



NeatDesk™ Desktop Scanner Circuit Board Repair

Unit will not power on. Troubleshoot and Repair guide. Based on Circuit Board Defect and Fuse Replacement.

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INTRODUCTION

Repairing products, not only saves the environment ... it can save you a bunch of money.

This example began as an eBay purchase that stated the item was defective and sold as-is.

Considering the cost was over \$300 less than the going price for an operational unit, a calculated decision was made to purchase the item and attempt repair.

The item was described as "Will not power on"

TOOLS:

- [Multimeter](#) (1)
- [Phillips #2 Screwdriver](#) (1)
- [Metal Spudger Set](#) (1)
- [Suction Handle](#) (1)
- [Soldering Workstation](#) (1)

PARTS:

- [3 Amp 125 Volt Pico Fuse, with Axial Leads](#) (1)

Step 1 — Check Power Sources

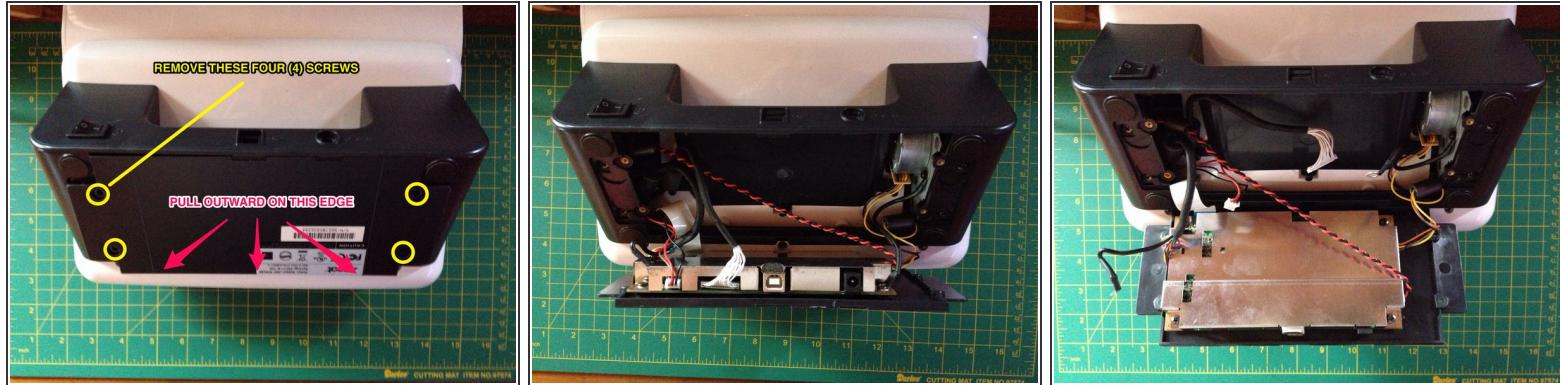


- Verify Power is being supplied
 - Using a multimeter on AC setting, check that wall outlet is 120 Vac
 - *If not, then switch to another source. otherwise proceed to next step.*
 - Using a multimeter on DC setting, check that scanner wall power pack is providing 24 Vdc
 - *If not, then locate and obtain another (Compatible) power pack. Unit should be obtained from manufacturer and if not available then the following is the rated specification at time of this guide (Input=100-240Vac 1.0A Max 50-60Hz Output=24Vdc 0.75A 18W) Center Positive Polarity*

 High voltage present at wall outlet, be sure to pay attention when checking voltage with multimeter.

 Use caution when checking scanner wall power pack, so not to short out contacts.

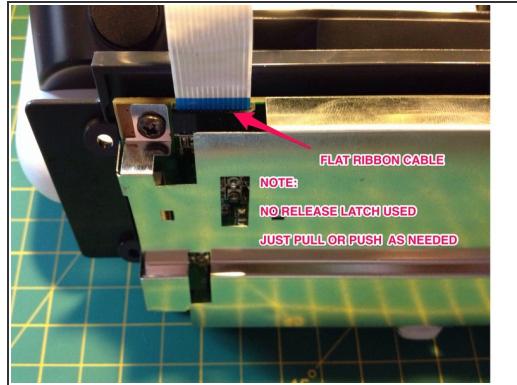
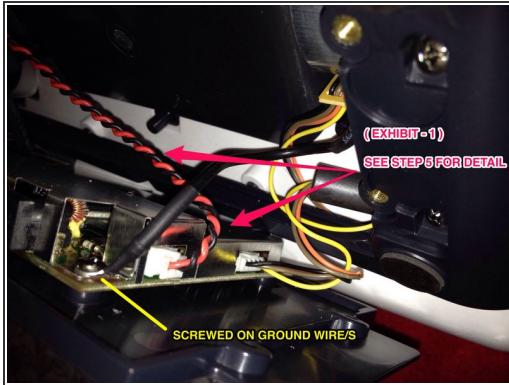
Step 2 — Disassemble Scanner



- Unscrew bottom access cover.
 - Use a #2 Phillips Screwdriver and carefully remove Four (4) screws from bottom access panel.
 - *It may be advisable to have a magnet handy, in the event the screws are difficult to extract due to the recessed mounting hole.*
- Open bottom access cover.
 - Use a Spudger or Suction Cup to pry open the access cover. Pay attention to provided image and be sure to tilt cover as shown to make removal easy.

⚠ *Circuit board is mounted to other side of access cover and wiring must be disconnected before access cover is completely removed.*

Step 3 — Disconnect Wiring



- Disconnect screwed on wires from circuit board.
 - Use a #2 Phillips Screwdriver and carefully remove Two (2) screws that are securing ground wires to circuit board shield/mounting holes. See image for locations.

! *Use caution so not to drop or lose screws as they are removed. It is advised to have a magnet nearby and cover areas where screws may fall into.*

- Disconnect plugged in connectors and flat ribbon cable.
 - Use a suitable pair of pliers, such as small needle nose and carefully grasp connectors then gently unplug in the sequence shown for easy access.

! *Use caution when handling flat ribbon cable to avoid cuts, bends or any damage to conductors.*

Step 4 — Expose Circuit Board

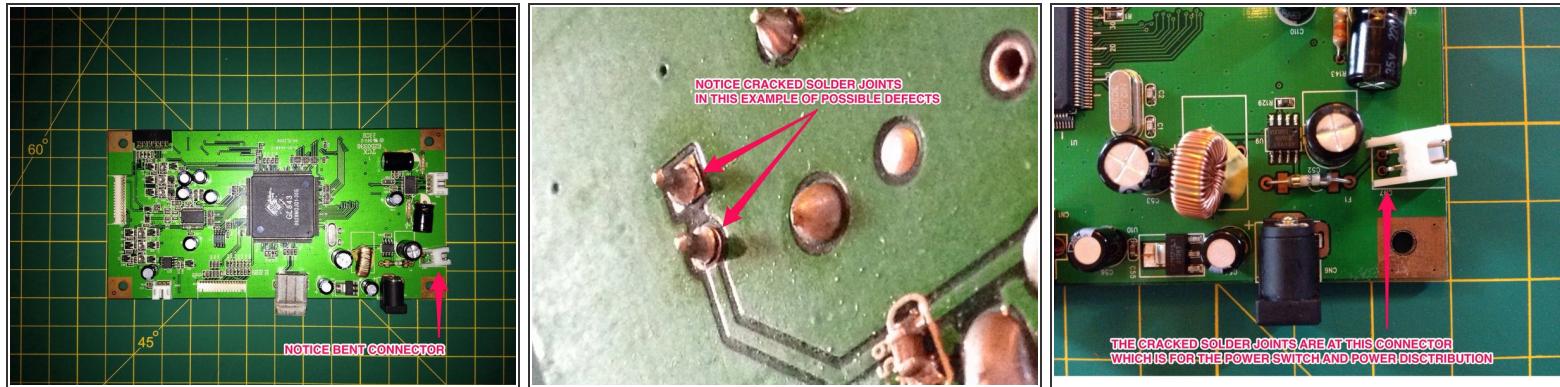


- Use a #2 Phillips Screwdriver and carefully remove Four (4) screws from shield / circuit board mounting holes.

⚠ Be sure to exercise *ESD (Electro Static Discharge) best practices.*

★ Use an anti-static mat and wrist strap to avoid damaging sensitive electronic components of circuit board.

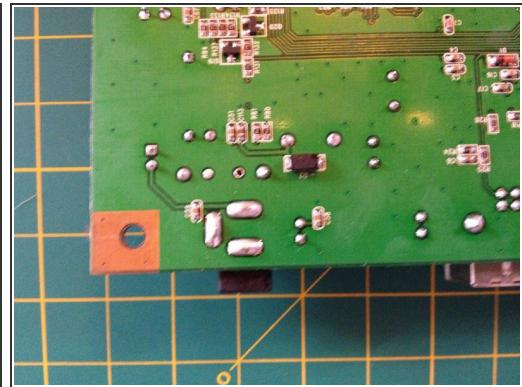
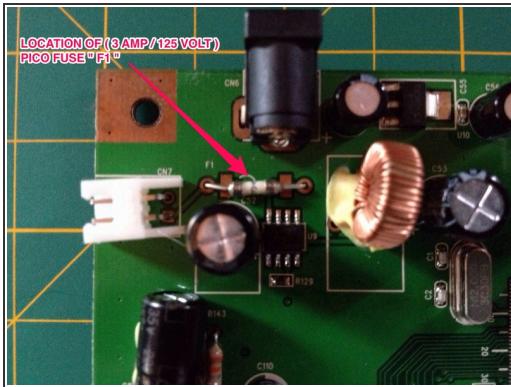
Step 5 — Examine Circuit Board



- Carefully examine circuit board and all components, closely using good lighting and a magnifier.
 - *Look for defects such as: Cracks, Burn Marks, Signs of Corrosion, Swollen Components, Unusual Looking Solder Joints ...*
- See pictures for example of Solder Joint Defect from this project.
 - *Note that the defective solder joints were likely a factory flaw that eventually gave out or were caused by strain, due to too short of wiring as visible by connector angle.*

(i) See Step 3 for likely cause of strain on connector that resulted in fatigued solder joints. (Ref: Exhibit - 1)

Step 6 — Test Circuit Board



- Verify the power path is complete by using a multimeter on continuity mode and check "point to point" starting at the incoming power connector to the next available point. Continue as needed to verify there are no breaks in the circuit path.
 - *Being this example was of a power related problem, it is advisable to check there are not any other issues that could disturb power flow.*
 - *In this example it was found that not only the solder joints had defects, but the fuse was open (Likely due to power surge from poor connections)*

Step 7 — Perform Needed Repairs



- Determine the type of repair needed
 - In this example, basic soldering was required. However, it may be possible other forms of repair are necessary for your particular application.
 - Below are references to other guides that detail general forms of repair:
 - [Soldering and Desoldering Guide](#)
 - [Electronics Water Damage Guide](#)
 - [Electronics Skills 101 Guide](#)
- *(i) Many thanks for the contribution of others that developed these additional guides*

Step 8 — Double Check Your Work



- Look for any possible mistakes you may have made or other issues.
 - Common mistakes can take place and could include: Connectors or Wiring in the "Wrong" place.

⚠ *Look at these images and note how a wire can easily be pinched or damaged, resulting in a New Problem. Do you see the Red Wire in a mounting hole path ?*

Step 9 — Reassembly



- Follow applicable sections of this guide in reverse as needed.

● *NOTE: Did you take pictures during your disassembly ?*

★ *Taking pictures is always a good idea, as it helps you remember how something goes back together However, there is also a much more important reason, and that is so you can create a guide and post it on iFixit ;-)*

Step 10 — Retest



- The moment you have been waiting for.
- Make sure your "Ducks are in a row"
 - *Be patient, don't rush, take any necessary precautions to avoid further damage of unit or associated devices.*
- Start by keeping the unit isolated from other devices to prevent spreading damage in the event retest fails.
- Perform a systematic startup, by making sure the power switch is off, power connector is plugged into back of unit, then plugging in wall power pack into wall receptacle.



Be prepared to disconnect power quickly by having a helper ready to unplug the wall power pack.

- Turn unit on and carefully observe if there is any sign of life, along with any issues such as electrical arching noise, smoke, smell ...

Step 11 — Success !!!



- If you have been able to repair your unit then give thanks where it is due.
- *Share your wisdom and experience with others by developing a guide of your own using the following link:*

 [iFixit \(Start a new page \)](#)

CONSIDERATIONS: The determining factors to consider when deciding severity of damage to products and how involved the repair can be as follows.

QUESTIONS - ANSWERS:

- 1) Value of item - Based on simple research it was determined that the value of the item was high compared to the low purchase cost.
- 2) Age of item - The item is still available as a current model.
- 3) Complexity of item - The small compact design appeared to be easy to work with and would not likely required special tools or skills.
- 4) Details of problem - The problem description was described as a simple failure to power on, after normal use and no history of being damaged or neglected.
- 5) Available information sources - With sites such as iFixit and the countless sources of information it was likely that advice could be had.
- 6) Typical environment item is used in - The item is an office product and less likely to be damaged from a harsh environment such as exposure to outdoor elements.
- 7) Safety risks to self or others - Minimal safety risks were present as voltage levels were low as supplied by external 24 Volt DC power source. No hazardous materials were expected, such as chemicals.

END RESULT: Successful completion of repair and unit is fully operational ... a great product at a great price !!!