

How to Disassemble the Canon EF 50mm f/1.8 II Lens

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Preface

- This instruction is intended to be helpful to those who are going to make some modifications to the camera lens to explore/reproduce coded aperture, color-filtered aperture, and other related techniques for research purposes.
- But we disclaim any responsibilities for the consequences of your following this instruction, so do it at your own risk!
 - For example,
 - The lens may get broken
 - Some parts of the lens may be lost
 - You may not be able to reassemble the lens
 - The reassembled lens may not work
 - You may get hurt

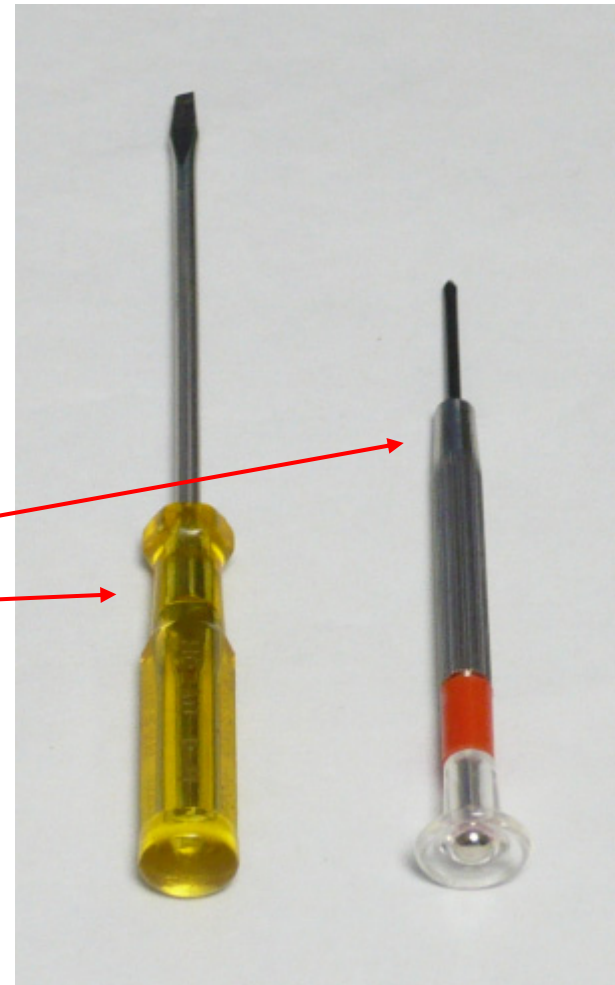
Why Canon EF 50mm f/1.8 II?

- Cheap compared to other camera lenses
 - Wouldn't be a big blow even if you broke it by mistake
- Easy to disassemble
 - Simple structure with a small number of parts
 - Made of plastic, not metal



Preparation

- Sufficiently large working space
 - Make an open space on your desk
 - Do not work in a clutter
- Time
 - A few hours should be sufficient
- Tools
 - Cross slot ('+') micro-screwdriver
 - Flat metallic bar
 - Straight slot ('-') screwdriver can be used
- Container for detached parts
 - Small screws can be easily lost
- Cloth for wiping the lens glass



Start Disassembly

- Remove the back cover



Remove the Screws

- Two micro-screws can be found
- Remove them



Remove the Inner Cover 1/2

- Push down the metallic terminal part and drop it into the inside
 - You can make a room for it by moving the inner tube downward



Remove the Inner Cover 2/2

- Insert a bar into where the terminal part was and take off the cover
 - Caution!! See the next slide



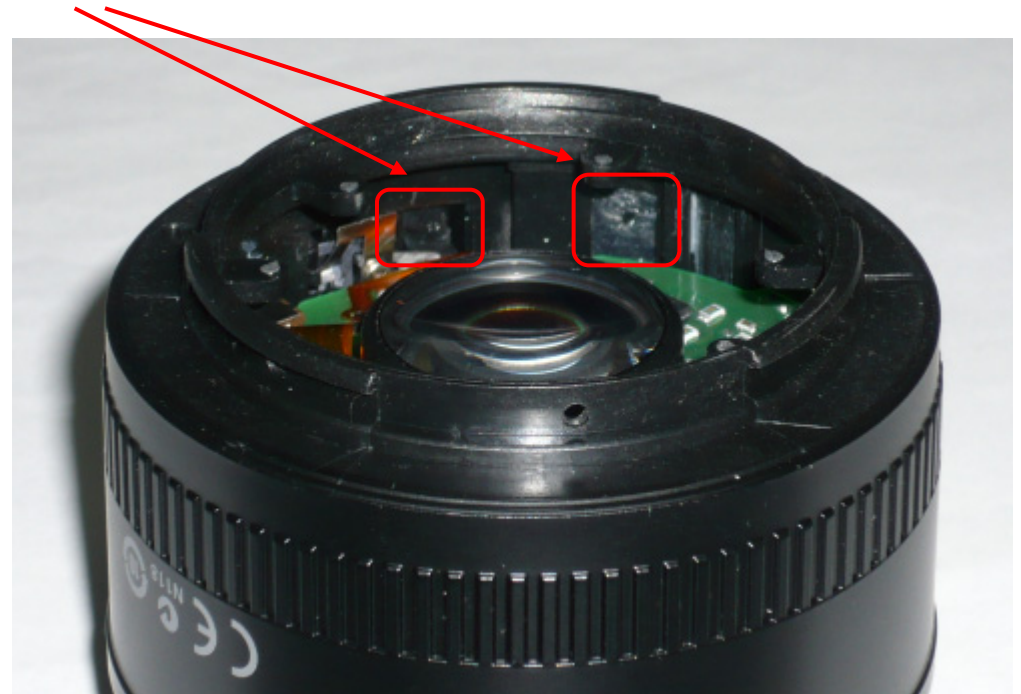
Caution

- Be careful not to damage the cable, the board, and the lens glass



Remove the Side Cover 1/2

- You can see a seam from the outside
- Push from the inside with a bar
 - Push these two points outward



Remove the Side Cover 2/2

- The cover is glued by a piece of double-faced tape, so unglue it by force
- First push it from the inside, and then insert a bar into the widened seam from the outside



Remove the Clasp

- Remove the screw under the side cover
- Remove the clasp



Remove the Outer Tube 1/2

- Turn the focus adjuster ring to where the clasp was
- Then the inner tube will drop out of the outer tube



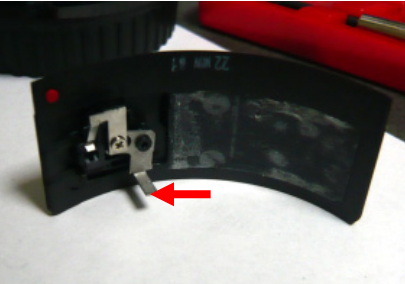
Remove the Outer Tube 2/2

- Separate the inner and outer tubes

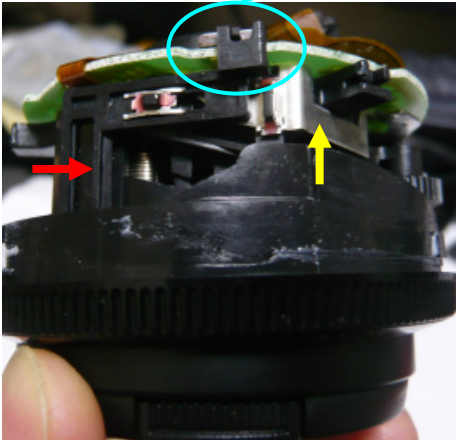


FYI: How the AF/MF Switch Works

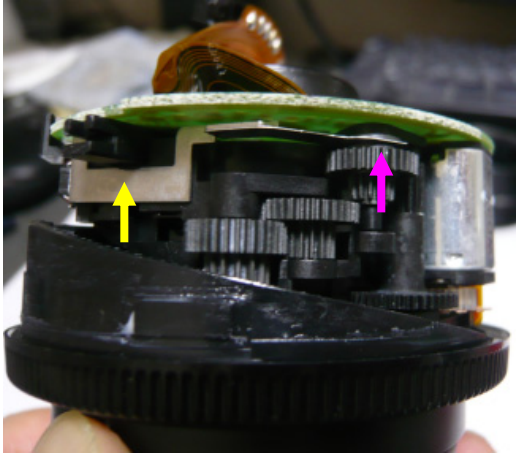
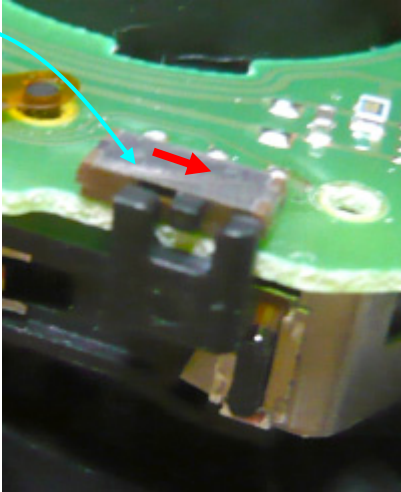
Manual Focus



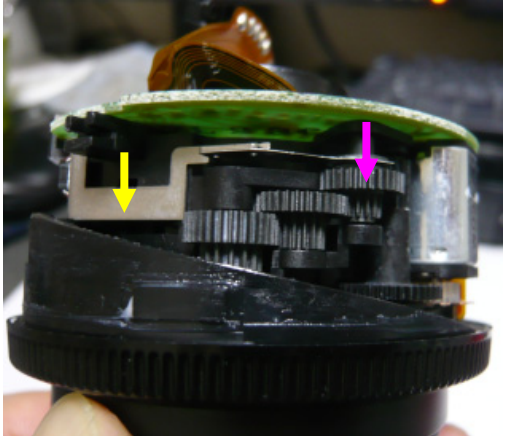
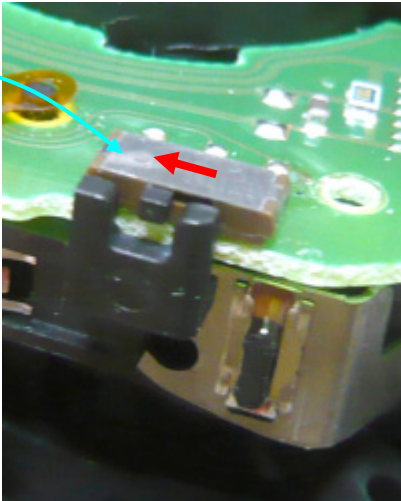
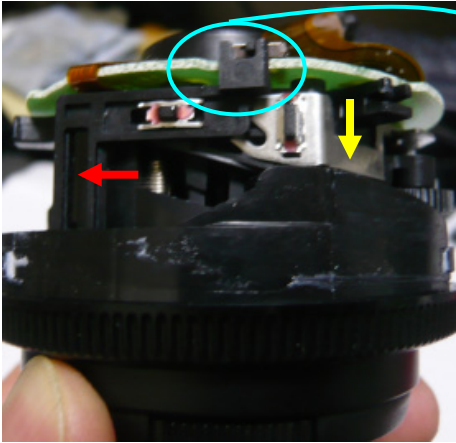
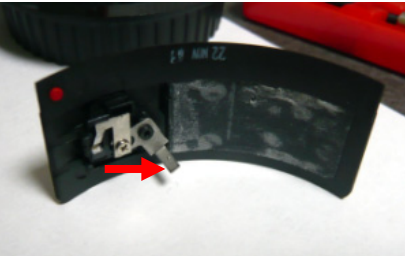
Side cover



Inner tube



Auto Focus



Disassemble the Inner Tube 1/2

- There is a seam between the upper and lower parts
 - This seam already has a small gap
- Insert a bar into the gap and draw them apart
 - **Caution!! See the next slide**



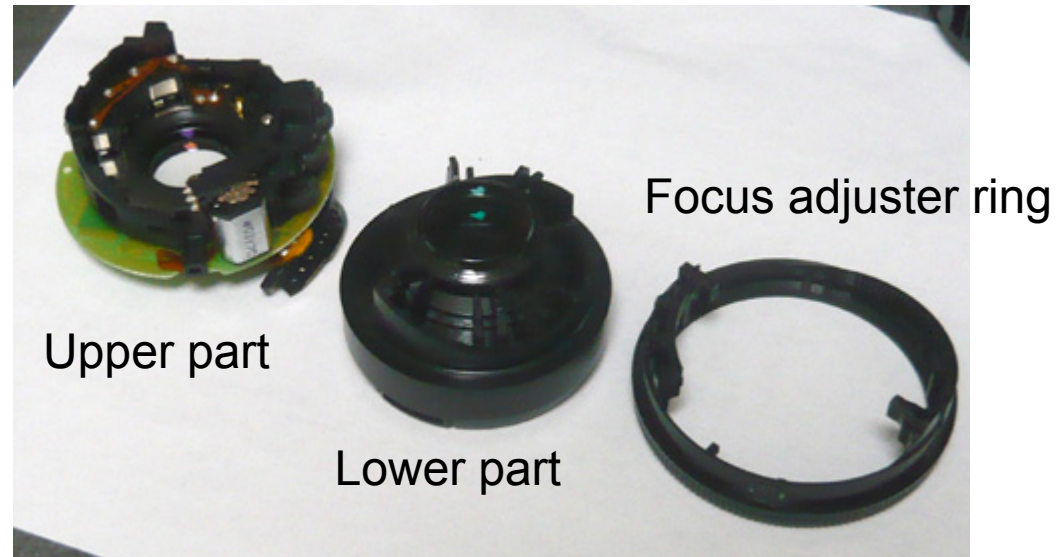
Caution

- Some lugs may break when you separate the upper and lower parts of the inner tube
 - Reassembly is possible with the remaining lugs



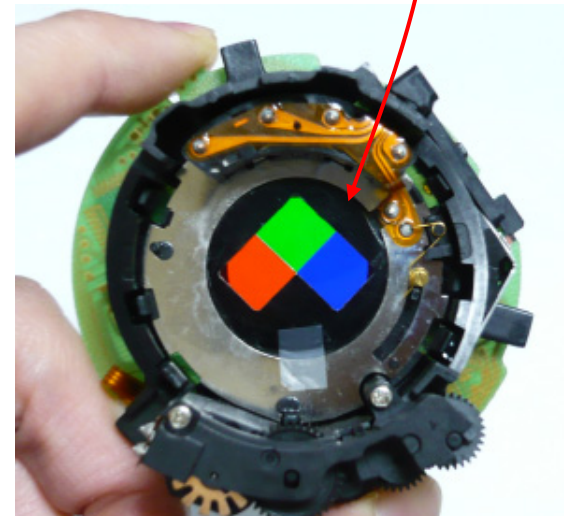
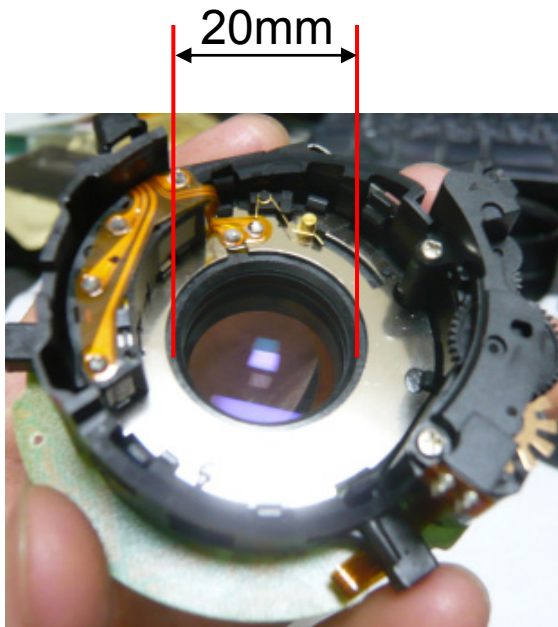
Disassemble the Inner Tube 2/2

- It can be decomposed into three parts

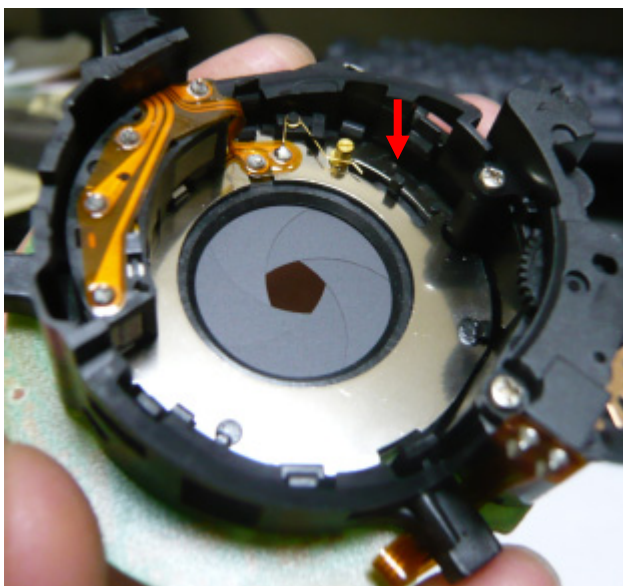
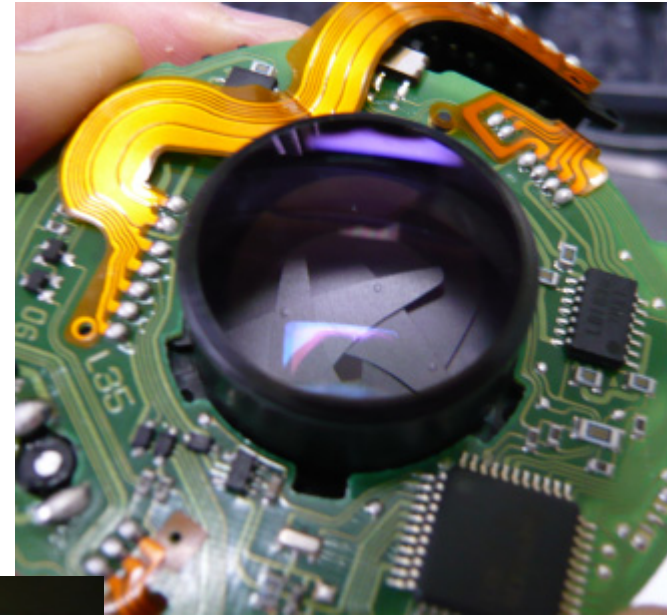
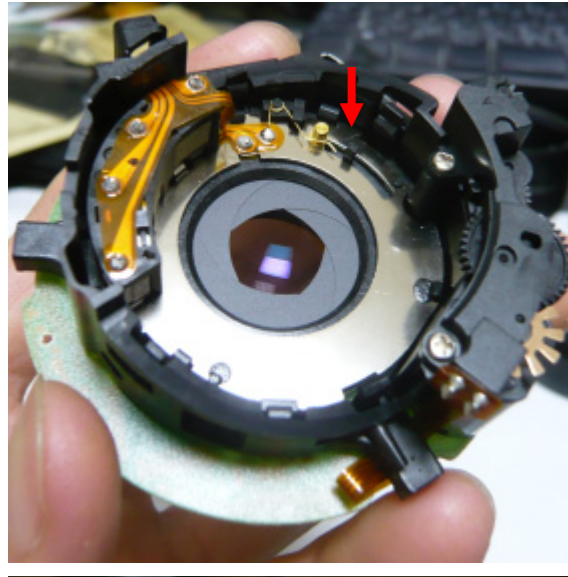
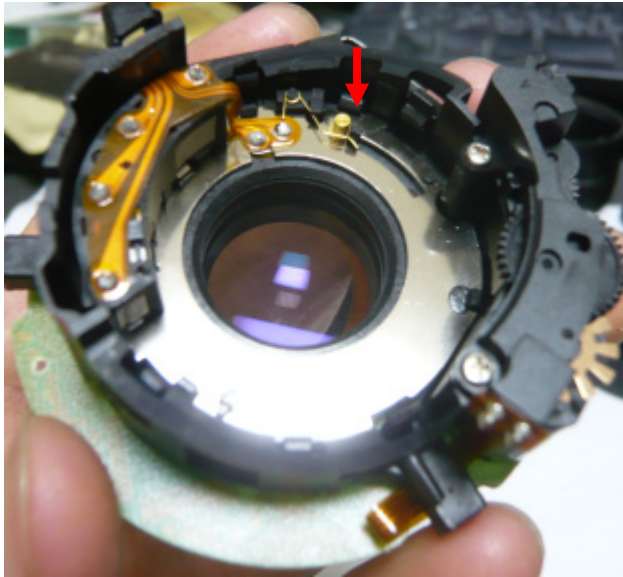


Disassembly Finished

- You've reached the aperture stop
- Put something here
 - Patterned mask (coded aperture)
 - Color filters (color-filtered aperture)



FYI: How the Aperture Stop Works



Viewed
from the back

Reassembly

- Wipe dust off the internal lens glass surfaces
 - It'll be too late after reassembly
- Rewind the process
 - Put the focus adjuster ring on the lower part of the inner tube
 - Make sure the orientation is correct
 - Put the upper part of the inner tube over it and attach them with a snap
 - Put it into the outer tube and turn the focus adjuster ring
 - Attach the clasp with the screw
 - Attach the side cover
 - Attach the metallic terminal part with the two micro screws
 - Prior to attaching the inner back cover
 - Attach the inner back cover

