



# Panasonic camera DMC FS 16 CCD cleaning

Cleaning of the CCD on a Panasonic DMC FS 16 camera

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## INTRODUCTION

If there are shadows, hair or dust grains on the pictures, then it is recommended to clean the CCD, the recording IC. This guide will show you how to do that.

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### TOOLS:

- [Phillips #000 Screwdriver](#) (1)
  - [Spudger](#) (1)
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## Step 1 — CCD Cleaning



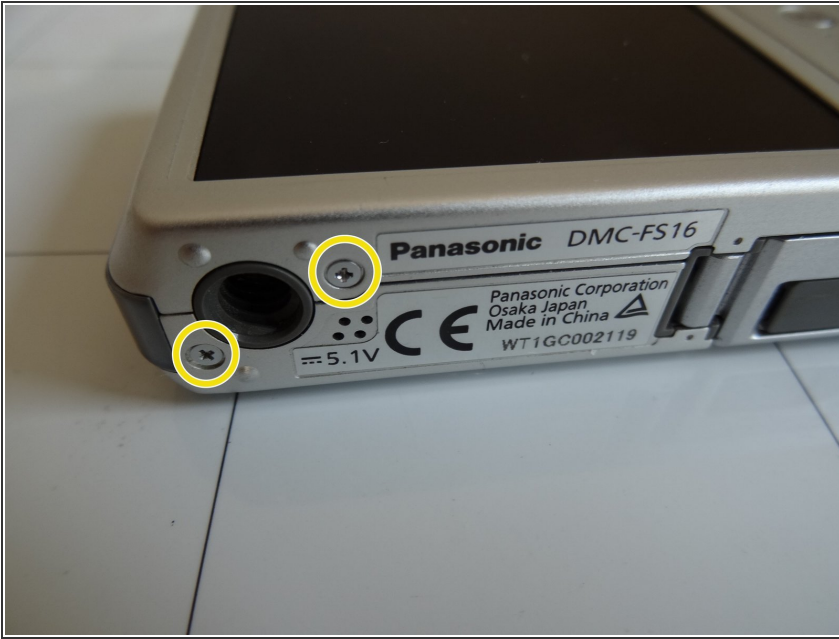
- Images taken with the FS16 of the same object before and after cleaning.
- In the second picture the shadows are marked.
- The third picture shows a picture after the successful repair

## Step 2



- Open the battery compartment cover and remove the battery and the memory card,

### Step 3



- Remove the two 4.6 mm # 000 Phillips screws from the bottom near the tripod thread

### Step 4



- Remove the single 3.3 mm # 000 Phillips screw from the right side.
- Carefully remove the side cover with your hand.
- Remove the single 3.3 mm Phillips screw you found underneath the cover.



## Step 5



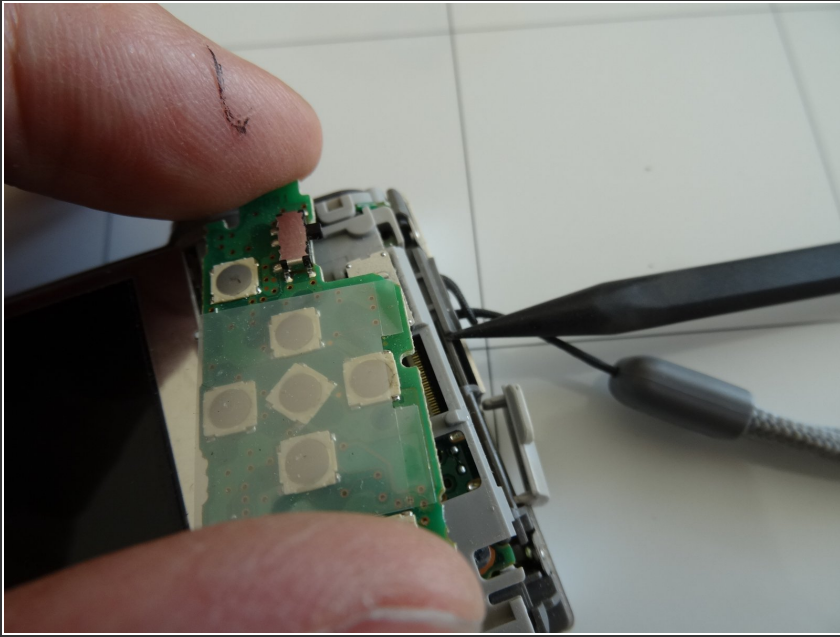
- Remove the four 3.3 mm Phillips screws from the left side

## Step 6



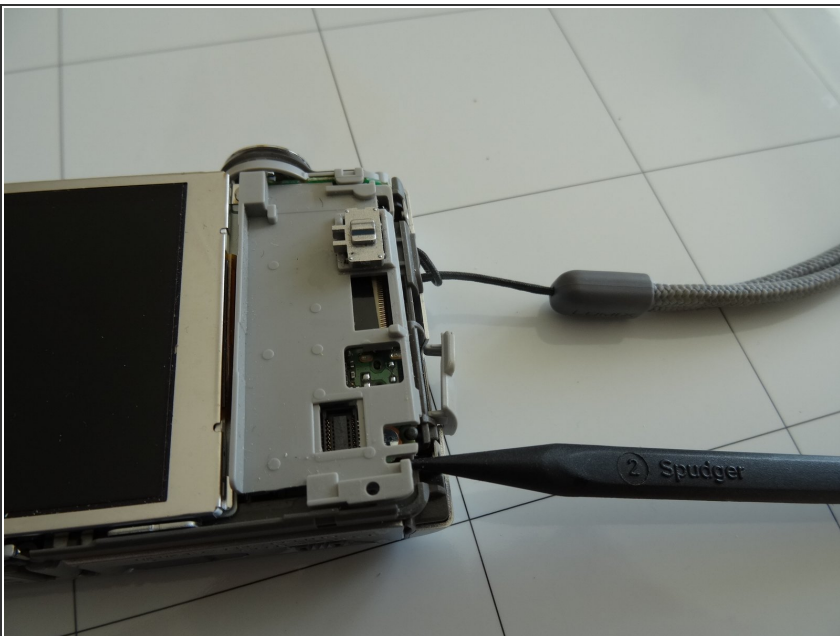
- Use a spudger or plastic opener to remove the rear cover. Start next to the USB cover and slide the tool along the camera. Lift the rear housing cover off.
- In the second picture you see the camera with the back cover removed.

## Step 7



- Carefully lift the keyboard board vertically upwards with your fingers.
- ⓘ The keyboard is still connected and connection is on the back of the board. Just pull it vertically upwards.

## Step 8



- Under the keyboard board you will find a gray plastic molding. This part is just jammed and with a bit of patience you can remove it with a spudger. Make sure that none of the sensitive detents break off. Start prying at the bottom.

## Step 9



⚠ Under the gray plastic molding you will find the motherboard. You do not have to replace the ribbon cable to the display. It is enough to fold the display away!

- Concealed in the image by the tool: the display is attached with a 2.0 mm # 000 Phillips screw. Remove that screw

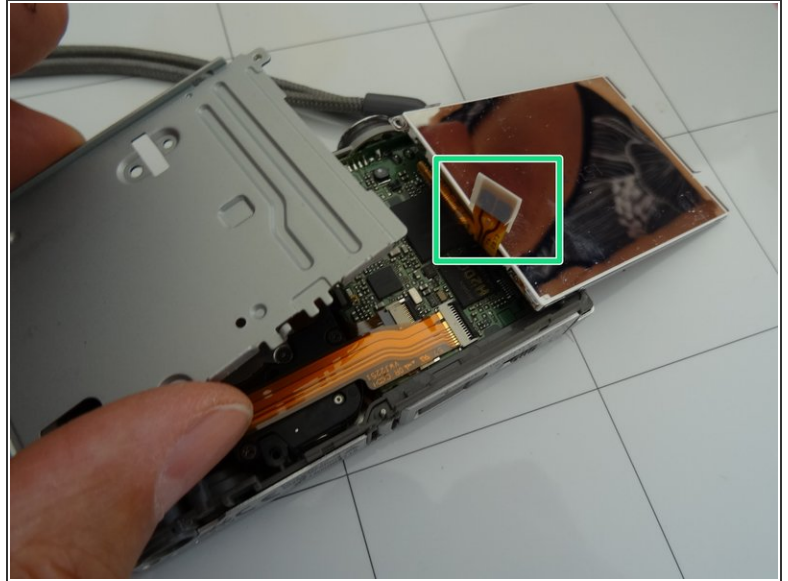
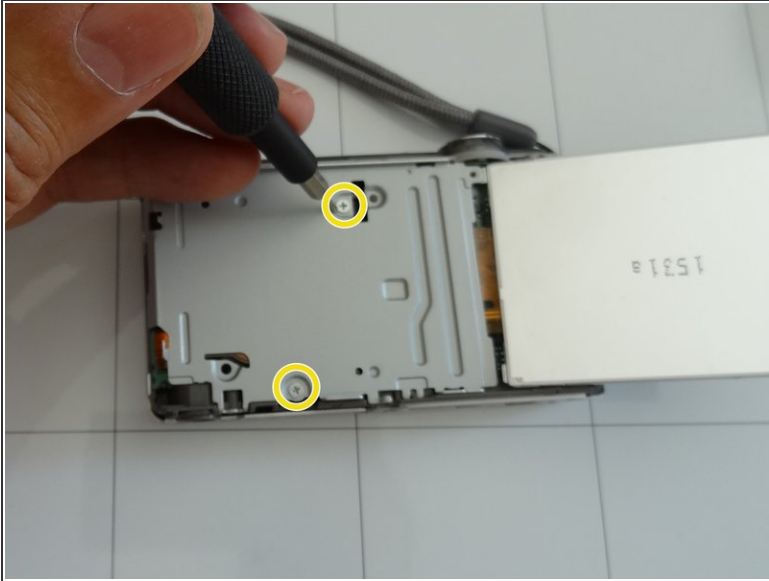
## Step 10



- On the opposite side, the display is fixed with a thin piece of sheet metal. Carefully bend the metal away with tweezers or similar tool
- Gently flip the display to the right side like a book page.



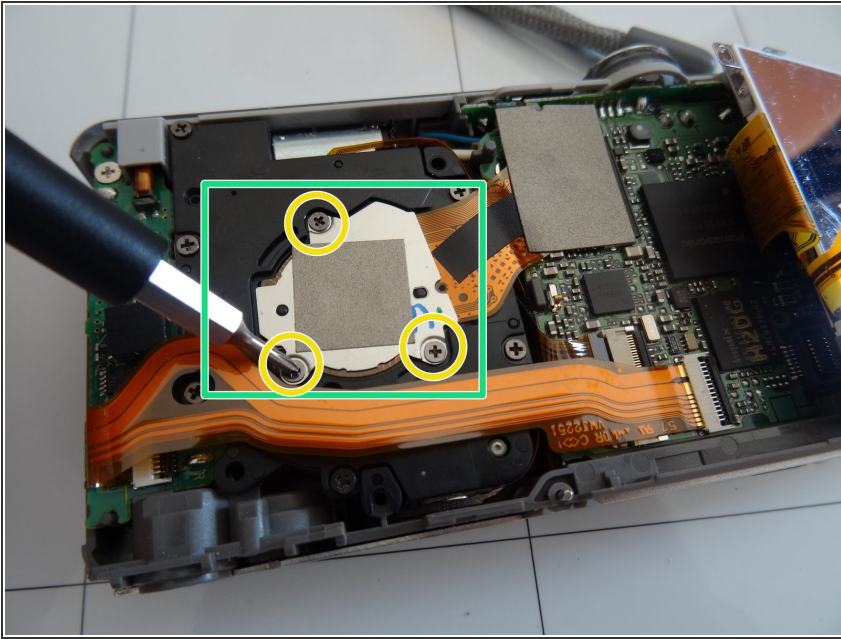
## Step 11



- Under the display is another shielding plate. It is attached with two 6.4 mm #000 Phillips screws. Remove those to remove the shield
- Remove the shield
- Not to be alarmed: An unused connection will be visible on the display. It is secured with insulating tape. When assembling, push this ribbon cable back under the shielding plate.

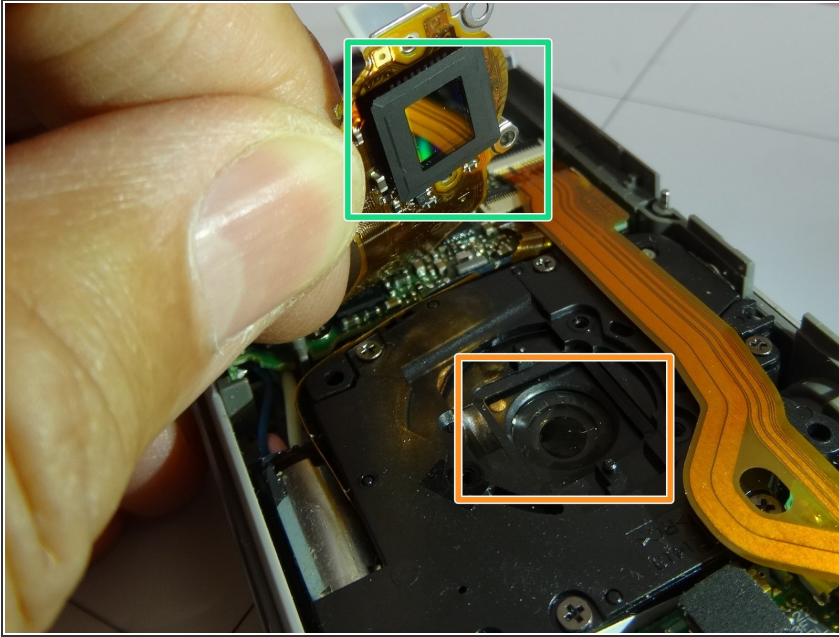


## Step 12



- The back of the CCD is exposed.
- ⓘ For cleaning the CCD will not have to be disconnected.
- Remove the three 3.0mm # 000 Phillips screws from the back of the CCD

## Step 13



- Flip the CCD up.
- ❗ In the picture the CCD is marked green and the back of the lens marked orange. If you look closely, you can even see the dust grains.
- ⚠ Work embarrassingly clean! Every new speck of dust destroys the work. Do not blow on parts with your mouth! Use proper tools
- Blow the CCD and the back of the lens out with a few puffs of compressed air to remove any dust and lint. Clean both with a lint-free cotton swab and some high-percentage (greater than 95%) alcohol. Let the alcohol dry.

Follow the steps in reversed order to reassemble your device.