tightened in a later step)

Completed dial screws



**3. Unscrew the rotor
and remove the
rotor + screw. Set
aside.**

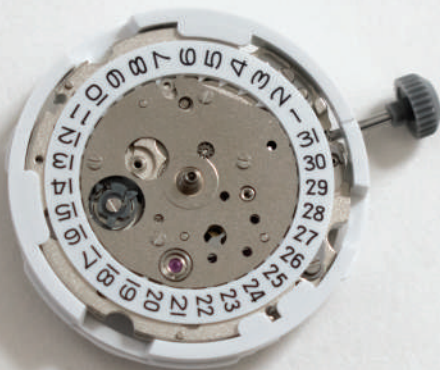


4. Align the movement ring. Depending on your kit, you'll have either a metal ring or a white ring. Fit them as below:

Metal ring: Tucked around the 2 dial feet

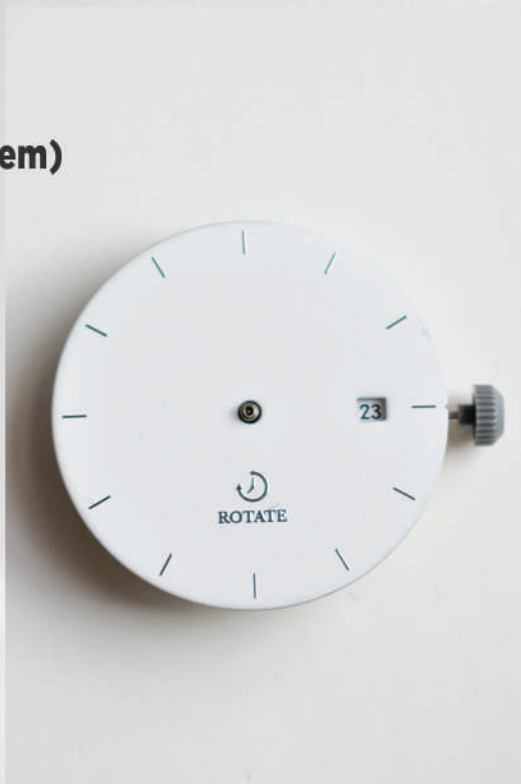


White ring: Popped in place around the movement



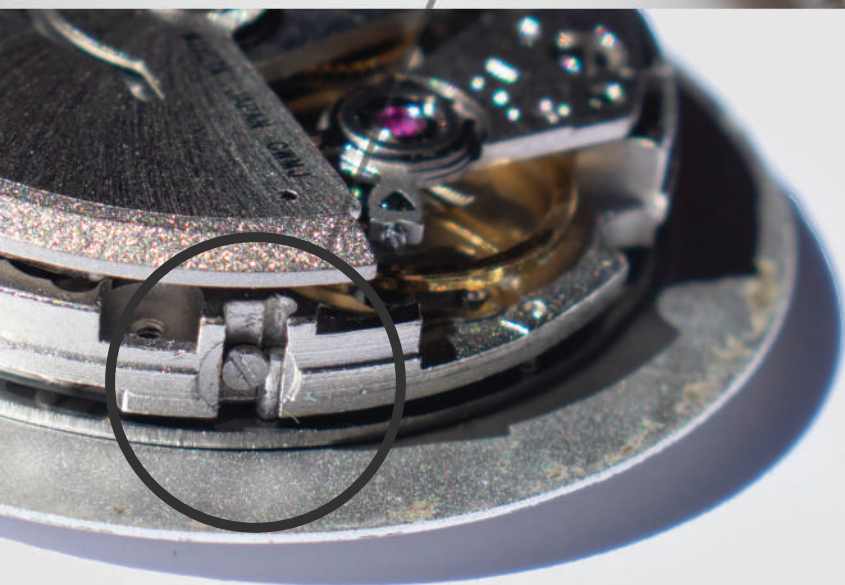
Both rings serve the same purpose of adding space between the movement and the dial.

5. Fit the dial onto the top of the movement (date square should align at 3:00 with the stem)





6. Fasten down the dial feet screws all the way. The dial should be flush with the movement.



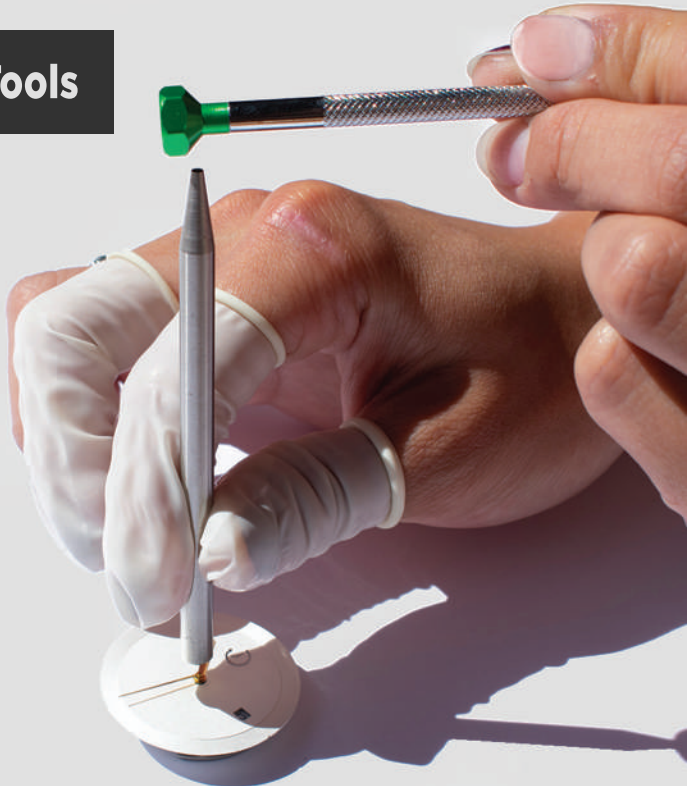
CLOSE-UP: The feet on the dial will insert into slots in the movement. It'll be snug to the dial feet screws.

How To Use Hand Tools

Hand pushing tool

Use the pointed end for the minute and hour hand.

Use the blunt end for the second hand. Position in place and tap with the screwdriver's end (right).



Hand pulling tool

Position the tool around the hands, squeeze, and the tool will pop the hands right off.



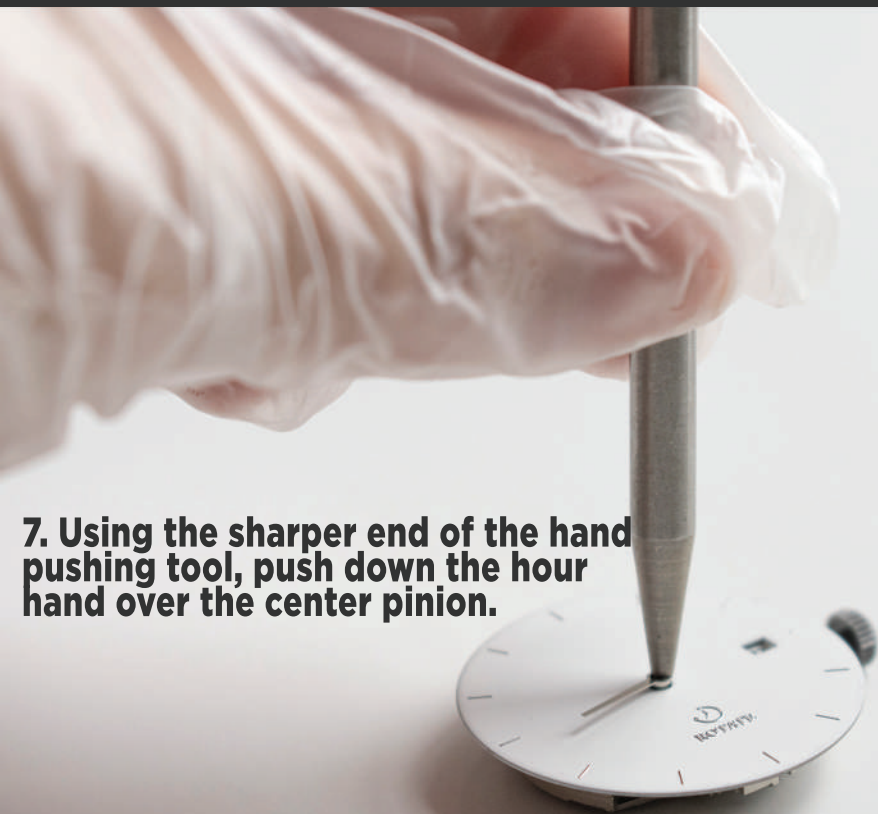
Wrong



Correct



Each hand should be flat on top when installed onto the dial. The metal cusp will be under the hand.



7. Using the sharper end of the hand pushing tool, push down the hour hand over the center pinion.



8. Push the minute hand on with the same end, making sure to align the hands at a proper time angle (ex. 9 o'clock).



9. Push the second hand on using the blunt end of the same tool. Gently tap the end with the tweezers to fasten it in place.

Completed hands



Additional tips for hands

Make sure not to bend the hands, and that once in place, they're pressed securely in place parallel to the dial.

The hands will push into place. There won't be a click, and the hands should tick and stay on their perch.

POSITIONING: Pop the stem time-setting position and turn until the date marker goes to the next date. This is where hands should hit 12:00. Make sure to also install hands at an angle that properly tells time (ex. if the hour hand points directly at a tickmark, so does the minute hand).

Note: The hands should be spaced like in the above snapshot. If the hands' bases are flush against each other, the hands were either pushed in too hard, or not hard enough. This buffer space is necessary for the hands not to jam against each other.

Caution: The second hand perch (part of the movement) can snap off if the second hand is forced on while not aligned properly OR if the hand is removed from an angle. Be gentle to avoid this! Contact us if the perch does snap.



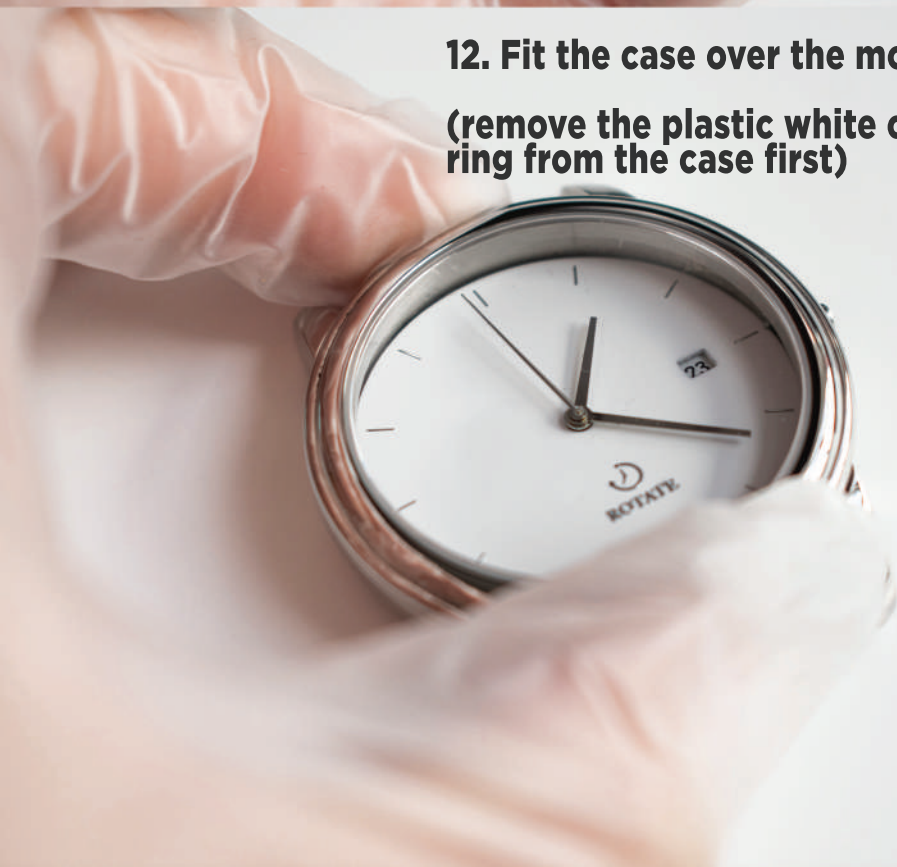
10. Remove the stem by pushing on this button located right next to the stem while pulling the stem outwards.



11. Unscrew the case back from the case counter-clockwise



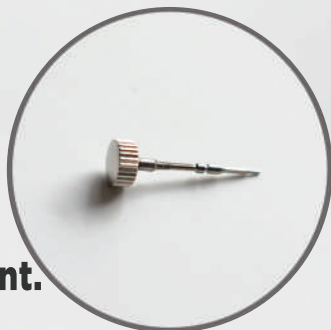
**12. Fit the case over the movement
(remove the plastic white case
ring from the case first)**



13. Flip the watch around



14. Screw the case crown onto the new stem (included separately from the movement) so it looks like the image on the right:



Then, insert this stem into the movement.



Pay note of how long the stem is. The next step will be cutting it down to size so the crown fits right over the case.

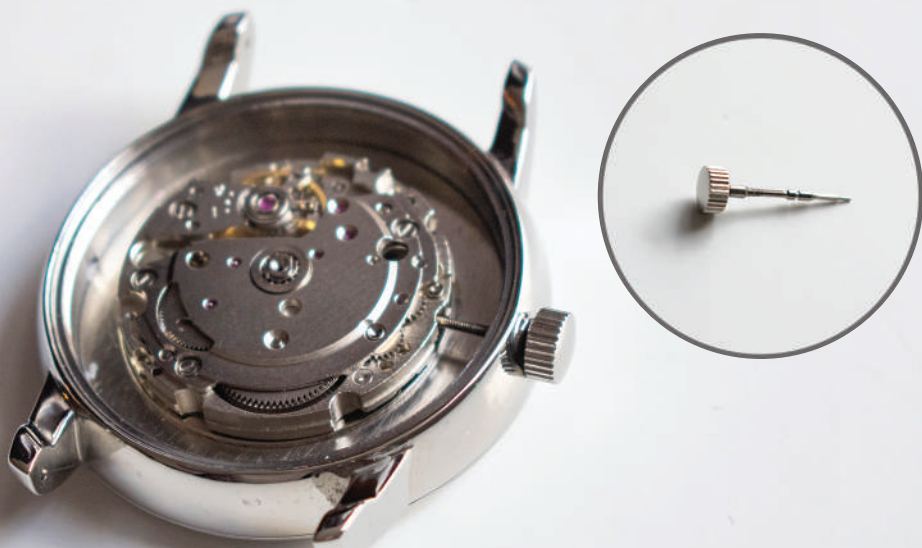
15. Cut the stem down.

Summary: Unscrew the crown, trim it down a couple of mms, rescrew the crown on, and test. Repeat until crown's flush.

Be very cautious during this step to avoid overcutting.

Additional detailed instructions

- a. Cut about 50% of the stem off. Be careful not to lose the pieces as they may go flying after you cut.
 - b. Screw the crown onto the stem and push the stem in the movement.
 - c. Measure the distance between the base of the crown and the movement (in the case). This distance is what needs to be additionally cut off from the stem.
 - d. Take the stem out and unscrew the crown. Cut off X more from the end of the stem until the crown is flush to the case.
- 3. Glue the crown to the stem and secure the stem in the movement. Don't glue until satisfied with the length!**



Because the stem is already so small, it's best to handle the above steps on an individual basis instead of a metric on how much to cut off. We included cyanoacrylate glue in the kit. If you need to undo glue, soak the pieces in acetone (nail polish remover).



**16. Slip the white movement ring around the movement.
The slot in the ring should go over the stem.**

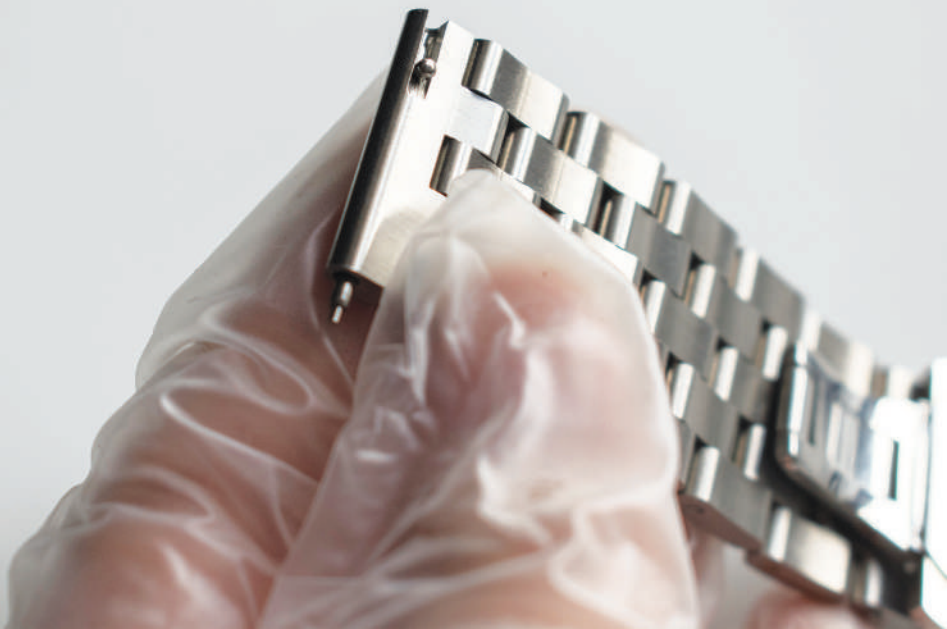


**17. Rescrew the rotor back onto the movement.
Orient the rotor to cover the balance wheel during
this step for maximum protection.**

18. Screw the case-back on clockwise



19. Insert the easy-open spring bars into the ends of the metal strap.



20. Attach the straps to the watch by pulling down the notch on the spring bars and pushing them into place.



21. If needed: Adjust the length of the straps.



Using the strap adjustment tool, push the pins out of the strap, remove as many links as necessary, and reinsert the pins joining a shorter or longer length of chain.



Push the pins back securely with the blunt end of the hand adjustment tool.



Finished watch!



Final Check

Since our movements are mechanical, they rely on both winding and kinetic energy. To test your movement, simply wind the watch a few twists, then move the movement around to mimic natural hand gestures. The seconds hand is the easiest indicator to tell if the movement is running.

To set the time, pop out the stem to the third position, configure the time, and pop the stem back into the first position. The date is set in the second stem position. The first position is the correct default position for the watch to run.

Our movements have a power reserve of 40+ hours when wound. In other words, wind every 40 hours. Mechanical movements also rely on the kinetic energy of everyday movement, so if it's idle for a while, make sure to adjust the time.

Tips on Maintaining the movement

- Avoid extended exposure to direct sunlight**
- Be cautious when using the watch underwater**
- Every couple of months, clean the outside of the watch, ensuring to get grime off the straps and case.**
- Avoid chemicals**
- Avoid magnets**
- If you open the watch again, be sure to use the same precautions as the beginning of this guide. Wear gloves, handle pieces with care, and work carefully.**

Warranty Information

Thank you for your interest in Rotate Watches' Watch Kits! This warranty applies to all watch kits purchased from Rotate Watches.

What does the warranty cover?

The warranty will replace all damaged parts EXCLUDING the movement and case pieces free-of-charge if proof of damage is received. Please send photos/videos to hello@rotatewatches.com with the part/tool name and color (if applicable).

The warranty also partially covers movements and case pieces, including the movement, stem, case front, case middle, case back, and crown. If any component is damaged by the customer, we can offer factory prices for those pieces. Please email us photos/videos of the damage to hello@rotatewatches.com. We'll attempt to help repair the damage with you, but if unsuccessful, we can supply a discount code for the factory price.**

To obtain warranty service, you must first contact us to determine the problem and the best solution for you: hello@rotatewatches.com.

****The movement pieces (movement + stem) come in a set. If the stem needs replacement, a new set (movement + stem) will be sent.**





**CONGRATULATIONS, YOU
JUST ASSEMBLED A WATCH!**





**We're constantly seeking
feedback, testimonials, and pictures!
Please email all of the above to us:
hello@rotatewatches.com.**

Tag us on Instagram [@rotatewatches](https://www.instagram.com/rotatewatches)!