



# Surface Laptop Go 2 Service Guide



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This document and the information it contains are subject to change without notice. You can find the latest information on Surface device servicing and repair at <https://aka.ms/surfaceservicing>. Always consult the most up-to-date information available before performing device servicing or repair.

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## Introduction

This Service Guide (Guide) provides instructions for repairing Microsoft Surface devices using genuine Microsoft parts. It is intended for technically inclined individuals with the knowledge, experience, and specialized tools required to repair Microsoft devices.

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 **IMPORTANT:** Read this Guide in its entirety before starting any repairs. If at any point you are unsure or uncomfortable about performing the repairs, as detailed in this Guide, **DO NOT** proceed. Contact Microsoft for additional support options.

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 **WARNING:** Failure to follow the instructions in this Guide; use of non-Microsoft (non-genuine), incompatible, or modified replacement parts; and/or failure to use proper tools could result in serious personal injury, death, and/or damage to the product or other property.

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## Device Identity Information

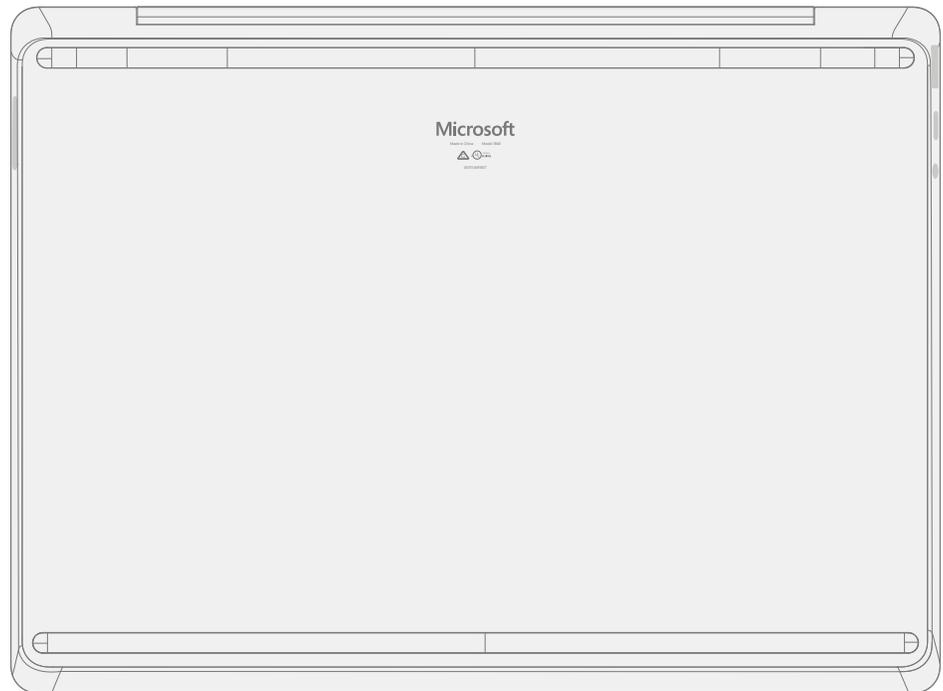
### Surface Laptop Models

2013 – Surface Laptop Go 2

Surface Support – Laptop: [Link](#)

Surface Laptop  
Technical Specifications:  
[Surface Laptop Go 2](#)

The model and serial number for Surface Laptops are on the bottom center closest to the display hinge point.



## Glossary of Terms

The following terms are used throughout this guide.

- **ASP** – Authorized Service Provider. Companies that have received clearance to repair or maintain a product that is still under warranty by Microsoft.
- **Back cover** or **chassis** or **D-chassis** or **D-bucket** – Device bottom case
- **BMR** – Bare Metal Recovery, refers to the process of installing a clean image.
- **C-Cover** – Keyboard Trackpad Assembly.
- **CRU** – Customer Replaceable Units. Service parts that can be removed and replaced by the customer.
- **ESD** – Electro-Static Discharge
- **Feet** or **foot** – Non-Skid Foot Pads
- **FPC** – Flexible Printed Circuit Connections
- **FRU** – Field Replaceable Units are sub-system components such as the PCBA, rSSD, and TDM. FRUs are available only to ASPs. Some replaceable units will only be available as FRUs and therefore are only supported at an ASP.
- **FW** – Firmware
- **IPA** – Isopropyl Alcohol, should be used to clean adhesive from the device as detailed within process steps. Use 70% IPA in all cases.
- **OS** – Operating System
- **PCBA** – Primary Circuit Board Assembly, usually refers to the motherboard.
- **PSA** – Pressure Sensitive Adhesive
- **PSU** – Power Supply Unit
- **rSSD** – Removable Solid-State Drive
- **SDT** – Surface Diagnostic Toolkit
- **SoC** – System-on-a-Chip, a microchip with several electronic circuits and parts in a single integrated circuit.
- **TDM** – Touch Display Module is the complete screen with all layers.
- **THM** – Thermal Module is an assembly which manages thermal regulation for the system.
- **TIM** – Thermal interface material used between the THM and PCBA



## General Information, Precautions, Warnings

 This symbol identifies important safety and health information in this manual.

 This symbol identifies important information in this manual.

 This symbol identifies important cautions in this manual.

### Service Tools and Jigs

#### Microsoft Recommended Service Jigs

- ESD-safe Surface Battery Cover (M1214771-001)

#### Microsoft Provided Software Tools / References:

- How To: [Update Surface device firmware and OS](#)
- How To: [Surface Tools Video](#)
- Download: [Surface drivers and firmware](#)
- Download: [Surface Diagnostic Toolkit \(SDT\)](#)
- Download: [Surface Data Eraser](#)
- Download: [Surface Imaging Tools](#)

#### Standard Service Tools:

- Anti-static wrist strap (1 MOhm resistance)
- ESD-safe benchtop
- Spudger tool
- Plastic Opening Pick [iFixit Opening Picks](#)
- Plastic Opening tool [iFixit Plastic Opening Tool](#)
- Phillips drivers PH0, PH00
- Isopropyl alcohol dispenser bottle (use 70% IPA)
- Cleaning swabs
- ESD-safe tweezers
- Lint free cleaning cloths

The tools identified on this list can be purchased from many different commercial sources, including but not limited to Amazon.com; iFixit; Chemdex, and other vendors. Refer to the ASP Guidebook for Microsoft tools.



## General Safety Precaution

 Always observe the following, general safety precautions:

- Opening and/or repairing any electronic device can present a risk of electric shock, fire, serious personal injury, death, damage to the device or other property, and/or other hazards. Exercise caution when undertaking the repair activities described in this Guide. The repair activities identified in this Guide should only be undertaken by technically inclined individuals with the knowledge, experience, and specialized tools required to repair Microsoft devices.
- Improper use or handling of devices or their batteries may result in fire or explosion. Only open the enclosure on a device as outlined in this Guide.
- Do not heat, puncture, mutilate, or dispose of devices or their batteries in fire. Do not leave or charge devices in direct sunlight or expose devices or their batteries to temperatures outside the recommended operating range of 0°C to 60°C/32°F to 140°F for an extended period. Doing so can result in battery failure, electric shock, fire, serious personal injury, death, and/or damage to the device or other property.
- We recommend wearing protective eyewear and gloves when disassembling/re-assembling a device.

For additional product safety information relevant to Microsoft Surface devices, see [aka.ms/surface-safety](https://aka.ms/surface-safety) or the Surface app. To open the Surface app, select the Start button, enter Surface into the search box, then select the Surface app.



## Repair-Specific Precautions and Warnings

- For Autopilot managed Surface Products refer to the following guidelines posted [here](#).

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 **WARNING:** Before opening a device, ensure it is powered off and disconnected from its power source. Disconnect the device charger or power cord from mains power.

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- For devices with rechargeable lithium-ion batteries that power on, fully discharge the battery before beginning repair. To expedite the battery discharge process:
  - Disconnect the charger from the device.
  - Increase display brightness to the highest level.
  - Turn on wi-fi and Bluetooth.
  - Open the Camera app in Windows.
  - Play music or video files from a local drive or streaming service.

Operate the device in this mode until the battery is fully discharged and the device powers off.

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 **WARNING:** For Surface devices where the battery is affixed to the back cover, place the back cover with the battery in a location where it will be protected from possible punctures, impacts, crushing, or drops during the repair process. Refer to the [Battery Safety](#) section in this guide for more information.

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- Ensure your work surface is level/flat and covered with ESD-safe, soft, non-marring material.
- We recommend wearing protective eyewear as a safety precaution when disassembling/re-assembling a device.
- Clean your work surface regularly to remove debris and abrasive particles.
- Review and follow the general guidelines and ESD compliance steps in this Guide prior to beginning work. Refer to the [Prior to Device Disassembly](#) section in this Guide for more information.
- Before opening a device, always wear an anti-static wrist strap and confirm your work area is properly grounded to protect vulnerable electronics from electrostatic discharge (ESD).
- Parts removed from a device during the repair process should be stored in ESD-safe bags and packaged for return or recycling in the same packaging that the new replacement part came in.
- If battery damage (e.g., leaking, expansion, folds or other) is discovered during device repair or if the battery is impacted or damaged during replacement, DO NOT proceed. Refer to the ASP Guidebook or contact Microsoft directly for proper device disposition.
- As you remove each subassembly from the device, place the subassembly (and all accompanying screws) away from the work area to prevent damage to the device or to the subassembly.
- During all activities (excluding feet-only replacement) check to ensure that no loose articles are on the back cover or remain inside the device before reassembling it.

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 **IMPORTANT:** Remove rSSD (removable Solid-State Drive) whenever C-cover is removed from device. rSSD removal disconnects the battery from all device logical components for safety purposes. Refer to [Procedure-Removal \(rSSD\)](#) section for details.

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 **IMPORTANT:** Whenever the rSSD has been removed, powering on the device requires that the rSSD and C-cover are installed. Refer to [Procedure - Installation \(rSSD\)](#) section for details.

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- Review the [General Safety Precautions](#) and [Battery Safety](#) Sections of this Guide before beginning work. Refer to the “Prior to Device Disassembly” section of the Guide for additional details.
- Check to make sure that general guidelines and ESD compliance steps are followed prior to starting activities. Refer to [Prior to Device Disassembly](#) section on ([page 18](#)) for details.



- Device Serial Number Notation – The Surface device serial number for this model is located on the bottom of the chassis. When the chassis is replaced during service/repair, the device serial number becomes physically disconnected from the customer’s device. To ensure the customer has the best experience if any future Microsoft support is required, it is recommended to create a notation of the device serial number and provide it to the customer upon completion of the repair.

## Battery Safety

- This device contains a built-in, lithium-ion rechargeable battery. Battery safety is a significant concern when repairing a device.
- For optimum compatibility, performance, and product safety, we recommend using genuine Microsoft replacement parts. Use of non-Microsoft (non-genuine), incompatible, reused, or modified batteries; improper battery installation; improper handling or storage of batteries; and/or failure to follow the instructions in this Guide could cause battery overheating, expansion, venting, leaking, or a thermal event which could result in fire, serious personal injury, death, data loss, or damage to the device or other property damage.
- Before beginning device repair, ensure your workspace is free of flammable debris or materials, has adequate ventilation, and that you have a fire suppressant device (example: fire blanket, container of sand, Class B fire extinguisher) within easy reach or you are within 20 feet of a fireproof enclosure. Fireproof enclosures should be kept free of combustible or flammable materials.
- Use personal protective equipment (PPE) when handling damaged, venting, or hot battery packs.
- Use the following best practices when handling batteries:
  - Always fully discharge batteries by running an application such as video playback with the device unplugged. If the device does not function while unplugged, you may leave out this step.
  - Do not puncture, impact, strike, bend, or crush the battery or a device containing a battery.
  - Keep your workspace clear of debris, extra tools, and sharp objects.
  - Exercise caution when using sharp tools near the battery to avoid impacting or poking the battery.
  - Don’t leave loose screws or small parts inside the device.
  - Avoid using tools that conduct electricity.
  - Do not drop or throw a lithium-ion battery.
  - Do not expose the battery to excessive heat, sunlight, or temperatures outside the battery’s normal operating range (0°C to 60°C)/(32°F to 140°F).
  - Ensure you handle, recycle, and/or dispose of used or damaged batteries in accordance with local laws and regulations. Follow Handling Used, Damaged or Defective Li-ion Batteries below.
- If device repair cannot be completed immediately and the device needs to be stored temporarily before restarting the repair:
  - Select a storage location and process that follows the battery safety precautions in this Guide.
  - Avoid exposing the device to environmental conditions and objects that could damage the battery pack.
  - Reinspect the battery pack as outlined in this Guide prior to restarting repair and installing the new battery pack.



## Lithium-Ion Battery Inspection

Upon device opening, we recommend that you visually inspect the battery for signs of damage. Factors to consider when inspecting the battery include, but are not limited to:

- Evidence of leaking or venting
- Visible signs of physical or mechanical damage, such as:
  - Expansion or swelling. In expanded or swollen batteries, the soft pouch encasing the cell pulls away from the inner material and appears baggy, loose, or puffy.
  - Discoloration of the battery casing.
  - Odor, smell, or visible corrosion. Leaked battery electrolyte smells like nail polish remover (acetone).
  - Dents along the battery cell edges or on the top surface.
  - Surface scratches that have exposed the aluminum beneath the black coating layer on the battery.
  - Loose or damaged wires.
  - Known misuse or abuse.

Any battery exhibiting the signs listed above must be replaced. Consult the [Battery Replacement](#) section of this document for battery replacement instructions.

### Handling Used, Damaged, or Defective Lithium-Ion Batteries:

- DO NOT dispose of used lithium-ion batteries, whether damaged or not, in household or commercial garbage or recycling bins.

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 **WARNING:** DO NOT SHIP DAMAGED OR DEFECTIVE BATTERIES ALONE OR INSIDE DEVICES. Damaged or defective batteries and devices containing damaged or defective batteries require special packaging and handling. Prior to transport:

- Follow all instructions provided by your local e-waste recycling or household hazardous waste collection provider.
  - Place the device or battery in an individual, non-metallic inner packaging, such as a zip-to-close plastic bag, that completely encloses the device or battery.
  - Surround the inner packaging with non-combustible, electrically non-conductive, absorbent cushioning material.
  - Each damaged battery or device containing a damaged battery should be packed individually in its own carton and that carton should be clearly marked as containing a damaged battery.
- 

For more information on industry practices concerning damaged, defective, or recalled batteries, please see [PHMSA Lithium-Battery-Recycling-Safety-Advisory](#).

Undamaged, used lithium batteries can be sent to e-waste recycling or household hazardous waste collection points for processing. Please see <https://www.microsoft.com/en-us/legal/compliance/recycling> for more information.

### Report Battery Thermal Events to Microsoft

A thermal event is a rapid chemical chain reaction that can occur inside a battery cell. During a thermal event, the energy stored inside the battery is released suddenly, resulting in heating and/or smoke and, in some instances, fire or flame. A battery thermal event can be triggered by physical damage to the battery (including during replacement/repair), improper storage, or exposure to temperatures outside of the battery's operating range.



Act immediately if you see any of the following symptoms of a battery thermal event:

- Smoke, soot, sparks, or flame emitted by the battery or from a device containing a battery.
- The battery pouch suddenly expands in size.
- A popping or hissing noise from the battery or a device containing a battery.

### Actions to take:

- **DO NOT use water. Immediately smother** the battery or device with clean, dry sand, a fire blanket, or an appropriate (Class B) fire extinguisher. If using sand, dump the sand all at once until the device is completely covered.
- **Contact** local fire authorities if further assistance is needed.
- **Exit** the work area and ventilate it until it is clear of smoke.
- **Wait** at least 2 hours before attempting to touch the device.
- **Dispose** of the damaged battery or device in accordance with local environmental or e-waste laws and guidelines.

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 **WARNING:** DO NOT SHIP DAMAGED OR DEFECTIVE BATTERIES ALONE OR INSIDE DEVICES. Damaged batteries and devices containing damaged batteries require special packaging and handling. See [Handling Used, Damaged, or Defective Lithium-Ion Batteries](#) in this Guide for additional information.

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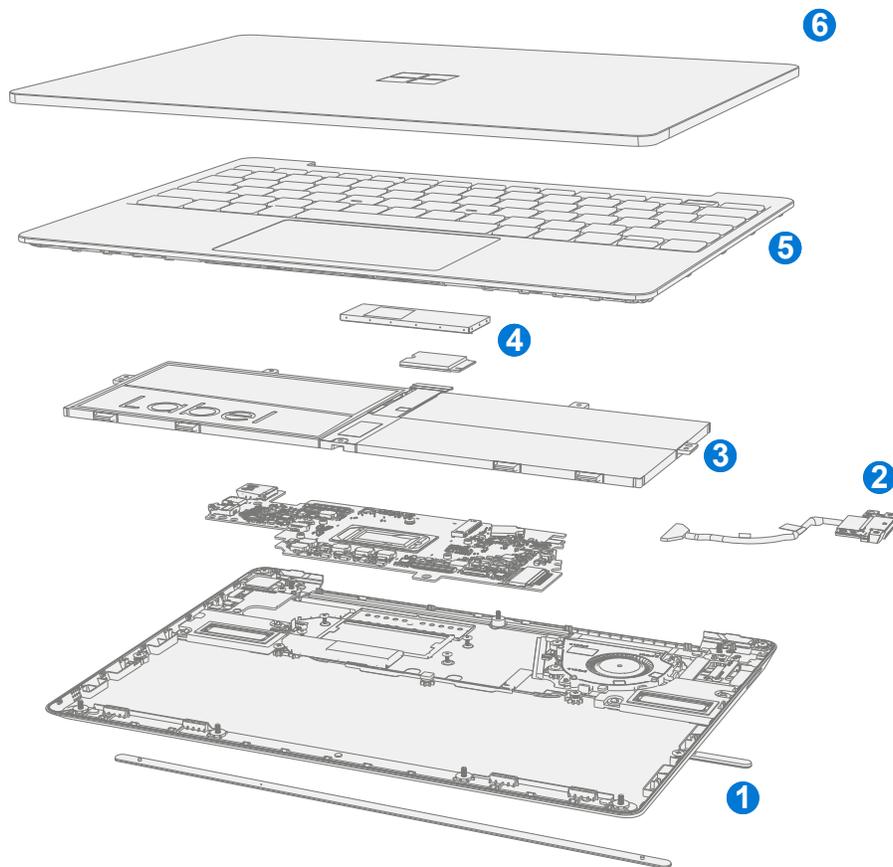
## Stop Repair and Contact Microsoft

If any Microsoft device visually exhibits any of the following symptoms, cease all further repair efforts and contact Microsoft Surface Customer Support to report and obtain next steps:

- Any burned or melted components, traces, or plastic parts on the outside of the device, or which otherwise exhibits heat damage, including charring seen in charging and other ports.
- Any burned or melted components, traces, or plastic parts on the inside of the device, or which otherwise exhibits heat damage.
- Any accessories exhibiting melting or heat damage that are included with the Microsoft device, such as power supplies, keyboards, mice, cables, charging connectors, etc.
- Any devices that exhibit a case that has separated apart or opened for reasons other than impact damage from dropping, evidence of tampering, or separation caused by a malfunctioning battery.
- Any other finding that may constitute a safety hazard to the user, such as sharp edges on plastics. Microsoft Surface Customer Support will ask you to provide the following information:
  - The model and serial number of the affected Microsoft Surface device and/or accessory(ies).
  - A brief description of the damage found.
  - Clear photographs depicting the symptoms observed.



## Illustrated Service Parts List



**IMPORTANT:** Device service part availability is segmented into two groups. FRUs are parts available for repair activity through an Authorized Service Provider under specific contract with Microsoft. CRUs/Spares are parts available for repair activity by a skilled technician.

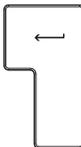
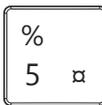
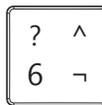
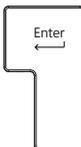
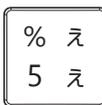
Item	Component	FRU / ASP Part No.	CRU Part No.
<b>(1) Non-Skid Feet</b>			
	Battleship (Green) Feet	N1R-00001	N1V-00001
	Ice Blue Feet	N1R-00002	N1V-00002
	Platinum Feet	N1R-00003	N1V-00003
	Sandstone Feet	N1R-00004	N1V-00004
<b>(2) Surflink Assembly</b>			
	Battleship (Green) Surflink	N1Q-00001	N1U-00001
	Ice Blue Surflink	N1Q-00002	N1U-00002
	Platinum Surflink	N1Q-00003	N1U-00003
	Sandstone Surflink	N1Q-00004	N1U-00004
<b>(3) Battery</b>			
	Battery	N3C-00001	N3I-00001
<b>(4) Removable Solid-State Drive (NOTE: rSSD size must be same as original)</b>			
	rSSD 128GB	N1Y-00001	N2B-00001
	rSSD 256GB	N1Z-00001	N2I-00001



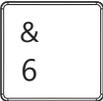
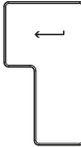
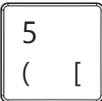
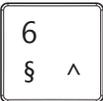
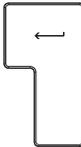
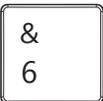
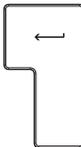
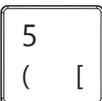
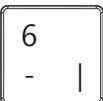
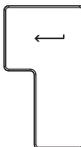
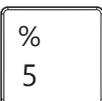
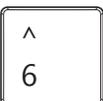
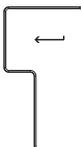
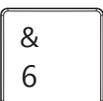
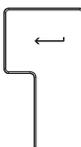
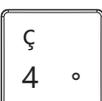
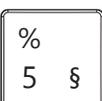
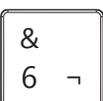
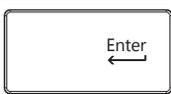
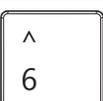
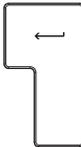
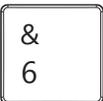
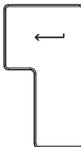
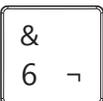
<b>Item</b>	<b>Component</b>	<b>FRU/ASP Part No.</b>	<b>CRU Part No.</b>
<b>(5)</b>	<b>C-Cover Keyboard Assembly</b>		
	Battleship (Green) 105 French with Fingerprint Reader	N1T-00001	N1X-00001
	Battleship (Green) 104 Traditional Chinese with Fingerprint Reader	N1T-00002	N1X-00002
	Battleship (Green) 105 Austria/Germany with Fingerprint Reader	N1T-00003	N1X-00003
	Battleship (Green) 105 Canadian, Bilingual with Fingerprint Reader	N1T-00004	N1X-00004
	Battleship (Green) 109 Japan with Fingerprint Reader	N1T-00005	N1X-00005
	Battleship (Green) 104 English, US with Fingerprint Reader	N1T-00006	N1X-00006
	Battleship (Green) 105 Switzerland, Luxembourg with Fingerprint Reader	N1T-00007	N1X-00007
	Battleship (Green) 105 English, UK Ireland with Fingerprint Reader	N1T-00008	N1X-00008
	Ice Blue 105 French with Fingerprint Reader	N1T-00009	N1X-00009
	Ice Blue 104 Traditional Chinese with Fingerprint Reader	N1T-00010	N1X-00010
	Ice Blue 105 Austria/Germany with Fingerprint Reader	N1T-00011	N1X-00011
	Ice Blue 105 Canadian, Bilingual with Fingerprint Reader	N1T-00012	N1X-00012
	Ice Blue 109 Japan with Fingerprint Reader	N1T-00013	N1X-00013
	Ice Blue 104 English, US with Fingerprint Reader	N1T-00014	N1X-00014
	Ice Blue 105 Switzerland, Luxembourg with Fingerprint Reader	N1T-00015	N1X-00015
	Ice Blue 105 English, UK Ireland with Fingerprint Reader	N1T-00016	N1X-00016
	Platinum 105 Spanish, European with Fingerprint Reader	N1T-00017	N1X-00017
	Platinum 104 English, US with Fingerprint Reader	N1T-00018	N1X-00018
	Platinum 105 Nordic Denmark, Finland, Norway, Sweden with Fingerprint Reader	N1T-00019	N1X-00019
	Platinum 104 English, International Netherlands with Fingerprint Reader	N1T-00020	N1X-00020
	Platinum 105 Italy with Fingerprint Reader	N1T-00021	N1X-00021
	Platinum 105 Austria/Germany with Fingerprint Reader	N1T-00022	N1X-00022
	Platinum 104 Traditional Chinese with Fingerprint Reader	N1T-00023	N1X-00023
	Platinum 106 Korea with Fingerprint Reader	N1T-00024	N1X-00024
	Platinum 105 Switzerland, Luxembourg with Fingerprint Reader	N1T-00025	N1X-00025
	Platinum 105 French with Fingerprint Reader	N1T-00026	N1X-00026
	Platinum 105 English, UK Ireland with Fingerprint Reader	N1T-00027	N1X-00027
	Platinum 104 Arabic with Fingerprint Reader	N1T-00028	N1X-00028
	Platinum 109 Japan with Fingerprint Reader	N1T-00029	N1X-00029
	Platinum 105 Spanish, Latin American with Fingerprint Reader	N1T-00030	N1X-00030
	Platinum 105 Canadian, Bilingual with Fingerprint Reader	N1T-00031	N1X-00031
	Platinum 105 Portuguese with Fingerprint Reader	N1T-00032	N1X-00032
	Platinum 105 Belgium AZERTY with Fingerprint Reader	N1T-00033	N1X-00033
	Platinum 104 Thai with Fingerprint Reader	N1T-00034	N1X-00034
	Platinum 104 English, US	N1T-00035	N1X-00035
	Platinum 105 Canadian, Bilingual	N1T-00036	N1X-00036



Item	Component	FRU/ASP Part No.	CRU Part No.
<b>(5)</b>	<b>C-Cover Keyboard Assembly</b>		
	Platinum 105 Austria/Germany	N1T-00037	N1X-00037
	Platinum 104 Arabic	N1T-00038	N1X-00038
	Platinum 105 Spanish, Latin American	N1T-00039	N1X-00039
	Platinum 105 Switzerland, Luxembourg	N1T-00040	N1X-00040
	Platinum 104 Traditional Chinese	N1T-00041	N1X-00041
	Platinum 104 English, International Netherlands	N1T-00042	N1X-00042
	Platinum 105 Spanish, European	N1T-00043	N1X-00043
	Platinum 105 English, UK Ireland	N1T-00044	N1X-00044
	Platinum 105 Belgium AZERTY	N1T-00045	N1X-00045
	Platinum 105 Nordic Denmark, Finland, Norway, Sweden	N1T-00046	N1X-00046
	Platinum 105 Portuguese	N1T-00047	N1X-00047
	Platinum 109 Japan	N1T-00048	N1X-00048
	Platinum 105 French	N1T-00049	N1X-00049
	Platinum 106 Korea	N1T-00050	N1X-00050
	Platinum 105 Italy	N1T-00051	N1X-00051
	Platinum 104 Thai	N1T-00052	N1X-00052
	Sandstone 105 French with Fingerprint Reader	N1T-00053	N1X-00053
	Sandstone 104 Traditional Chinese with Fingerprint Reader	N1T-00054	N1X-00054
	Sandstone 105 Austria/Germany with Fingerprint Reader	N1T-00055	N1X-00055
	Sandstone 105 Canadian, Bilingual with Fingerprint Reader	N1T-00056	N1X-00056
	Sandstone 109 Japan with Fingerprint Reader	N1T-00057	N1X-00057
	Sandstone 104 English, US with Fingerprint Reader	N1T-00058	N1X-00058
	Sandstone 105 Switzerland, Luxembourg with Fingerprint Reader	N1T-00059	N1X-00059
	Sandstone 105 English, UK Ireland with Fingerprint Reader	N1T-00060	N1X-00060
<b>(6)</b>	<b>AB-Cover Display Assembly</b>		
	Battleship (Green) AB-Cover	N1S-00001	N1W-00001
	Ice Blue AB-Cover	N1S-00002	N1W-00002
	Platinum AB-Cover	N1S-00003	N1W-00003
	Sandstone AB-Cover	N1S-00004	N1W-00004

C-Cover Keyboard Assembly Localization		
Description	Enter Key	"4,5,6" Keys
104 English, US		  
105 Canadian, Bilingual		  
109 Japan		  



105 Austria/Germany				
105 Belgium AZERTY				
105 Nordic Denmark, Finland, Norway, Sweden				
105 French				
105 English, UK Ireland				
105 Italy				
105 Switzerland, Luxembourg				
104 English, International Netherlands				
105 Portuguese				
105 Spanish, European				



## Service Diagnostics/Troubleshooting Overview

- For general Surface support, visit [www.support.microsoft.com](http://www.support.microsoft.com)
- To troubleshoot device feature/function problems or learn more about Surface Laptops visit [aka.ms/SurfaceLaptopHelp](http://aka.ms/SurfaceLaptopHelp)
- If you'd like to learn more about Windows, visit [aka.ms/WindowsHelp](http://aka.ms/WindowsHelp)
- To learn more about the accessibility features of the Surface Laptop, go to the online user guide at [aka.ms/Windows-Accessibility](http://aka.ms/Windows-Accessibility)

### Software Tools:

- How To: [Update Surface device firmware and OS](#)
- How To: [Surface Tools Video](#)
- Download: [Surface drivers and firmware](#)
- Download: [Surface Diagnostic Toolkit \(SDT\)](#)
- Download: [Surface Data Eraser](#)
- Download: [Surface Imaging Tools](#)

### Hardware Troubleshooting Approach

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 **IMPORTANT:** Be sure that devices meet all pre-repair qualifications related to safety and policy prior to repair. See ASP Guidebook for details.

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The following approach should be taken when troubleshooting Surface devices:

1. Update device to latest OS/FW versions using the SDT tool – Refer to Software Tools section above for details on SDT.

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 **IMPORTANT:** Device updates are required as a prerequisite to all hardware repairs.

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2. Verify any suspected hardware failures by setting the device in a known OS/FW version state and running SDT to verify fault:
  - a. Replace the device's internal rSSD with a BMR imaged rSSD containing latest OS and FW updates (not supplied – must be created as a fault verification jig/tool) – Refer to Software Tools section above for details on imaging.
  - b. Run SDT and verify if condition persists or if resolved with use of BMR imaged drive – Refer to Software Tools section above for details on SDT.
    - i. If problem is resolved, then re-image original rSSD or replace original rSSD and image.
    - ii. If problem persists then replace suspected hardware FRU related to the problem by following the detailed replacement procedures covered within this service guide.



## Component Removal and Replacement Procedures

### Prior to Device Disassembly

- Read this Guide in its entirety before starting any repairs. Pay special attention to the [Repair-Specific Precautions and Warnings](#) and the [Battery Safety](#) sections of the Guide.

### Battery Warning

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 **WARNING:** Please note that the battery bears the following warning label. Please heed the information provided on the label.

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#### **Battery cannot be easily replaced by user**

- Risk of fire or burning - contact Microsoft for assistance
- Do not separate or remove battery from backplate cover
- Do not modify battery, its wiring, or connectors
- Do not replace, short circuit, bend, crush, or puncture battery
- Do not dispose of battery in fire or expose to high temperatures (+140°F/60°C)
- For more information: <http://aka.ms/surface-security>



# Non-Skid Feet Replacement Process

## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

## Required Tools and Components

- **Tools:**
  - Plastic tweezers / spudger
  - Isopropyl Alcohol Dispenser Bottle (use only 70% IPA)
  - Cleaning swabs
- **Components:**
  - Feet (Refer to [Illustrated Service Parts List](#))
    - Front Foot
    - Rear Foot

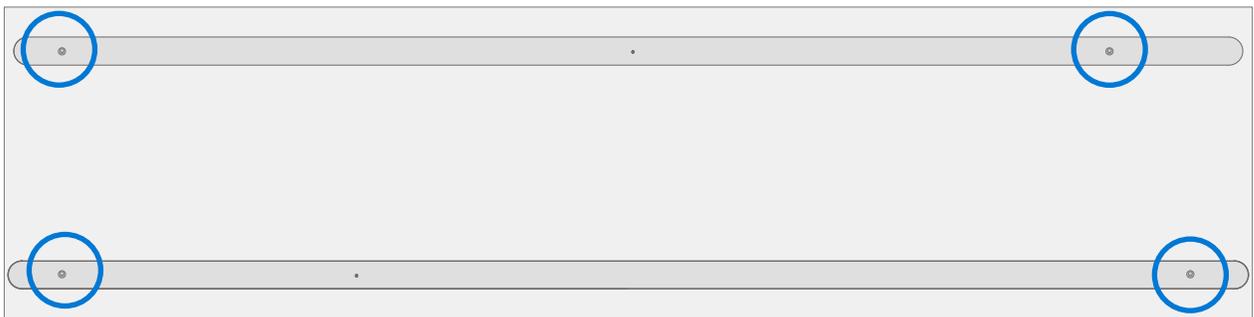
## Prerequisite Steps:

- **Power off device** – Ensure device is powered off and disconnected from a power supply.
- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening the device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Position device** – To prevent scratches, flip device over onto a clean surface free of debris with the device bottom facing up for access to the feet for removal.

## Procedure – Removal (Non-Skid Feet)

1. **Remove Feet** – Use a plastic tool to pry up the foot from one end and then peel to remove. Repeat for the other foot.

 **IMPORTANT:** The front and back feet are not the same. There is one locating post on the rear foot near the left hinge and two locating posts for the front foot below the trackpad – refer to illustration for details.

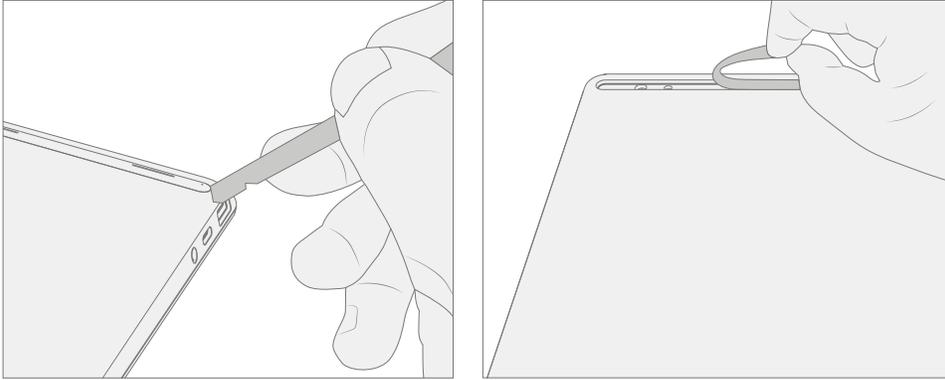


2. **Feet removal technique** – Use plastic tweezers / spudger to lift one edge of each foot. Grasp the loose end and pull the foot from the D-Bucket. Ensure all adhesive tape remnants and glue residue are removed. Clean the D-Bucket foot recesses with 70% Isopropyl Alcohol.

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✍ **IMPORTANT:** Once removed, the Feet will be stretched out of shape and must be replaced with new ones.

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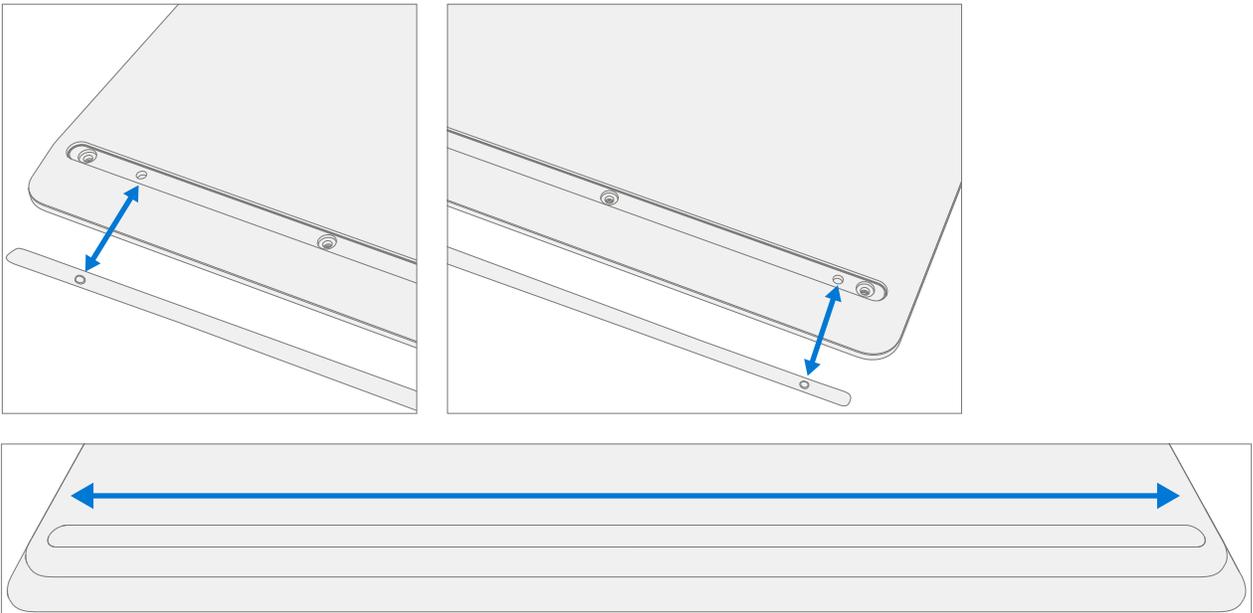
### Procedure – Installation (Non-Skid Feet)

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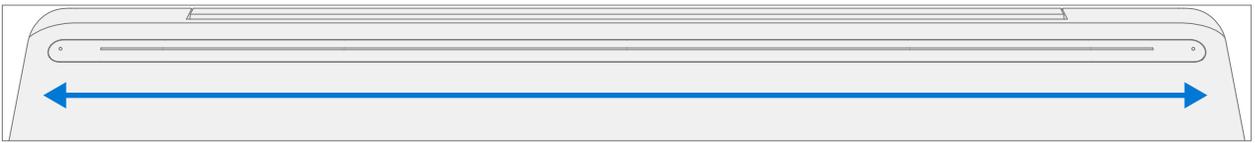
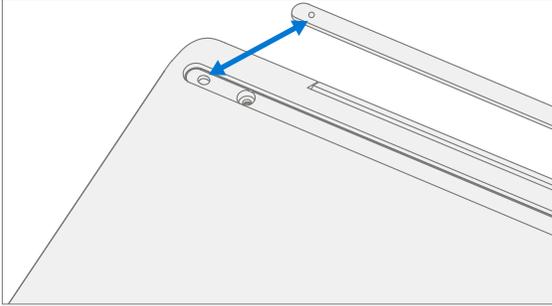
✍ **IMPORTANT:** Any further repairs that are required on the device should be carried out prior to foot installation. Do not reuse feet previously removed from a device.

---

1. **Prepare new front foot and press into place** – To install the front foot, remove protective sheet to expose adhesive on foot. Align the two locating posts for the front foot. Press the foot in firmly. Then slide your hand up and down the length of the foot to ensure that it is secured in place.



2. **Inspect for anomalies** – Inspect foot to ensure no cosmetic damage or gaps between the foot and the D-Bucket foot recesses exist.
3. **Prepare new back foot and press into place** – To install the back foot, remove protective sheet to expose adhesive on foot. Align the one locating post for the back foot. Press the foot in firmly. Then slide your hand up and down the length of the foot to ensure that it is secured in place.



4. **Inspect for anomalies** – Inspect foot to ensure no cosmetic damage or gaps between the foot and the D-Bucket foot recesses exist.

---

 **IMPORTANT:** Before transporting the device, we recommend letting it sit feet-down on a tabletop for at least 12 hours. If this isn't possible, it's recommended to avoid placing the device in a backpack, purse, other types of carriers, until at least 12 hours after installing new feet.

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# C-Cover Keyboard Assembly Replacement Processes

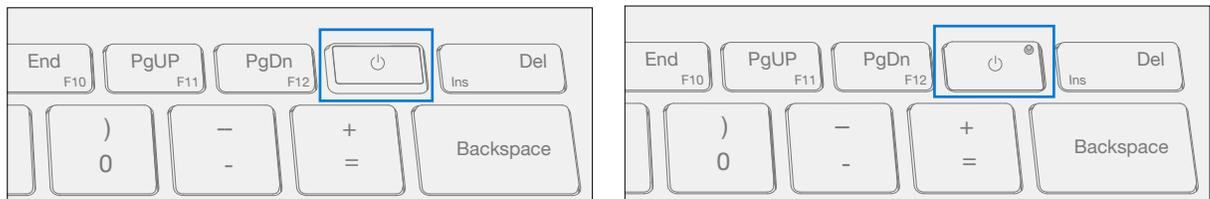
## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

## Required Tools and Components

- **Tools:**
  - Software Tool – SDT
  - Plastic tweezers
  - Plastic Opening Pick [iFixit Opening Picks](#)
  - Plastic Opening tool [iFixit Plastic Opening Tool](#)
  - Isopropyl Alcohol Dispenser (use only 70% IPA)
  - PH0 Screwdriver
  - Anti-static wrist strap (1M Ohm resistance)
  - ESD-safe Surface Battery Cover (M1214771-001)
- **Components:**
  - C-Cover (if replacing refer to [Illustrated Service Parts List](#))  
MS200551430 M2x5.5 Screws qty=2 (Supplied with C-Cover)  
MM200481000 M2x4.8 Screws qty=5 (Supplied with C-Cover)
  - Feet (Refer to [Illustrated Service Parts List](#))

 **IMPORTANT:** There are C-Covers with and without a fingerprint reader. Ensure the new C-Cover used matches the original. The fingerprint reader is integrated into the power button. Without the fingerprint reader a physical bump is present on the upper right-hand corner.



C-Cover with fingerprint reader

C-Cover without fingerprint reader

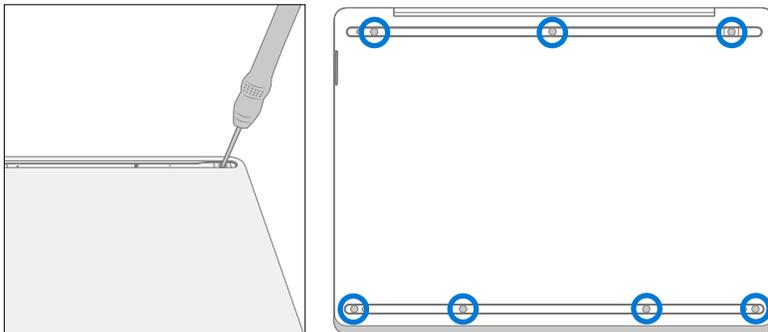
## Prerequisite Steps:

- **Power off device** – Ensure device is powered off and disconnected from a power supply.
- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Remove feet** – Follow steps for Procedure-Removal (Non-Skid Feet) section ([page 19](#)).



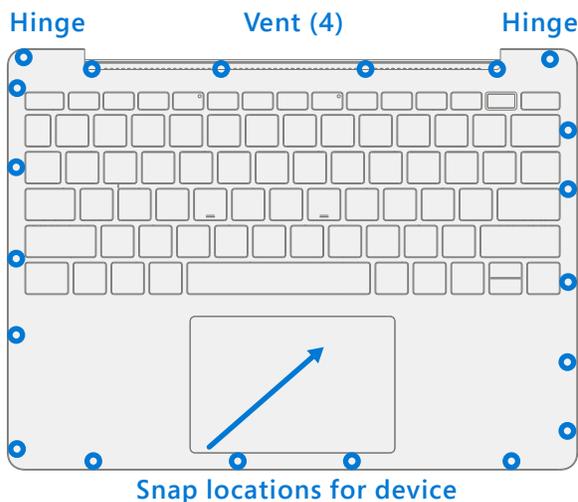
## Procedure – Removal (C-Cover Keyboard)

1. **Remove C-Cover screws** – Using a PH0 screwdriver uninstall the three screws from the rear, and four screws from the front D-Bucket foot recesses.

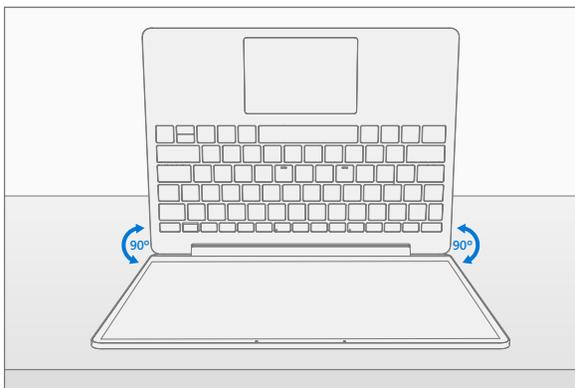


- 
- ! **CAUTION:** Ensure the plastic pick depth into the C-Cover is kept shallow to avoid damaging snaps and impacting the battery.
  - ! **CAUTION:** Remove C-Cover exactly as described in this step to avoid damaging the Flexible Printed Circuit (FPC) connected between the C-Cover and the Main Board. Do not pull the C-Cover apart beyond **45 degrees** otherwise damage to C-Cover FPC could occur.
- 

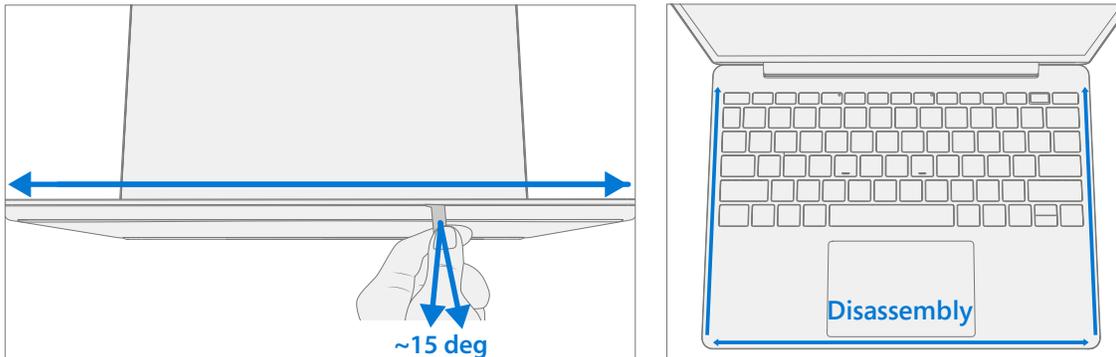
2. **Separate C-Cover from device**
  - a. Note the locations of the snaps that secure the C-Cover to the D-Bucket.



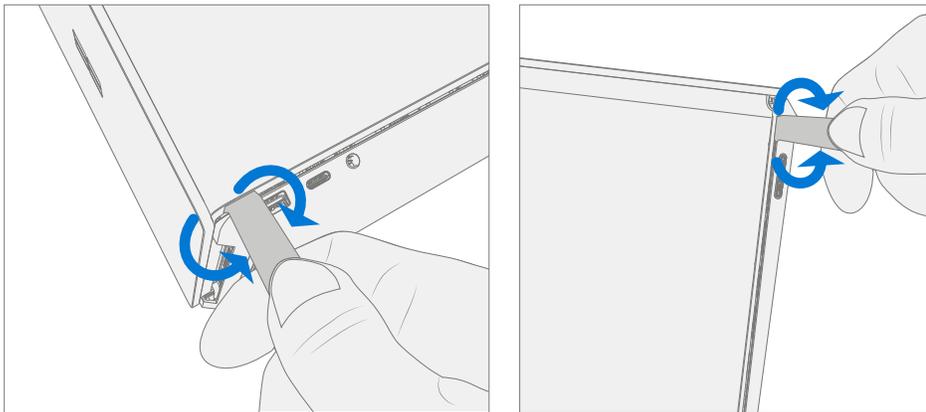
- b. Open the device to 90 degrees and place the display side down with the keyboard facing up.



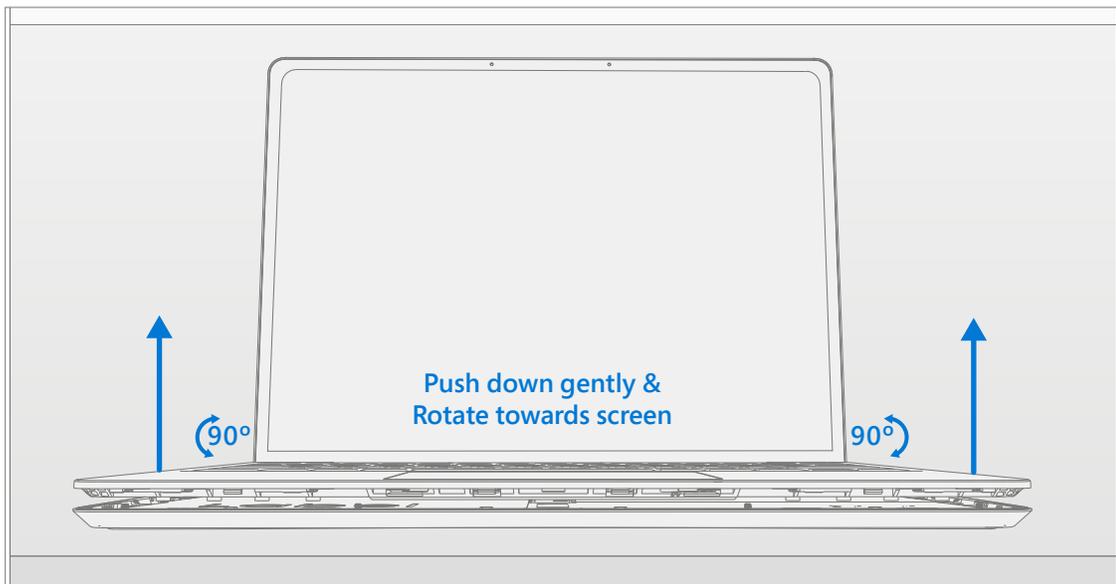
- c. Using a plastic opening tool to pry between the C-Cover and D-Bucket along the front between the snap locations. Rotate the opening tool by about 15 degrees and slowly run the tool along the seam between the C-Cover and D-Bucket. Start along the front seam and then the 2 sides until all snaps of C-Cover are disengaged.



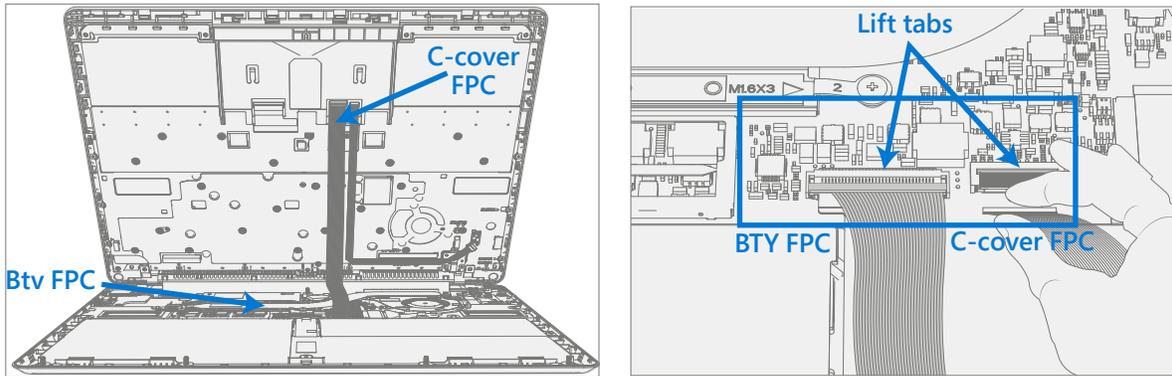
- d. Gently rotate the opening tool at the hinge corner until you hear a soft pop from the snap. Repeat this for both hinges.



- e. To disengage the 4 vent snaps, ensure the device is open to 90 degrees and the display is lying flat on the work surface. Gently push the C-Cover downward towards the work surface and rotate it towards the screen.



3. **Disconnect FPCs** – With the C-Cover rotated towards the screen, lift the connector lock on the battery FPC and then pull the FPC out. Next lift the connector lock on the keyboard FPC and then pull the FPC out.



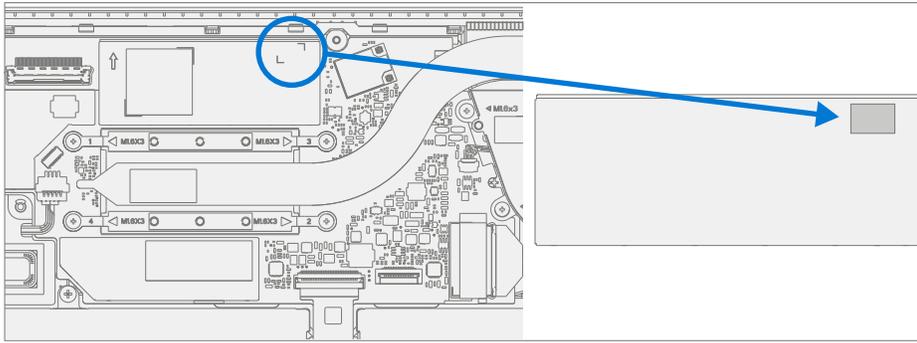
- 
- ⚠ WARNING:** It is recommended that an ESD-safe battery cover be placed across the device to protect the battery from any physical contact or accidental damage whenever C-Cover is removed. Ensure corners of cover are always aligned with the corners of the device while battery is exposed. If battery cover is misaligned during activities in any way, re-align before continuing activities.
- ! CAUTION:** When removed from the device, place the C-Cover in a safe place with key and trackpad side down and FPC facing up to avoid bending/creasing the FPC. Be sure the key and trackpad side of the C-Cover is protected from cosmetic damage during storage.
- ✍ IMPORTANT:** Ensure battery FPC remains disconnected from the PCBA whenever C-Cover is removed from device for safety purposes.
- 



## Procedure – Installation (C-Cover Keyboard)

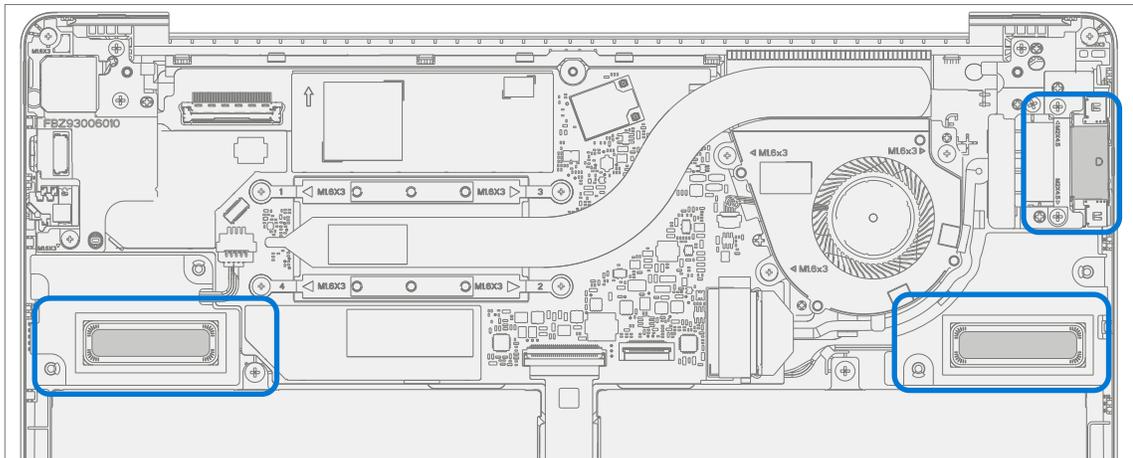
### 1. Pre-installation Device Inspection

- ⚠ **WARNING:** Verify the battery's condition refer to the M1153910 In Device Battery Inspection process. Devices exhibiting battery issues as outlined in the Battery Inspection Process require whole unit replacement.
- ⚠ **WARNING:** Verify the condition of LDI (Liquid Damage Indicators). Any color other than white indicates liquids have entered the device. Devices exhibiting LDI require whole unit replacement.

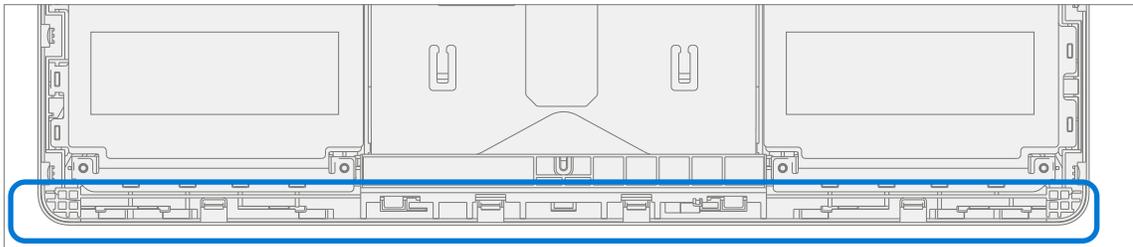


### 2. Check for unexpected items within device – Check C-Cover (both sides) and device enclosure for any loose articles that may be present inadvertently on the C-Cover or within the device enclosure areas.

- a. Check and remove any foreign objects that the magnets may have attracted or that may have been accidentally introduced into the device during replacement.



D-Bucket

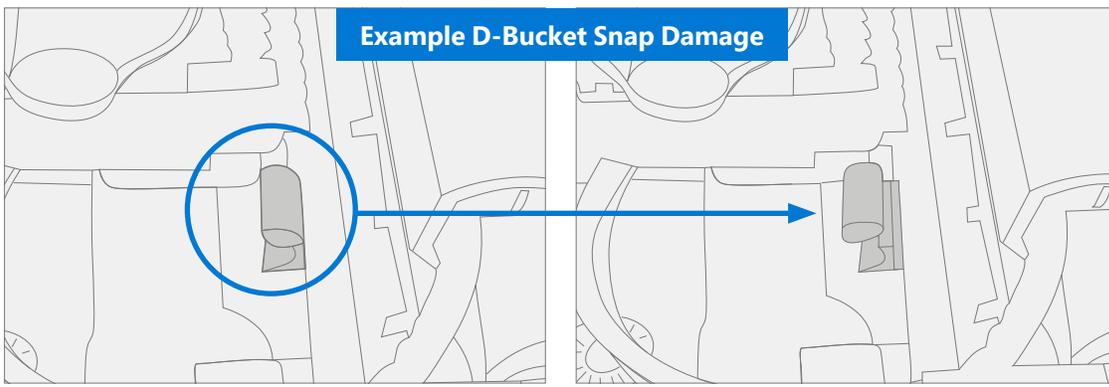
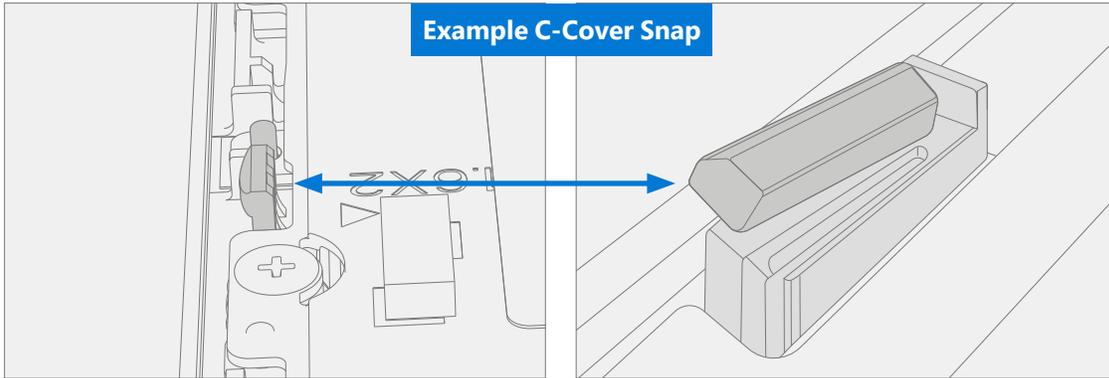


C-Cover

- b. Carefully inspect the area around battery specifically for any foreign objects before removing battery cover.



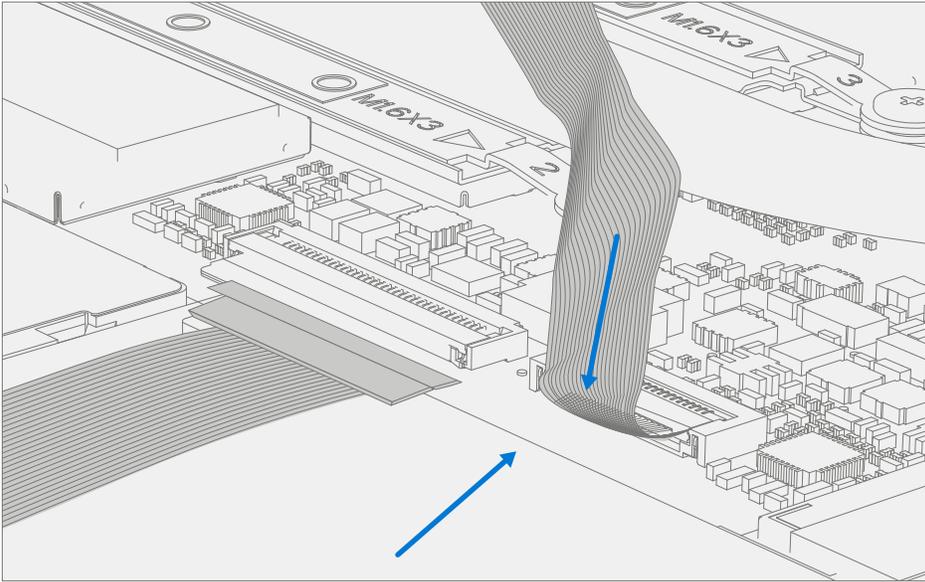
3. **Check C-Cover / D-Bucket Snaps** – Verify the 16 C-Cover snaps and the 4 D-Bucket snaps were not damaged during device disassembly. Damaged C-Cover snaps require installing a new C-Cover. Damaged D-Bucket snaps can only be addressed by whole device replacement. Refer to illustrations for further details.



4. **Remove tape from new C cover FPC** – Tape secures the C-Cover FPC during shipping. Remove this tape before continuing with assembly.



5. **Connect C-Cover FPC** – Remove the battery cover. Hover the C-Cover over the device while assembling the C-Cover FPC to the main board. Slide the FPC into the connector and then press down on the locking tab.

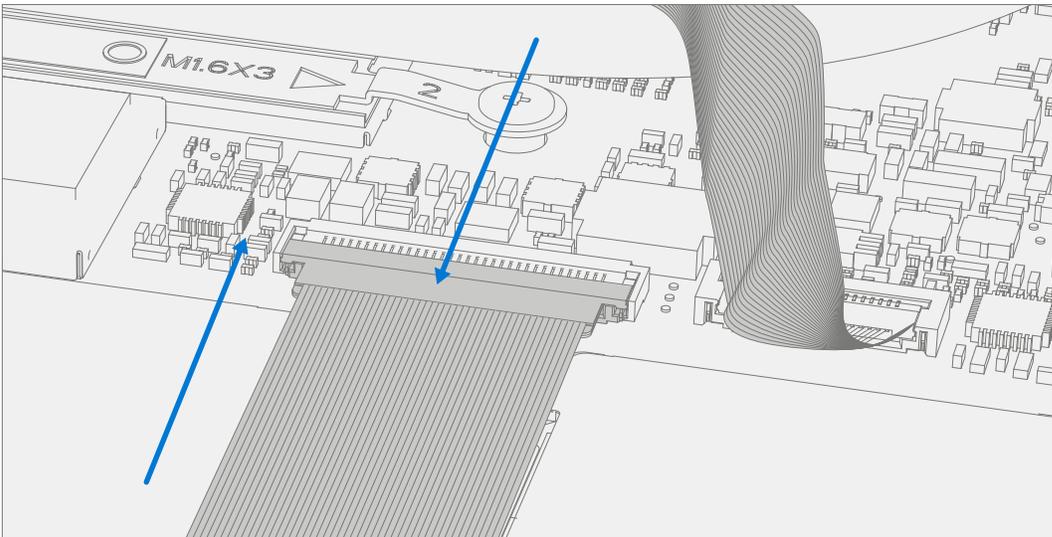


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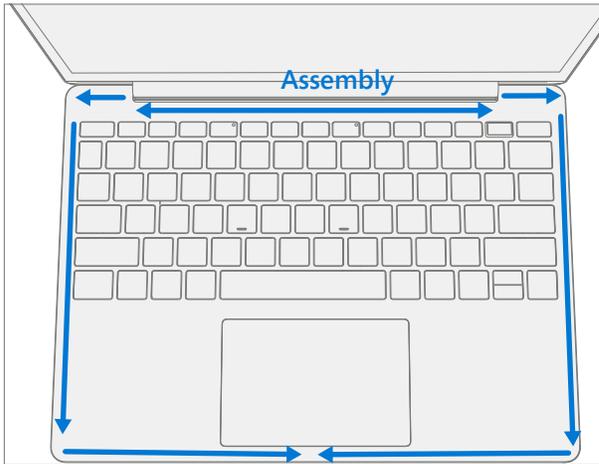
! **CAUTION:** Be sure that FPC bends fall in place properly as pre-bent and no folds or creases are created during re-assembly of C-Cover.

---

6. **Connect Battery FPC** – Connect the Battery FPC to the Motherboard. Slide the FPC into the connector and then press down on the locking tab.



7. **Align the C-Cover** – Properly align the cover to the device using the front edge alignment posts. Carefully place the C-Cover back onto the D-Bucket and shift the C-Cover snaps into place. Press gently on the C-Cover to engage the snaps correctly. Follow the direction of progress as shown in the picture below. Verify there are no visible gaps between the C-Cover and D-Bucket.

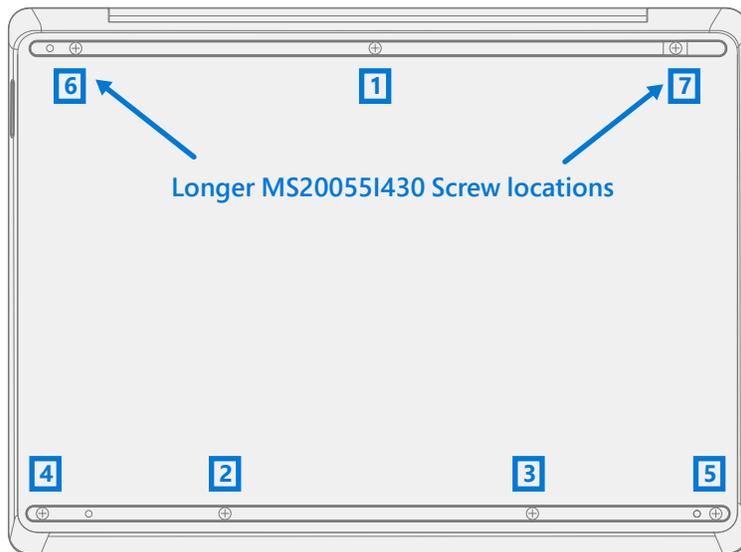


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! **CAUTION:** Ensure that the C-Cover is correctly aligned and seated before closing the device. There is the risk of breaking the display if the device lid is closed before C-Cover is aligned.

---

8. **Run SDT** – Run SDT to ensure all device features and functions operate as expected. Refer to (page 17) for details on SDT.
9. **Install New C-Cover Screws** – Close the AB-Cover and turn the unit over. Use a PH0 screwdriver to install 7 new screws to secure the C-Cover in the order pictured below. There are five MM20048I000 screws and two MS20055I430 screws. They should be installed until just snug and seated, and then turned another 90 degrees (1/4 turn).



---

! **CAUTION:** Ensure the longer MS20055I430 screws are installed in the two corner locations under the rear foot pad.

---

10. **Install Feet** – If SDT tests pass and no further repairs are to be performed on the device, follow steps for Procedure – Installation (Non-Skid Feet) on page 20.



# rSSD Replacement Process

## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

---

## Required Tools and Components

- **Tools:**
  - USB Thumb drive with SDT
  - Plastic tweezers
  - Plastic Opening Pick [iFixit Opening Picks](#)
  - Plastic Opening tool [iFixit Plastic Opening Tool](#)
  - Isopropyl Alcohol Dispenser (use only 70% IPA)
  - PH0 Screwdriver
  - PH00 Screwdriver
  - Anti-static wrist strap (1M Ohm resistance)
  - ESD-safe Surface Battery Cover (M1214771-001)
- **Components:**
  - rSSD (Refer to [Illustrated Service Parts List](#))
  - SSD Shielding cover (Supplied with rSSD)
  - MS200551430 M2x5.5 Screws qty=2 (Supplied with rSSD)
  - MM20048I000 M2x4.8 Screws qty=5 (Supplied with rSSD)
  - MM16030I130 M1.6x3 Screws qty=1 (Supplied with rSSD)
  - Feet (Refer to [Illustrated Service Parts List](#))

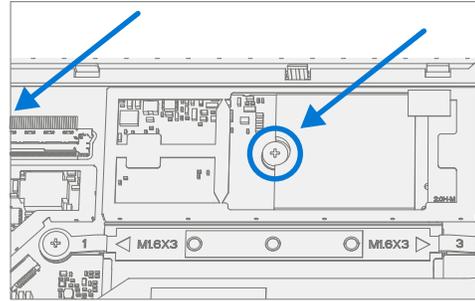
## Prerequisite Steps:

- **Power off device** – Ensure device is powered off and disconnected from a power supply.
- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Remove feet** – Follow steps for Procedure-Removal (Non-Skid Feet) on ([page 19](#)).
- **Remove C-Cover** – Follow steps for Procedure – Removal (C-Cover Keyboard) on ([page 20](#)).

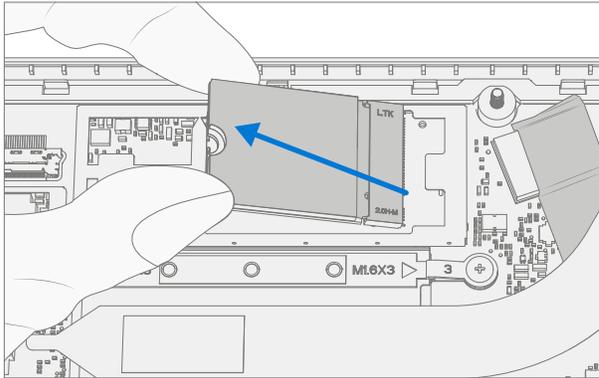


## Procedure – Removal (rSSD)

1. **Remove SSD Shielding cover and Screw** – Use a plastic opening tool to pry up Shielding cover. Slide the tool under the lip on the top side of the shield. Use a PH00 screwdriver to remove the screw securing the rSSD.



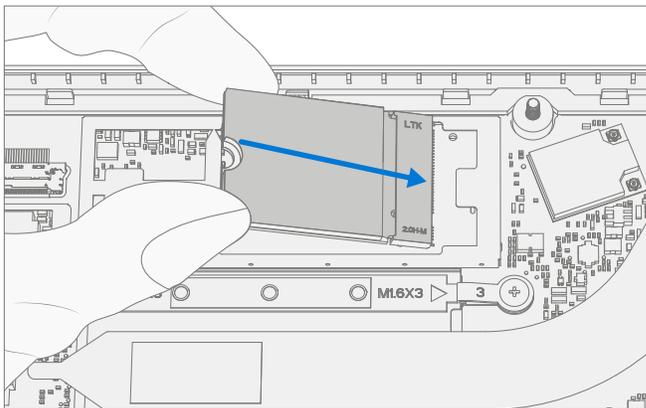
2. **Clean TIM Residue** – Inspect rSSD for TIM residue. Carefully wipe away any residue with 70% IPA solution.
3. **Remove SSD** – Carefully grab sides of rSSD case and pull out of the mainboard socket at ~15-degree angle.



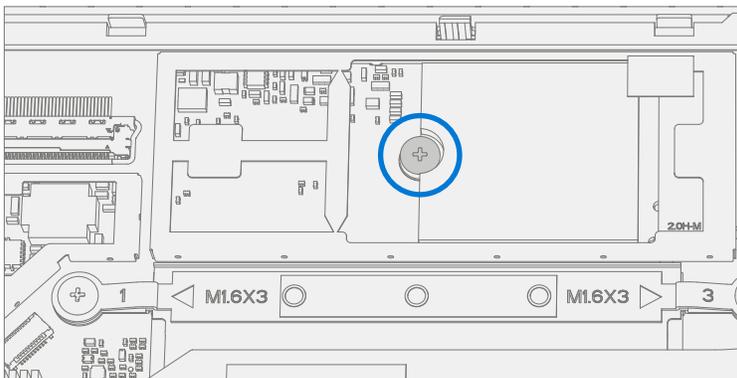
## Procedure – Installation (rSSD)

 **IMPORTANT:** Only a Microsoft rSSD with part number as specified in the parts list, per device model, and of like capacity should be replaced in the device.

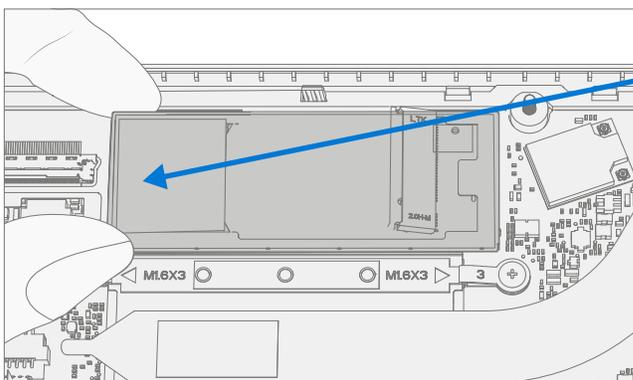
1. **Insert rSSD** – Insert the connector end of the rSSD into the SSD connector on Mainboard at ~15-degree angle.



2. **Install new rSSD screw** – Using a PH00 screwdriver install a new MM160301130 rSSD screw until the screw is just snug and seated, and then turned another 45 degrees (1/8 turn).



3. **Install SSD Shielding cover** – Install a new Shielding cover on Main board.



4. **Install C-Cover** – Follow steps for Procedure – Installation (C-Cover Keyboard) on ([page 26](#)).

**NOTE:** Only snap the C-Cover in place.

5. **Imaging new rSSD** – Power on device. Apply a new image to the rSSD using a BMR Imaging key specific to the device model. Refer to Surface imaging process - Surface Imaging Tools [Link](#)
6. **Run SDT** – Run SDT to ensure all device features and functions operate as expected. Refer to [\(page 17\)](#) for details on SDT. If SDT tests pass and no further repairs are to be performed on the device continue with the final assembly steps.
7. **Install New C-Cover Screws** – Power off device. Close the AB-Cover and turn the unit over. Use a PH0 screwdriver to install 7 new screws to secure the C-Cover as detailed on [\(page 29\)](#).

---

! **CAUTION:** Ensure the longer MS200551430 screws are installed in the two corner locations under the rear foot pad as detailed in the Installation (C-Cover Keyboard).

---

8. **Install Feet** – Follow steps for Procedure – Installation (Non-Skid Feet) on [\(page 20\)](#).



# AB-Cover Display Assembly Replacement Process

## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

---

## Required Tools and Components

- **Tools:**
  - USB Thumb drive with SDT
  - Plastic tweezers
  - Plastic Opening Pick [iFixit Opening Picks](#)
  - Plastic Opening tool [iFixit Plastic Opening Tool](#)
  - Isopropyl Alcohol Dispenser (use only 70% IPA)
  - PH0 Screwdriver
  - PH00 Screwdriver
  - Anti-static wrist strap (1M Ohm resistance)
  - ESD-safe Surface Battery Cover (M1214771-001)
  - Lint Free wipes
- **Components:**
  - AB-Cover (Refer to [Illustrated Service Parts List](#))  
MM20048I000 M2x4.8 Screws qty=7 (Supplied with AB-Cover)  
MS200551430 M2x5.5 Screws qty=4 (Supplied with AB-Cover)  
MM16030I130 M1.6x3 Screws qty=4 (Supplied with AB-Cover)  
Clear Mylar Shield (Supplied with AB-Cover)  
Protective plastic cling (Supplied with AB-Cover)
  - Feet (Refer to [Illustrated Service Parts List](#))

## Prerequisite Steps:

- **Prep Device** – Device must be set in TDM Replacement Mode prior to removing a faulty AB-Cover. This is not required if the original AB-Cover will be reinstalled.
  - **Connect software tools USB drive** with SDT to USB connector on device under repair.
  - **Connect power supply** to device.
  - **Power on device** – Depress the power button on the side of the device.
  - **Run software tool** – At the device OS, use Windows Explorer, navigate to USB drive, and run:
  - **SDT** – Select Repair setup and validation. Run the Touch Display Setup. At the end of the tool process device will power down.

 **WARNING:** This step must be carried out on the device successfully **before** removal of a **faulty** AB-Cover.

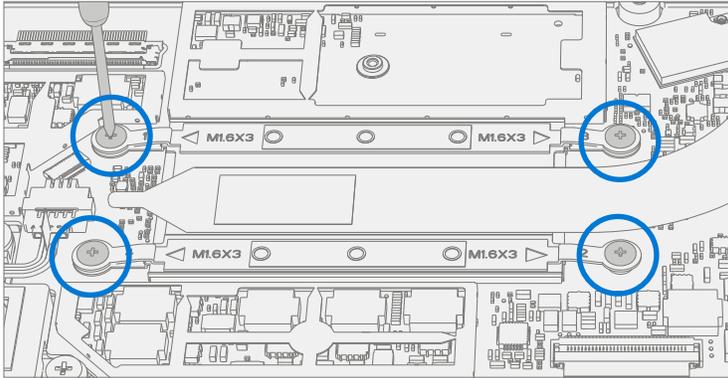
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- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Remove feet** – Follow steps for Procedure-Removal (Non-Skid Foot Pad) on ([page 19](#)).
- **Remove C-Cover** – Follow steps for Procedure – Removal (C-Cover Keyboard) on ([page 23](#)).

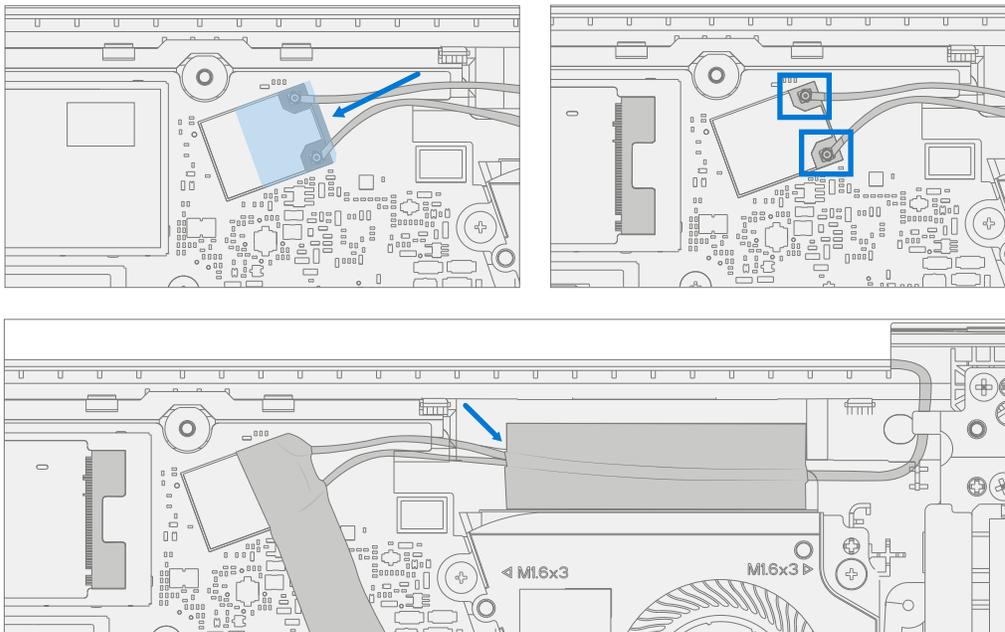


## Procedure - Removal (AB-Cover Display Assembly)

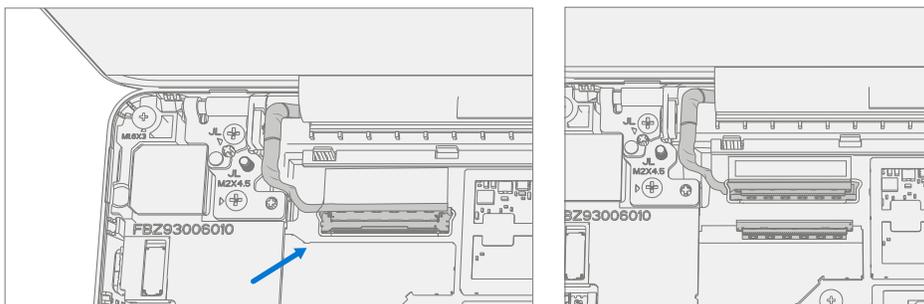
1. **Remove Thermal Module (Heatsink)** – Use a PH00 screwdriver to remove the four screws securing the thermal module and remove it from the PCBA.



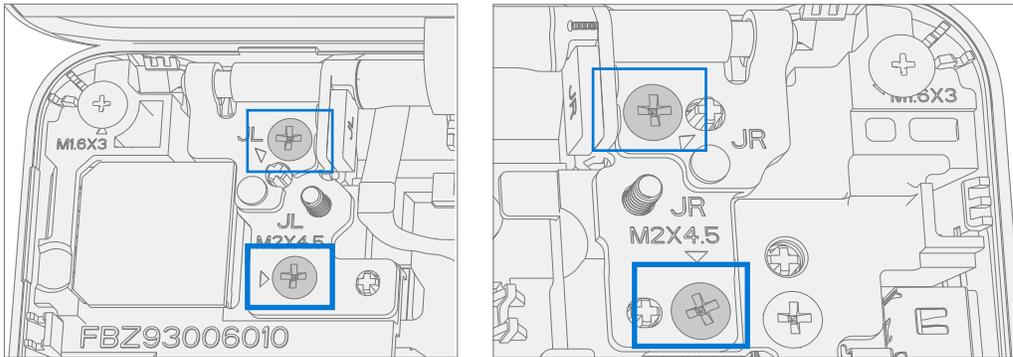
2. **Disconnect Antenna cable** – Using plastic tweezers remove the clear Mylar shield covering the antenna connectors. Disconnect the two Antenna cables located on Mainboard. Remove the black tape securing the antenna cables to the D-Bucket.



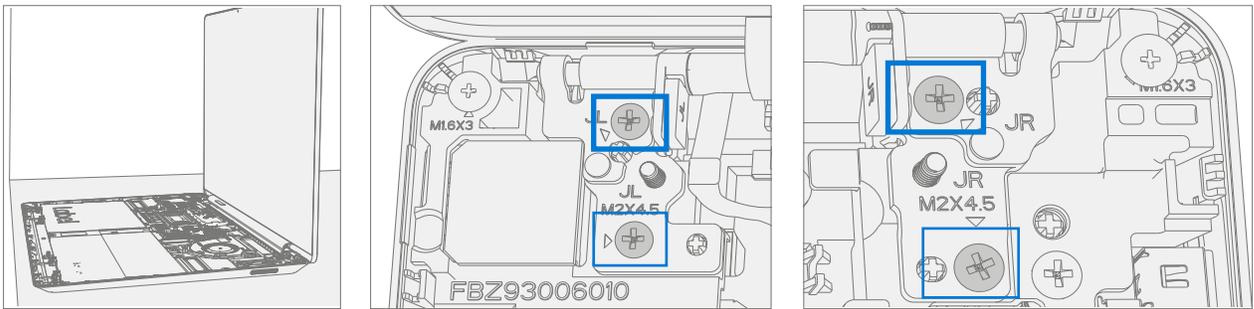
3. **Disconnect Display connector** – Lift up on the metal buckle. Then slide out the Display connector from the Mainboard connector.



4. **Remove Two Inner Hinge Screws** – Use a PH0 screwdriver to remove the 2 inner screws on the left and right hinges.



5. **Set AB-Cover Display Angle to 90 deg for Safe Removal** – Place the display module at an angle of about 90 degrees. Use a PH0 screwdriver to remove the 2 outer screws at the left and right hinges while holding the display with your free hand.

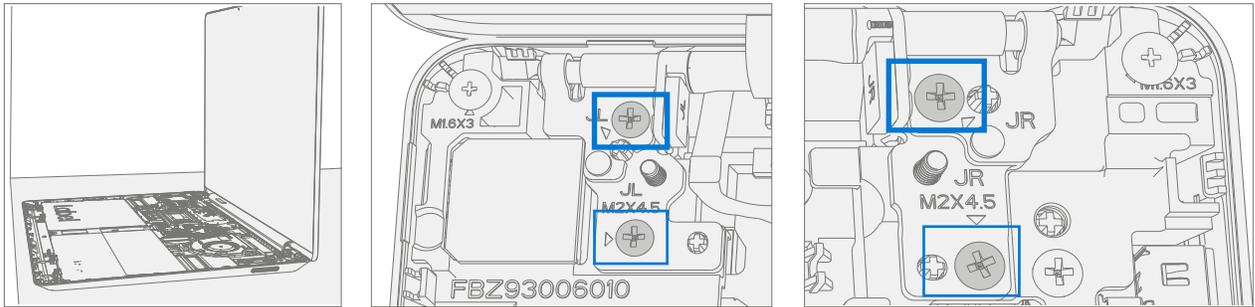


6. **Remove AB-Cover from Device** – Lift the display module straight up vertically until detached from the D-Bucket.

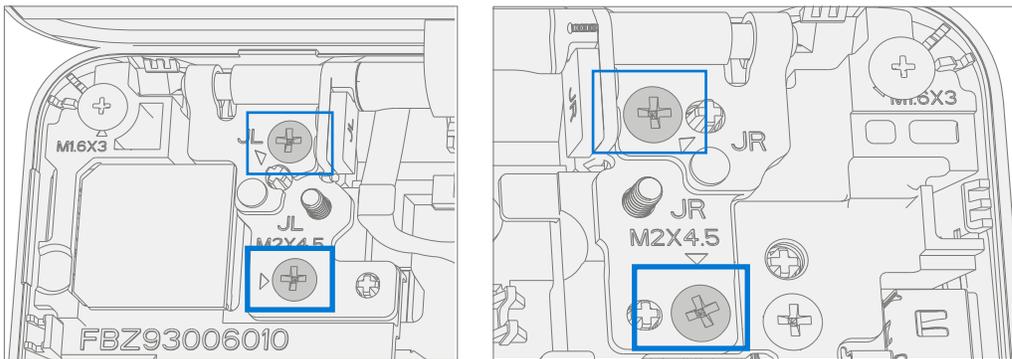


## Procedure - Installation (AB-Cover Display Assembly)

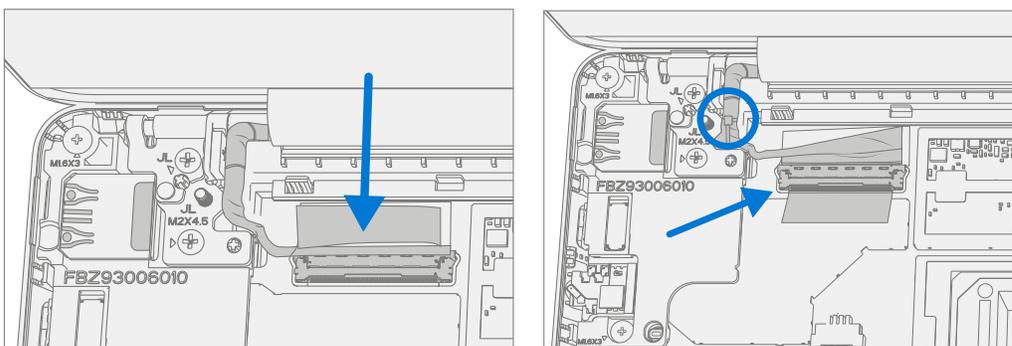
1. **Install AB-Cover** – Set the new AB-Cover in place in the device chassis hinge wells and hold in place. Use a PH0 screwdriver to install 2 new MS20051430 outer screws on each hinge. Screws should be installed until just snug and seated, and then turned another 90 degrees (1/4 turn).



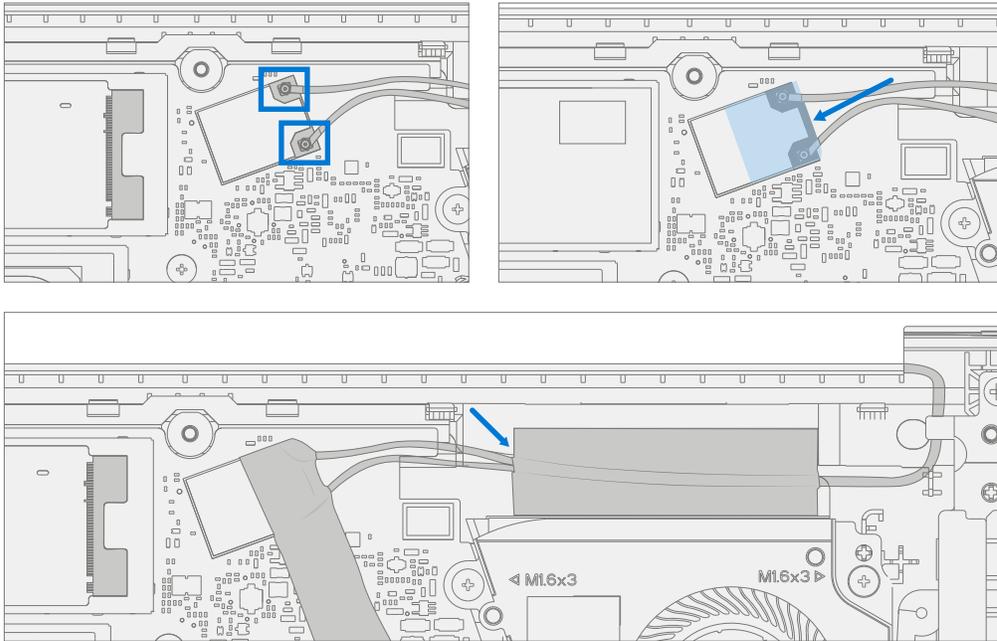
2. **Install Two Inner Hinge Screws** – Using a PH0 screwdriver, install 2 new inner MM200481000 screws on the left and right hinges. Screws should be installed until just snug and seated, and then turned another 90 degrees (1/4 turn).



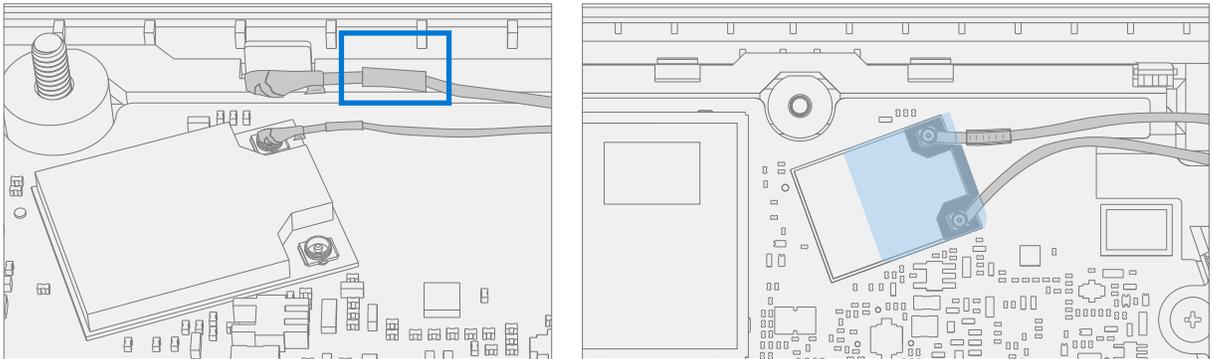
3. **Install LCD cable** – Slide LCD cable into the Mainboard connector. Secure the cable with the metal buckle. Ensure the cable is routed below the metal tab near the hinge.



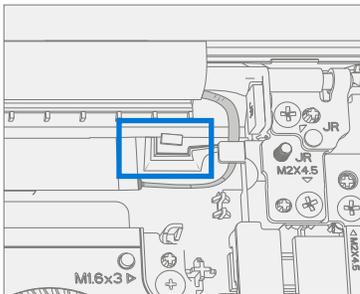
4. **Connect Antenna cable** – Carefully install two antenna connectors on the mainboard. Install a new clear Mylar shield over the antenna connectors. Secure the antenna cables to the D-Bucket with the supplied black tape.



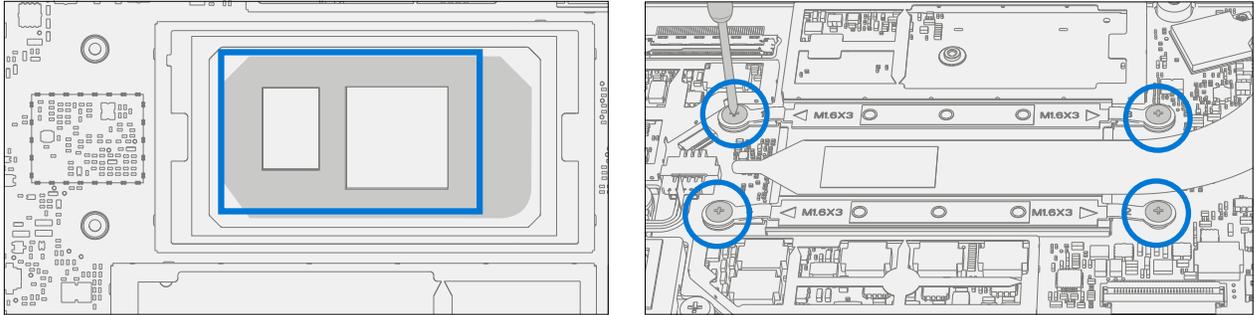
! **CAUTION:** Ensure the antenna with the shrink wrap ring is connected to the top interface.



! **CAUTION:** Ensure the antenna cables are routed under the tab on the bracket near the hinge.



5. **Install Thermal Module (Heatsink)** – Gently clean off the residual thermal grease from the two IC chips with a lint free cloth. Make sure there are no contaminants or residual grease. Check that the thermal grease on the underside of the new thermal module is intact and not smeared. Place the thermal module over the two IC chips. Using a PH00 screwdriver Install 4 new MM16030I130 screws until just snug and seated, and then turn another 45 degrees (1/8 turn).



6. **Install C-Cover** – Follow steps for Procedure – Installation (C-Cover Keyboard) on (page 26).

---

 **IMPORTANT:** Only snap the C-Cover in place. Do not secure C-Cover with screws.

---

7. **Power On Device** – Carefully place device top side up. Connect device to power supply, open display, and power on.
8. **New AB-Cover TDM Calibration** – On installation of a **new AB-Cover TDM** device final calibration relies on the successful completion of the TDM Replacement Mode. TDM calibration is not required when installing the originally removed AB-Cover.
- Connect software tools USB drive** with SDT to USB connector on device under repair.
  - Run software tool** – At the device OS, use Windows Explorer, navigate to USB drive, and run: **SDT** – Select Repair setup and validation. Run the Touch Display Calibration. Accept the restart prompt at the end of the tool process.

---

 **IMPORTANT:** This step must be carried out on the device successfully with installation of a **new AB-Cover**.

---

9. **Install C-Cover Screws** – Power off device. Close the AB-Cover and turn the unit over. Use a PH0 screwdriver to install 7 new screws to secure the C-Cover as detailed on (page 29).

---

 **CAUTION:** Ensure the longer MS20055I430 screws are installed in the two corner locations under the rear foot pad as detailed in the Installation (C-Cover Keyboard).

---

10. **Install Feet** – Follow steps for Procedure – Installation (Non-Skid Feet) on (page 20).



# Surflink Replacement Process

## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

---

## Required Tools and Components

- **Tools:**
  - USB Thumb drive with SDT
  - Plastic tweezers
  - Spudger
  - Plastic Opening Pick [iFixit Opening Picks](#)
  - Plastic Opening tool [iFixit Plastic Opening Tool](#)
  - Isopropyl Alcohol Dispenser (use only 70% IPA)
  - PH0 Screwdriver
  - PH00 Screwdriver
  - Anti-static wrist strap (1M Ohm resistance)
  - ESD-safe Surface Battery Cover (M1214771-001)
- **Components:**
  - Surflink (Refer to [Illustrated Service Parts List](#))
    - MM20048I000 M2x4.8 Screws qty=6 (Supplied with Surflink)
    - MS20055I430 M2x5.5 Screws qty=3 (Supplied with Surflink)
    - MM20045I080 M2x4.5 Screws qty=2 (Supplied with Surflink)
    - MM16030I130 M1.6x3 Screws qty=1 (Supplied with Surflink)
    - Foil tape (Supplied with Surflink)
  - Feet (Refer to [Illustrated Service Parts List](#))

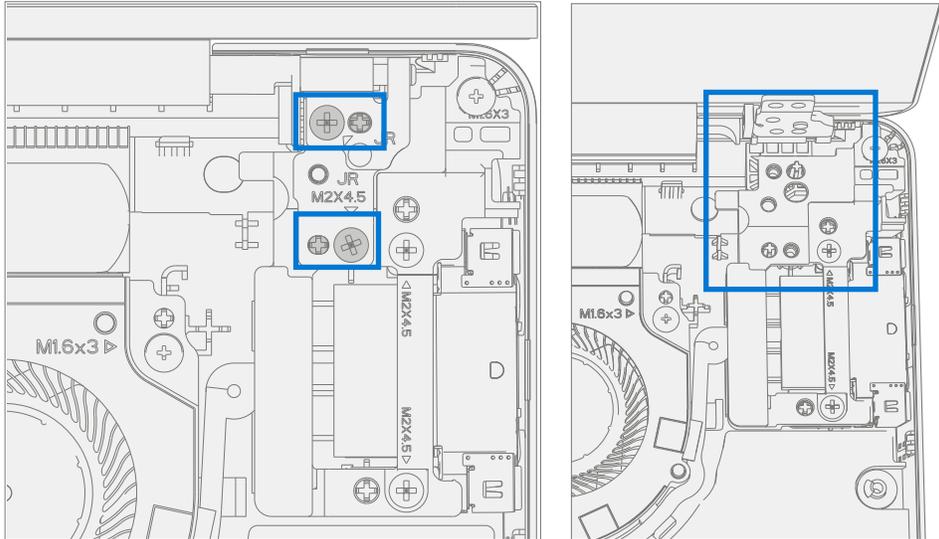
## Prerequisite Steps:

- **Power off device** – Ensure device is powered off and disconnected from a power supply.
- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Remove feet** – Follow steps for Procedure-Removal (Non-Skid Foot Pad) on ([page 19](#)).
- **Remove C-Cover** – Follow steps for Procedure – Removal (C-Cover Keyboard) on ([page 20](#)).

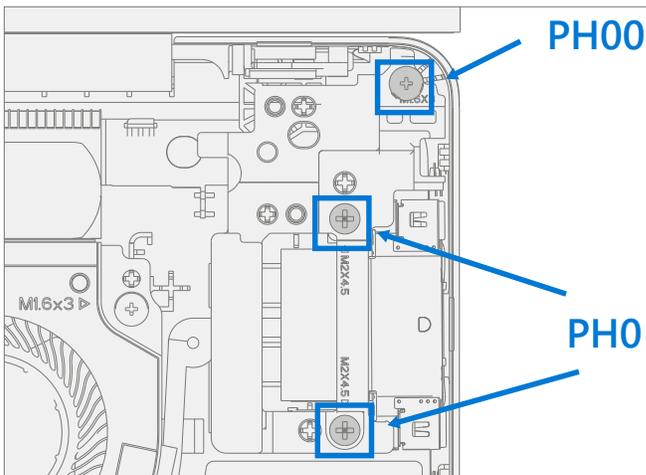


## Procedure – Removal (Surflink)

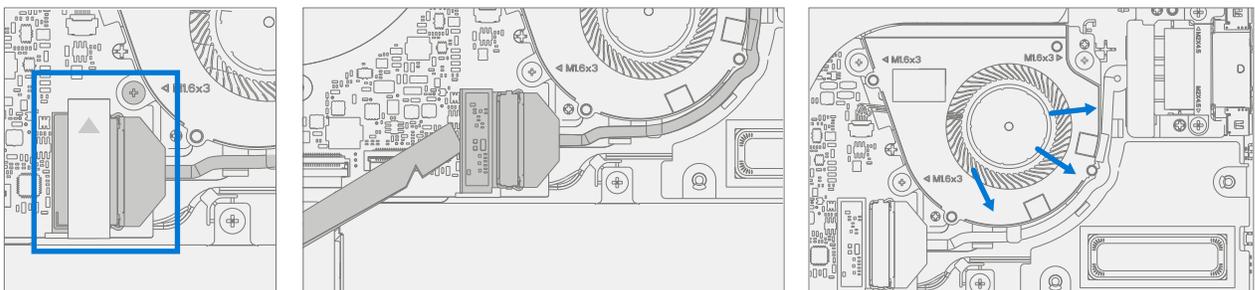
1. **Remove Right AB-Cover hinge Screws** – Use a PH0 screwdriver to remove 2 screws securing the right AB-Cover hinge. Move the hinge up to make space for removal of the right bracket.



2. **Remove Bracket** – Use a PH0 screwdriver to remove 2 screws and a PH00 screwdriver to remove a 3rd screw securing the right bracket. Remove the bracket from the D-Bucket.



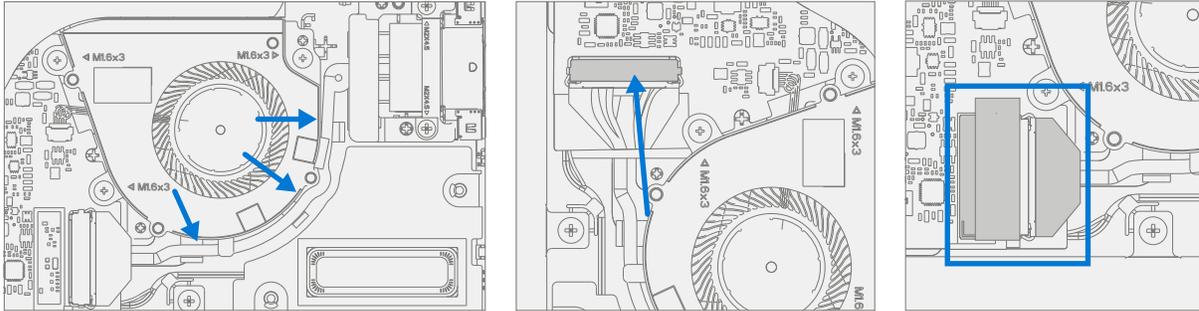
3. **Remove Surflink** – Remove foil tape. Use a spudger to unlock the Surflink cable connector and remove it from the mainboard. Remove the Surflink cable from the cooling fan shroud and then the Surflink assembly from the D-Bucket.



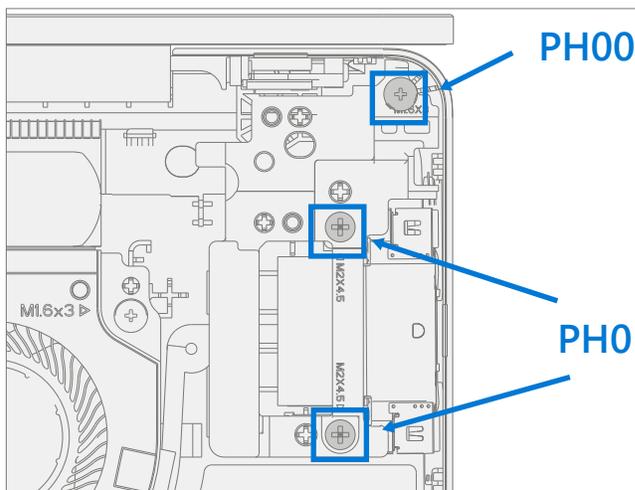
## Procedure – Installation (Surflink)

 **IMPORTANT:** The AB-Cover hinge screws are of two lengths. Ensure the correct length screw is installed. Refer to the hinge screw installation step for further details.

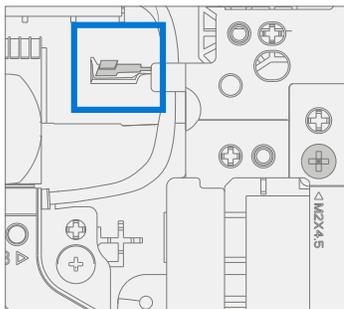
1. **Install Surflink** – Place the Surflink into the D-Bucket. Route the Surflink cable around the cooling fan shroud. Slide Surflink connector into the mainboard and press down on the locking tab. Apply new foil tape as pictured below.



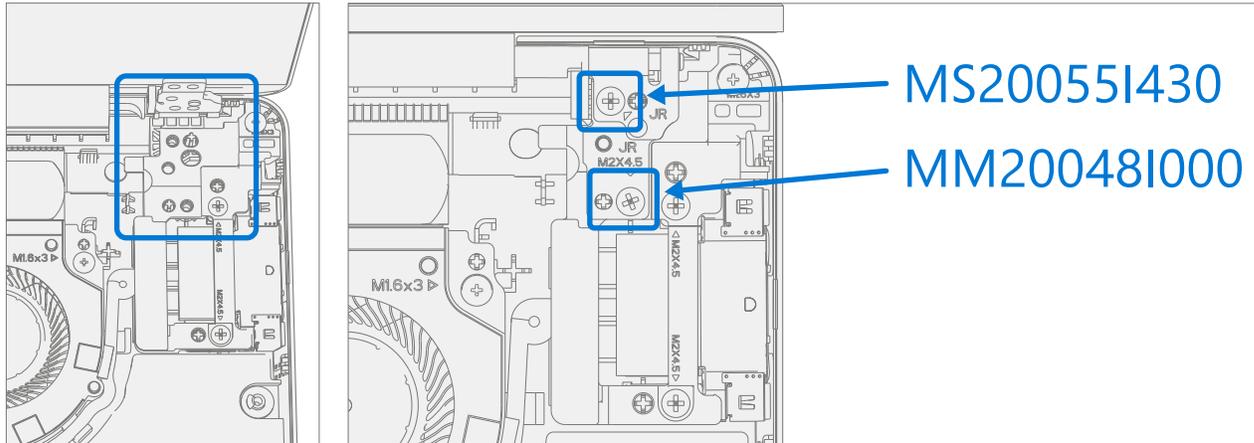
2. **Install Bracket** – Place right bracket in the D-Bucket over the Surflink. Use a PH0 screwdriver to install 2 new MM20045I080 screws and a PH00 screwdriver to a new MM16030I130 screw into the right bracket. Screws should be installed until just snug and seated, and then turned another 45 degrees (1/8 turn).



 **CAUTION:** Ensure the antenna cables are routed under the tab on the bracket.



3. **Install Right AB-Cover hinge Screws** – Tilt the hinge down over the right bracket. Use a PH0 screwdriver to install one MS20055I430 screw, and one MM20048I000 screw into the AB-Cover hinge. Screws should be installed until just snug and seated, and then turned another 45 degrees (1/8 turn).



4. **Install C-Cover** – Follow steps for Procedure – Installation (C-Cover Keyboard) on (page 26).  
**NOTE:** Only snap the C-Cover in place.
5. **Power On Device** – Carefully place device top side up. Connect device to power supply, open display, and power on.
6. **Run SDT** – Run SDT to ensure all device features and functions operate as expected. Refer to (page 17) for details on SDT. If SDT tests pass and no further repairs are to be performed on the device continue with the final assembly steps.
7. **Install C-Cover Screws** – Power off device. Close the AB-Cover and turn the unit over. Use a PH0 screwdriver to install 7 new screws to secure the C-Cover as detailed on (page 29).

---

! **CAUTION:** Ensure the longer MS20055I430 screws are installed in the two corner locations under the rear foot pad as detailed in the Installation (C-Cover Keyboard).

---

8. **Install Feet** – Follow steps for Procedure – Installation (Non-Skid Feet) on (page 20).



# Battery Replacement Process

## Preliminary Requirements

 **IMPORTANT:** Be sure to follow all special (bolded) notes of caution within each process section.

---

## Required Tools and Components

- **Tools:**
  - USB Thumb drive with SDT
  - Plastic tweezers
  - Plastic Opening Pick [iFixit Opening Picks](#)
  - Plastic Opening tool [iFixit Plastic Opening Tool](#)
  - Isopropyl Alcohol Dispenser (use only 70% IPA)
  - PH0 Screwdriver
  - PH00 Screwdriver
  - Anti-static wrist strap (1 MOhm resistance)
- **Components:**
  - Battery (Refer to [Illustrated Service Parts List](#))  
MM16035I040 M1.6x3.5 Screws qty=4 (Supplied with Battery)  
MS20055I430 M2x5.5 Screws qty=2 (Supplied with Battery)  
MM20048I000 M2x4.8 Screws qty=5 (Supplied with Battery)
  - Feet (Refer to [Illustrated Service Parts List](#))

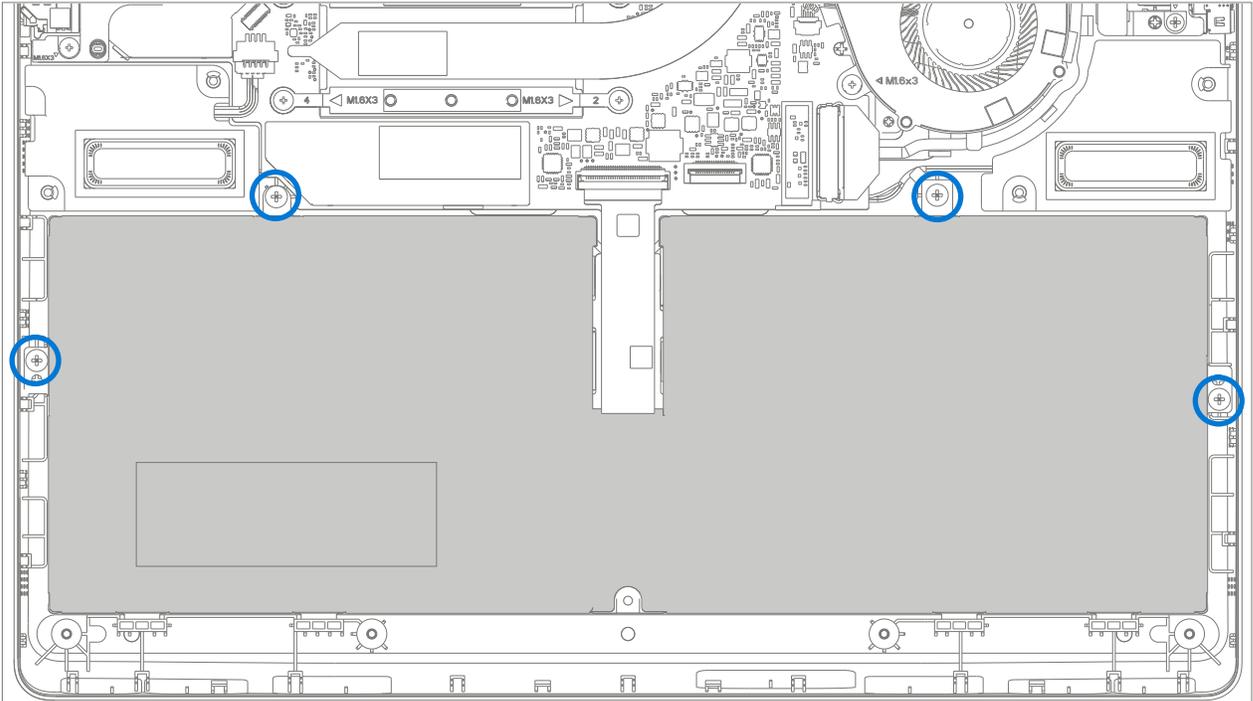
## Prerequisite Steps:

- **Battery Status Check** – Connect power supply, boot device, connect the USB Thumb drive with SDT, and run SDT Battery tests. It is recommended batteries showing any of the following should be replaced:
  - PF Status of Non-Functional
  - Wear value of 70% or less
  - Cycle Count equal to or greater than a 1000
  - Delta Voltage at or above 100 mV with state of charge 50% or greater
- **Power off device** – Ensure device is powered off and disconnected from a power supply.
- **General Safety** – Check to make sure that general guidelines and ESD compliance steps are followed prior to opening device. Refer to Prior to Device Disassembly section ([page 18](#)) for details.
- **Remove feet** – Follow steps for Procedure-Removal (Non-Skid Feet) on ([page 19](#)).
- **Remove C-Cover** – Follow steps for Procedure – Removal (C-Cover Keyboard) on ([page 23](#)).

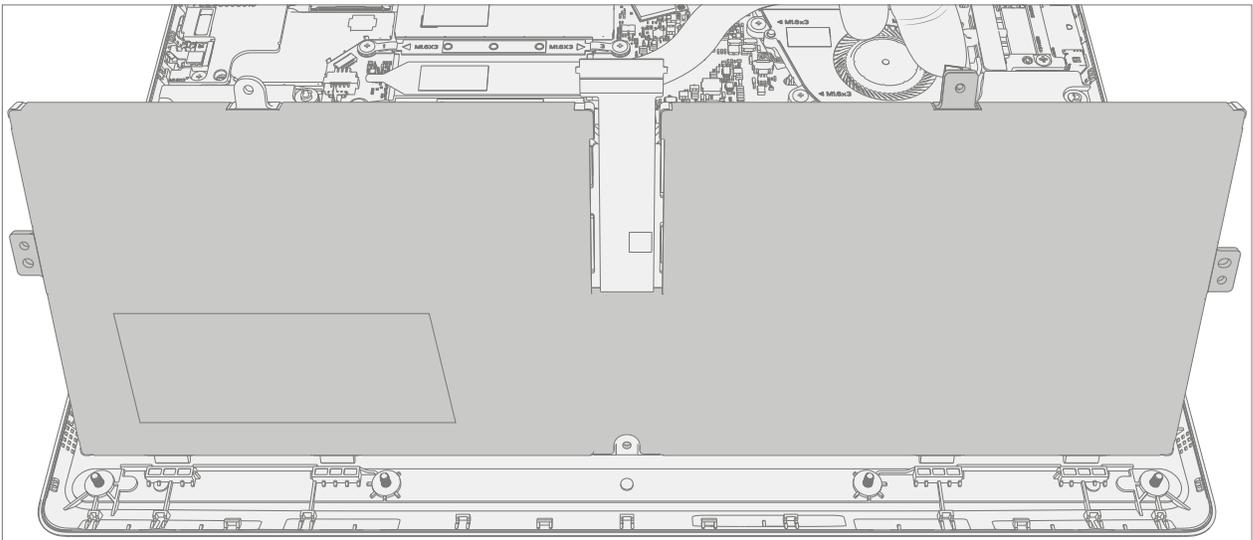


## Procedure – Removal (Battery)

1. **Remove Battery Screws** – Use a PH00 screwdriver to remove the 4 screws securing the battery.

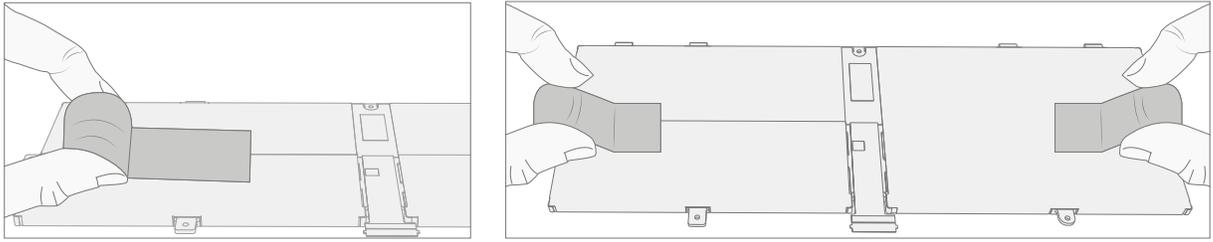


2. **Remove Battery** – Carefully lift battery up and out of the D-Bucket.

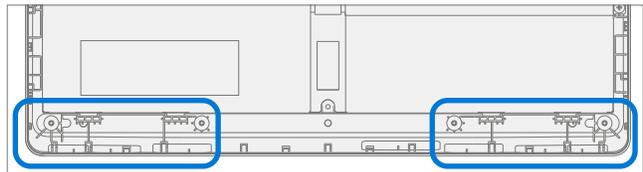
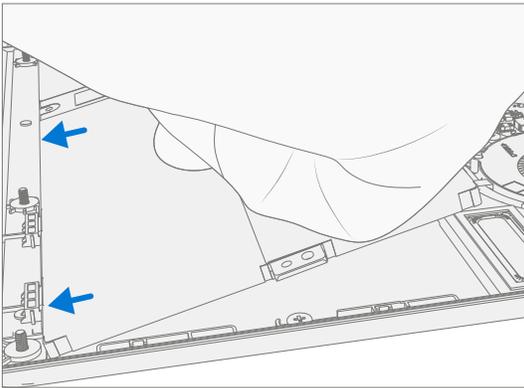


## Procedure – Installation (New Battery)

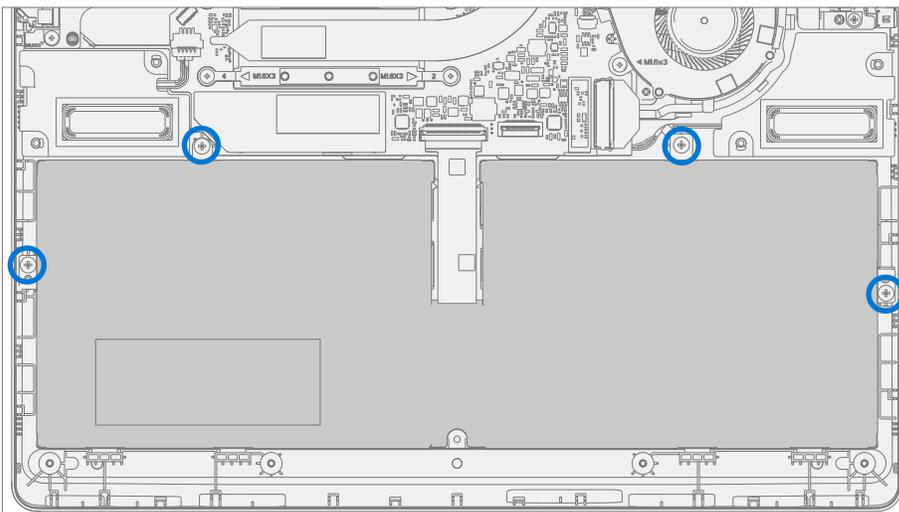
 **WARNING:** Only handle new battery using the finger loops.



1. **Pre-Installation Device Inspection** – Check D-bucket on both sides as well as device enclosure for any loose articles for foreign debris that may be present. Verify all removed screws are accounted for and have not been misplaced in the device.
2. **Insert New Battery** – Using the finger loops carefully place the new battery into the D-Bucket. Ensure the tabs along the front edge are fully seated into the D-Bucket.



3. **Install New Battery Screws** – Using a PH00 screwdriver install 4 new MM160351040 screws. Screws should be installed until just snug and seated, and then turned another 45 degrees (1/8 turn). Carefully remove the liner.



4. **Install C-Cover** – Follow steps for Procedure – Installation (C-Cover Keyboard) on [\(page 26\)](#).  
**NOTE:** Only snap the C-Cover in place.
5. **New Battery Charging** – New batteries are shipped and stored at low states of charge in compliance with shipping regulations. They should be charged to at least 50%. This step will take between 20 minutes and 1 hour and is needed to validate full functionality of the new battery. Carefully place device right-side up. Open device, connect the power supply, and power it on.
6. **New Battery Authentication** – New batteries require authentication. After charging the new battery to at least 50%. Connect the SDT USB drive. Run the SDT battery repair validation to ensure all features and functions operate as expected. Power off at completion of tests. Remove SDT USB drive and power supply. If no further repairs are required proceed to final steps.
7. **Install New C-Cover Screws** – Power off device. Close the AB-Cover and turn the unit over. Use a PH0 screwdriver to install 7 new screws to secure the C-Cover as detailed on [\(page 29\)](#).

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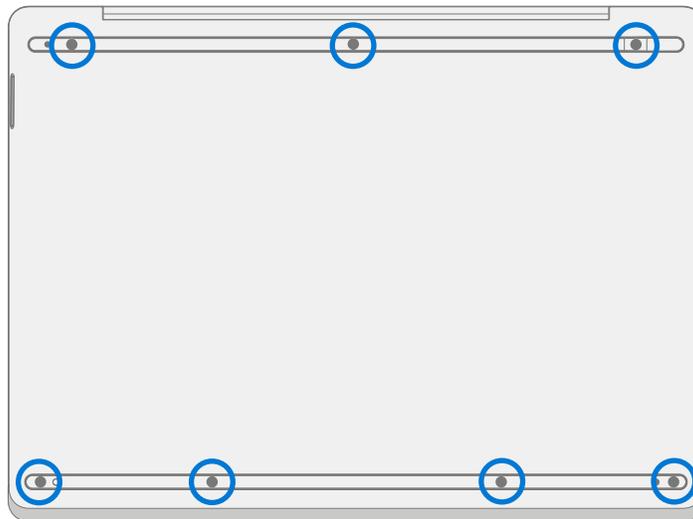
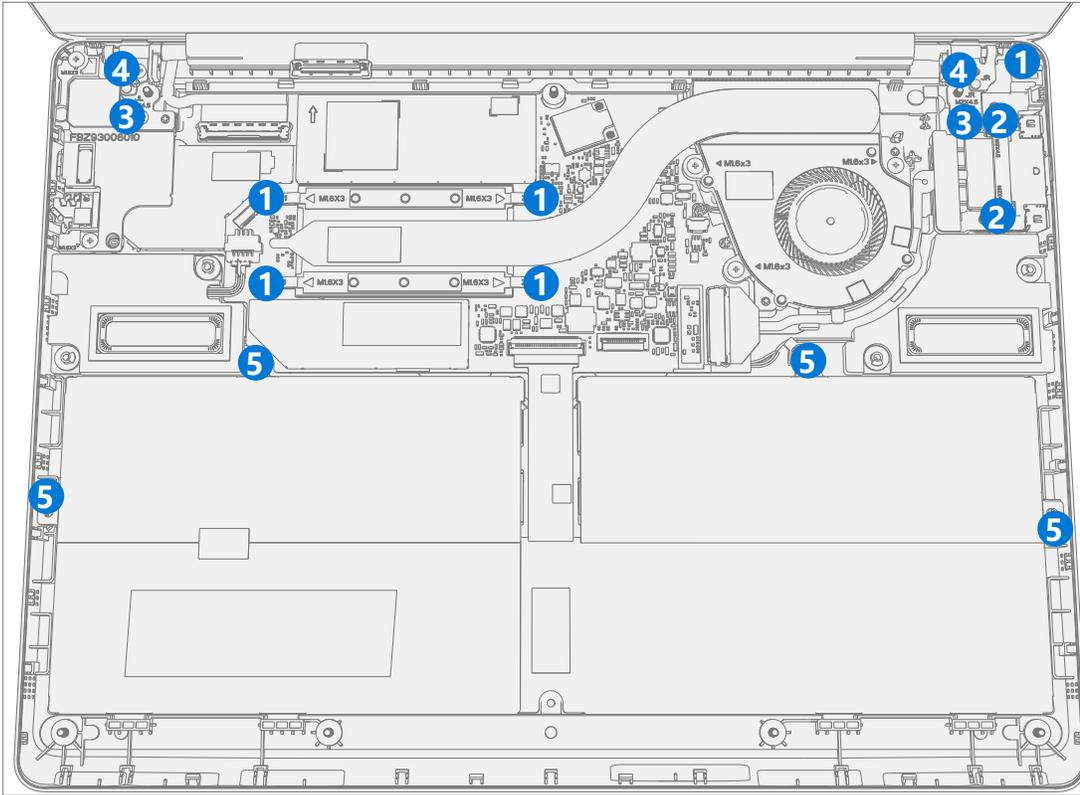
! **CAUTION:** Ensure the longer MS20055I430 screws are installed in the two corner locations under the rear foot pad as detailed in the Installation (C-Cover Keyboard).

---

8. **Install Feet** – Follow steps for Procedure – Installation (Non-Skid Feet) on [\(page 20\)](#).



## Illustrated Fastener List



Item	Component	Part No.
(1)	SCREW M1.6x3.0	MM160301130
(2)	SCREW M2.0x4.5	MM200451080
(3)	SCREW M2.0x4.8	MM200481000
(4)	SCREW M2.0x5.5	MS200551430
(5)	SCREW M1.6x3.5	MM160351040



## Environmental Compliance Requirements

All waste electrical and electronic equipment (WEEE), waste electronic components, waste batteries, and electronic waste residuals must be managed according to applicable laws and regulations. and H09117, "Conformance Standards for Environmentally Sound Management of Waste Electrical and Electronic Equipment (WEEE)" which is available at this link: <https://www.microsoft.com/en-pk/download/details.aspx?id=11691> In case of questions, please contact AskECT@microsoft.com

