Wednesday 06.18.14
Posted by Sasha Pazeski
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How to clean a Kodak/Pakon scanner

EDIT: *It's been brought to my attention that the two sensors mentioned in this tutorial are merely DX sensors. The actual CCD sensor's apparently on the upright PCB. So whilst most of this tutorial may be superfluous, taking it apart and giving the whole inside a good blow-out will still probably help. And cleaning the DX sensors is still a good idea, too.*

A friend and I recently joint-purchased a Pakon F135 scanner. It's an amazing piece of equipment for scanning rolls of 35mm film, but it's prone to dust problems. There's very little information on the Internet on how to deal with dust problems on the Pakon, and what information there is, is fairly vague or hard to follow. Hopefully this tutorial will help people who struggled as much as I did with cleaning the Pakon.

Here's an example of what dust looks like on both the sensor and the negative...

Examples of dust on negative and dust on sensor.

Dust on the negative is relatively easy to deal with. The Pakon software comes with Digital ICE which does a reasonably good job of getting rid of a lot of dust and scratches on the negative, and there's always Photoshop's Spot Healing Brush tool to take care of the rest.

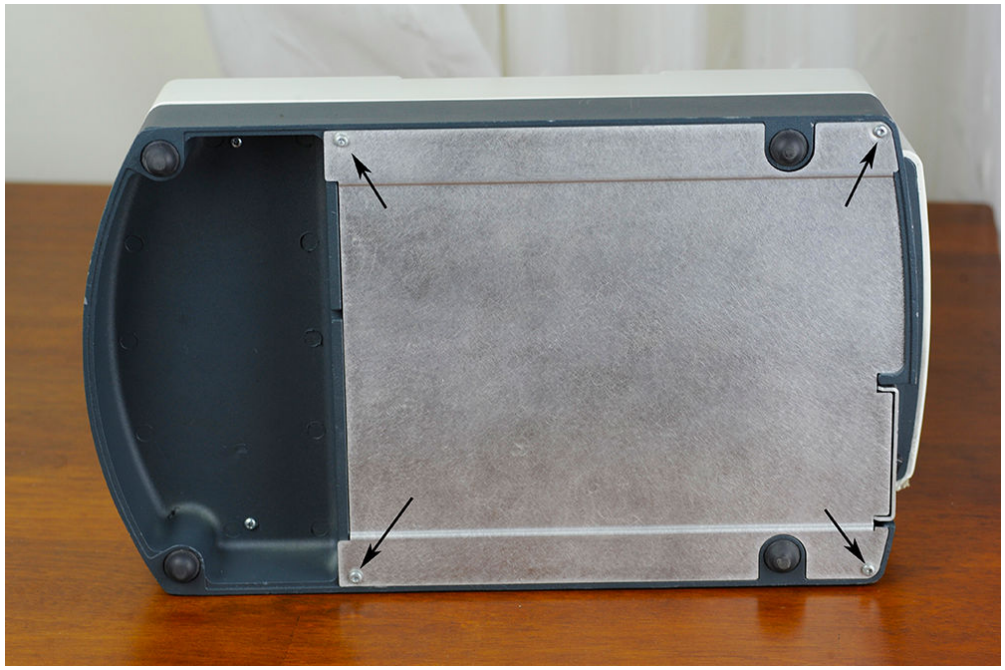
Dust on the sensors, however, is not so easy to deal with. It leaves a horizontal line on your scans which, more often than not, isn't so easy to remove in Photoshop.

Blowing some compressed air into the opening the film enters the scanner can sometimes fix the problem, so always try that first. If that doesn't work, then it's time to take this baby apart. And here's what you'll need...

What you need.

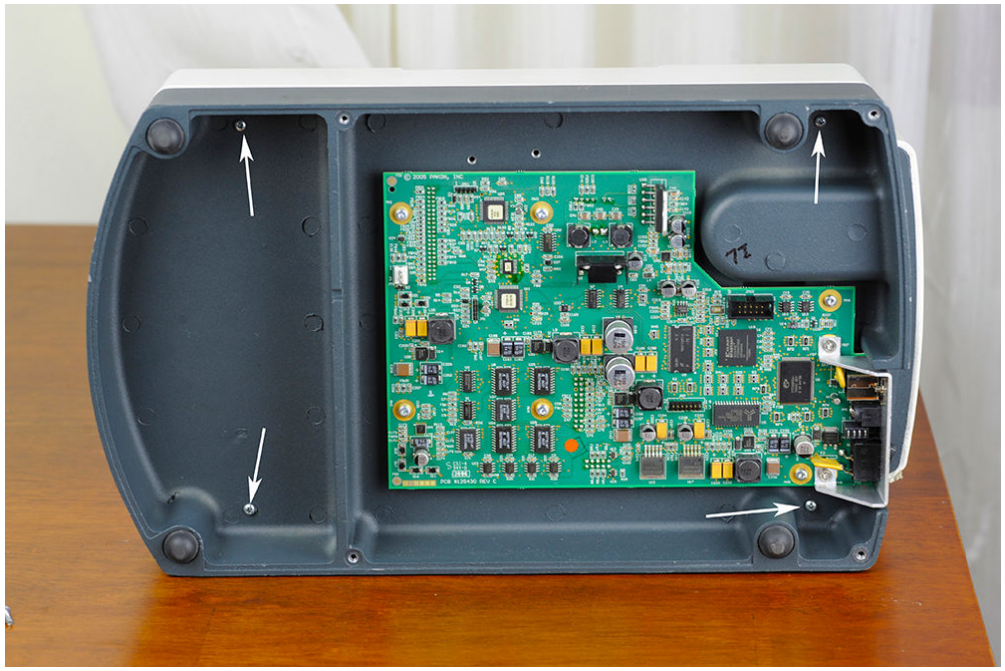
The small blue screwdriver in the above photo has a torx bit in it. It's a size T8 and can be found in any hardware store (thanks to reader Kamil for the info). You'll also need a phillips head screwdriver, a can of compressed air, and some optional alcohol wipes.

The first thing you need to do is flip the scanner on its side and take off the metal plate at the bottom. It's held in place by four torx screws.



Remove these four torx screws

Next up you undo the four phillips head screws securing each corner.



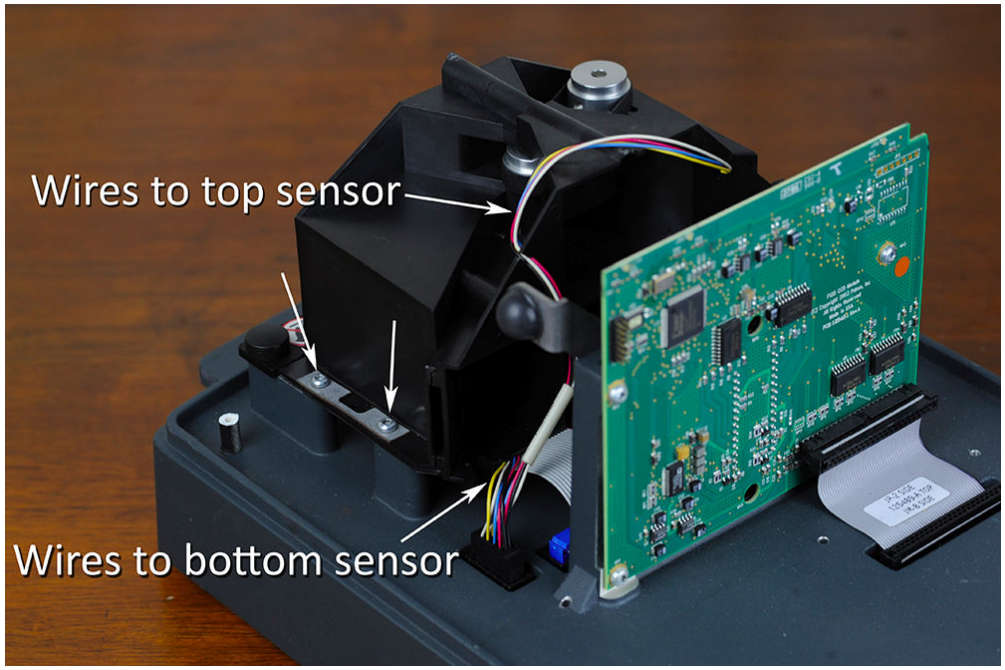
Remove these four screws

Flip the scanner back on its base and gently lift off the top cover.

Top cover removed

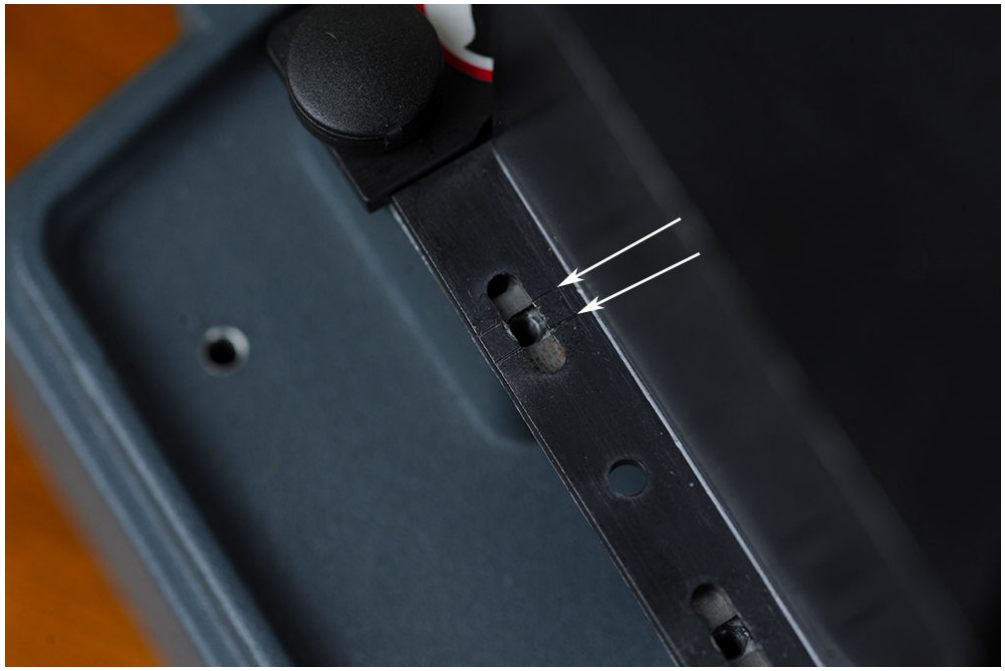
As you're looking at the scanner from the front (as in the above photo), you'll notice a plug on the left with two sets of wires coming off it. One set heading to the top and one set going underneath. These wires lead to your top and bottom sensors, so be careful when handling them. They're shown a bit clearer in the next photo.

Once the cover is removed, undo the four torx screws holding down the scanning section of the scanner. Be careful doing this as there are two metal plates either side of the screws. Take note of how they're sitting so you can put them back in the same place when you're putting it all back together. Try not to move anything whilst you're undoing these screws. It's important for the next step.



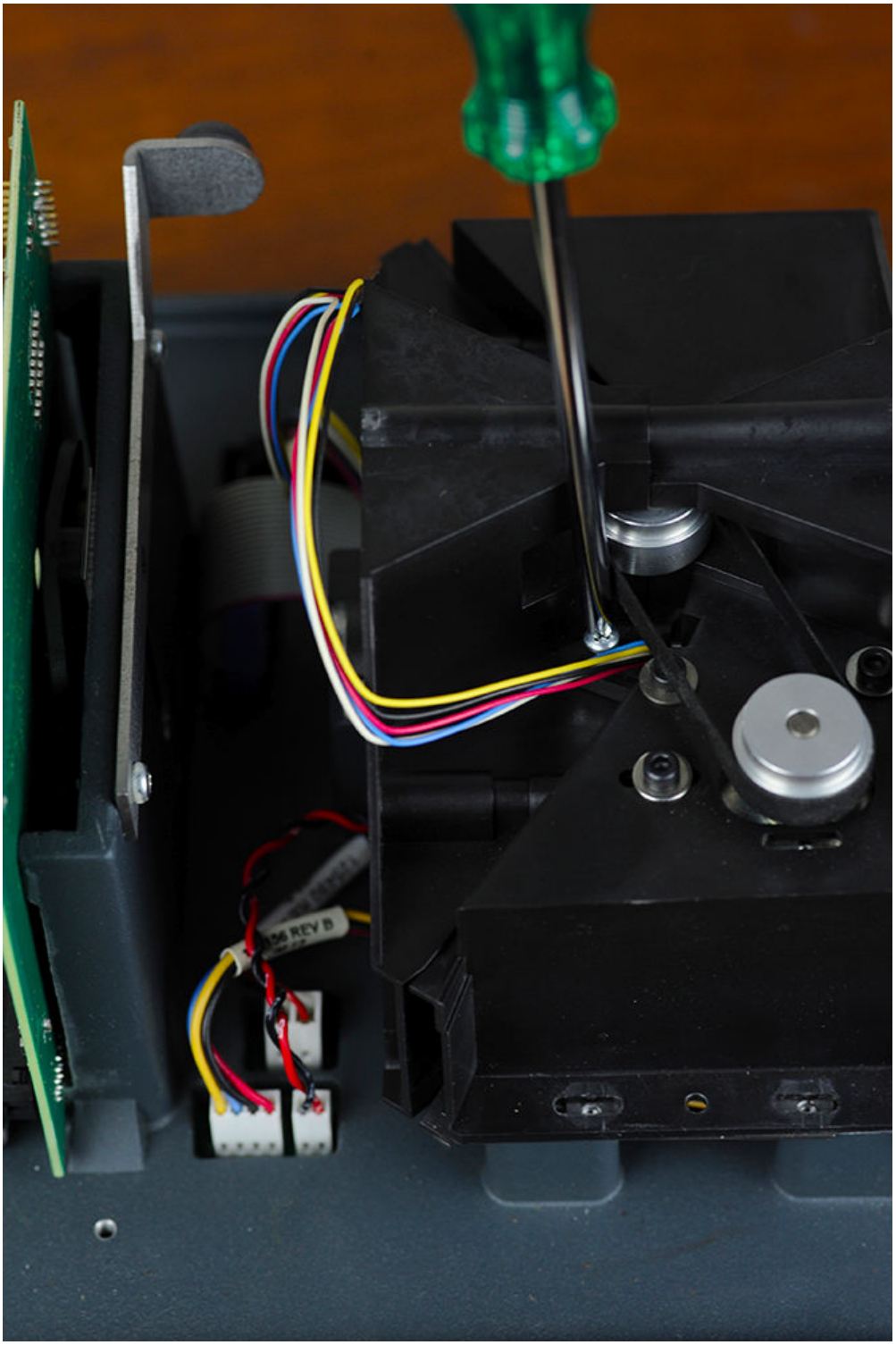
Undo the torx screws. There are also two on the other side.

Once the torx screws have been removed, mark the plastic so you know how the top section is supposed to line up when you put it back on later. You can use a spot of paint or white permanent marker. It doesn't matter. We opted to just score a couple of lines with a knife.



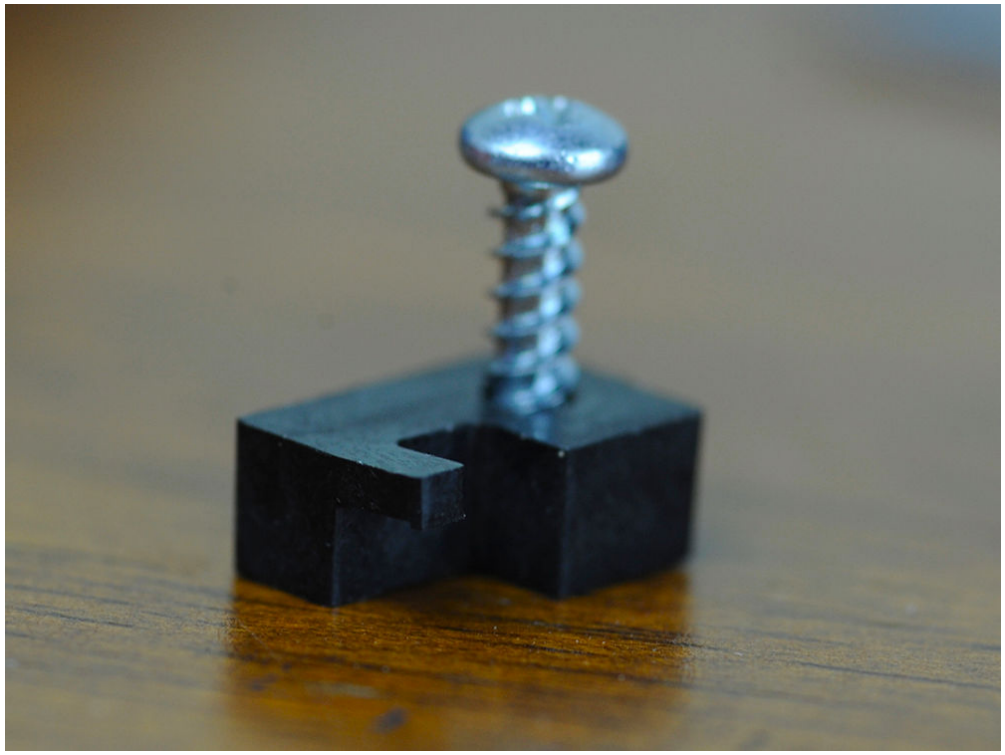
Score lines showing where screw has to sit when unit gets put back together

Now it's time to remove the top sensor. The sensor itself just sits in a slot but it's held down by a plastic bit with a phillips head screw. Remove this bit, taking note of how it holds the sensor down.

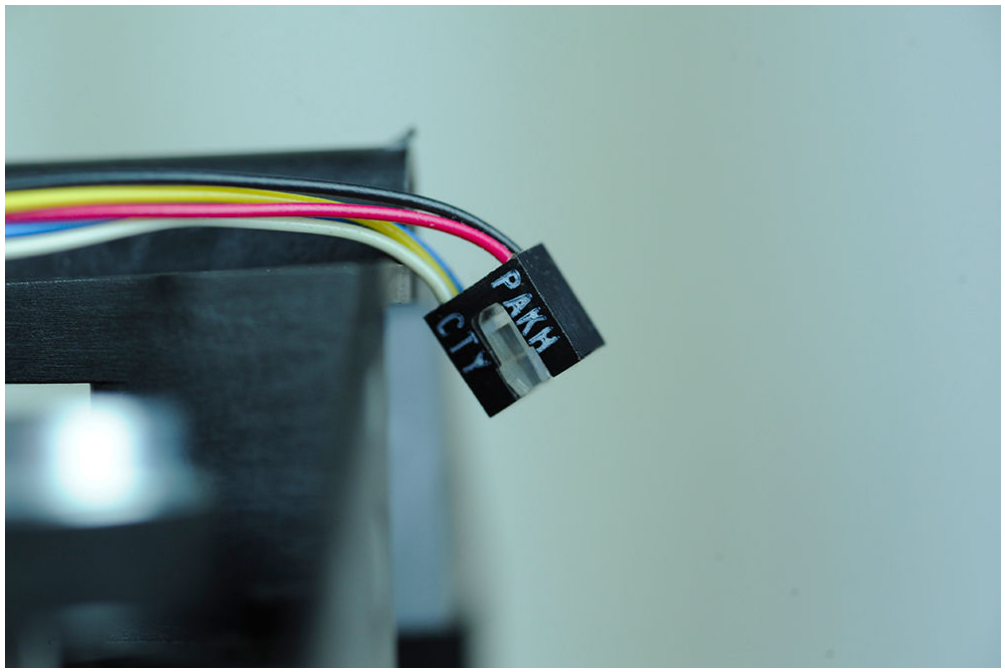


Removing the top sensor

And here's a close-up of the aforementioned plastic bit...



Gently lift out the sensor. Here's what it looks like...

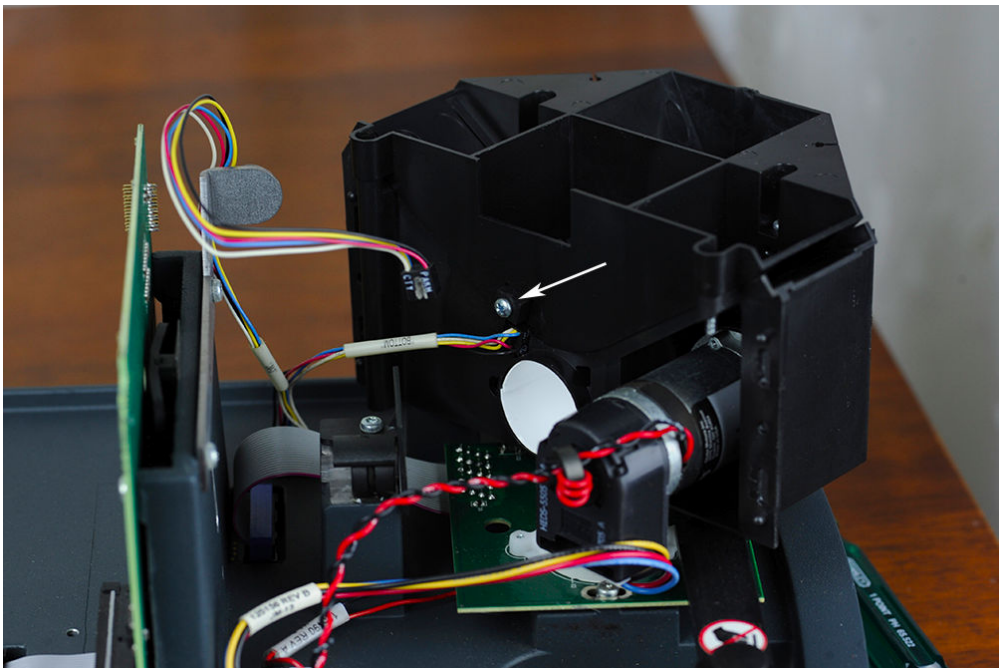


Top sensor

Give the sensor a good blow-out with the compressed air.

From here there are two ways to go. You can either just remove the bottom sensor and perform the same clean as the top sensor, or you could take apart the scanning unit and give it a solid clean out. If you want to give the whole unit a good clean out, DON'T remove the bottom sensor. You'll see why later. If you JUST WANT to clean the bottom sensor, here's what you do...

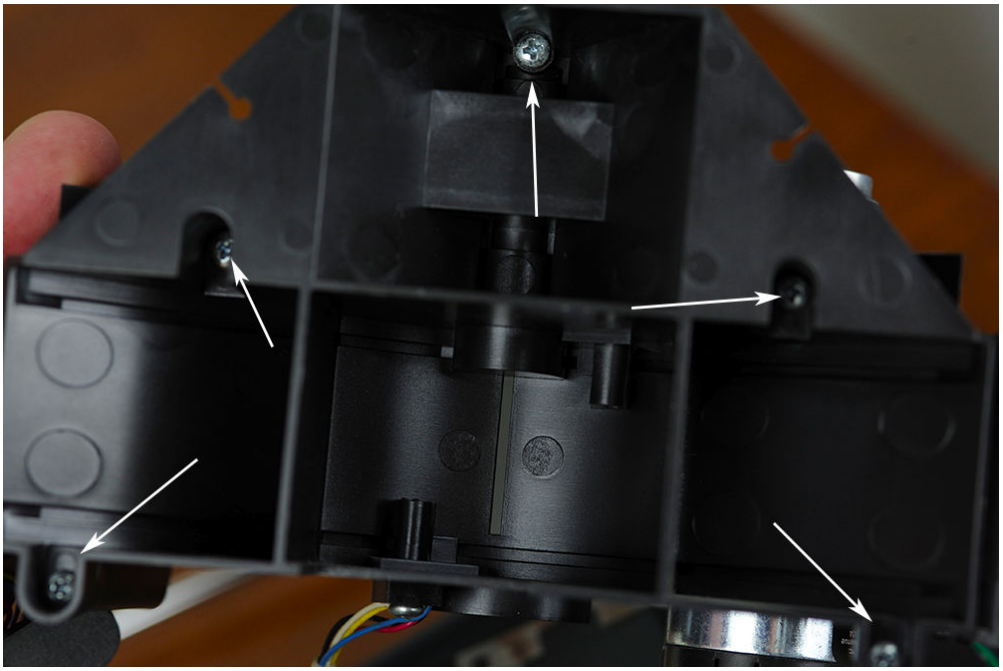
Lift up the scanning unit. Underneath you'll see the same plastic bit set up as the top sensor. Just remove the bit and give the bottom sensor a good blow-out with compressed air.



Arrow pointing to bottom sensor

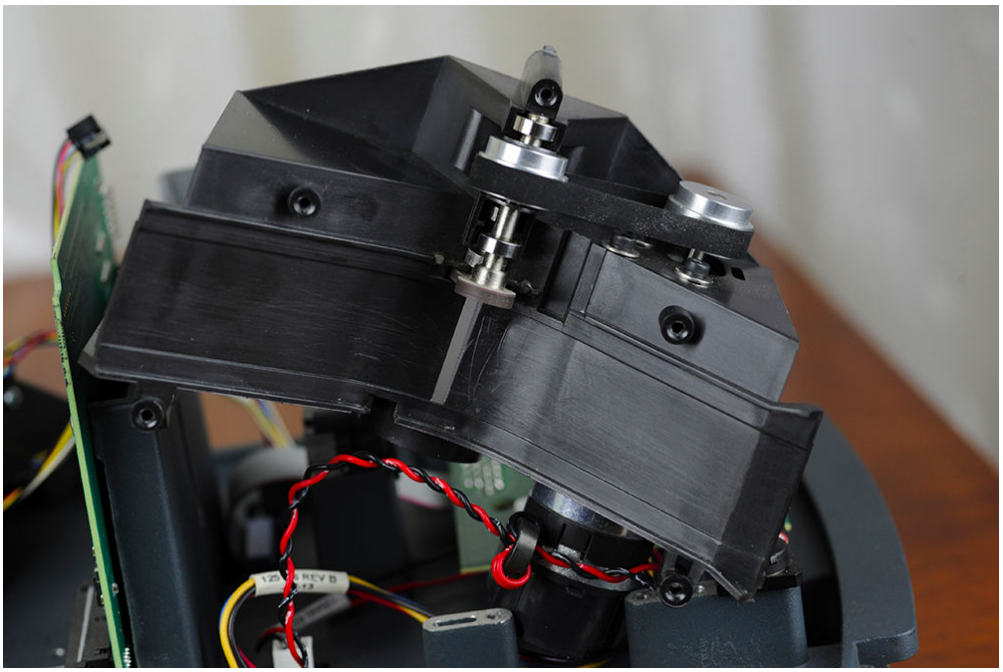
After you've blown out the bottom sensor, just reverse the above steps to put the scanner back together. But you've come this far, right? You may as well give it a good clean-out while everything's off.

There are five phillips head screws holding the the back and front sections of the scanning unit together. Undo these.



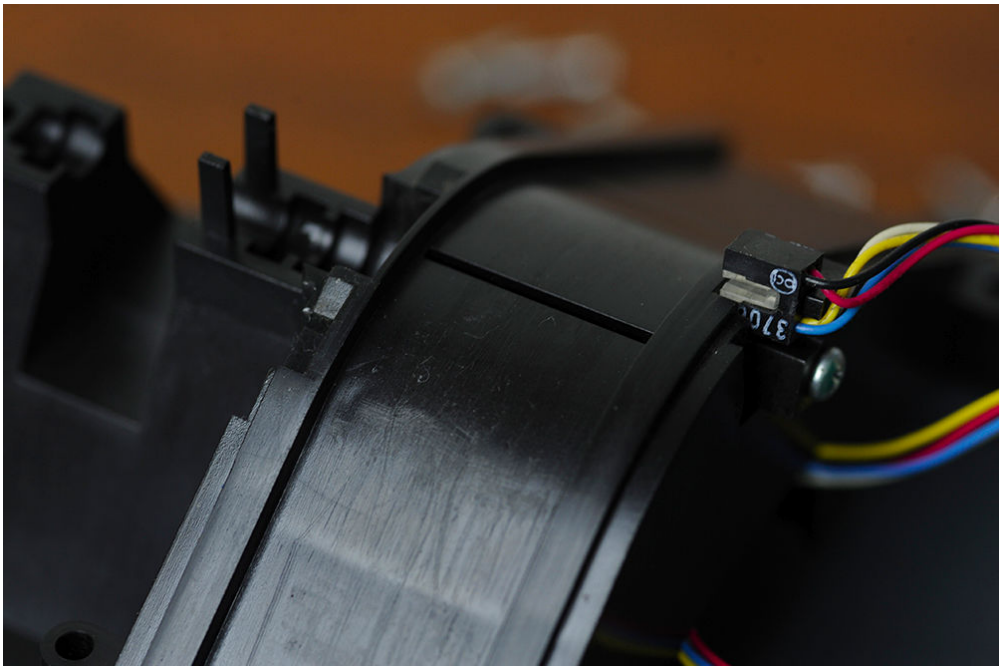
Undo these five screws. Wires for the bottom sensor can be seen at the bottom of this photo.

Carefully prise apart the back and front sections. You'll notice the wheel that pulls the film through seems to just be sitting there. It'll stay in place, but be careful not to knock it about too much as it may dislodge. Give the film channel walls a good wipe with an alcohol wipe or non static cloth. Also take this opportunity to give the bottom section a good blow-out with compressed air. You'll notice a lens, a few LEDs, and a white cylinder. I'm not sure what any of these do, but you may as well ensure they're dust free.



Back section

The front section has the bottom sensor attached to it. If you didn't remove it earlier, you'll notice that it's sitting out in the open, attached to the front section you just removed.



Front section of scanning unit showing bottom sensor

Give the sensor a good blow-out with compressed air. Wipe down the film channel and you're done.

And that's it.

Reverse the above steps to put everything back together. Take care with putting the back and front sections back together. There's grooves for all the wheels, so it should fit snugly.

Hopefully your scans are sensor dust-free after a good clean.

The above process only took me about 15-20 minutes, and that's with stopping to take photos. So it's not difficult.

Hope this helped. If not, head on over to the Pakon scanner Facebook group. There's heaps of great people there always willing to impart wisdom and advice.

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Dick de Ronden 3 months ago

If the film is jamming like Paul Tan mentioned it might be that the sensors are a bit out of "line" with the black filmguider (the film channel). Then the film hits the side of the sensor. In the wordt case the plastic piece that is very fragile breakes so that it will be impossible to have one of the sensor back in place. Maybe someone will be able to make a copy with a 3d printer. I am thinkin of reproducing that piece by frasing it out of an alumiunium bar. I have cleaned several Pakon scanners with succes now. However there is a major problem with these scanners. The rubber bands on the metal weels become detoriated of age. The dry out and come loose. There are no spare parts. I have three Pakon scanners where I need to find a solution to replace these bands because they are useless now. I found a company in Germany that can make rubberbands according to specifcations.

Peter Davison 4 months ago

Thank you! Helped me re-adjust the focal point. Made a massive difference in sharpness.

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Jeffrey Osier-Mixon 5 months ago

Excellent article with excellent photographs! On my (non-plus) F135 I found that the screws are actually size T10, but a T8 screwdriver will work just fine as the sockets in each screw are graduated - they get smaller toward the bottom of the socket. In any case, this is great work and very helpful.

I found that when I reassembled my Pakon, I got more "film in path" errors at the end of each film strip (red blinking light instead of green). It clears when I move the film away, but clearly I moved the bottom sensor in some way. Just a warning for others to do what Sasha says, don't remove the bottom sensor if you don't absolutely need to!

paul tan 6 months ago

my scanning keeps jamming , will this help ?

Sasha Pazeski 6 months ago

I'm not sure if it will, Paul. It's possible that there's something caught up in the film feed or rollers, and taking the Pakon apart will definitely tell you whether that's the case. It might be another problem, though. Without knowing the specifics of what's happening, it's hard to tell what the problem might be. Having said that, I'm certainly no expert on these things. If there's nothing caught up in the film channel or rollers, I really wouldn't know what's wrong. Your best bet is to post in the awesome Pakon Facebook group. Lots of helpful people there.

Kamil 11 months ago

Size of a torx bit is T8

Sasha Pazeski 11 months ago

Thanks, Kamil! I'll amend my post and add that information.

Randy P. Martin A year ago

Thank you, this is amazing! I love being part of this group.