Dell Chromebook 11 - 3120
Disassembly and Reassembly Guide

Warning: This manual is intended for use by a Dell Certified Technician. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Copyright © 2015 Dell Inc. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. Dell™ and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2015 - 03

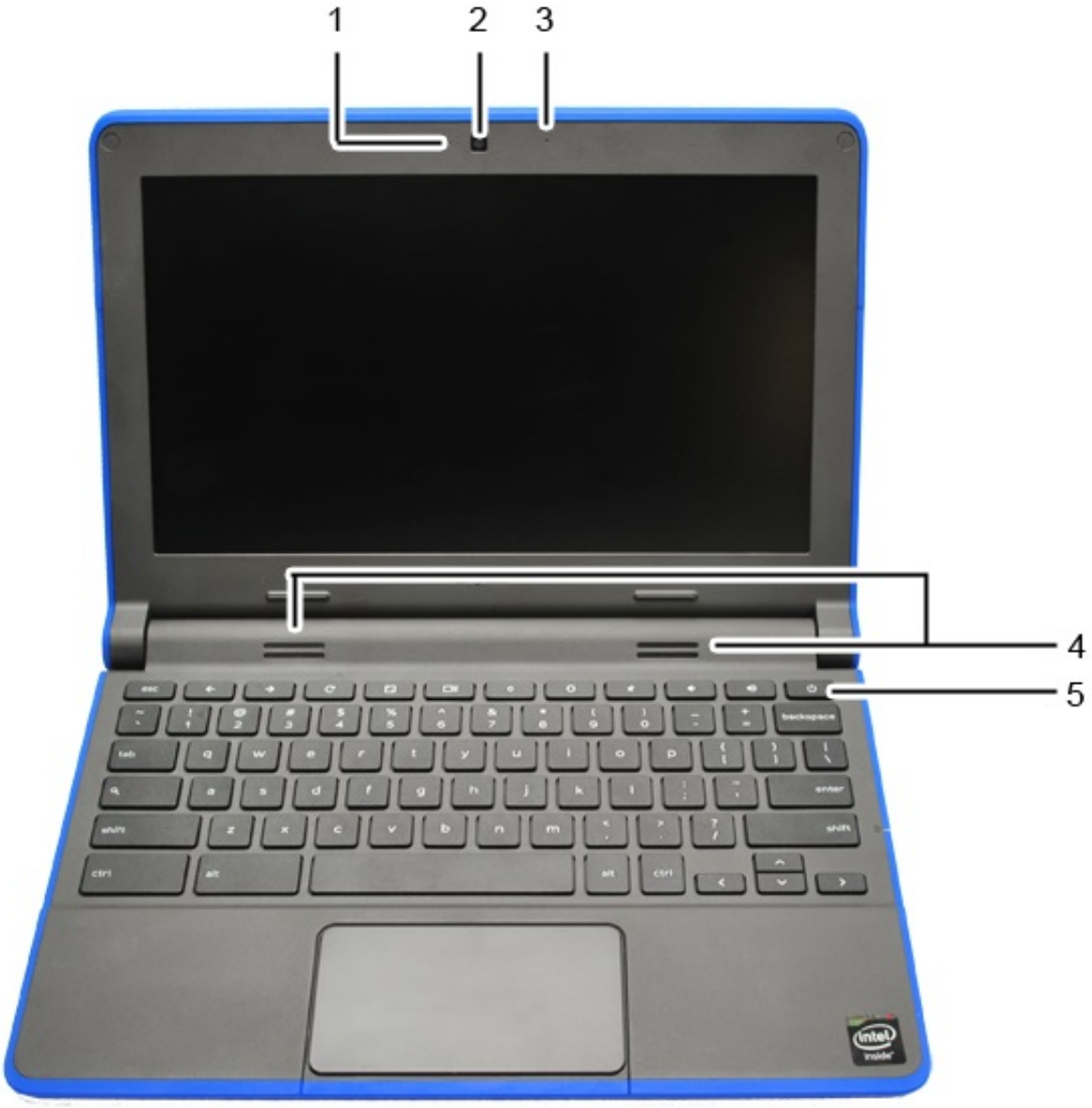
Rev. A00

Chassis

This section provides information about the chassis for the **Dell™ Chromebook 11 (3120)** system.

Top View

The **Dell™ Chromebook™ 11 (3120)** system top view and features are as below:



Chassis Top View Features and Locations	
Label	**Description**
1	Webcam LED
2	Webcam
3	Microphone
4	Speakers
5	Power Button
6	A-Cover LED (Interactivity LED)

Left View

The **Dell™ Chromebook™ 11 (3120)** system left view and features are as below:

Chassis Left View Features and Locations	
Label	**Description**
1	DC-in Jack
2	USB 3.0 with BC (Battery Charging) 1.2
3	HDMI
4	Audio in Jack
5	SD Card Reader

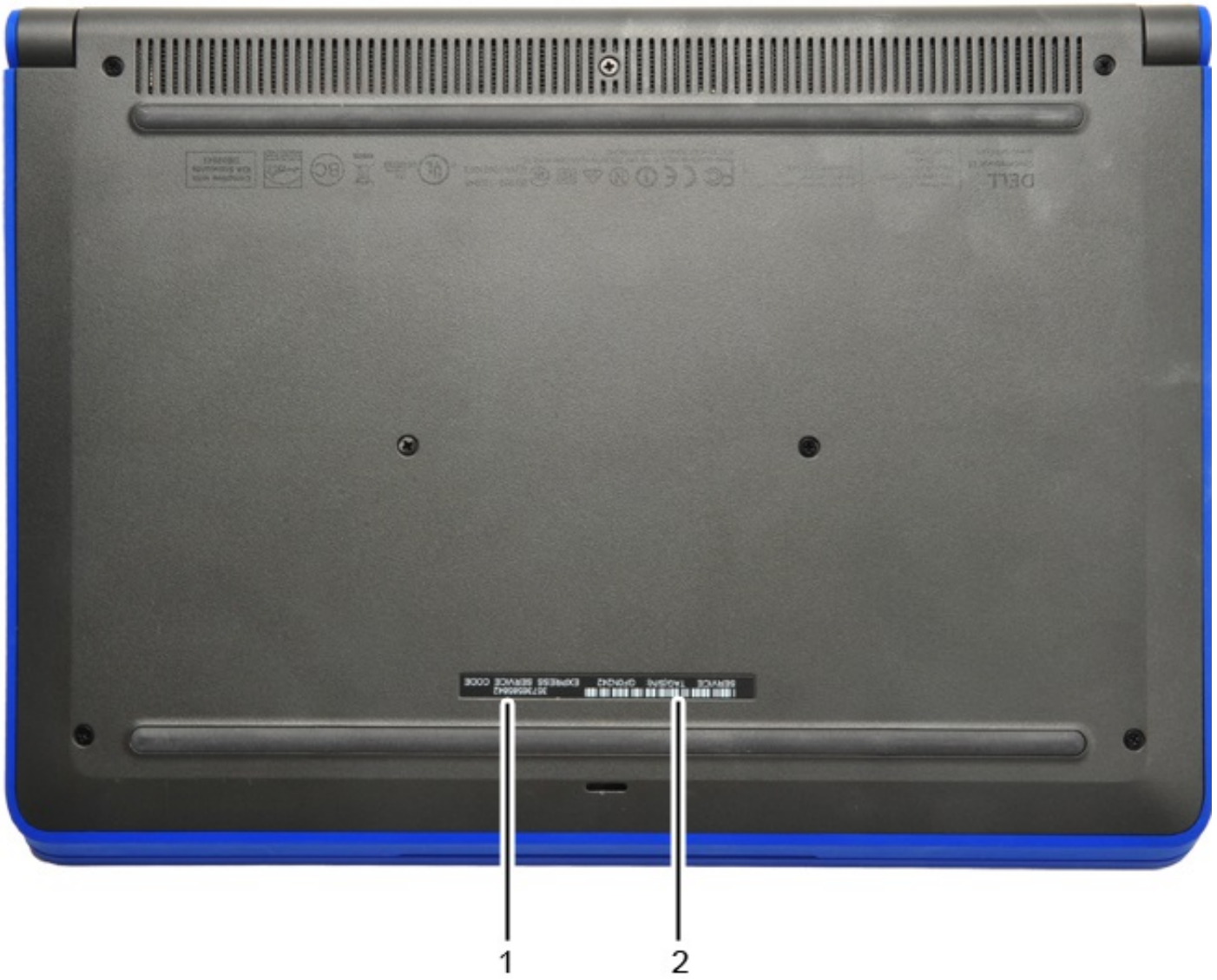
Right View

The **Dell™ Chromebook™ 11 (3120)** system right view and features are as below:

Chassis Right View Features and Locations	
Label	**Description**
1	Battery LED
2	SIM Card Slot
3	USB 2.0
4	K-Lock Slot

Bottom View

The **Dell™ Chromebook™ 11 (3120)** system bottom view and features are as below:



Chassis Bottom View Features and Locations	
Label	**Description**
1	Express Service Code
2	Service Tag

Chassis LED

This page contains all the information about LEDs on **Dell™ Chromebook™ 11 (3120)**.

Battery LED

The battery status LED light is located at the right side of the chassis, as shown in the image below.

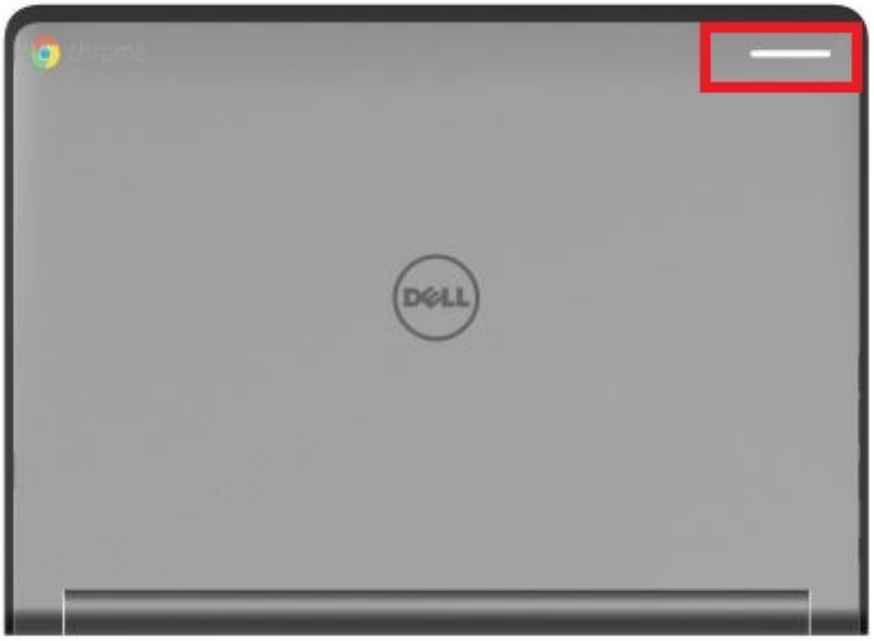
Battery Status LED	
LED Light Status	**Description**
Off	AC powered, charge level higher than 97%
	Battery powered, charge level higher than 10%
	Battery powered, charge level less than 10%, machine in S5 state
White	AC powered, charge level less than 97%, charging
Amber	Battery powered, charge level less than 10%, machine in S0 or S3 state
Blinking Amber	Battery error

Dell Activity Light

Chromebook 11 (3120) comes with a 7 color Dell Activity light LEDs outside of the LCD back cover which can be use for interactivity between students and teachers.

For more information about Dell Activity Light, please visit Dell Bright Light in the software section.

Location of the Dell Activity Light as highlighted in the image below.

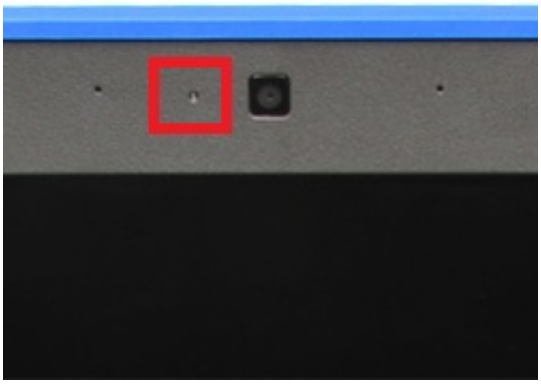


Dell Activity Light	
LED Light Status	**Chassis LED Light**
 Blue	
 Red	

 Yellow	
 Others	

Webcam LED

Chromebook 11 (3120) will have a webcam LED indicator on the LCD bezel, as shown in the image below.



Webcam Status LED	
LED Light Status	**Description**
Off	Webcam off
White	Webcam on

Field Service Information

This section covers field service information.

The information in this section is specifically for field service personnel who perform installation, diagnosis, and repair activities. Field personnel are required to know the issues and procedures in this document whether or not they perform all the service tasks.

Information in this section is required knowledge, but should never override regional or local policies and procedures

The sections and primary pages in this document are as follows:

- **Safety Precautions** — Generic safety precautions for every service event.
- **Tools & Utilities** — Hand tools needed to service the **Dell™ Chromebook™ 11 (3120)**.
- **Need to Know** — Information and instructions for the Chromebook that requires additional attention. This section may contain critical call outs, New, Unique, Different and Difficult (NUDDs), and common error codes.
- **Diagnostic** — Available diagnostic tools for the Chromebook 11 (3120).
- **Disassembly and Reassembly** — Instructions for removing each replaceable part, with information needed before, during, and after parts replacement.
- **RMA Shim** — Information and instructions which must be done whenever a hardware replacement takes place.

Safety Precautions

Observe the following safety precautions when you perform any installation or break/fix procedures involving disassembly or reassembly:

- Turn off the system and all attached peripherals.
- Disconnect the system and all attached peripherals from AC power, and then remove the battery.
- Disconnect all network cables, telephone or telecommunications lines from the system.
- Use a wrist grounding strap and mat when working inside any computer system to avoid electrostatic discharge (ESD) damage.
- After removing a system component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to help reduce the risk of being shocked or seriously injured in an electrical accident.

Standby Power

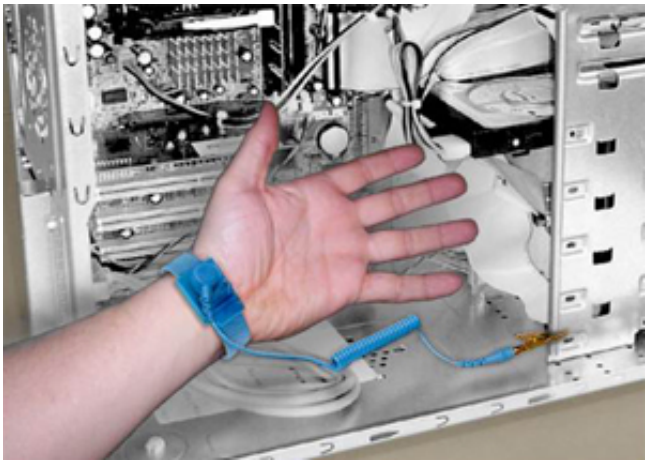
Dell products with standby power must be completely unplugged before the case is opened. Systems that incorporate standby power are essentially powered while turned off. The internal power enables the system to be remotely turned on (wake on LAN), suspended into a sleep mode, and have other advanced power management features.

After you unplug a system and before you remove components, wait approximately 30 to 45 seconds to allow the charge to drain from the circuits. Remove the battery from portable computers.

Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done through the use of a Field Service ESD kit. When connecting a bonding wire, always ensure that it is connected to bare metal and never to a painted or non-metal surface. The wrist strap should be secure and in full contact with your skin, and be sure to always remove all jewelry such as watches, bracelets, or rings prior to bonding yourself and the equipment.

Bonding Properly



Electrostatic Discharge Protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory DIMMs, and system boards. Very slight charges can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing

concern.

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in earlier Dell products. For this reason some previously approved methods of handling parts are no longer applicable.

There are two recognized types of ESD damage: catastrophic and intermittent failures.

- **Catastrophic** —The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory DIMM that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code emitted for missing or nonfunctional memory.

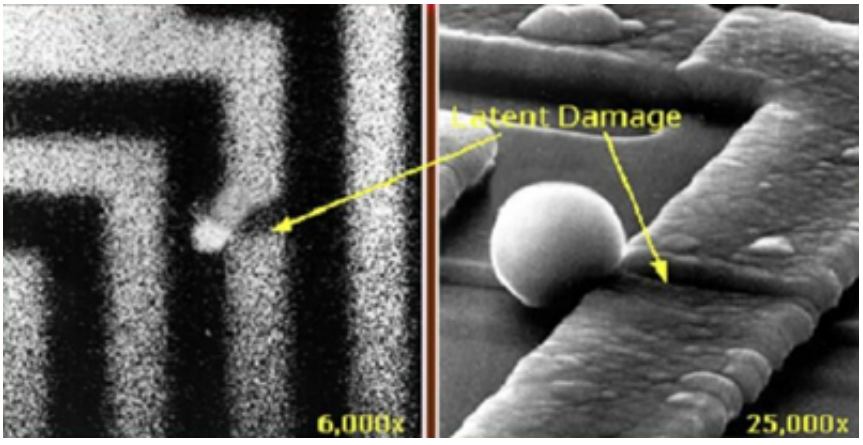
  NOTE: Catastrophic failures represent approximately 20 percent of ESD-related failures.

- **Intermittent** —The DIMM receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, etc.

  NOTE: Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable.

The more difficult type of damage to recognize and troubleshoot is the intermittent (also called latent or “walking wounded”) failure. The following image shows an example of intermittent damage to a memory DIMM trace. Although the damage is done, the symptoms may not become an issue or cause permanent failure symptoms for some time after the damage occurs.

Intermittent (Latent) Damage to a Wiring Trace



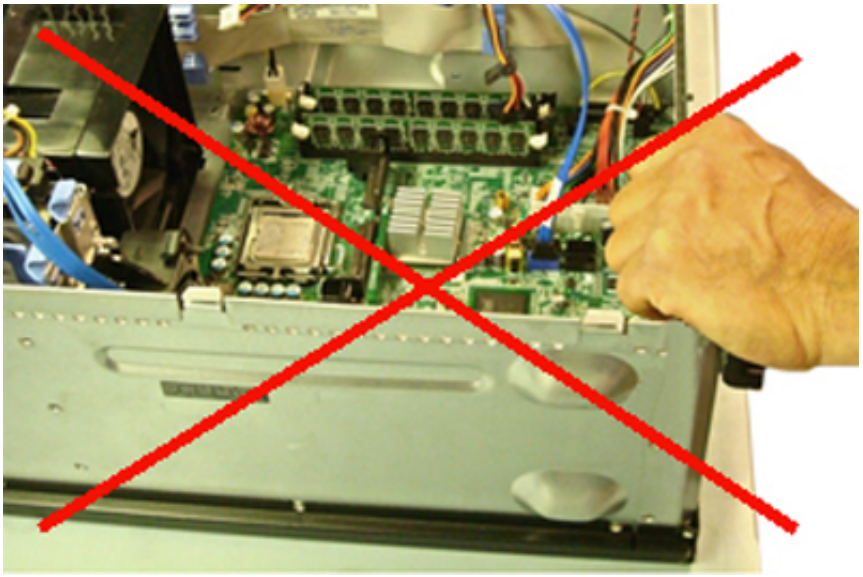
Do the following to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded.

  The use of wireless anti-static straps is no longer allowed; they do not provide adequate protection.

  Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.

  Chassis "Bare Metal" Grounding (Unacceptable)



- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When handling static-sensitive components, grasp them by the sides, not the top. Avoid touching pins and circuit boards.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, be sure to discharge static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

The ESD Field Service Kit

The unmonitored Field Service kit is the most commonly used. Each Field Service kit includes three main components: anti-static mat, wrist strap, and bonding wire.

ESD Field Service Kit

Anti-Static Mat

The anti-static mat is dissipative and should be used to safely place parts on during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the mat and to bare-metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. Remember, the only safe place for ESD-sensitive items are in your hand, on the ESD mat, in the system, or inside a bag.

Anti-Static Mat

Wrist Strap and Bonding Wire

The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps.

Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire a minimum of once per week.

Wrist Strap and Bonding Wire

Wireless ESD Strap (Unacceptable)

ESD Wrist Strap Tester

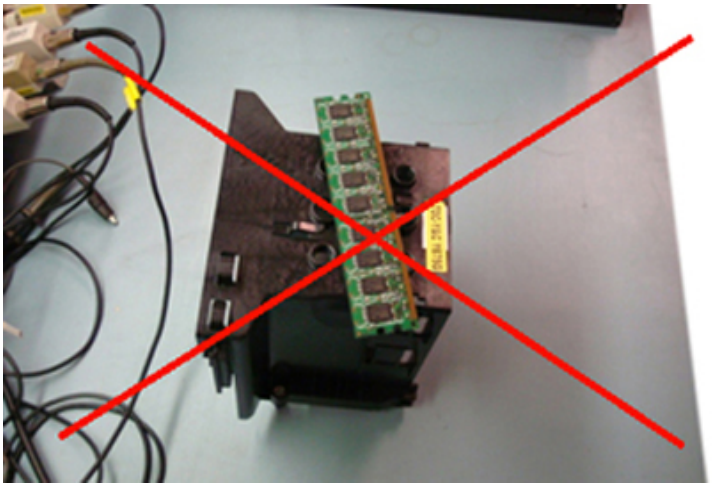
The wires inside of an ESD strap are prone to damage over time. When using an unmonitored kit, it is best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

Wrist Strap Tester

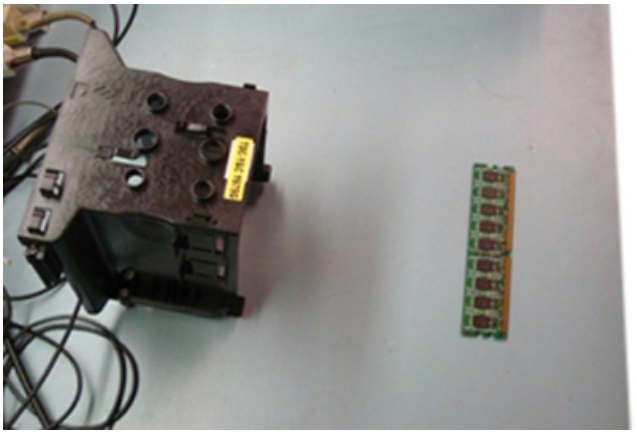
Insulator Elements

It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.

Unacceptable — DIMM lying on an insulator part (plastic heat sink shroud)



Acceptable — DIMM separated from the insulator part



Consider the Working Environment

Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables are typically placed on office desks or cubicles.

Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of system that is being repaired. The workspace should

also be free of insulators that can cause an ESD event. On the work area, insulators such as Styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components.

ESD Packaging

All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged part using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in.

ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the ESD mat, in the system, or inside an anti-static bag.

ESD Packaging

Transporting Sensitive Components

When transporting ESD-sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

ESD Protection Summary

It is strongly suggested that all field service engineers use the traditional wired ESD grounding wrist strap and protective anti-static mat at all times when servicing Dell products. In addition, it is critical that engineers keep sensitive parts separate from all insulator parts while performing service and that they use

anti-static bags for transporting sensitive components.

Lifting Equipment

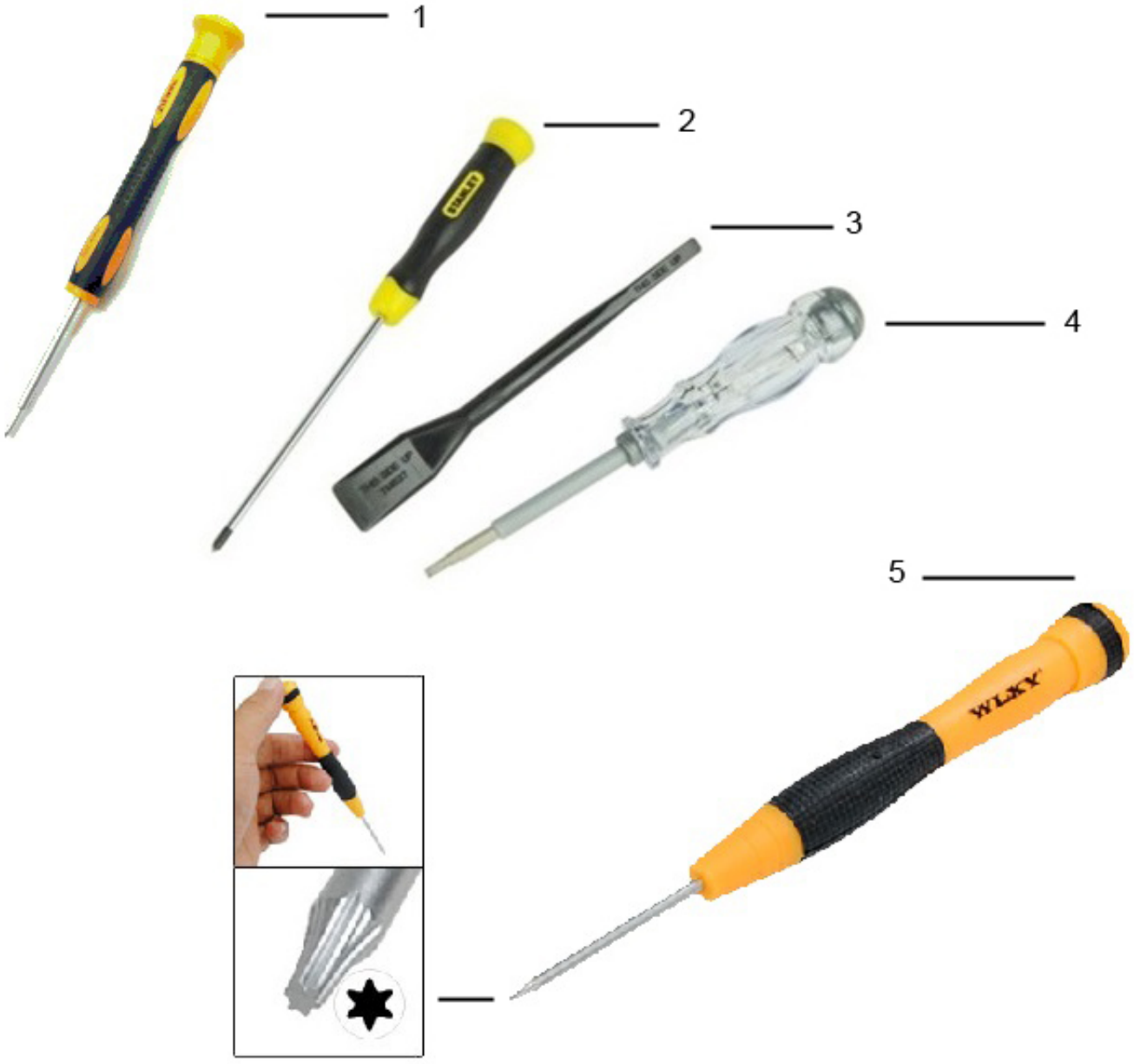
> **WARNING:** Do not lift greater than 50 pounds. Always obtain assistance from another person or persons, or use a mechanical lifting device.

Adhere to the following guidelines when lifting equipment:

1. Get a firm balanced footing. Keep your feet apart for a stable base, and point your toes out.
2. Bend your knees. Do not bend at the waist.
3. Tighten stomach muscles. Abdominal muscles support your spine when you lift, offsetting the force of the load.
4. Lift with your legs, not your back.
5. Keep the load close. The closer it is to your spine, the less force it exerts on your back.
6. Keep your back upright, whether lifting or setting down the load. Do not add the weight of your body to the load. Avoid twisting your body and back.
7. Follow the same techniques in reverse to set the load down.

Tools Required

A set of required and optional tools are necessary to service the product.



1. Small Phillips-head screwdriver, size #1
2. Small Phillips-head screwdriver, size #1
3. Plastic scribe
4. Small flat-head screwdriver
5. Tork 5 screwdriver

Disassembly and Reassembly

This section covers all the disassembly and reassembly of the **Dell™ Chromebook™ 11 (3120)**.

Sim Card Disassembly

Sim Card Disassembly Video

PREREQUISITES

Pre-removal parts:

1. None

Sim Card

Establishing image.

Sim Card Disassembly

1. Remove the T5 screw.

2. Remove the cover.

3. Use the push pin to eject the sim card.

4. Remove the sim card.

The removal is complete.

Sim Card Reassembly

1. Insert the sim card.
2. Close the cover.

3. Tighten the T5 screw.

Bottom Cover Disassembly

Bottom Cover Disassembly Video

PREREQUISITES

Pre-removal parts:

1. None

Bottom Cover

Establishing image.

Bottom Cover Disassembly

1. Loosen the seven (7) screws securing the bottom cover.

2. Pry up the bottom cover carefully, starting from the top corners.

3. Lift up and remove the bottom cover.

The removal is complete.

Bottom Cover Reassembly

1. Replace the bottom cover back into its original location.
2. Gently push the cover back to make sure that it is secured in place.
3. Tighten all seven (7) screws.

Battery Disassembly

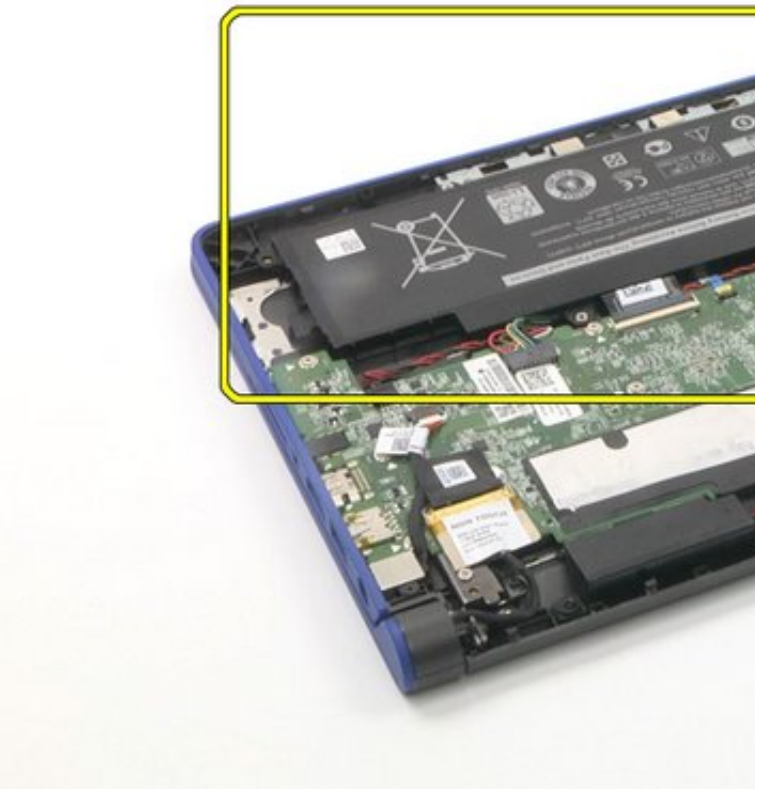
Battery Disassembly Video

PREREQUISITES

Pre-removal parts:

1. Bottom Cover

Battery	Establishing image.

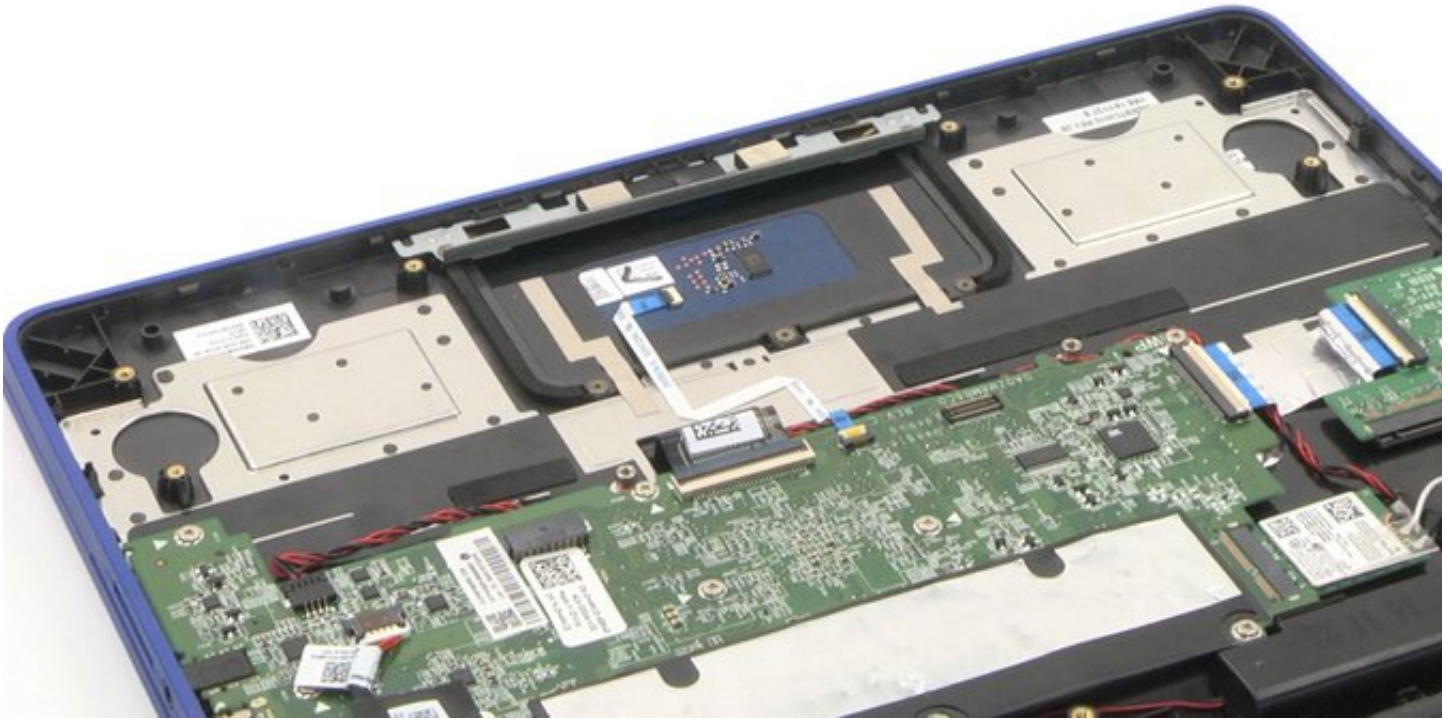


Battery Disassembly

1. Remove the two (2) screws that secure the battery in place.

2. Slowly pull the battery to disconnect the battery cable from system board, and remove the battery from the system board.

The removal is complete.



Battery Reassembly

1. Place the battery back into its original location.
2. Reconnect the battery cable.

3. Tighten the two (2) screws to secure the battery in place.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

WLAN Card Disassembly

WLAN Card Disassembly Video

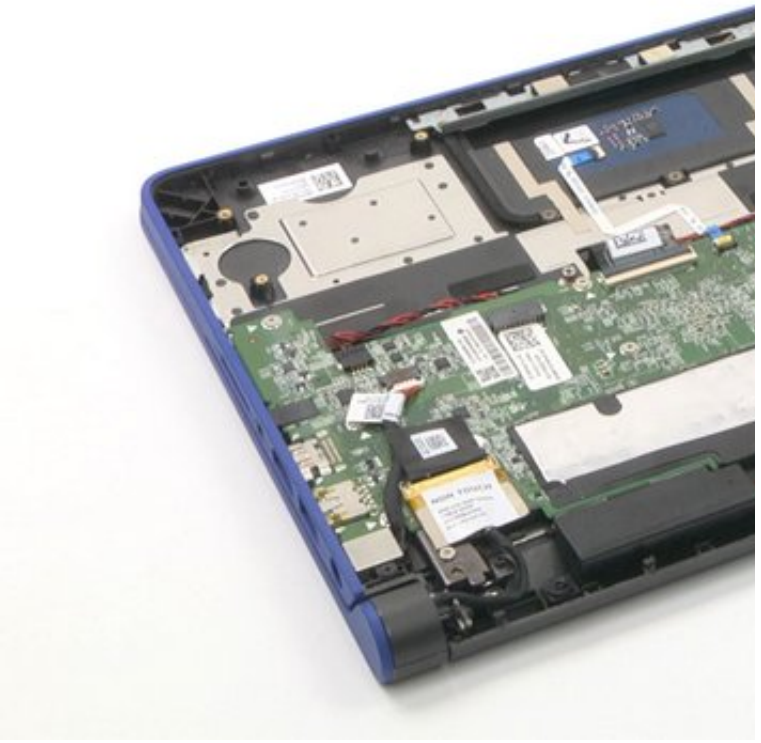
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery

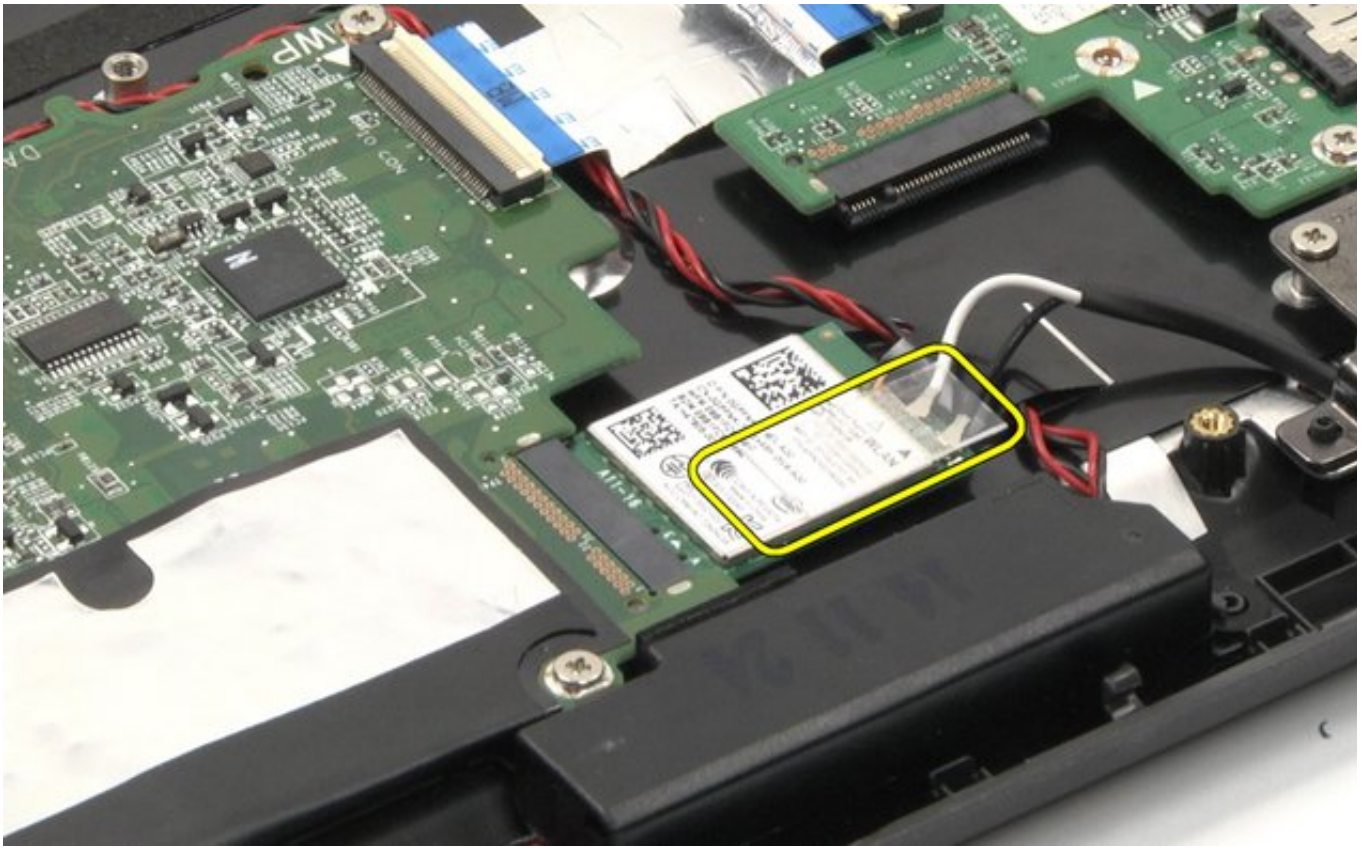
WLAN Card

Establishing image.



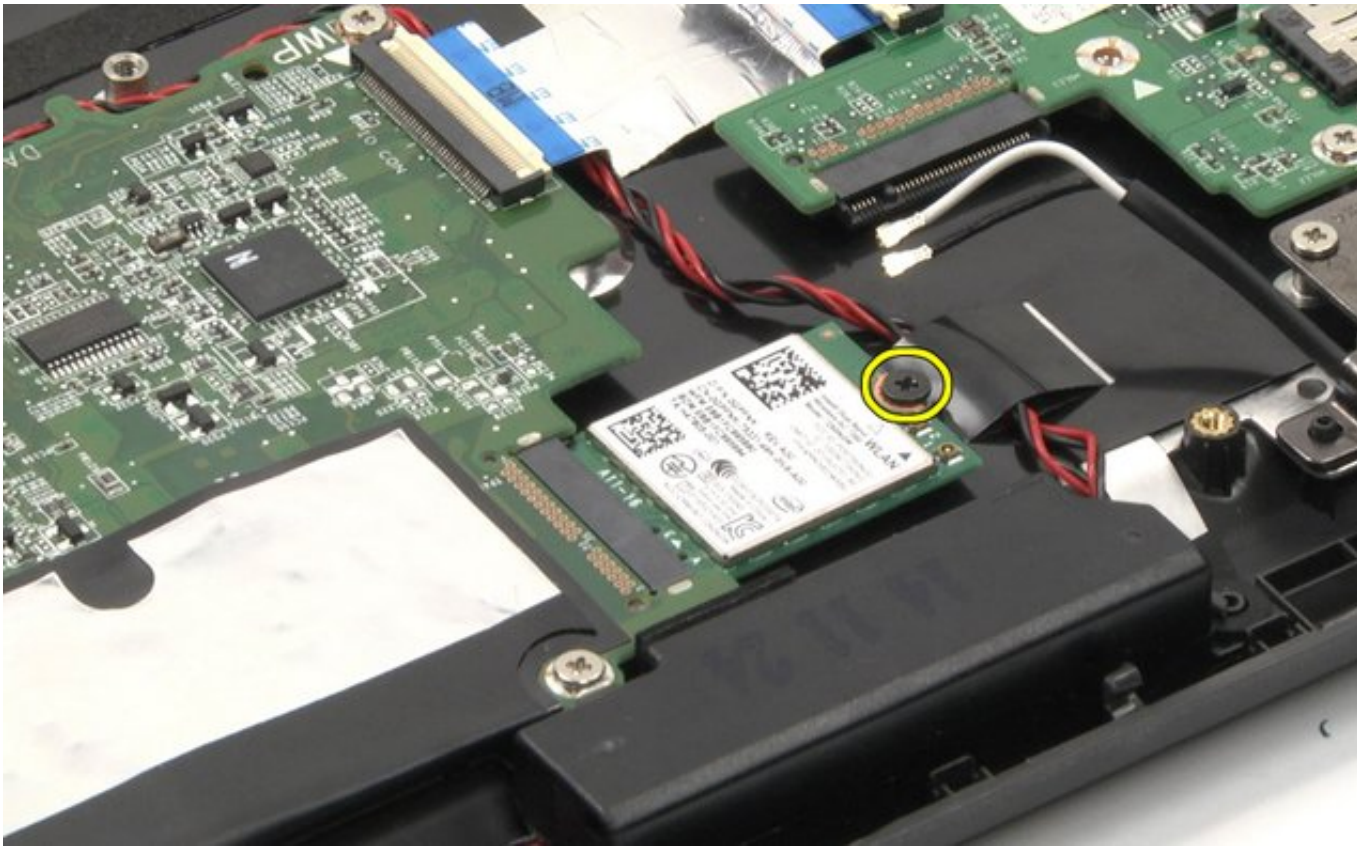
WLAN Card Disassembly

1. Remove the cable holder securing the antenna cables.



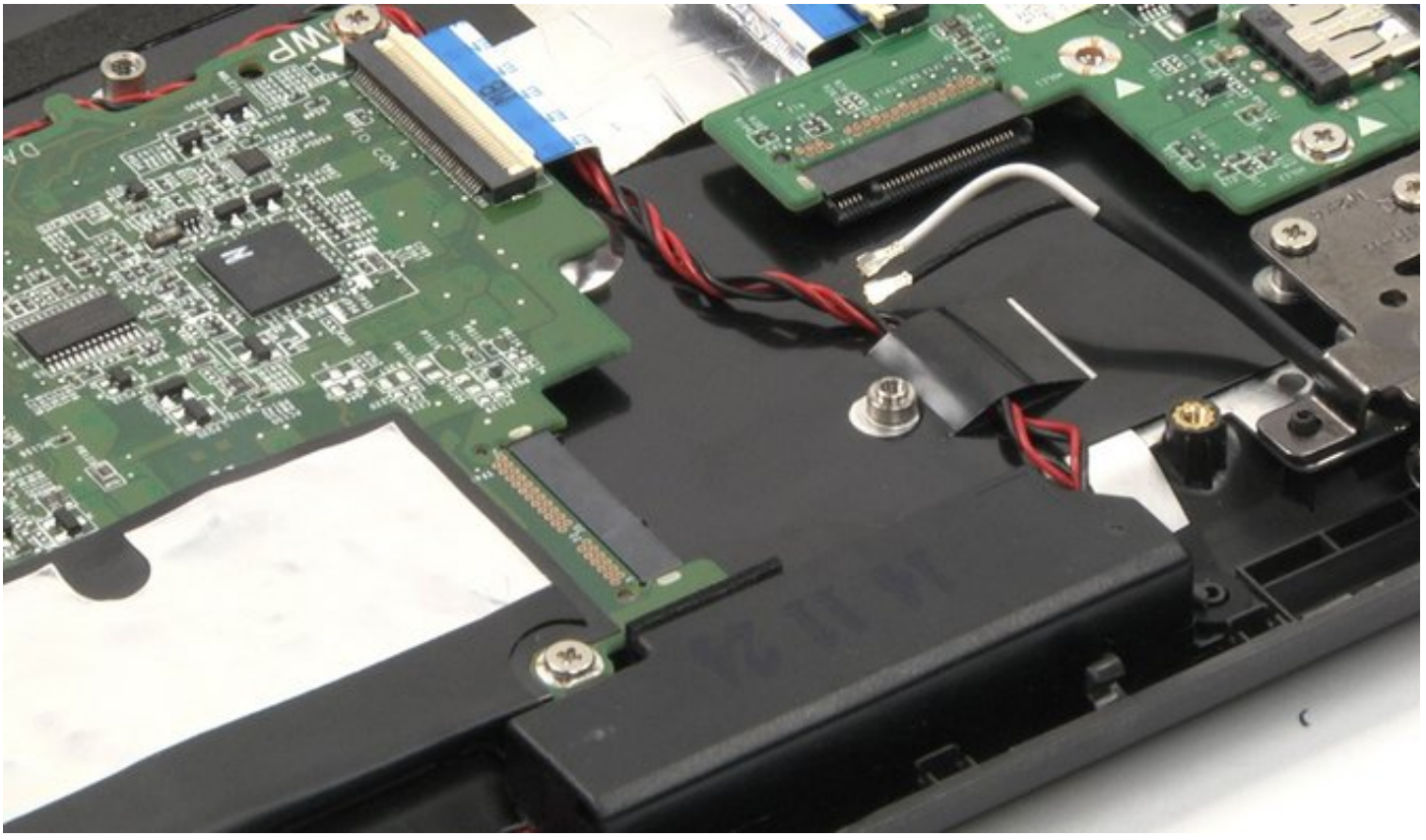
2. Disconnect the antenna cables from the WLAN card.

3. Remove one screw securing the WLAN card.



4. Remove the WLAN card.

The removal is complete.



WLAN Card Reassembly

1. Place the WLAN card back into its original location.
2. Reconnect the antenna cable.

3. Tighten the one (1) screw to secure the WLAN card in place.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

I/O Daughter Board Disassembly

I/O Daughter Board Disassembly Video

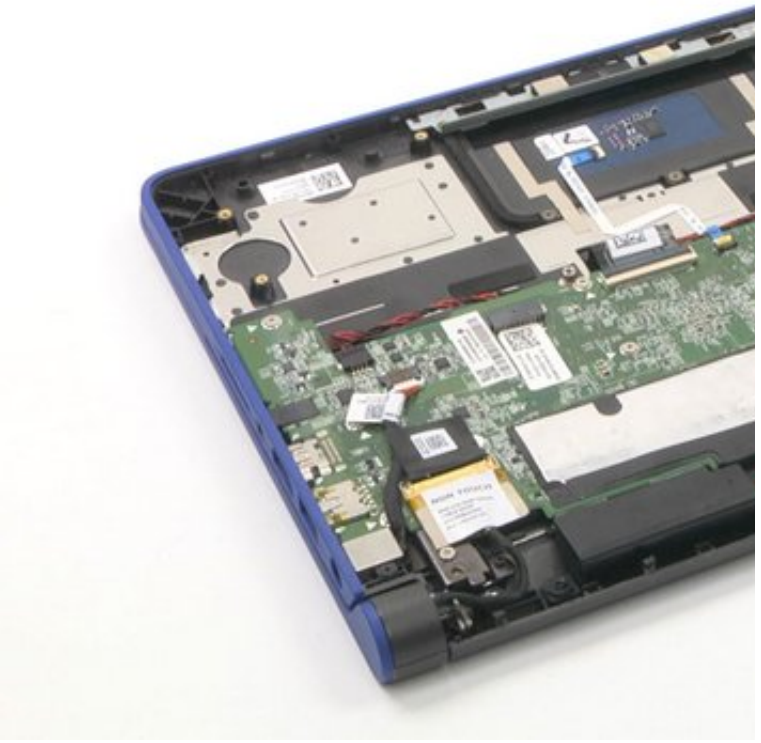
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. WLAN Card

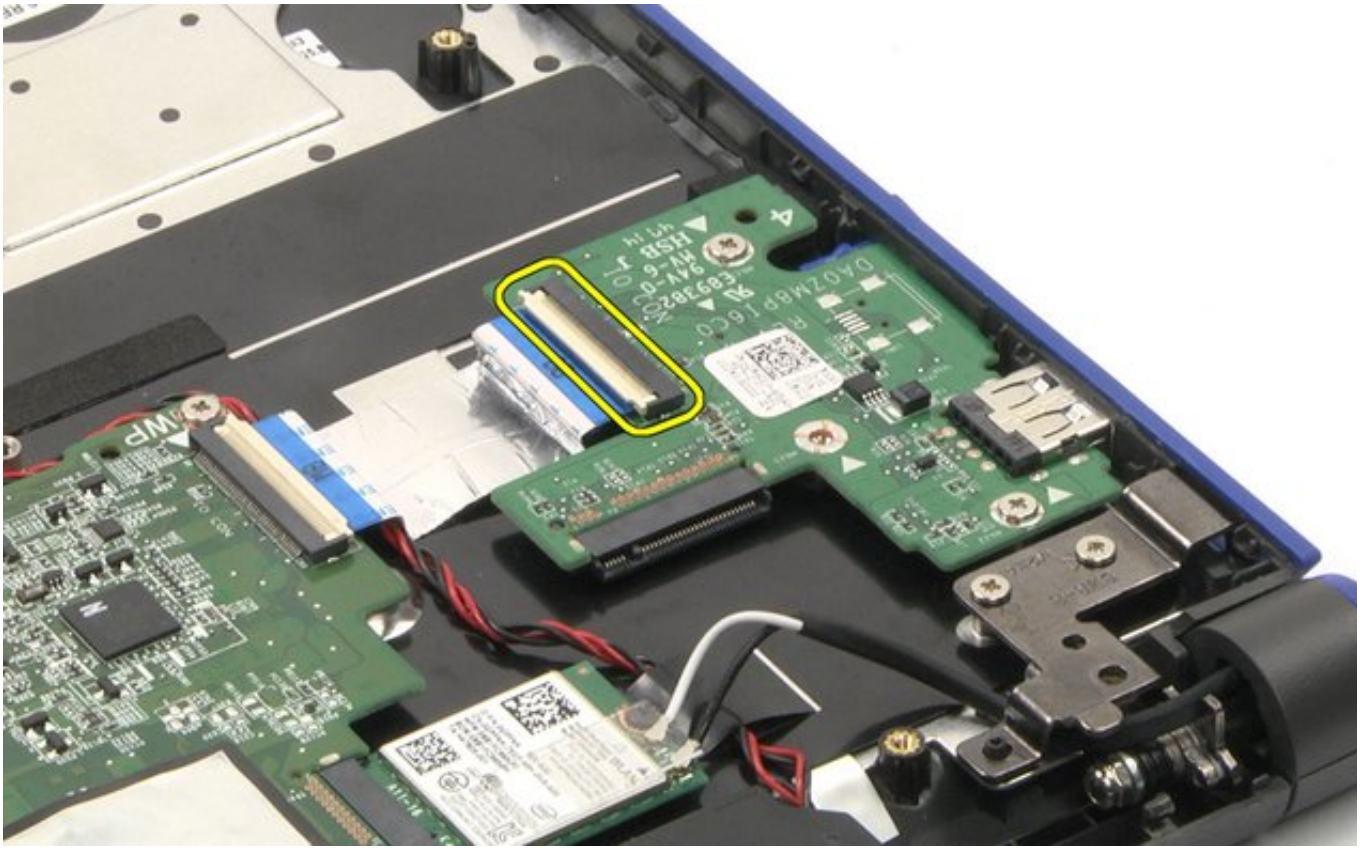
I/O Daughter Board

Establishing image.

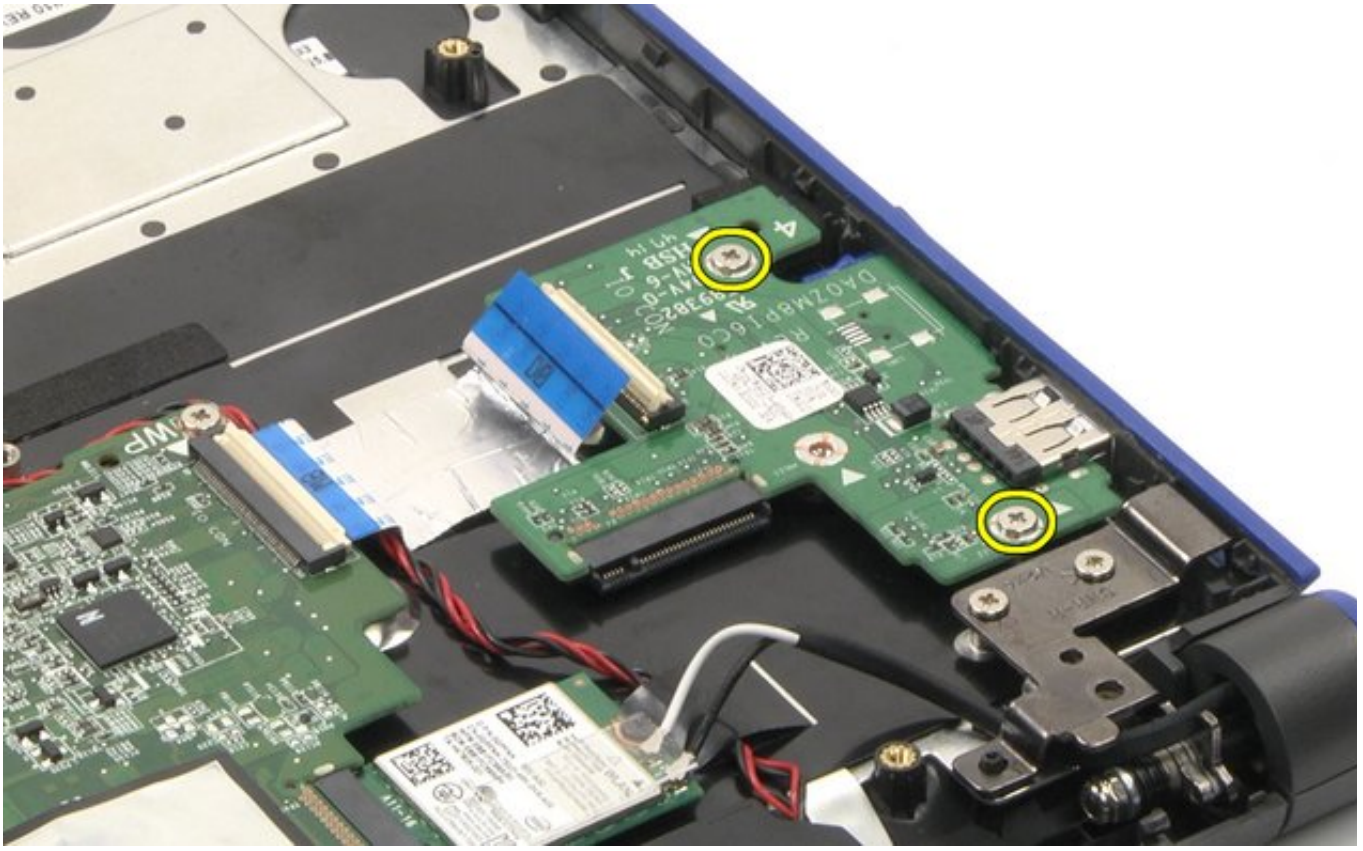


I/O Daughter Board Disassembly

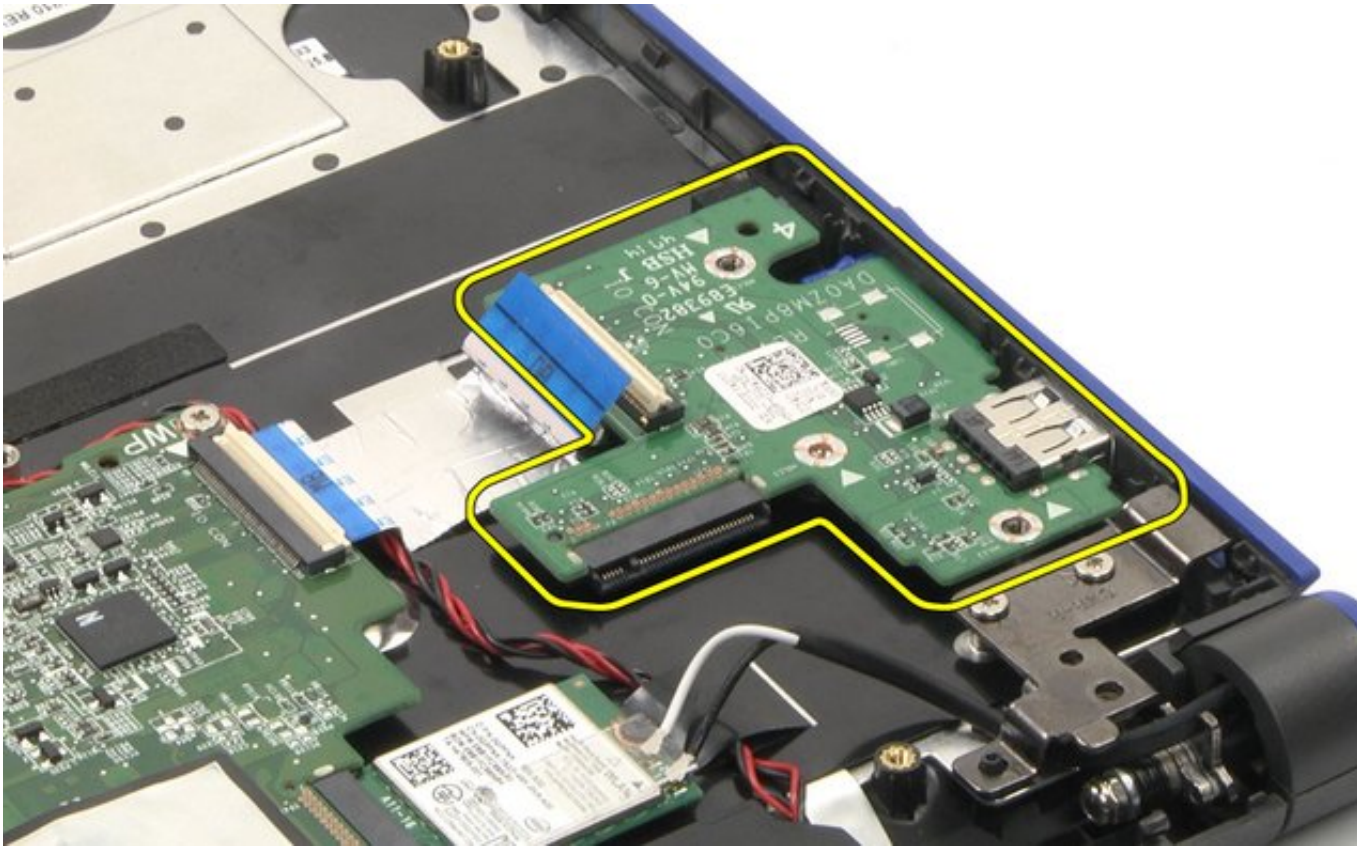
1. Carefully disconnect the Flex cable.



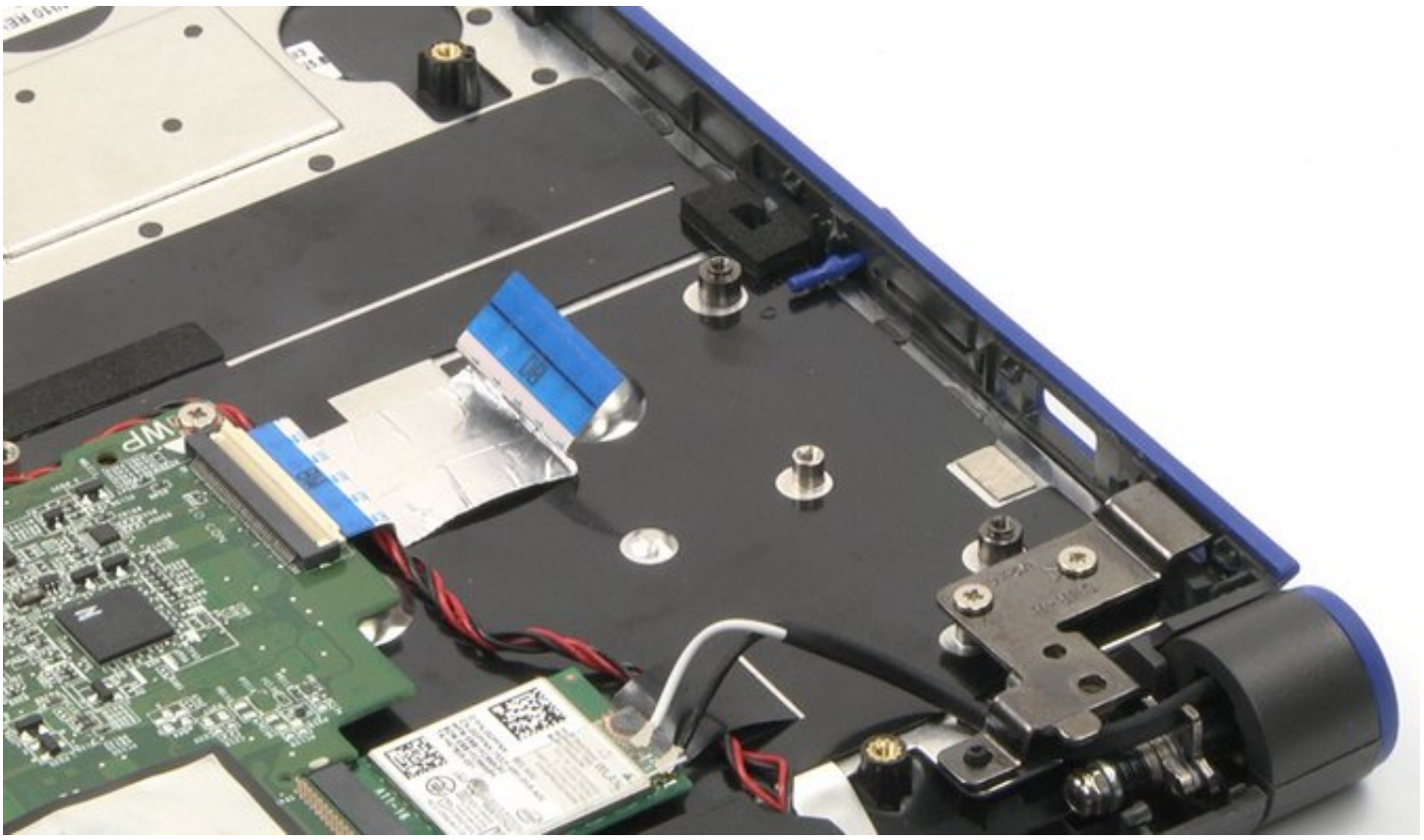
2. Remove the two (2) screws securing the I/O daughter board in place.



3. Lift up and remove the I/O daughter board.



The removal is complete.



I/O Daughter Board Reassembly

1. Place the I/O daughter board back into its original location.
2. Reconnect the Flex cable.
3. Tighten the two (2) screws to secure the I/O daughter board in place.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

System Board Disassembly

System Board Disassembly Video

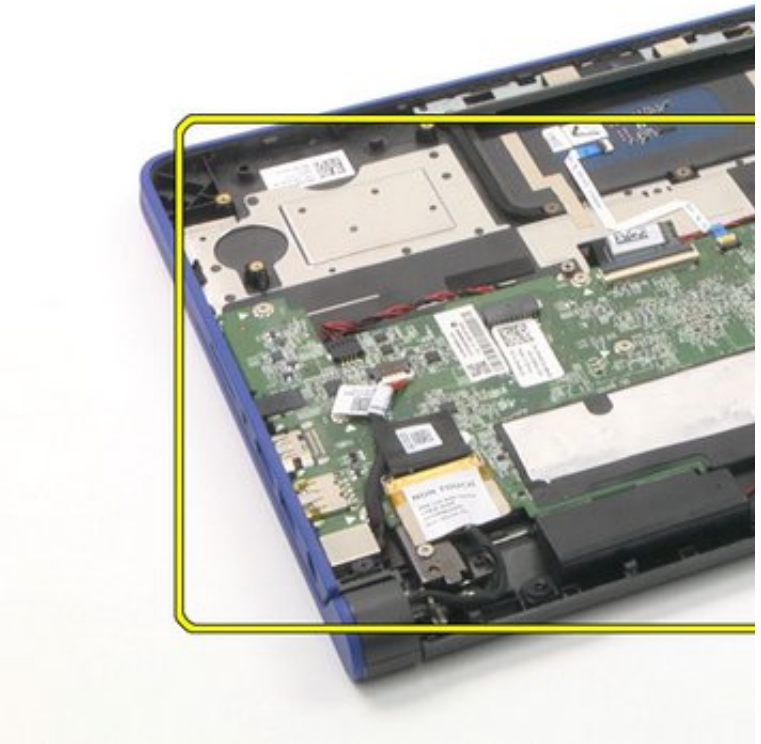
PREREQUISITES

Remove the following parts:

1. Bottom cover
2. Battery
3. WLAN card

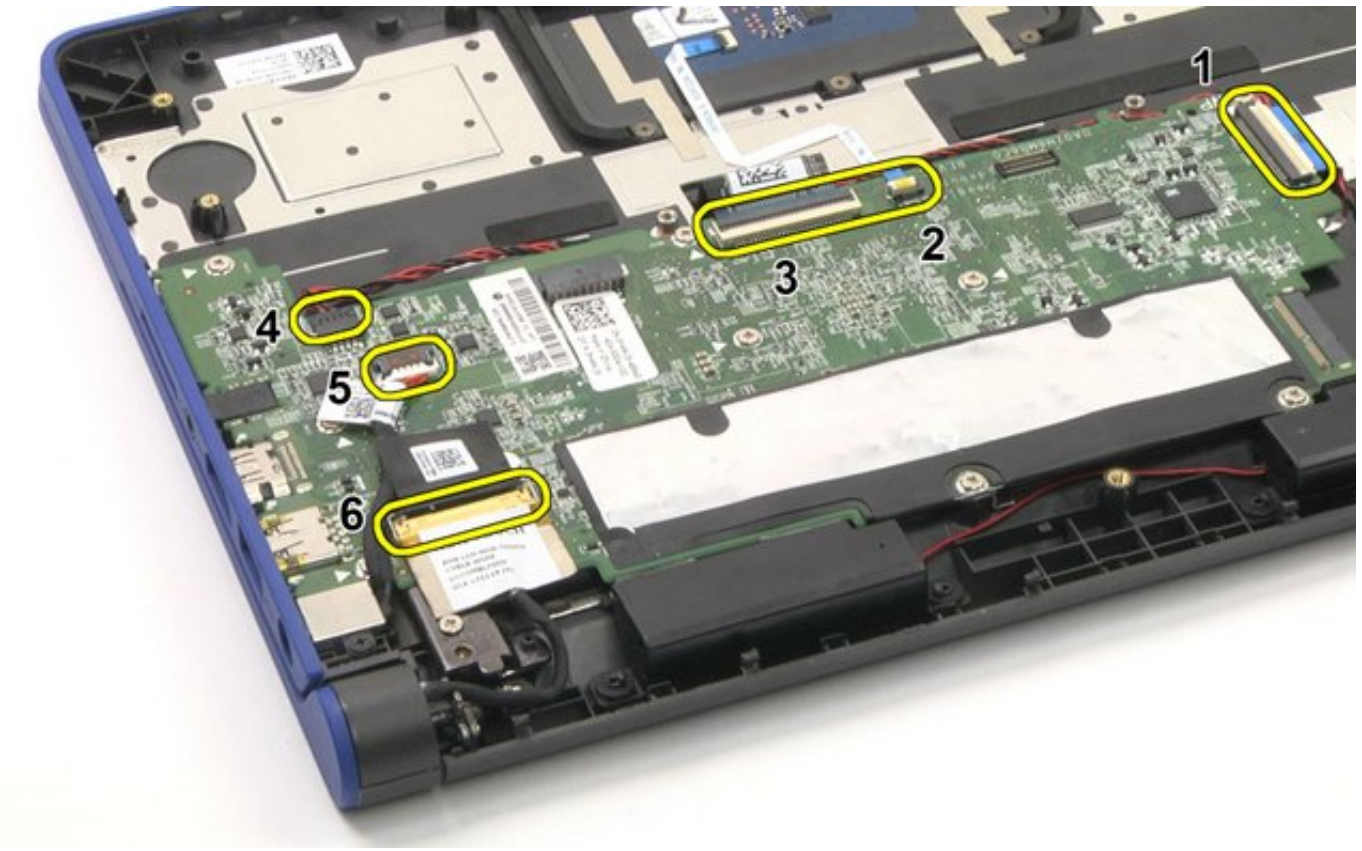
System Board

Establishing image.

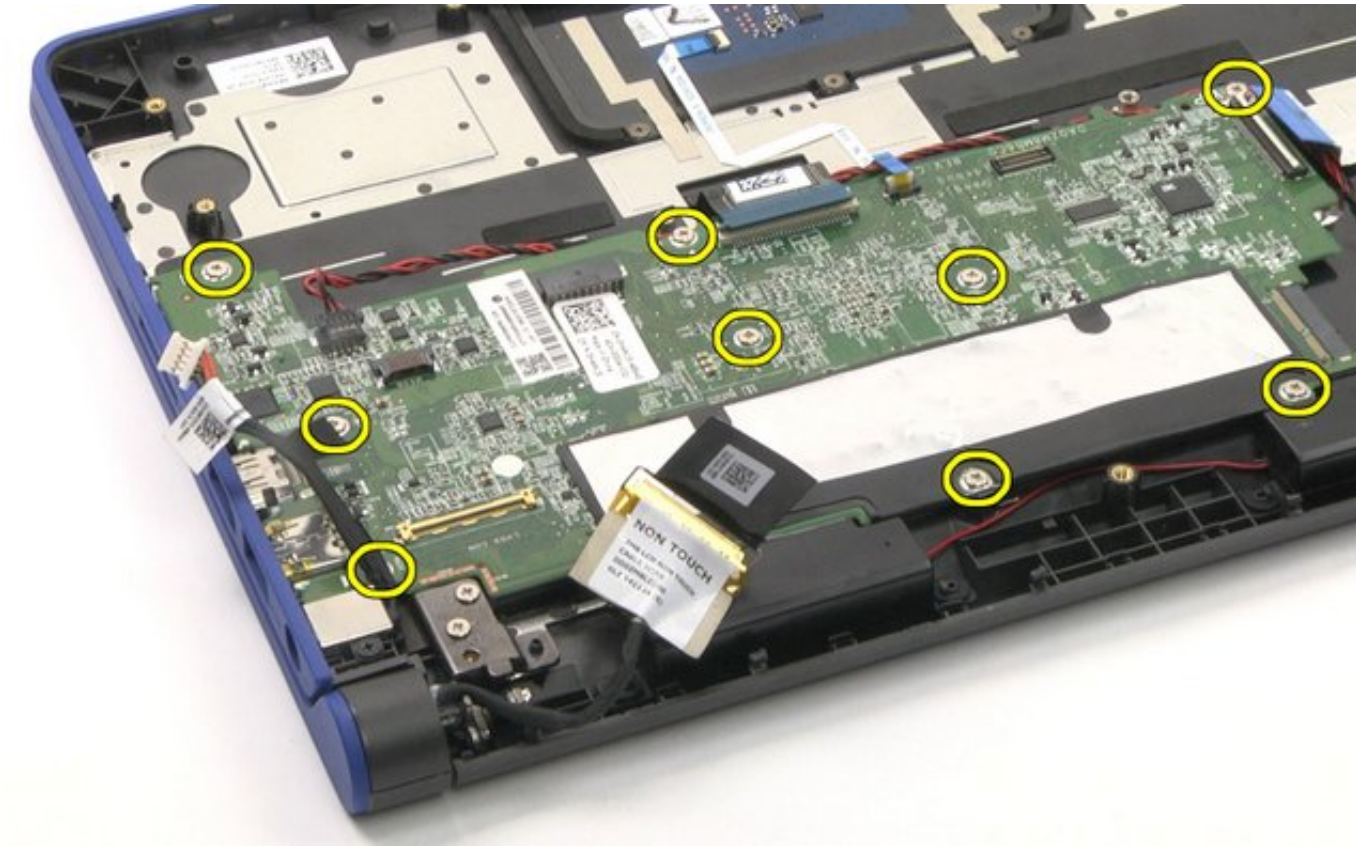


System Board Disassembly

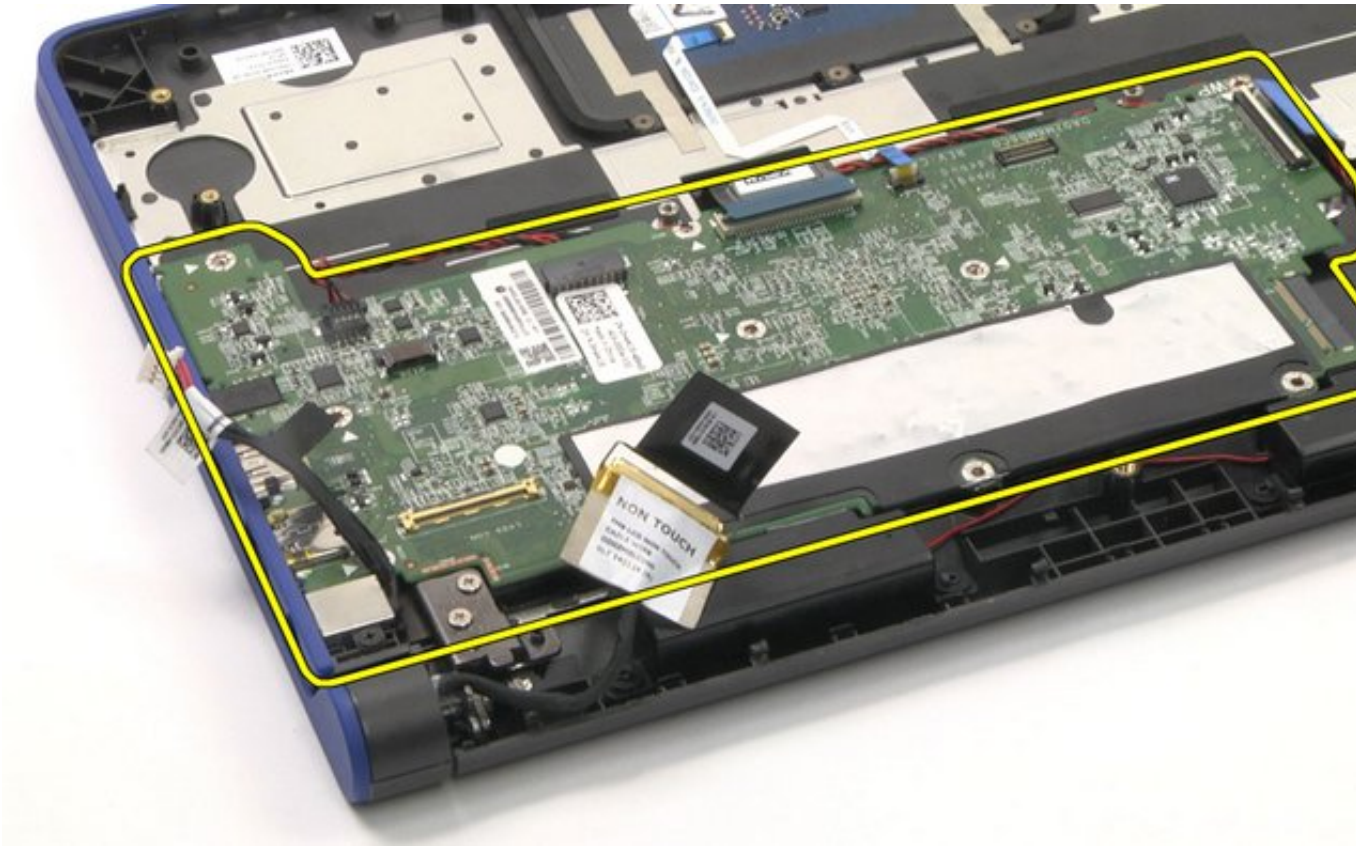
1. Disconnect the 1) I/O cable, 2) touch pad, 3) keyboard, 4) speaker, 5) DC-in jack, and 6) eDP cables.



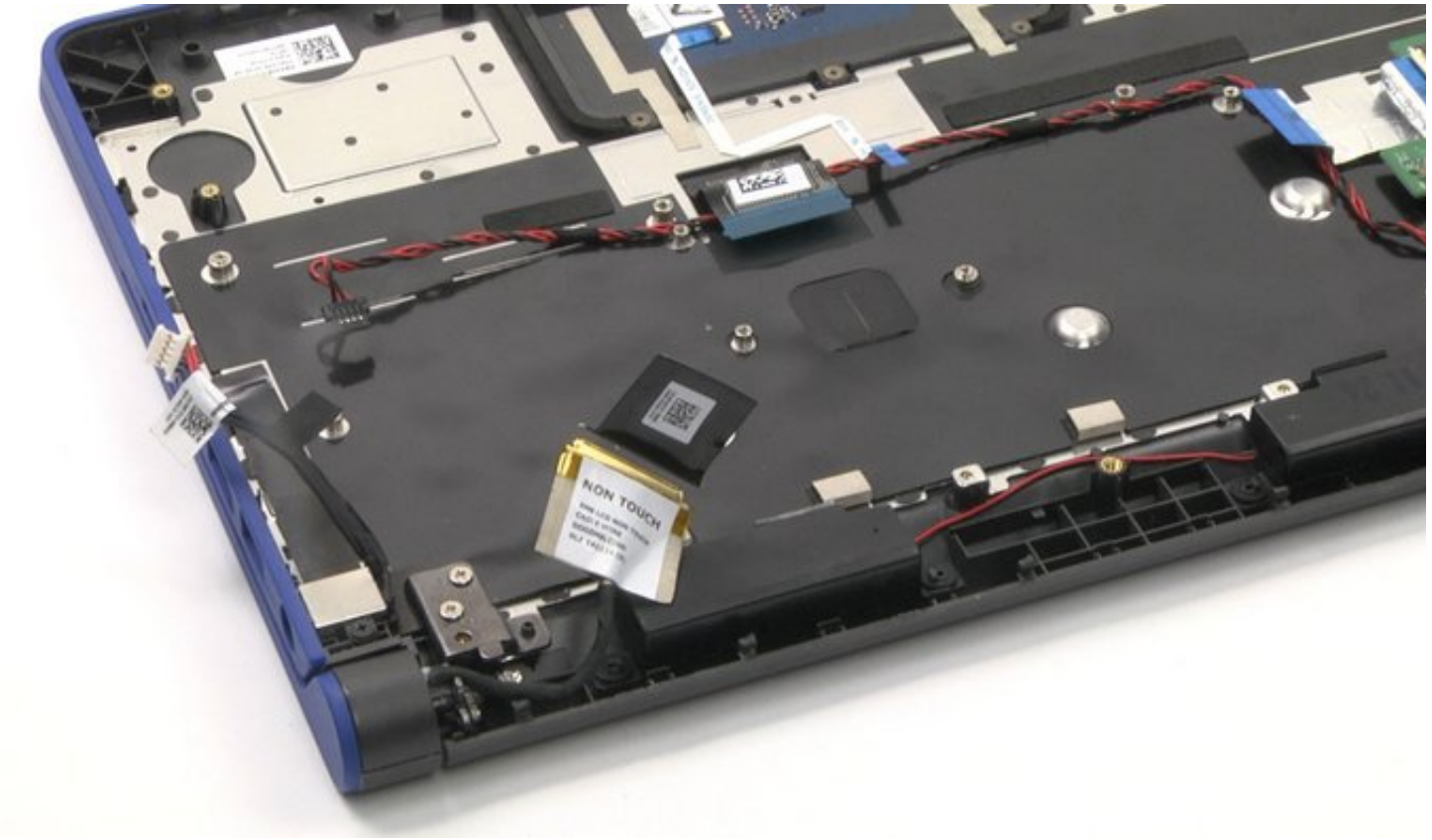
2. Remove the nine screws.



3. Lift up and remove the system board.



The removal is complete.



NOTE: Please perform RMA Shim after the system board replacement. For more information, please see RMA Shim.

NOTE:

The RMA Shim USB key will be dispatched or bundled together with the replacement system board. The RMA Shim USB software on the USB key is the service-lite version, which will only contain the

Shop Floor and Google Required Test Module.

After completing the break-fix event, always return the RMA Shim USB key together with the faulty system board.

System Board Reassembly

1. Place the system board back into its original location.
2. Reconnect all the cables.
3. Tighten the nine screws to secure the system board in place.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

Speakers Disassembly

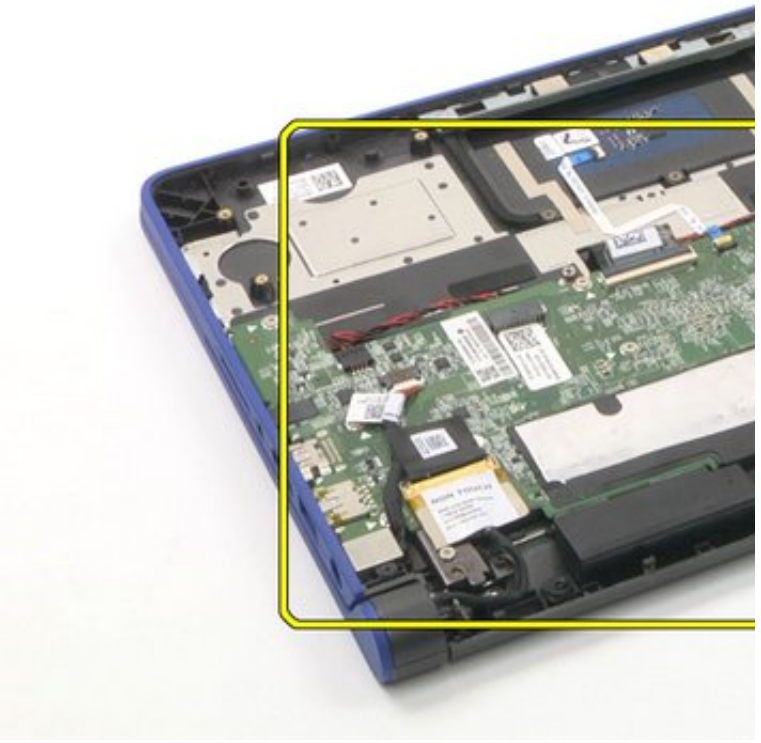
Speakers Disassembly Video

PREREQUISITES

Pre-removal parts:

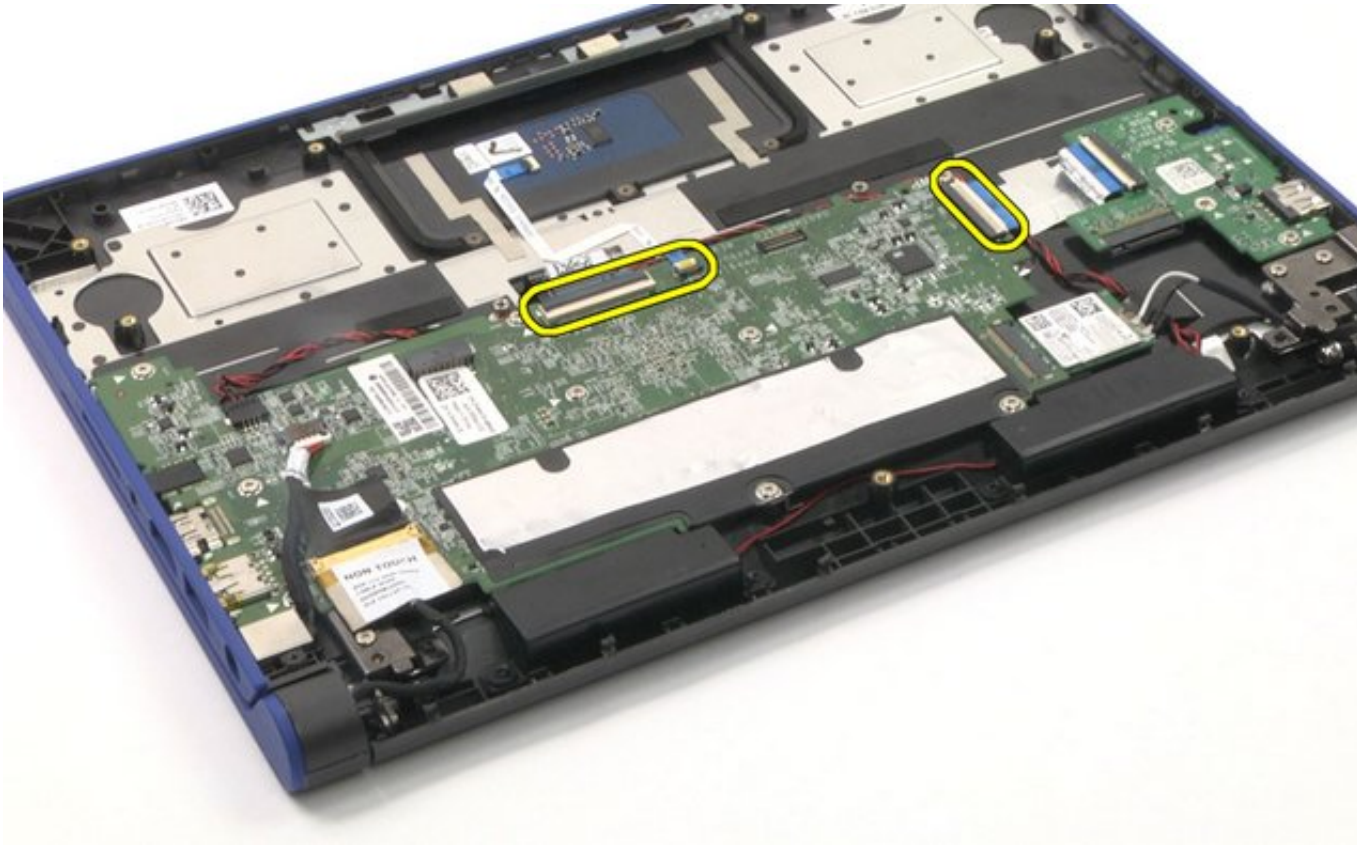
1. Bottom Cover
2. Battery

Speakers	Establishing image.

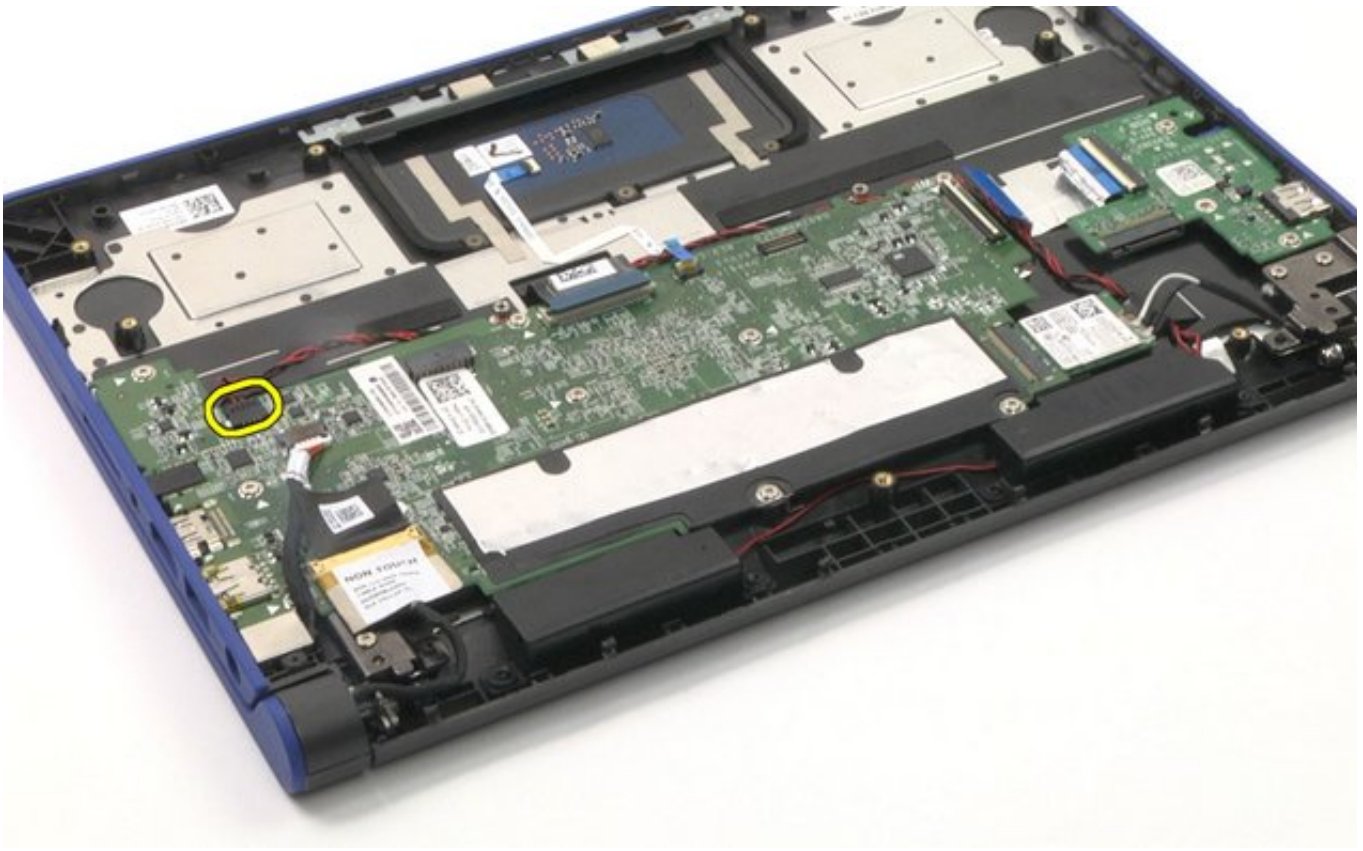


Speakers Disassembly

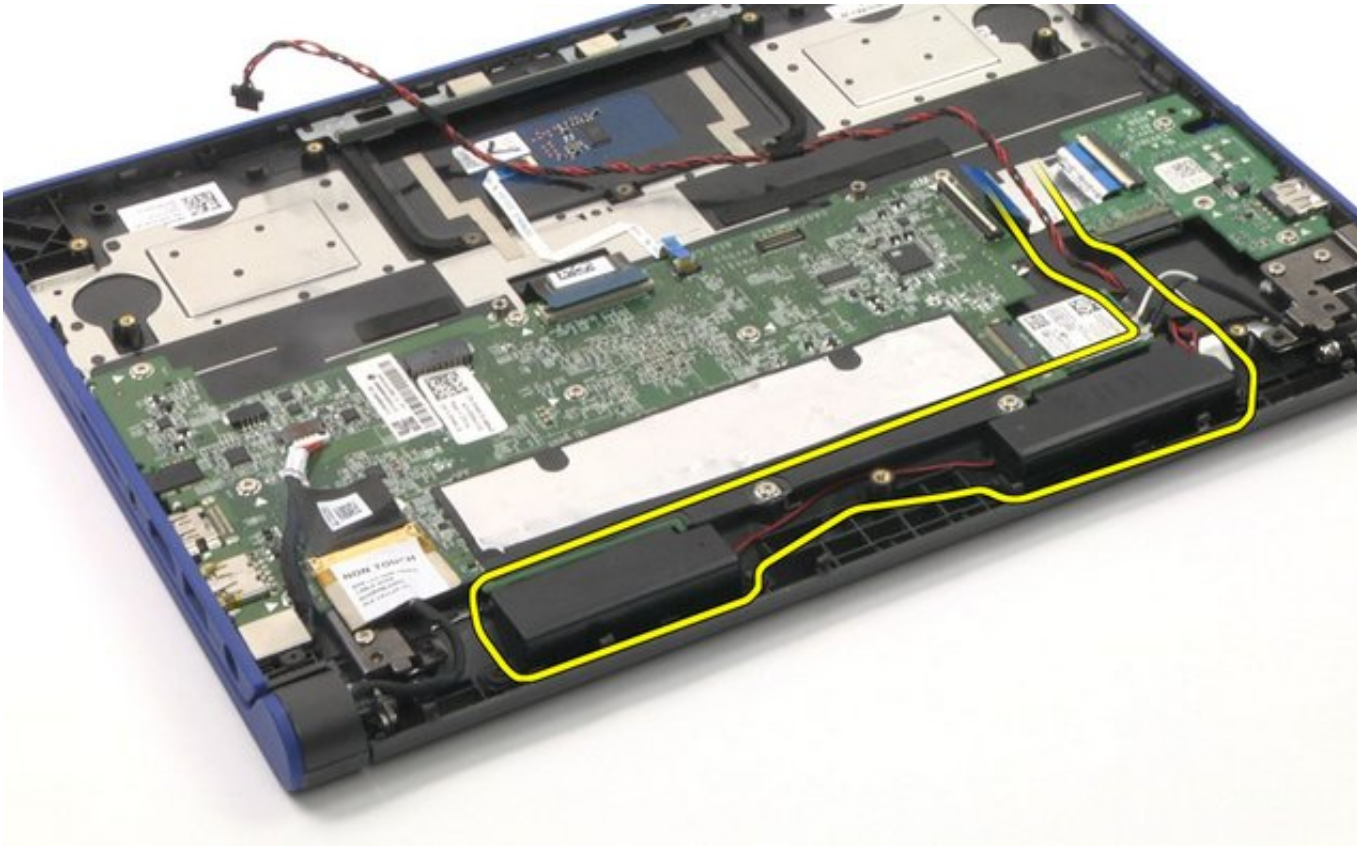
1. Disconnect the keyboard, touchpad, and I/O cables.



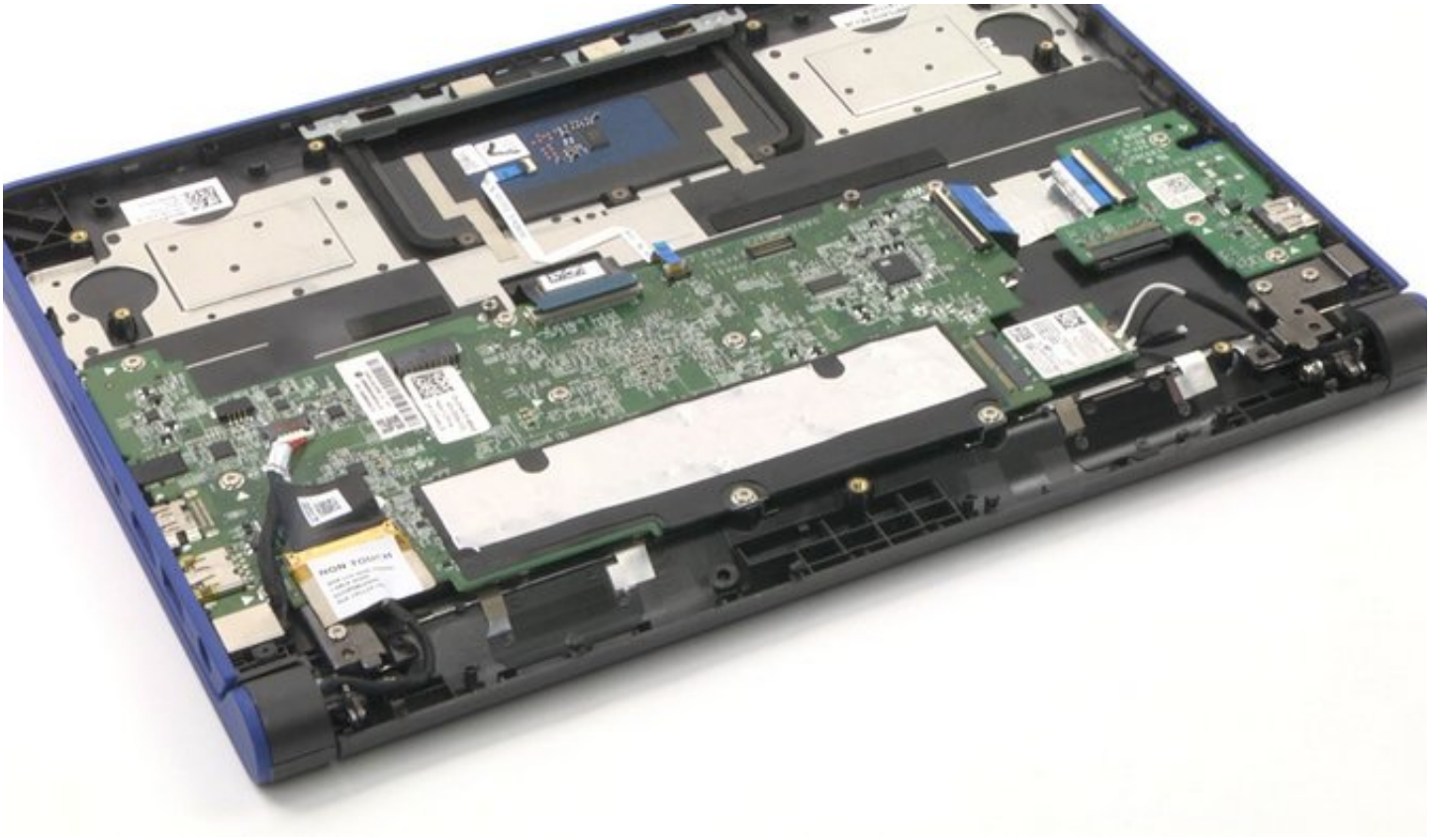
2. Disconnect the speaker connector from the system board.



3. Unthread the speaker cable and remove the speakers.



The removal is complete.



Speakers Reassembly

1. Place the speakers back into their original location.
2. Reconnect all the cables.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

DC-In Jack Disassembly

DC-In Jack Disassembly Video

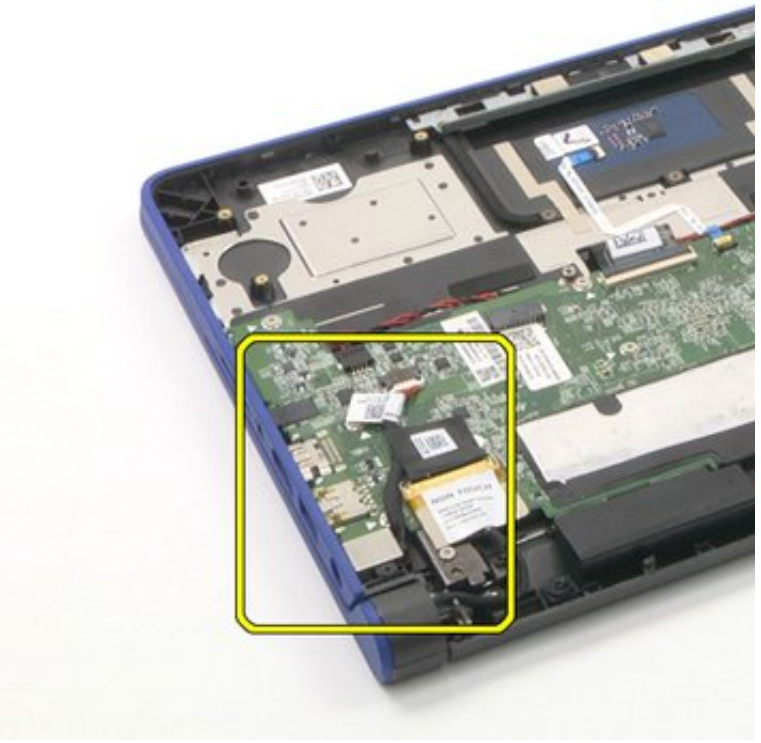
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery

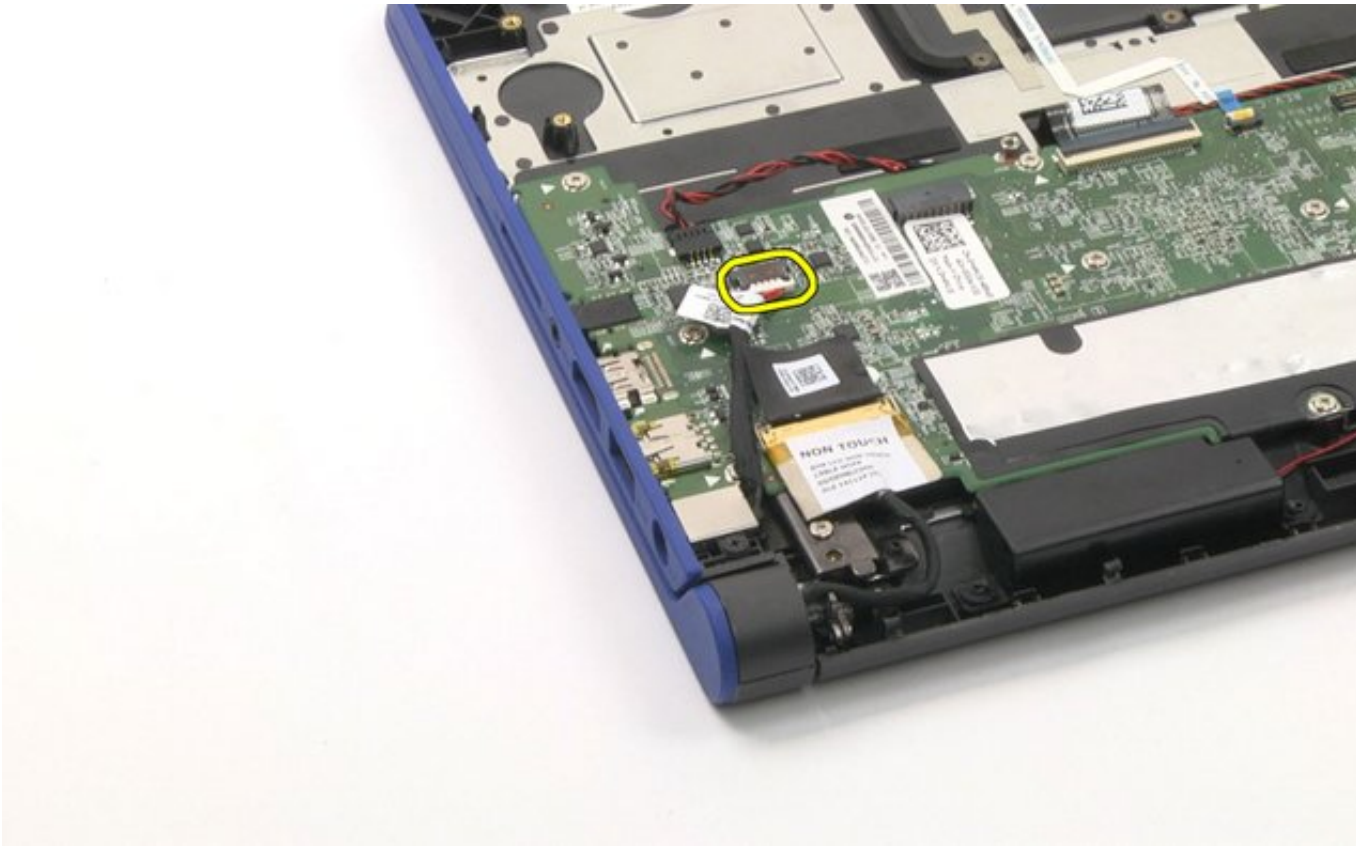
DC-In Jack

Establishing image.



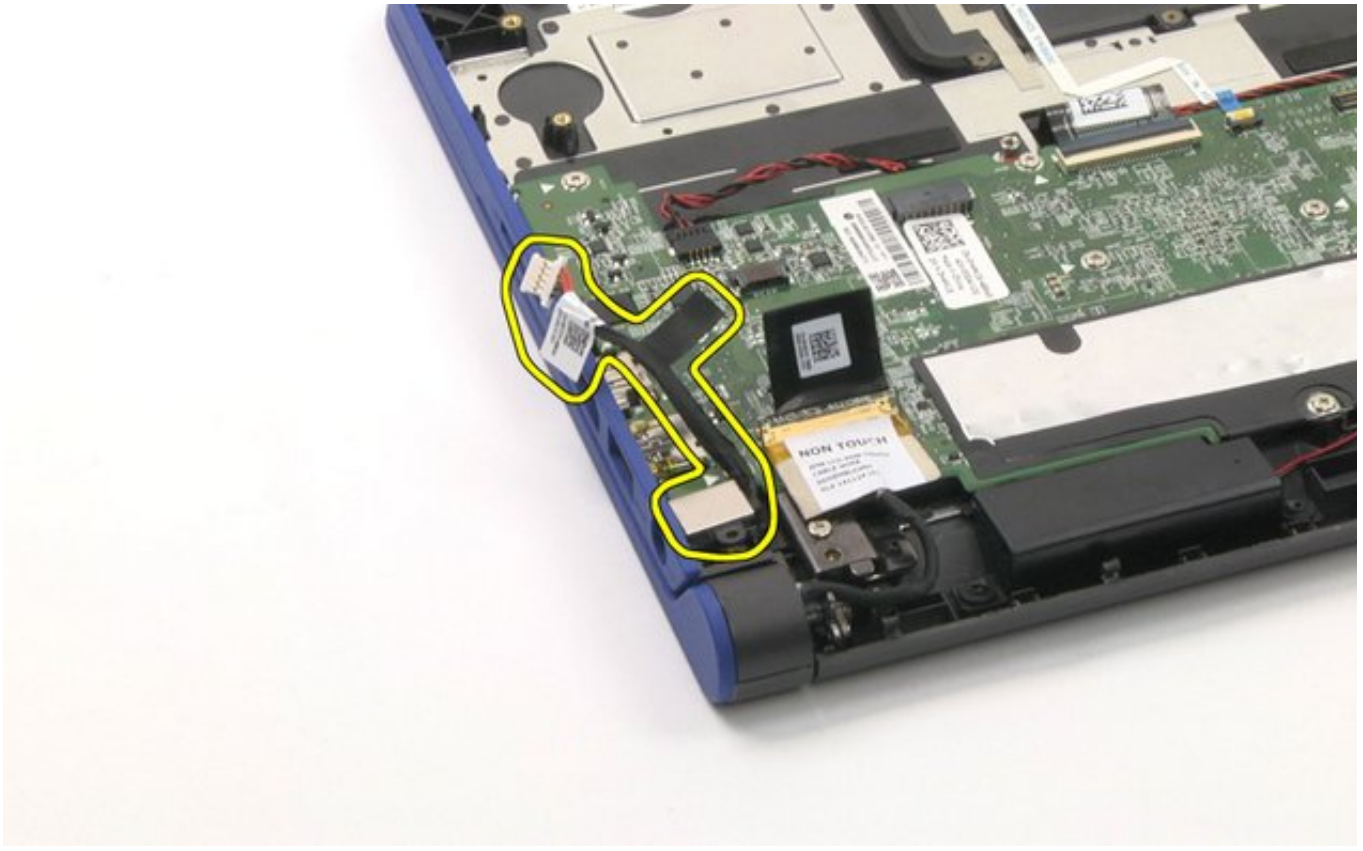
DC-In Jack Disassembly

1. Disconnect the DC-In jack connector from the system board.

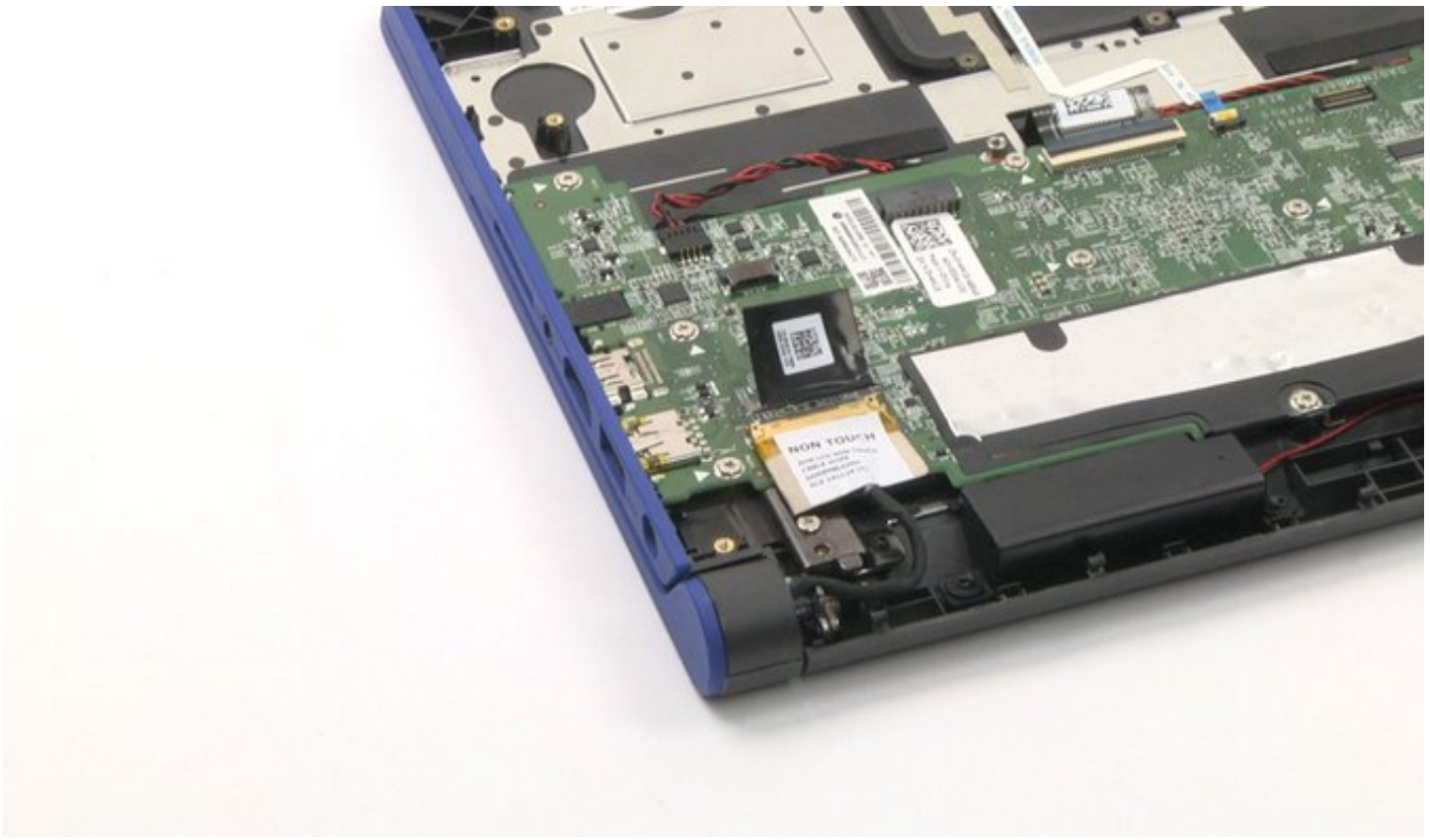


2. Remove the screw securing the DC-In jack in place.

3. Lift up the DC-In jack.



The removal is complete.



DC-In Jack Reassembly

1. Place the DC-In jack back into its original location.
2. Tighten the screw to secure the DC-in jack in place.
3. Reconnect all the cables.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

LCD Assembly Disassembly

LCD Assembly Disassembly Video

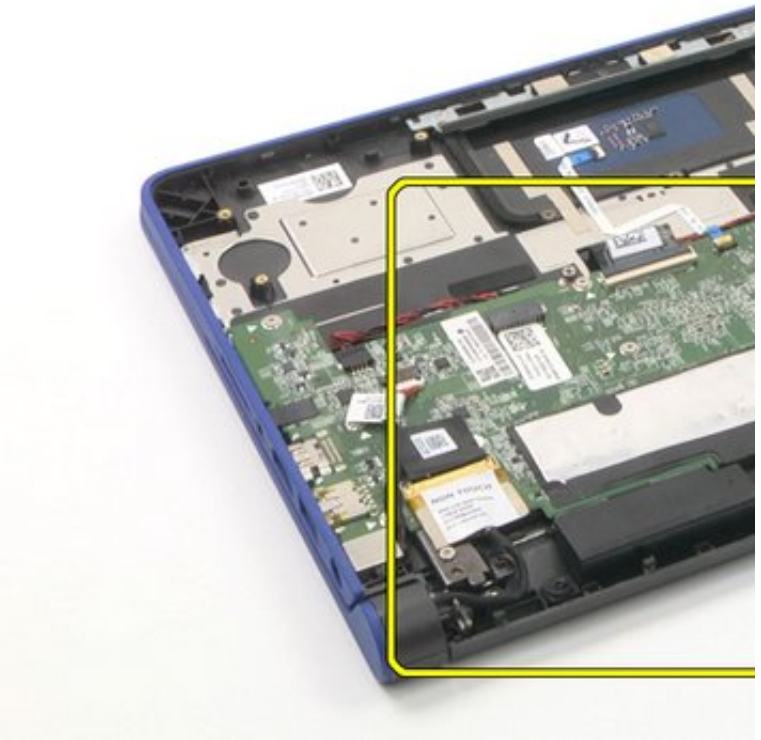
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery

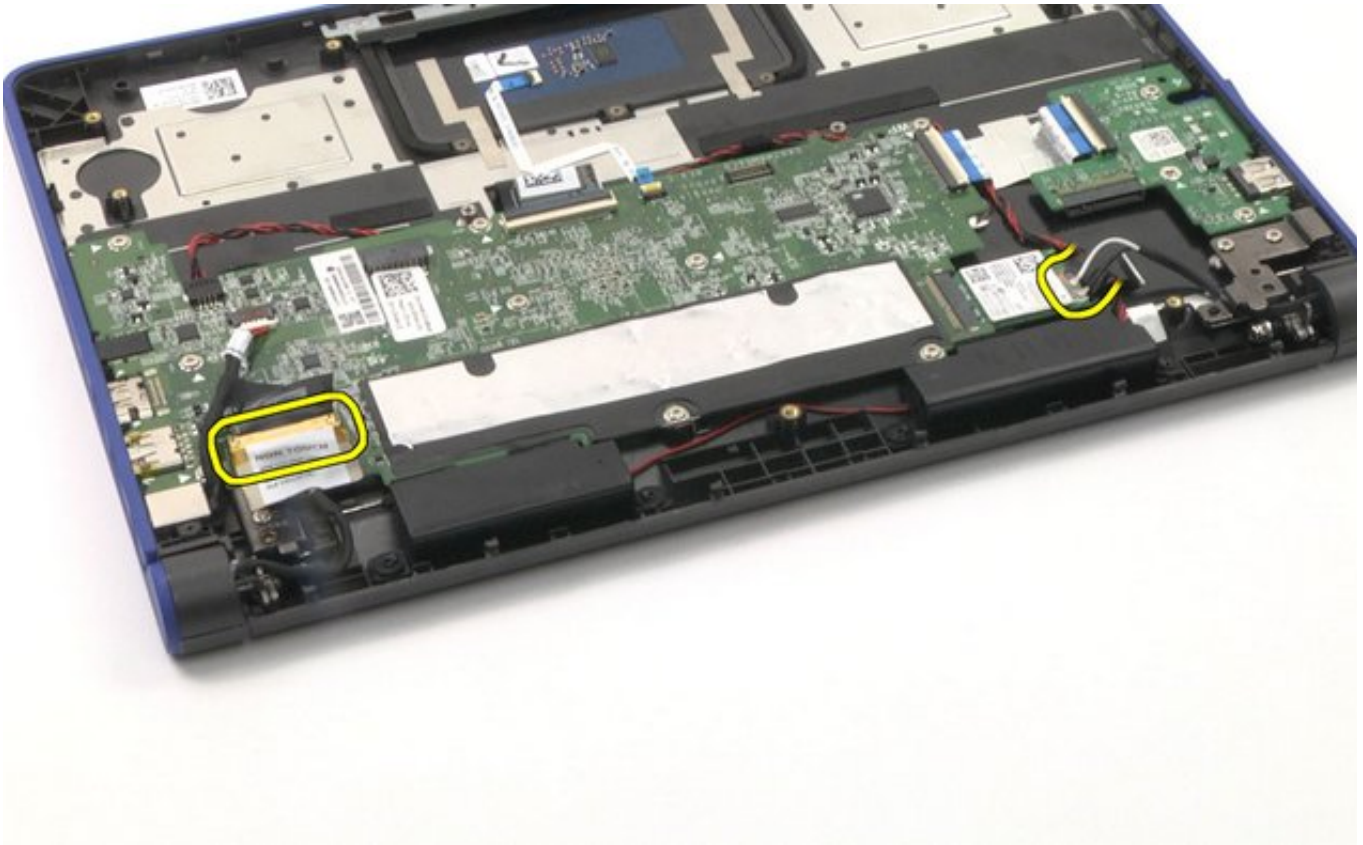
LCD Assembly

Establishing image.



LCD Assembly Disassembly

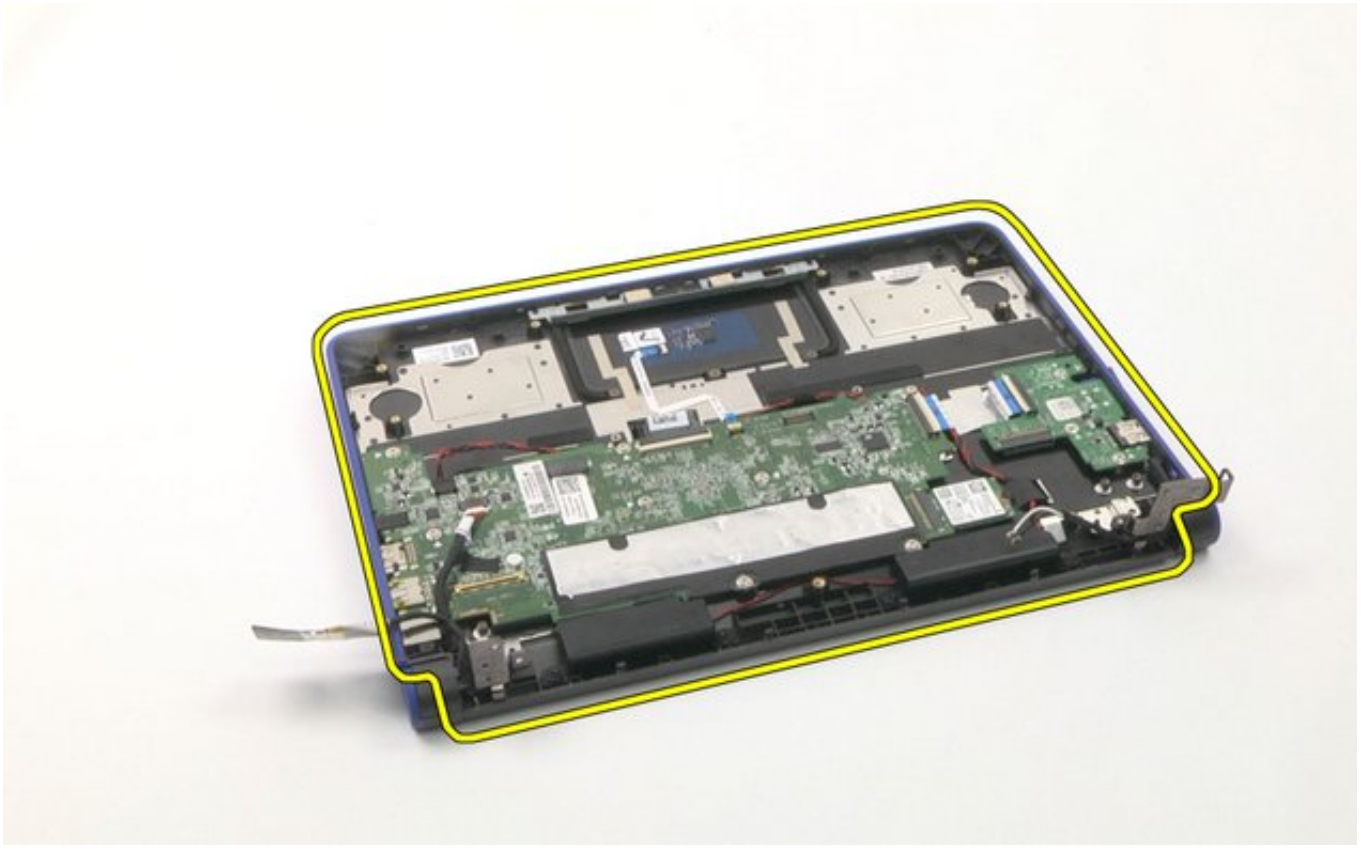
1. Disconnect the eDP and wireless cables.



2. Remove the four (4) screws.

3. Lift up the two (2) hinges.

4. Lift up the palm rest and remove it.



The removal is complete.

LCD Assembly Reassembly

1. Place the LCD Assembly back into its original location on the palm rest.
2. Reconnect all the cables.

3. Tighten the four (4) screws to the system base.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

LCD Bezel Disassembly

LCD Bezel Disassembly Video

PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. LCD Assembly

LCD Bezel

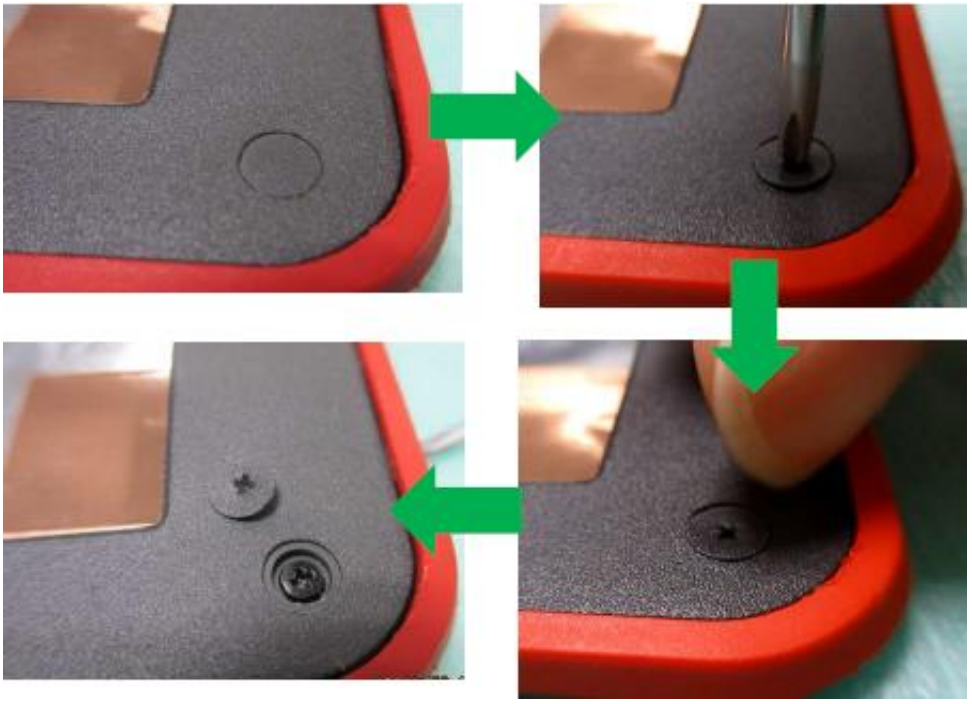
Establishing image.

LCD Bezel Disassembly

1. Remove the two (2) mylar screw covers.

NOTE: The screw cover on the LCD bezel is made up of a mylar sticker, and it can be hard to remove with just a normal plastic scribe. To remove this screw, simply use the regular Philips

driver and puncture the mylar cover.



2. Remove the two (2) screws.

3. Pry from the bottom and work your way up.

4. Remove the bezel.

The removal is complete.

LCD Bezel Reassembly

1. Place the LCD Bezel back into its original location.
2. Tighten the two (2) screws to secure the bezel in place.
3. Replace the mylar screw covers.

LCD Panel Disassembly

LCD Panel Disassembly Video

PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. LCD Assembly

LCD Panel

Establishing image.

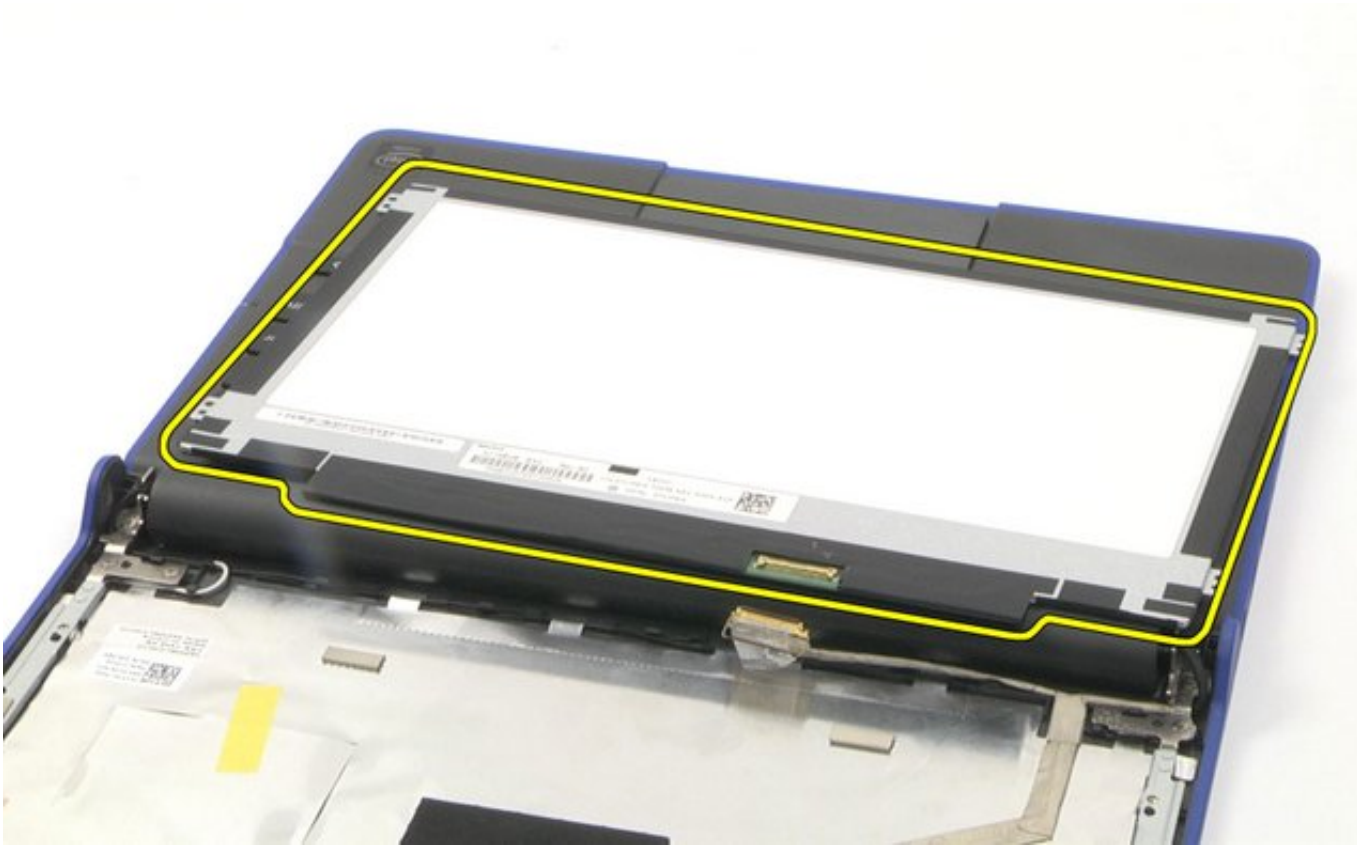
LCD Panel Disassembly

1. Remove the four (4) screws.

2. Lift the LCD up and rotate it 180 degrees.

3. Remove the connector.

4. Remove the LCD.



The removal is complete.

LCD Panel Reassembly

1. Place the LCD Panel back into its original location and reconnect the connector.
2. Tighten the four (4) screws to secure the LCD panel in place.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

Camera Disassembly

Camera Disassembly Video

PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. LCD Assembly

Camera Establishing image.

Camera Disassembly

1. Pry the camera out from the sticky base.

2. Disconnect the camera cable and remove the camera.

The removal is complete.

Camera Reassembly

1. Place the camera back into its original location.
2. Reconnect the connector.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

Left/Right Hinge Disassembly

Left/Right Hinge Disassembly Video

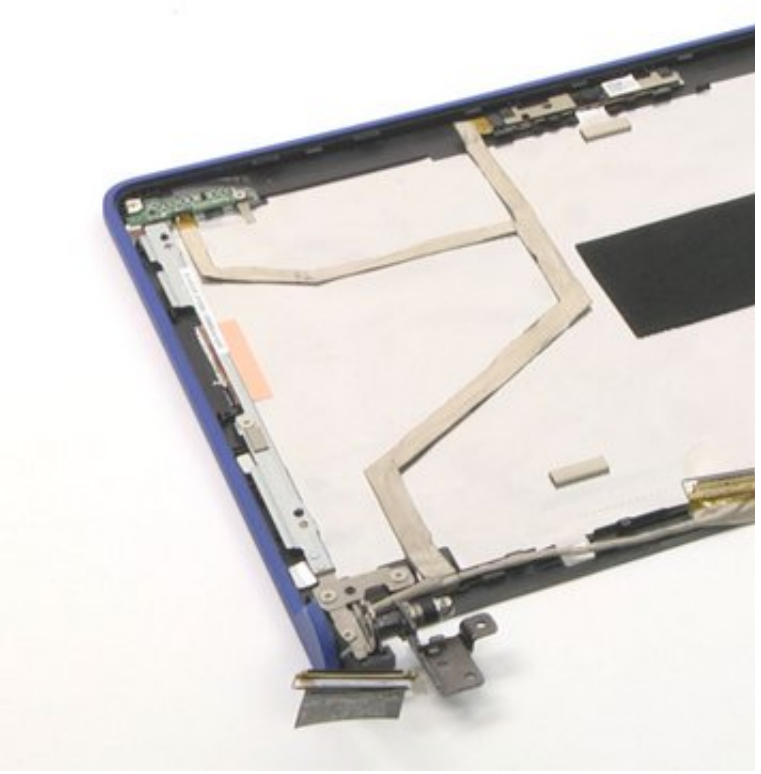
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. LCD Assembly
4. LCD Bezel

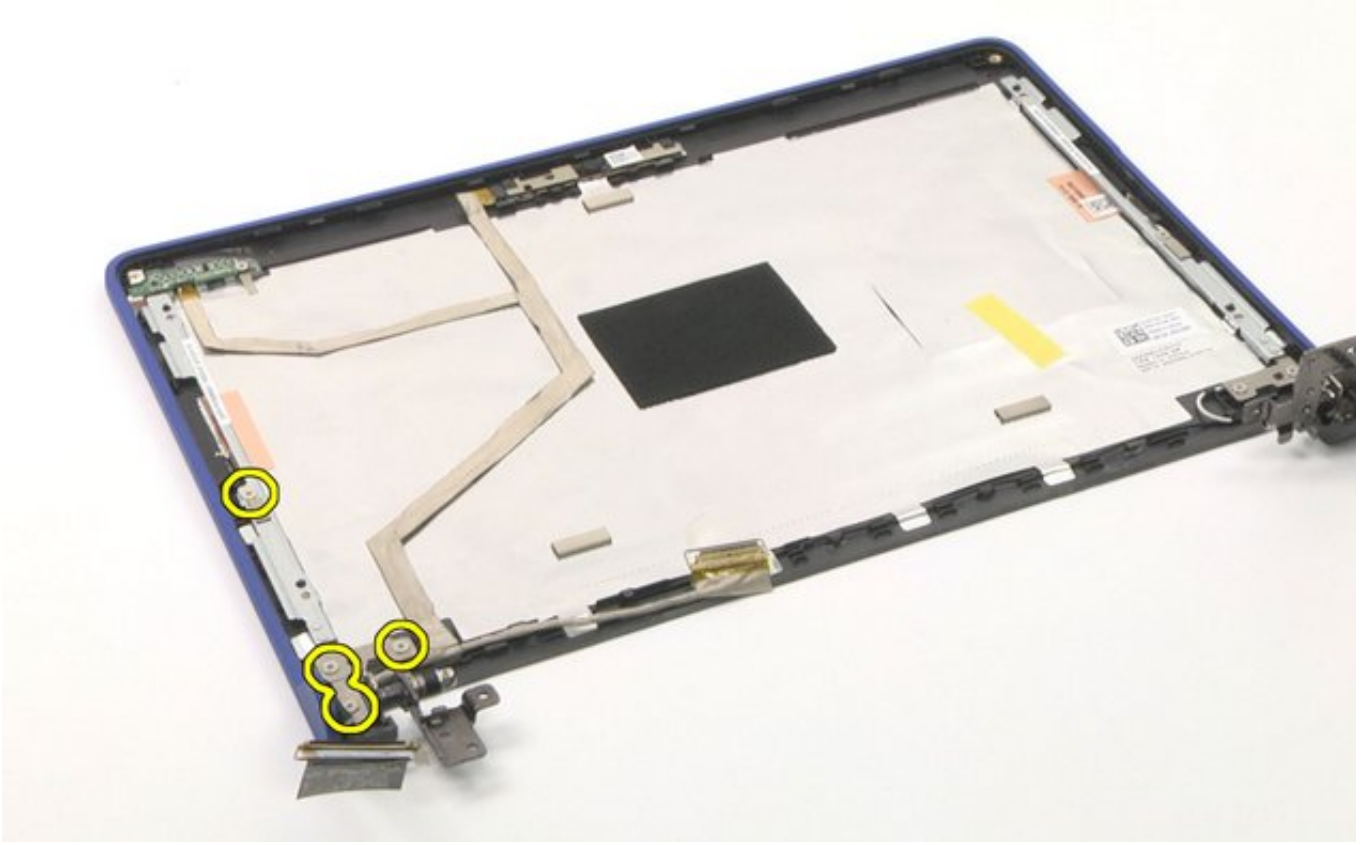
Left / Right Hinge

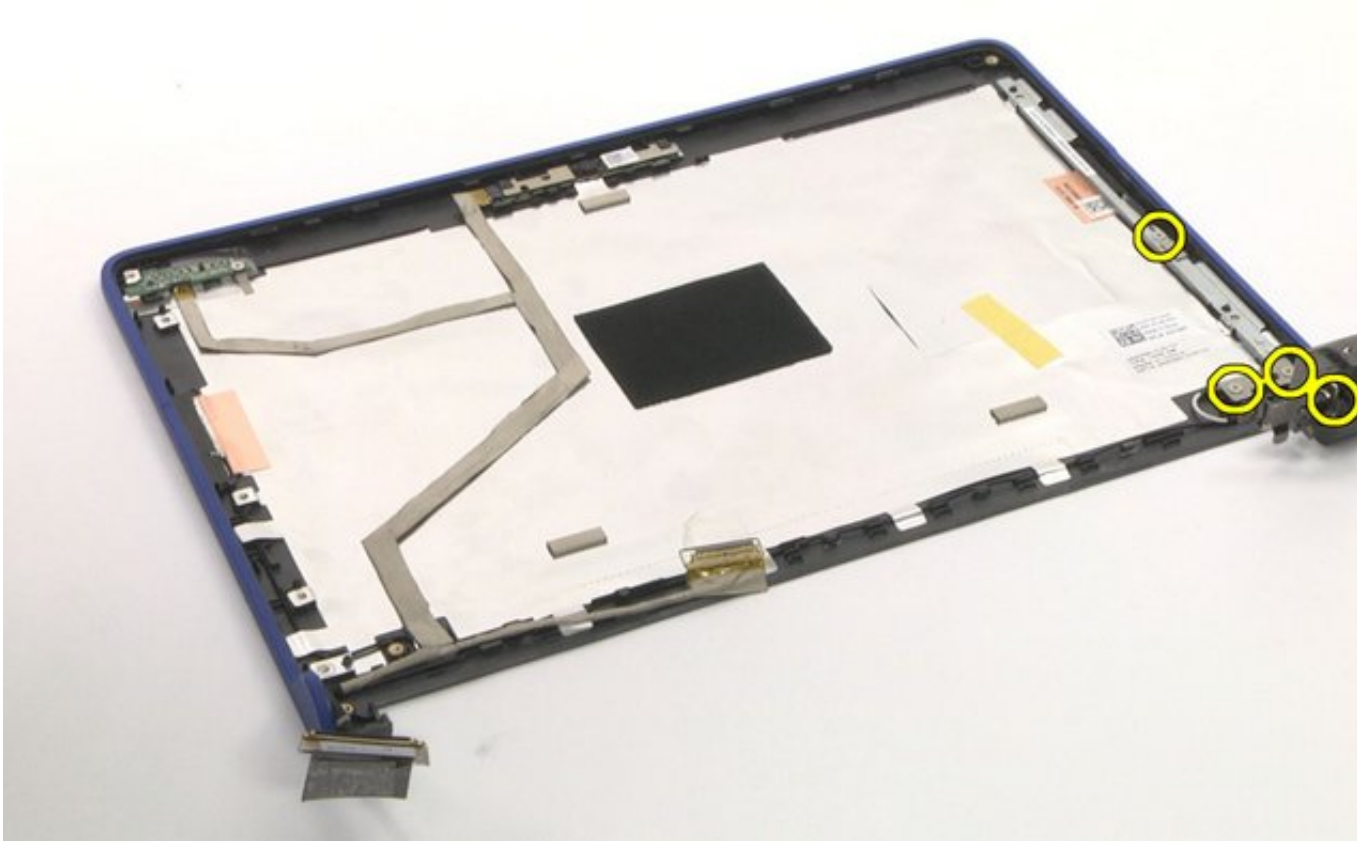
Establishing image.



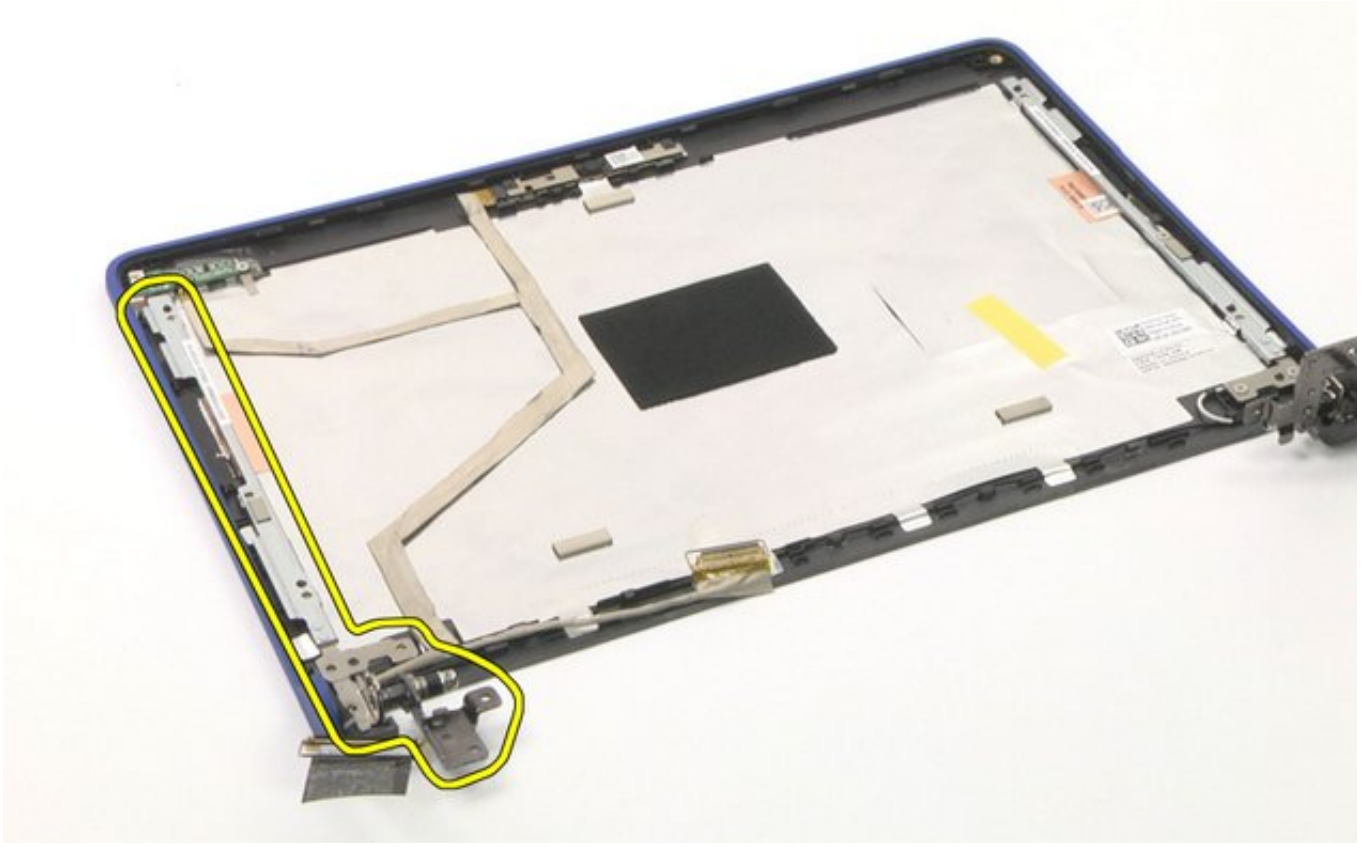
Left/Right Hinge Disassembly

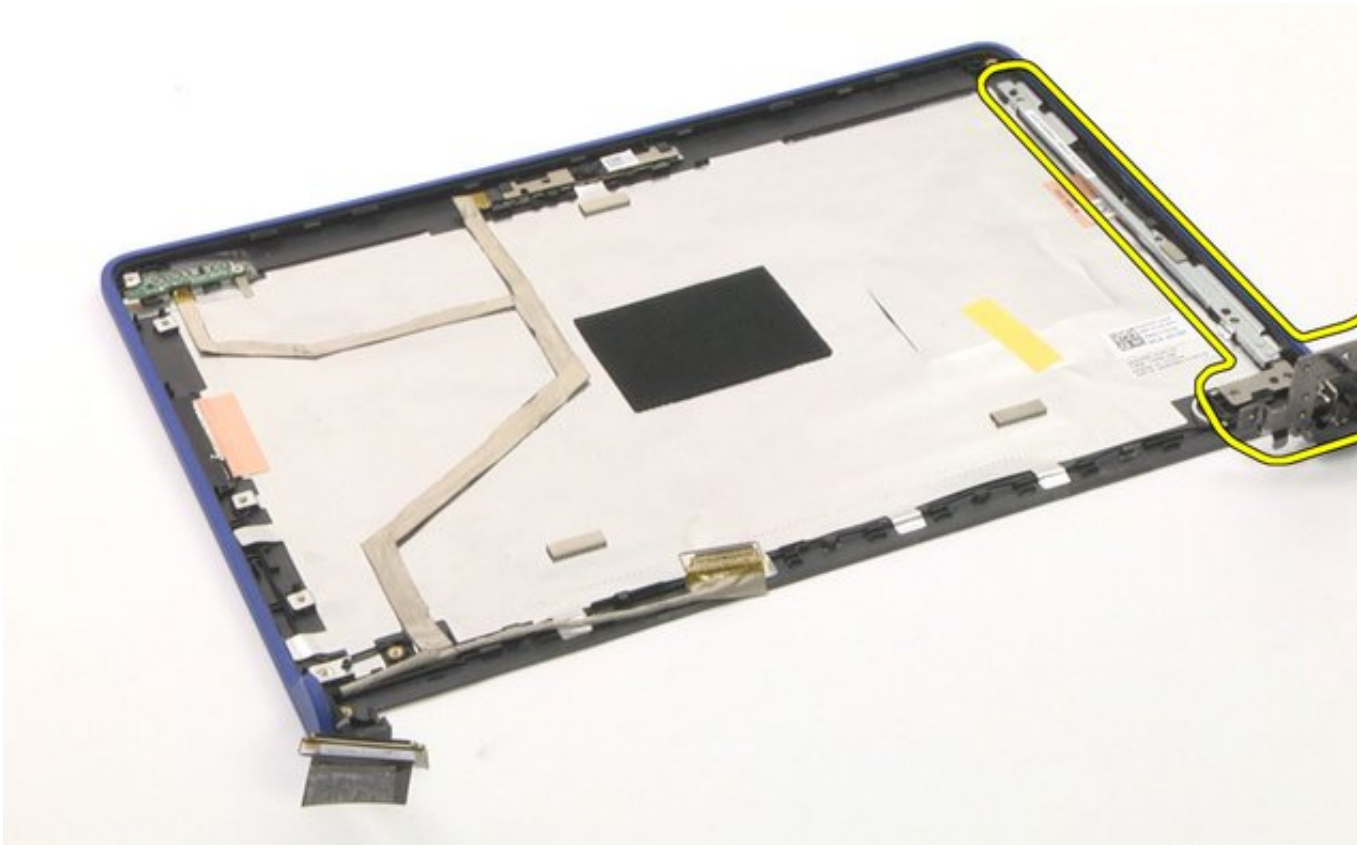
1. Remove the four (4) screws on each hinge (eight (8) screws in total).



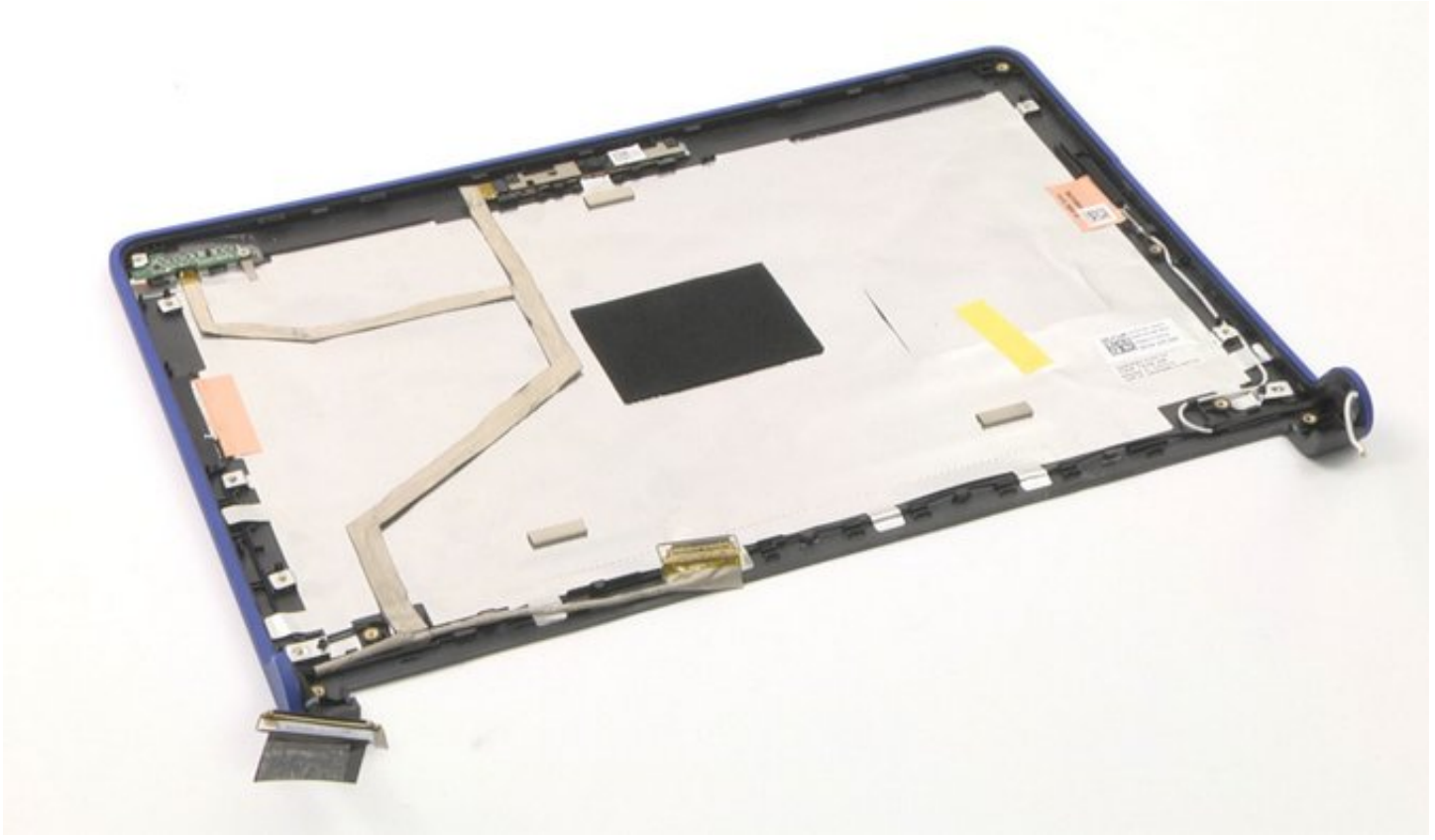


2. Remove the hinges.





The removal is complete.



Left/Right Hinge Reassembly

1. Place the left and right hinges back into their original location.
2. Tighten all eight (8) screws to secure the left and right hinges in place.

eDP Cable Disassembly

eDP Cable Disassembly Video

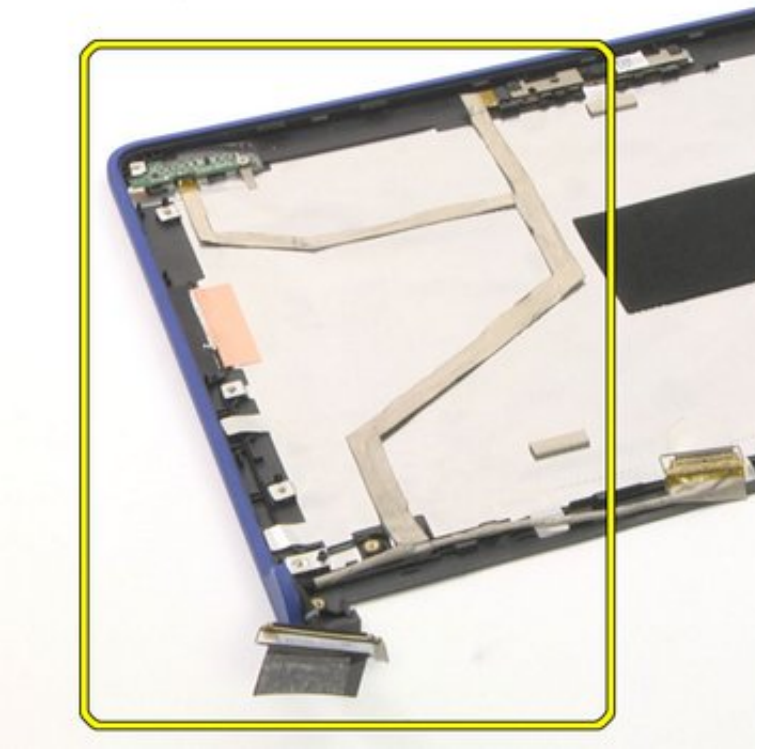
PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. LCD Assembly
4. LCD Bezel

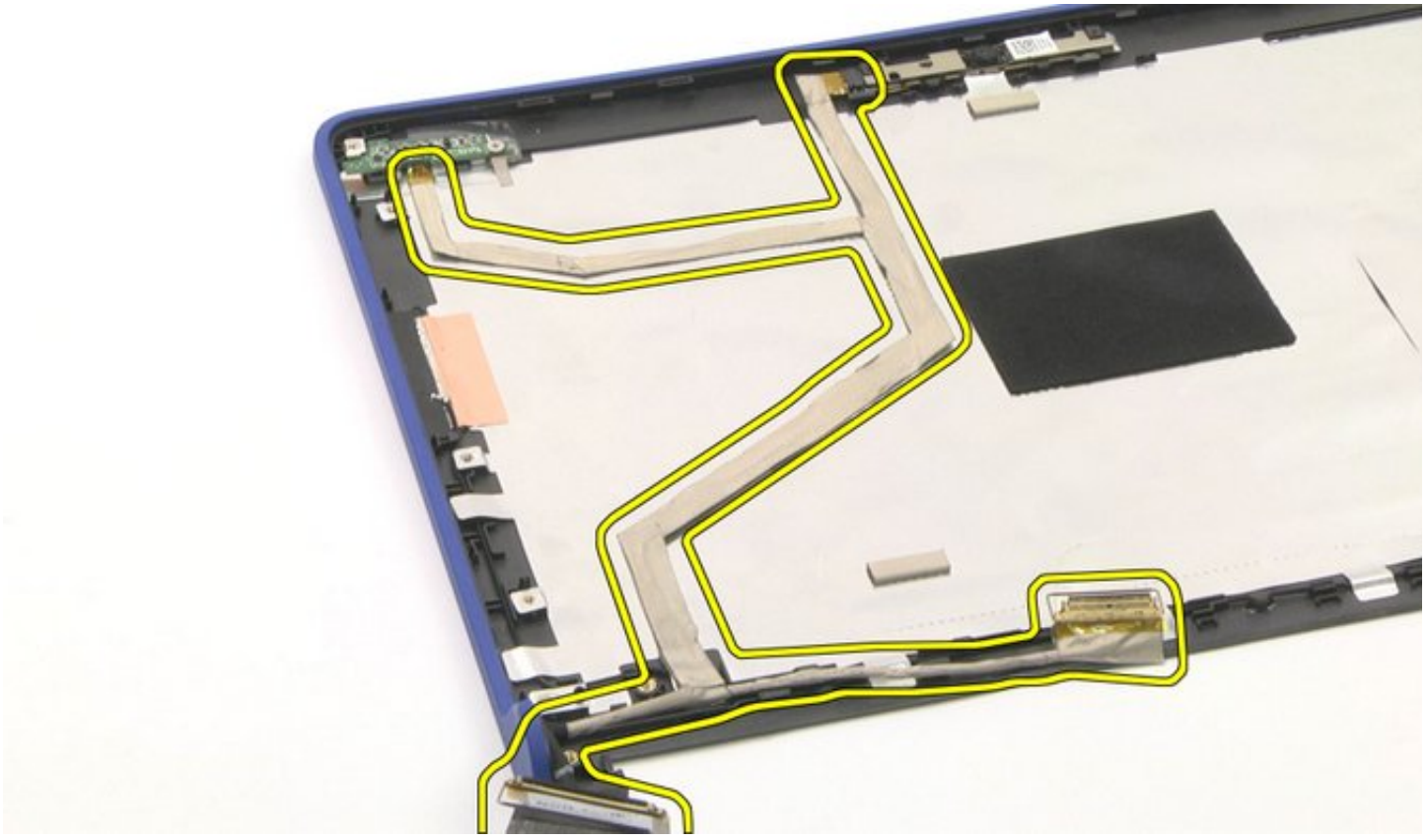
eDP Cable

Establishing image.

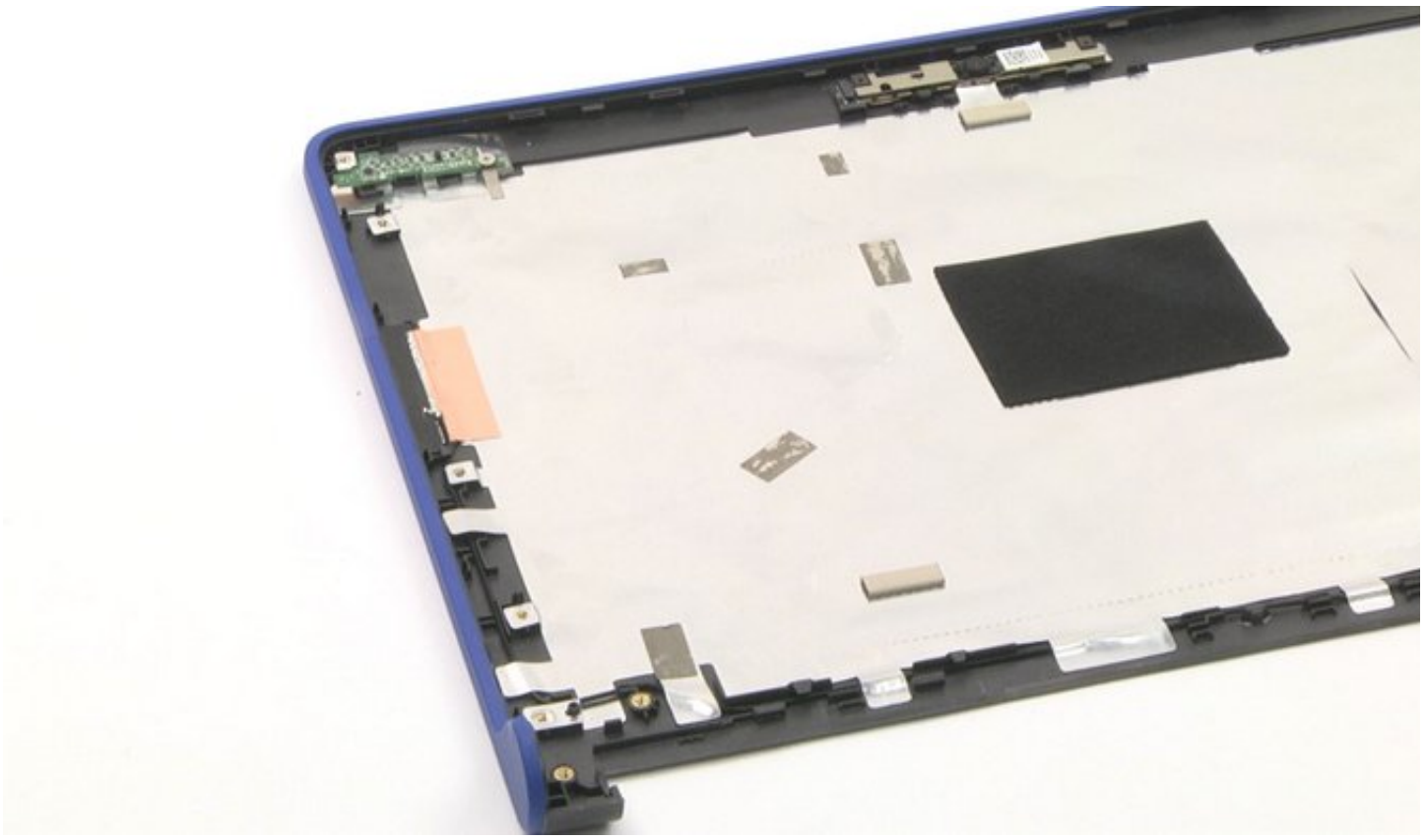


eDP Cable Disassembly

Disconnect the eDP cable from the camera and unthread it to remove the eDP cable.



The removal is complete.



eDP Cable Reassembly

1. Reconnect the cable to the camera.
2. Place the eDP Cable back into its original location.

After-Service Instructions

1. Reconnect the system to its electrical outlet.
2. Turn on the system and attached peripherals.
3. Let the system boot.

Palmrest (Base)

NOTE: The keyboard and touchpad are not separate removable parts; they are part of the palm rest assembly.

PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. WLAN Card
4. I/O Daughter Board
5. System Board
6. Speakers
7. DC-In Jack
8. LCD Assembly

Palmrest (Base)

Establishing image.

Palmrest Reassembly

Replace the pre-removal parts in descending order.

LCD Back Cover (Base)

NOTE: The LCD back cover is the base for non-touch systems. For touch systems, there is a touch hinge LCD assembly available to be dispatched.

PREREQUISITES

Pre-removal parts:

1. Bottom Cover
2. Battery
3. WLAN Card
4. I/O Daughter Board
5. System Board
6. Speakers
7. DC-In Jack
8. LCD Assembly
9. LCD Bezel
10. LCD Panel
11. Camera
12. Left/Right Hinge
13. eDP cable

LCD Back Cover (Base)

Establishing image.

LCD Back Cover Reassembly

Replace all the pre-removal parts in descending order.