



Surface Go 4 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 service 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.

 **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.

 **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.

Device Identity Information

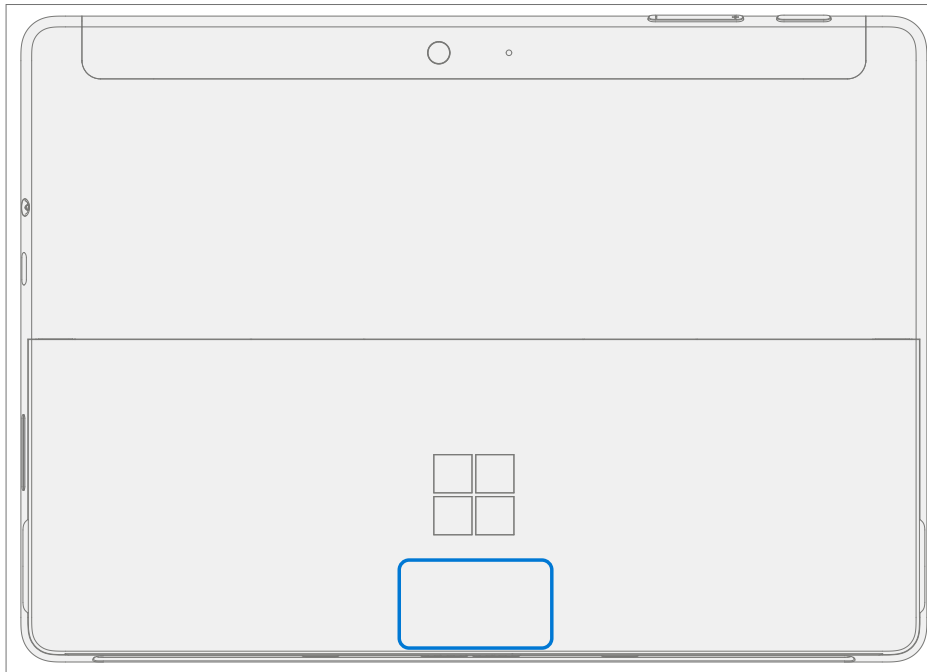
Surface Laptop Models

2067 – Surface Go 4

Surface Support – Pro: [Link](#)

Surface Technical Specifications:

The model and serial number for Surface Laptops are on the bottom center of the kickstand.



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** – Device bottom case
- **BMR** – Bare Metal Recovery, refers to the process of installing a clean image.
- **Class B Fire Extinguisher** – A extinguisher designed to extinguish fires involving flammable liquids (Class B Fires.)
- **Keyboard** – Keyboard Trackpad Assembly.
- **ESD** – Electro-Static Discharge
- **Feet** or **foot** – Non-Skid Foot Pads
- **FPC** – Flexible Printed Circuit Connections
- **CRU** – Customer Replaceable Units are sub-system components such as the PCBA, rSSD, and TDM.
- **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.
- **LDI** – Liquid Damage Indicators, indicates if moisture has made its way into the device.
- **OS** – Operating System
- **PCBA** – Printed Circuit Board Assembly, usually refers to the motherboard.
- **PSA** – Pressure Sensitive Adhesive
- **PSU** – Power Supply Unit
- **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.

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 Precautions

⚠ 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.
- Clean your work surface regularly to remove debris and abrasive particles.
- While working on devices, avoid the use of clothing accessories such as bracelets or watches that can cause electrical shorts and/or damage the battery.
- 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.
- 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 [Actions To Take](#) under Handling Used, Damaged or Defective Lithium-Ion Batteries in this Guidebook or contact Microsoft directly for proper device disposition.

For additional product safety information relevant to Microsoft Surface devices, see 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](#).

⚠ 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.

- 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.

⚠ 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.

- 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.
- Review the ESD Prevention Precautions and Battery Safety Sections of this Guide before beginning work.

📝 IMPORTANT: The serial number for this device model is located on its original cover. To keep track of the device's serial number, please record it using waterproof ink ([page 5](#)) on a sticker or label and apply the sticker or label to an easily accessible area on the device exterior. The serial number cannot be added permanently to a replacement part. Microsoft may have provided a label for this use in the replacement part's packaging.



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.

⚠ 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 display is removed for internal repairs. 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 work.

- 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.



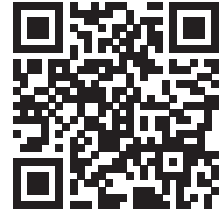
Battery Warning Label

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



Battery is replaceable by trained personnel; replacement must follow Microsoft procedure
See <http://aka.ms/surface-safety> for important information.

- Risk of fire or burning – contact Microsoft for assistance
- Do not modify battery, its wiring, or connectors
- Do not short circuit, bend, dent, crush, or puncture battery
- Do not dispose of battery in fire or expose to high temperatures (+140°F/60°C)



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 [Chassis + Battery Replacement Process](#) 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.

⚠ 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 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.

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.

⚠ 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 \(page 12\)](#) for additional 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.

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:

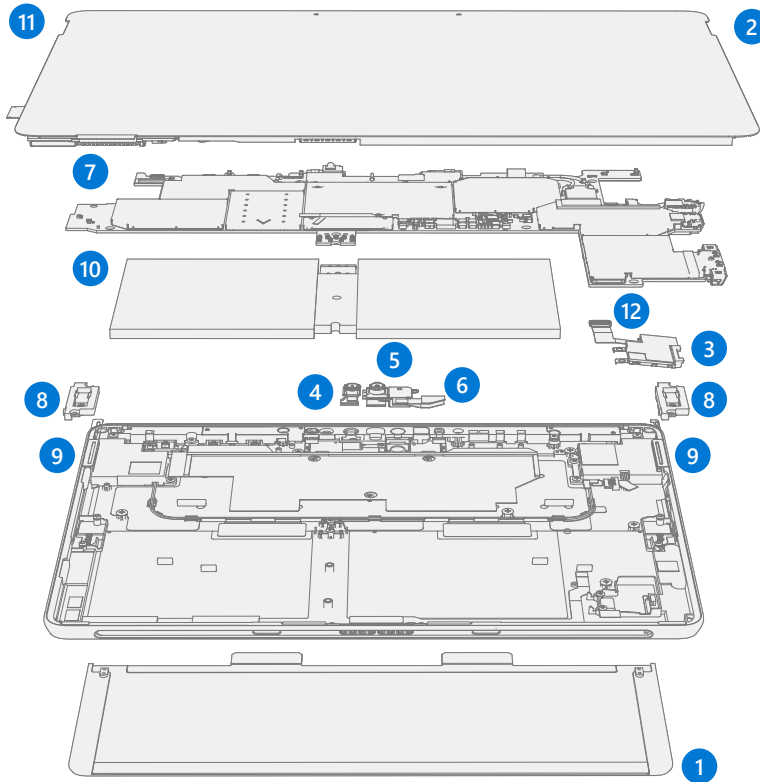
- Any burned or melted components, traces, or plastic parts on the outside of the device, or which otherwise exhibits heat damage, including charring seen in charging and other ports.
- Any burned or melted components, traces, or plastic parts on the inside of the device, or which otherwise exhibits 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.

Electro Static Discharge (ESD) Prevention

- Review and follow the general guidelines and ESD Prevention steps in this Guide prior to beginning work.
- Ensure your work surface is level/flat and covered with ESD-safe, soft, non-marring material.
- 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.



Illustrated Service Parts List



Item	Component	SKU Part No.
1	Kickstand	
	Platinum	XSK-00001
2	Display	
	Platinum	XS6-00001
3	SD Slot	
	Platinum	XSC-00001
4	Rear Camera	
	Platinum	XSG-00001
5	Front Camera	
	Platinum	XSF-00001
6	IR Camera	
	Platinum	XSH-00001
7	Motherboard	
	N200 / 8GB / 64GB	XS7-00001
	N200 / 8GB / 128GB	XS8-00001
	N200 / 8GB / 256GB	XS9-00001
8	Hinges	
	Platinum	XSJ-00001
9	Speakers	
	Platinum	XSI-00001
10	Battery	
	Battery	XS5-00001
11	TDM	
	Platinum	XS6-00001
12	Blade Connector	
	Platinum	XSD-00001




Service Diagnostics/Troubleshooting Overview

- For general Surface support, visit www.support.microsoft.com
- To troubleshoot device feature/function problems or learn more about Surface Laptops visit aka.ms/SurfaceLaptopHelp
- If you'd like to learn more about Windows, visit 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

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

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

The following approach should be taken when troubleshooting Surface devices:

1. Update device to the latest OS/FW versions using Windows Update.

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

2. Verify any suspected hardware failures by setting the device in a known OS/FW version state and running SDT to verify fault.
3. SDT must be run following all hardware repairs, excluding kickstand replacement, where a CRU was replaced to further verify that problem was resolved by the repair action taken.



Component Removal and Replacement Procedures

Kickstand Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

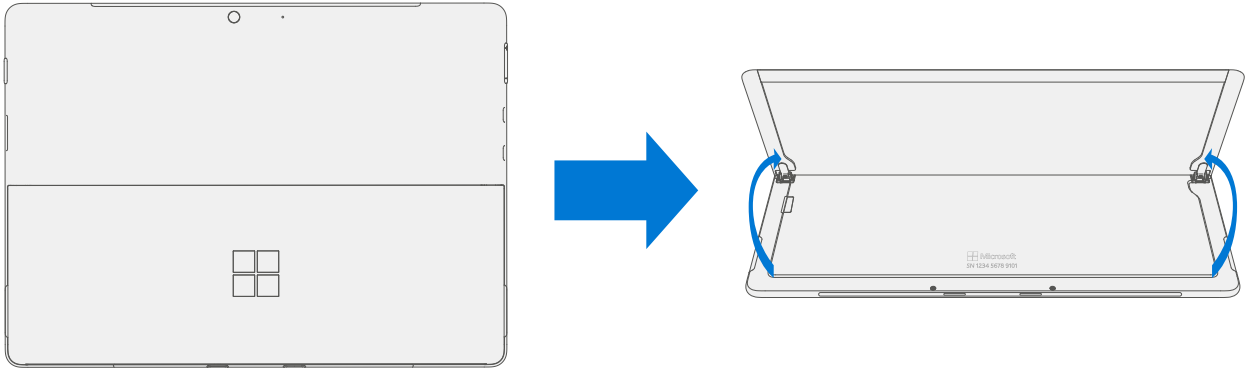
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.

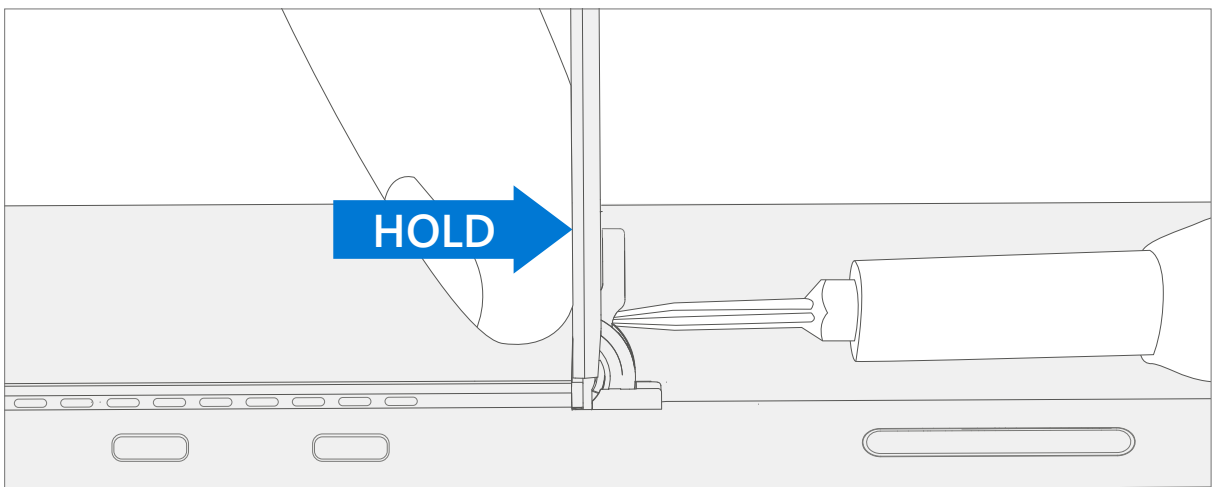


Procedure – Removal (Kickstand)

1. **Place device screen-down on soft ESD-safe mat** – Ensure mat is clear of any abrasive material that may scratch the Touch Display Module (display) glass.
2. **Extend the kickstand to approximately 90-degrees.**



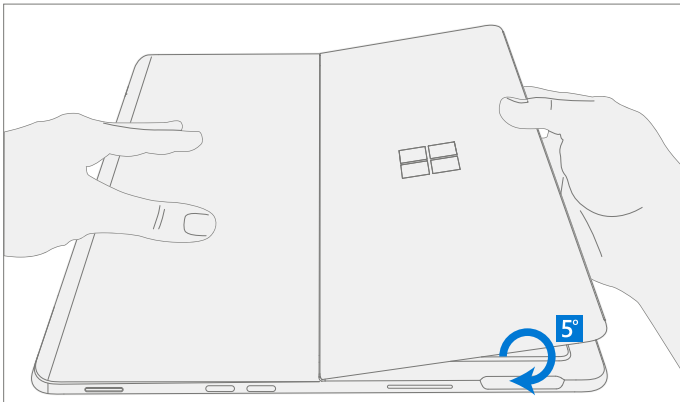
3. **Remove Hinge Screws** – Use your finger to hold the back of the kickstand behind the hinge while removing the Kickstand Screws using a T4 (Torx) driver. One screw for each hinge. Ensure screws do not fall into the hinge opening.



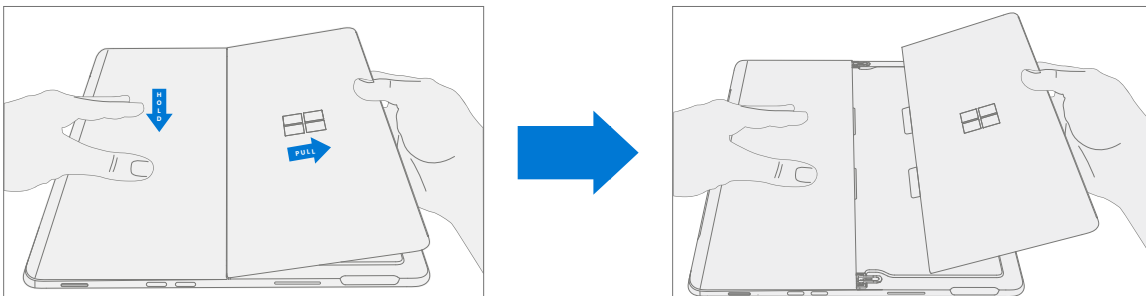
4. **Angle Kickstand Down** – Firmly grip the hinges and the kickstand between thumb and index fingers. Rotate the kickstand from 90 degrees to approximately 45 degrees.



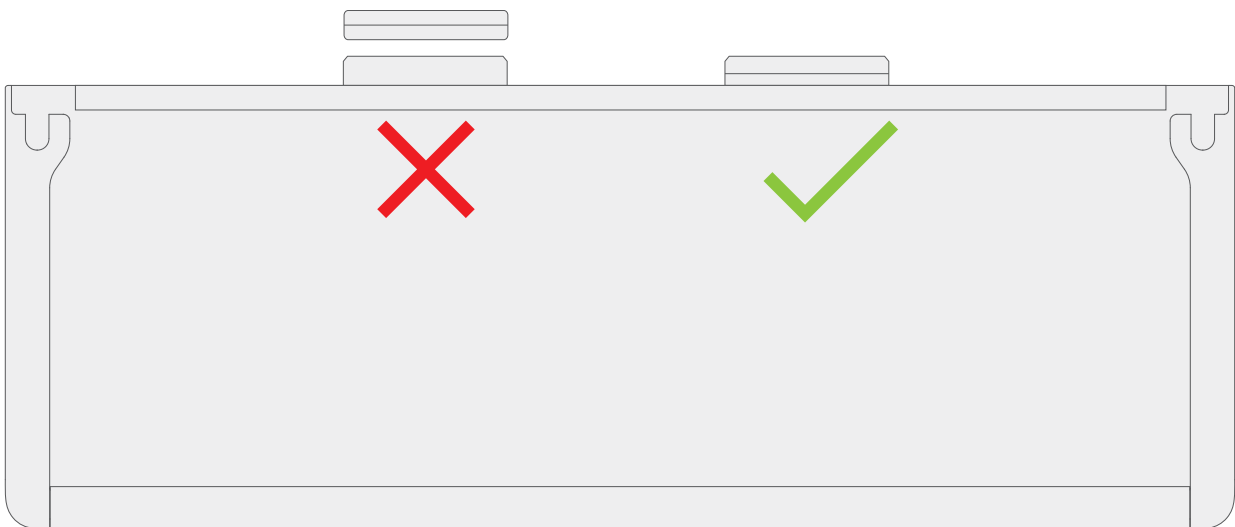
5. **Release Kickstand Threaded Bosses** – Using fingers on the underside of the kickstand and thumb on the topside, slightly rotate the kickstand about the axis as shown below. The kickstand should rotate ~5 degrees to free the two threaded bosses of the kickstand from the recesses of the hinges.



6. **Remove Kickstand** – Using the palm of your hand, firmly hold the device down from the center of the chassis. Simultaneously, grip the kickstand off-center between your thumb and index finger and firmly pull. Pull with a moderate amount of force until the foam inserts slide out of the device. If the kickstand is stuck, ensure the threaded bosses has not slipped back into the recess on the hinges.




⚠ WARNING: Inspect Removed Kickstand Foam Tabs – Damaged foam or tabs cannot be safely removed. Attempts to do so can damage internal components. Do not insert anything other than the tabs into the slots. Ensure both tabs are complete and show no signs of tearing. Do not attempt to remove it from the interior of the device, instead proceed to Procedure – Removal (Chassis) to replace the old chassis.

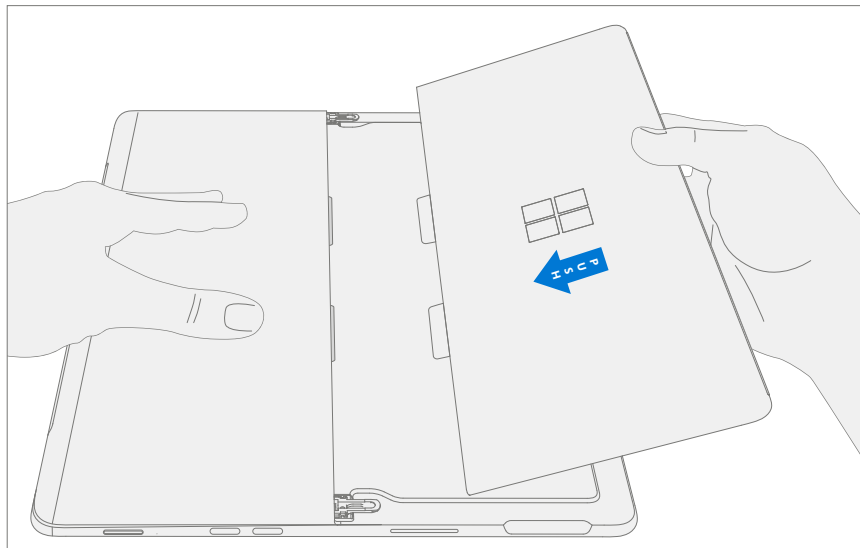


Procedure – Installation (Kickstand)

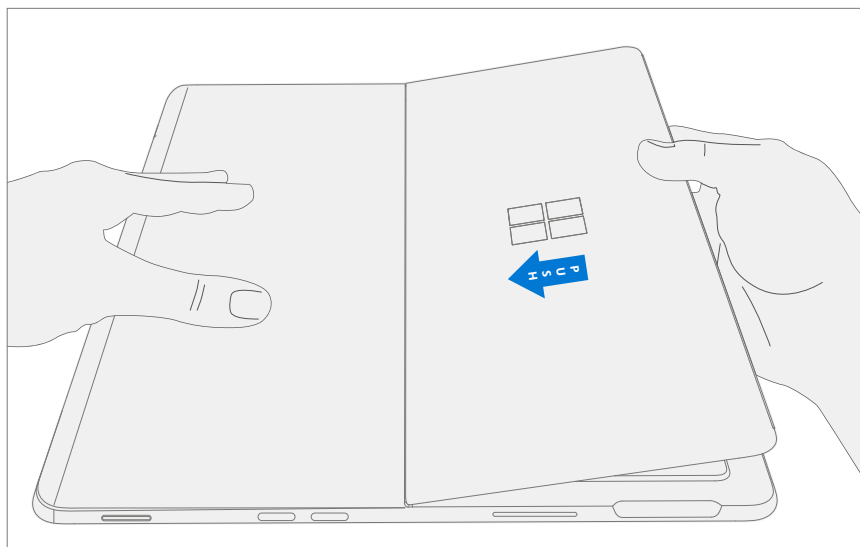
 **IMPORTANT:** Use caution when handling new kickstand assembly to avoid cosmetic damage of the kickstand and the device.

1. **Insert Foam Tabs** – With the hinges still at ~ 45-degrees start to slide the new kickstand's foam tabs into the slots on the back of the chassis. Foam should slide in with minimal force – do not crumple the foam by using excess force. Do not slide the foam completely into the device – insert the foam tabs until ~3/4 of the foam tabs are inside the device.

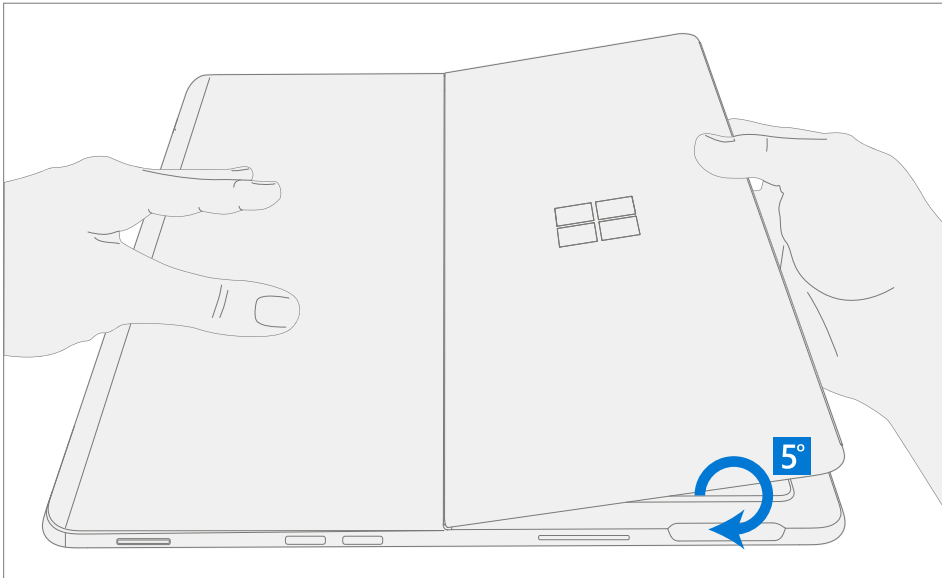
 **IMPORTANT:** Do not use any tool or sharp object to assist inserting the tabs into the slots. Only the tabs should be inserted. Doing so could damage internal components.



2. **Slot Outer Lip of Hinge Into Kickstand** – Using fingers on the underside of the kickstand and thumb on the topside, slightly rotate the kickstand about the axis as shown below. The kickstand should rotate ~5-degrees to catch the outer lip of the hinge. Push the kickstand toward the device.



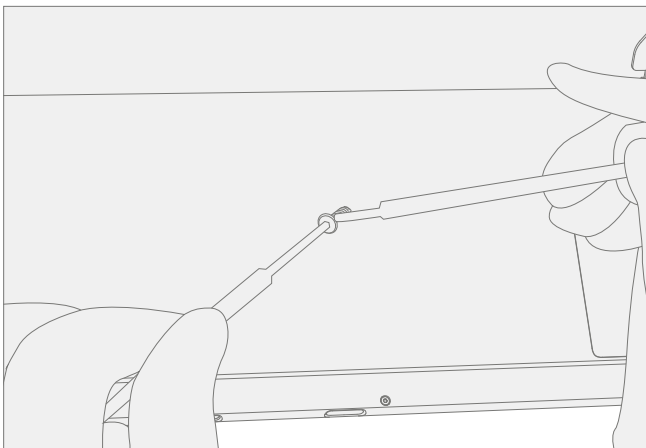
3. **Slip Kickstand Threaded Bosses Into Hinge Recesses** – Maintaining pressure on the kickstand to prevent it from backing out, rotate the kickstand down into place (Figure 7-9). The threaded bosses of the kickstand should slip into the recesses of the hinges.



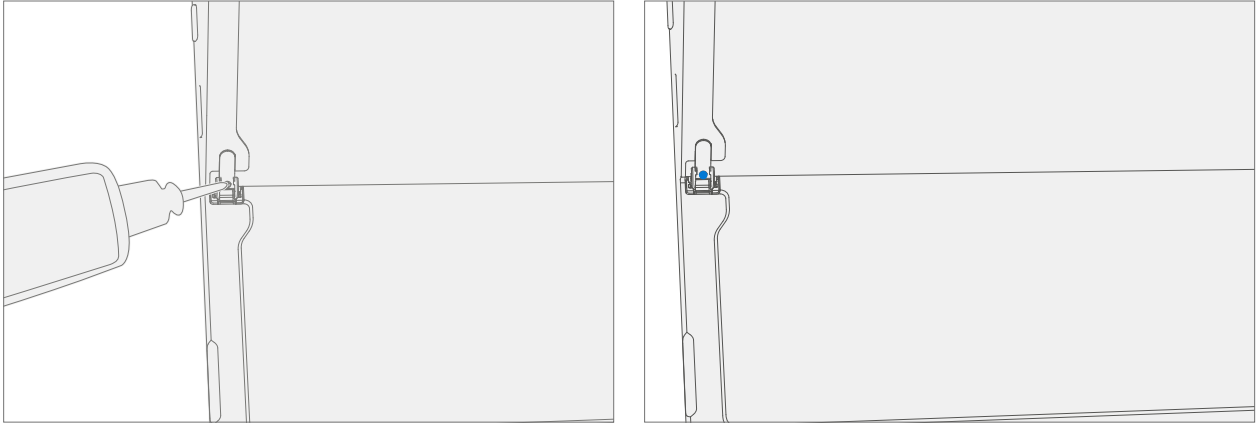
4. **Rotate the Kickstand Up** – Firmly grip the hinges and the kickstand between thumb and index fingers as shown below. Rotate the kickstand from 45-degrees to approximately 90-degrees.



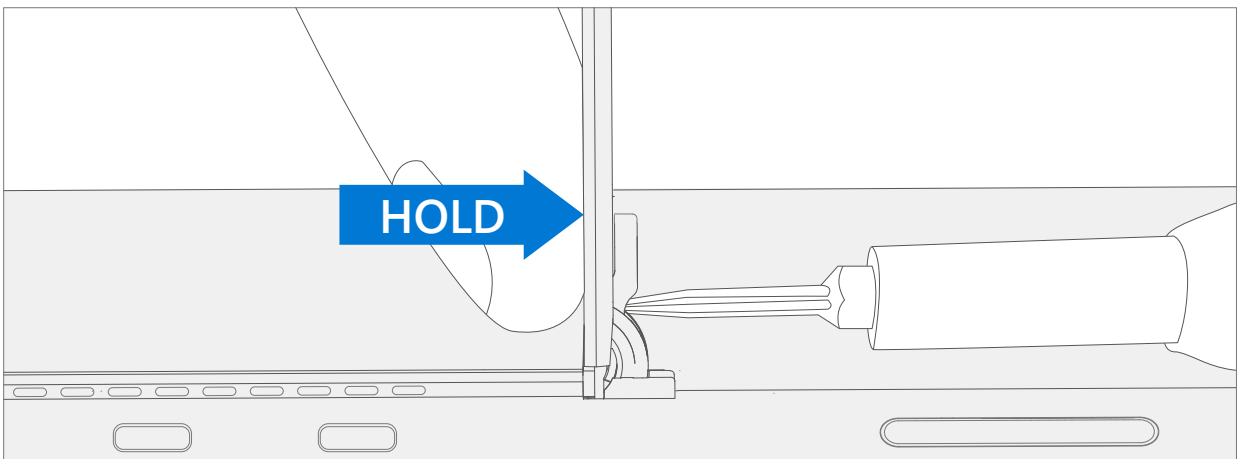
5. **Apply Thread Locker to Screws** – Brush new MM16022I000 screws with Loctite 649 Activator. Let screws sit for 2 minutes after activator is applied before assembling to device.



6. **Apply Thread Locker to Screw Bosses** – Apply one drop of Loctite 243 thread locker to each screw boss.



7. **Install Hinge Screws** – Use your finger to hold the back of the kickstand behind the hinge while installing 4 MM160221000 screws using a T4 Torx driver until they are fully seated. Ensure the kickstand is properly aligned and seated in the hinges, then tighten the screws an additional ~quarter turn (~ 90-degrees). Be careful to tighten the screws only until snug and not to strip the kickstand threads. Ensure screws do not fall into hinge opening.




8. **Final Kickstand Installation Inspection** – Fold the kickstand down and peel off protective plastic from the kickstand and logo if present. Verify the side edges of the kickstand are aligned with the midframe walls and that there are no obvious steps/gaps between the kickstand and the chassis. Wipe the device thoroughly (including under the kickstand) with the microfiber cloth to remove all fingerprints.



Display Replacement Process

Preliminary Requirements


-
-  **IMPORTANT:** Be sure to follow all special (bolded) notes, cautions, & warnings in each process section.
-


Required Tools and Components


- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

Prerequisite Steps

- **Prep Device** – Device must be set in Display Replacement Mode prior to removing a faulty display.
 1. **Connect software tools USB drive** – Use SDT to USB connector on device under repair.
 2. **Connect power supply to device.**
 3. **Power on device** – Depress the power button on the side of the device.
 4. **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.

-
-  **IMPORTANT:** The device must first be set in Display Replacement Mode before broken/defective display is removed from the device. Software tools are provided for this purpose. Device must be functional to the point that software tools can be run on device from within the Windows OS. If display on device is non-functional, there is no display, or it is unreadable, connect an external PC monitor and keyboard to the device's USB C port or Surflink port. If this cannot be completed, then the device is not a good candidate for repair.

-  **IMPORTANT:** This step must be conducted on the device successfully before removal of a faulty display. Ensure light levels in the work area remain consistent during the touch display setup process.

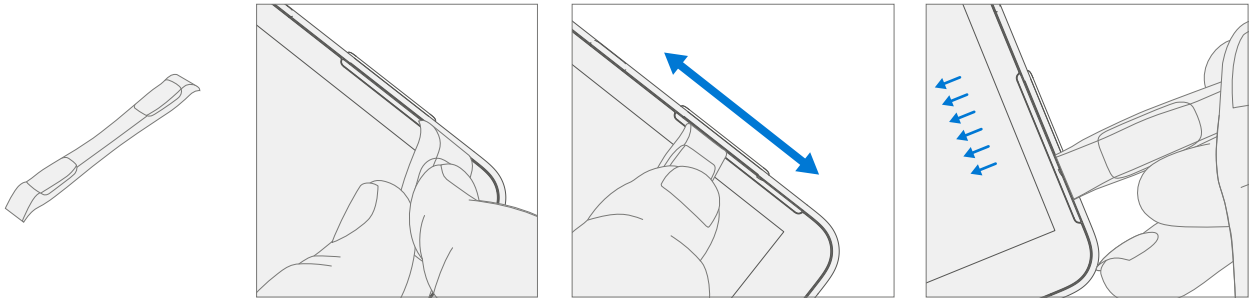
 **WARNING:** Do not use a heat gun or hair dryer to debond display

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.

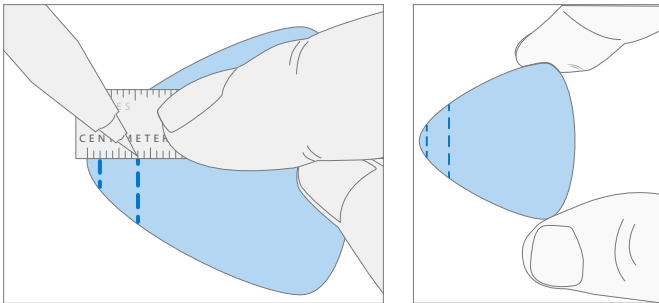


Procedure – Removal (Display)

1. **Speaker Mesh Preparation** – Place the device face up on a Soft ESD safe mat. Use an iFixit opening tool to widen the gap between the right speaker mesh and device. Push the sharp edge into the gap and side to side along the device edge. Once the flat tip fits fully in the gap, use it to push the speaker mesh towards the device, repeating uniformly along the length of the speaker mesh. The metal mesh will either fold lengthwise or slide completely under the glass. Repeat this process for left speaker mesh.

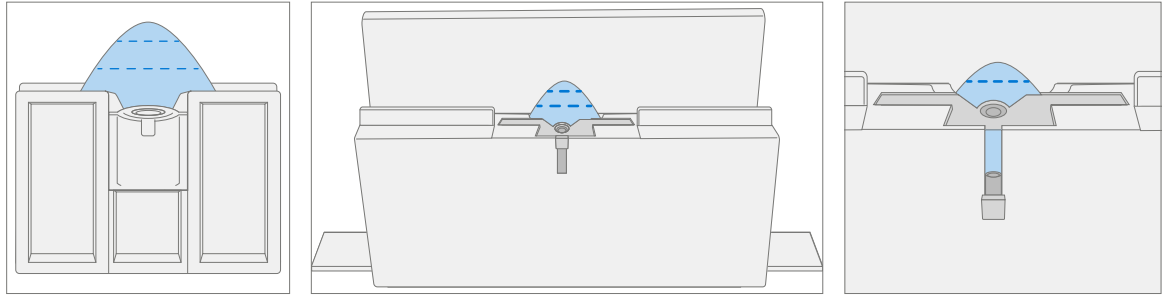


2. **Mark Display Debonding Tool Pick Depth** – To prevent damage to internal components use a metric ruler to draw a 2 mm mark and 8 mm mark on the plastic pick.

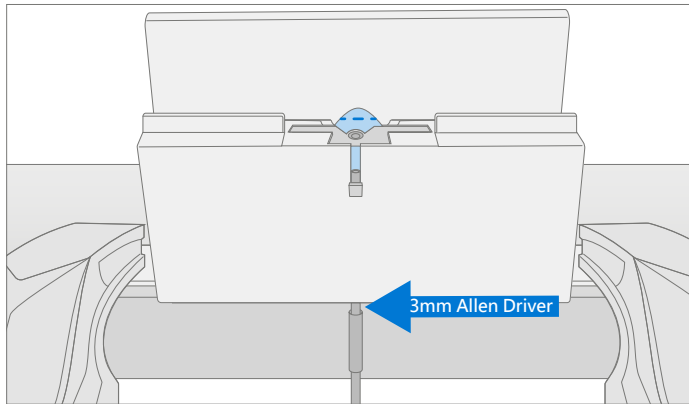


3. Display Debonding Tool

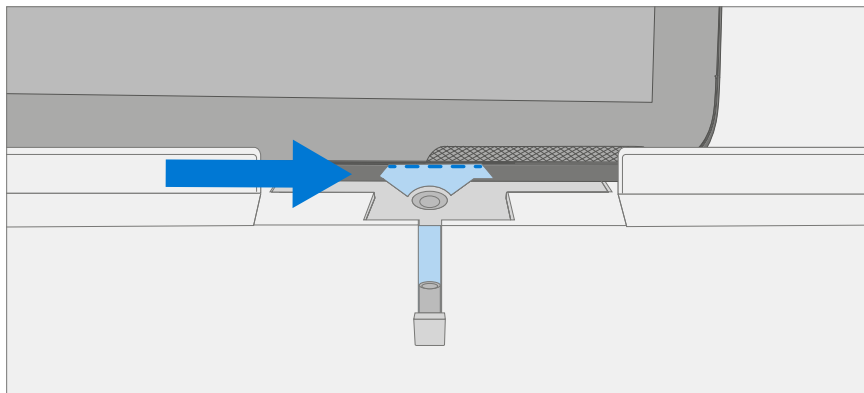
- a. Install marked pick in the holder with the marks in view. Use a 3 mm Allen Driver to adjust pick height to the lowest setting.



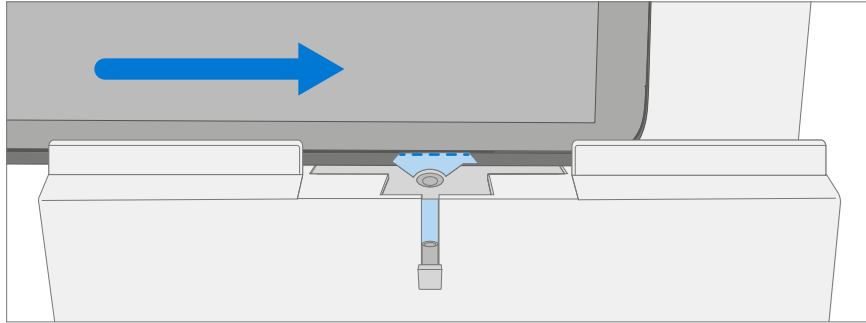
- b. Clamp debonding tool to edge of workbench. Ensure the cut depth adjustment can be accessed while the tool is clamped down.



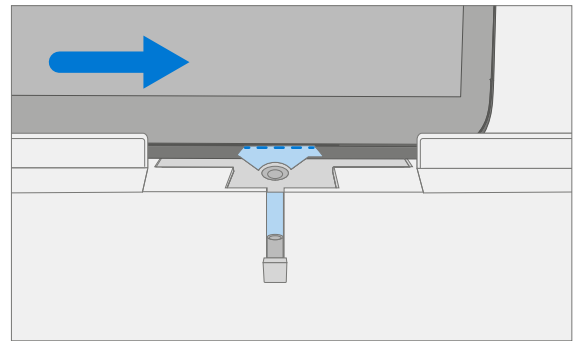
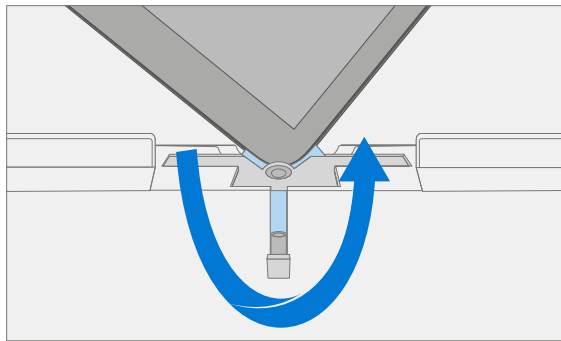
- c. Place the right-side speaker edge of the device in the debonding tool above the pick. Adjust the pick height to the 2 mm mark. Ensure it enters the gap between the display and bucket edge.



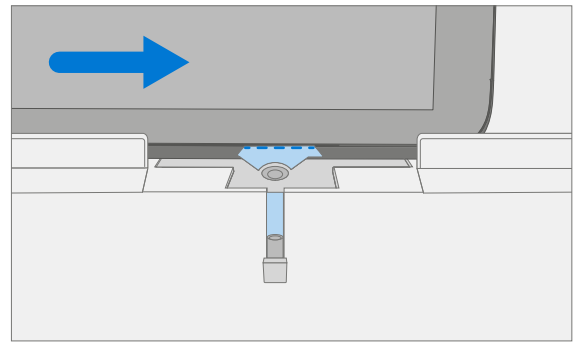
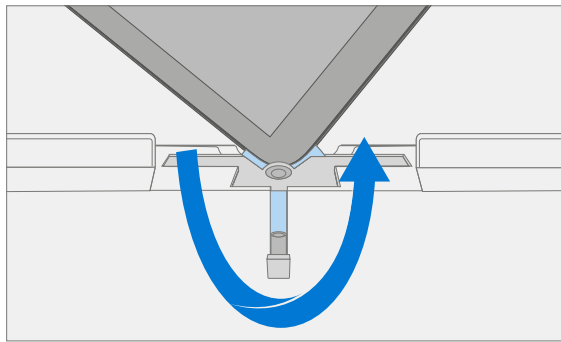
- d. With both hands draw the right side of the device through the debonding tool track.



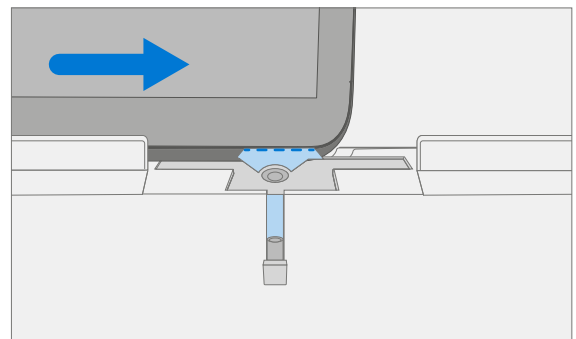
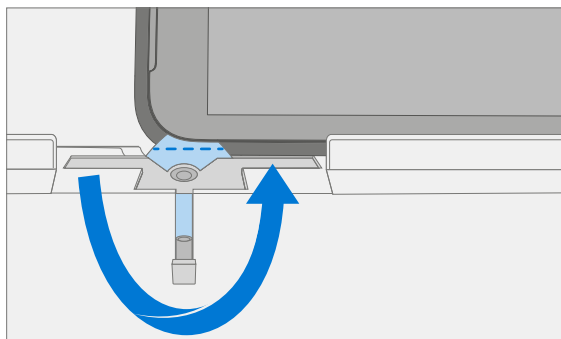
- e. At the **bottom right corner** rotate the device in the debonding tool track. Draw the bottom side of the device through the debonding tool track.



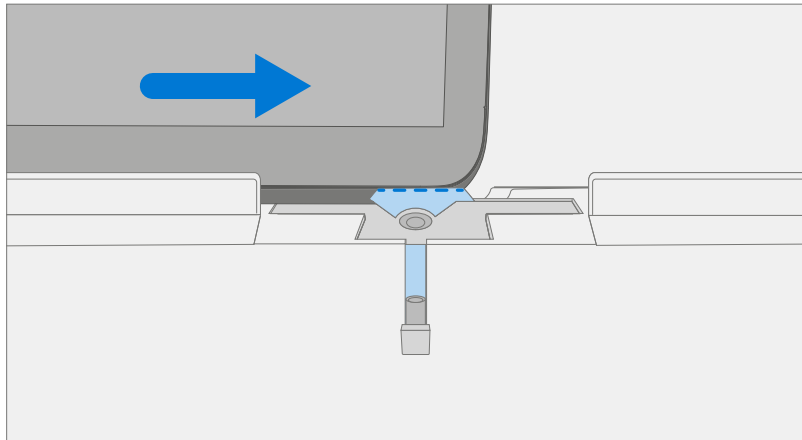
- f. At the **bottom left corner** rotate the device in the debonding tool track. Draw the left side of the device through the debonding tool track.



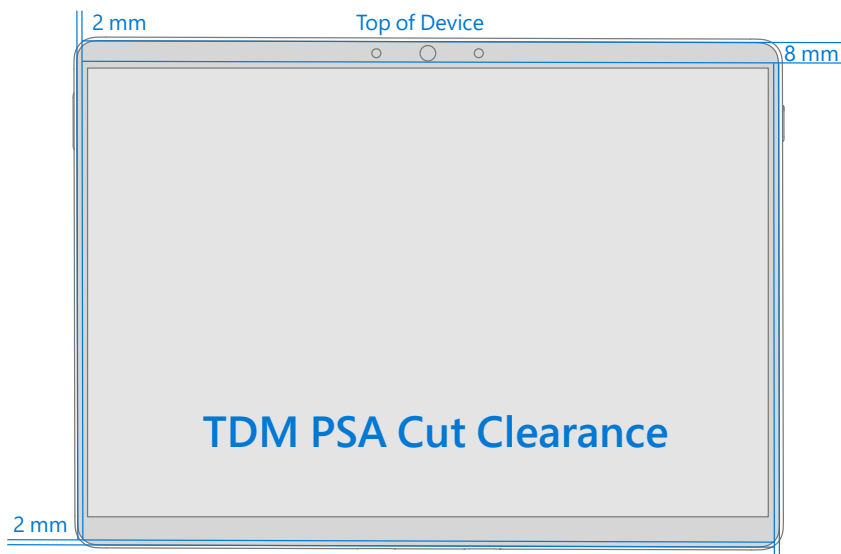
- g. At the **top left corner** rotate the device in the debonding tool track. Draw the top side of the device through the debonding tool track.



- h. Place the **top left edge** of the device in the debonding tool track. Adjust the pick height to the 8 mm mark. Ensure it enters the gap between the display and bucket edge. With both hands draw the top edge of the device through the debonding tool track.



- IMPORTANT:** Do not insert the pick more than 2 mm along the left and right sides or bottom edge of the display. The pick depth should not exceed 8 mm along the top edge of the display



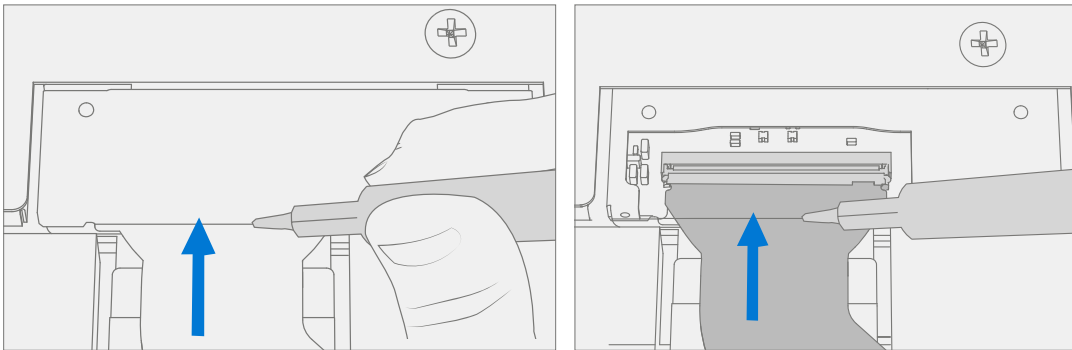
4. **Separate Display From Chassis** – Gently pull up vertically on the top edge of the glass while pushing down on the chassis to separate the glass. Lift the edges of the display and inspect for any remaining adhesive. Slice or remove (with an iFixit Pick) any strands still connecting the display to the chassis.

WARNING: It is recommended a Microsoft provided ESD-safe battery cover appropriate for size is placed across the device to protect the battery from any accidental damage during repair. Ensure corners of cover are always aligned with the corners of the device during repair. If battery cover is misaligned during the repair operation in any way, re-align before continuing repair activities.

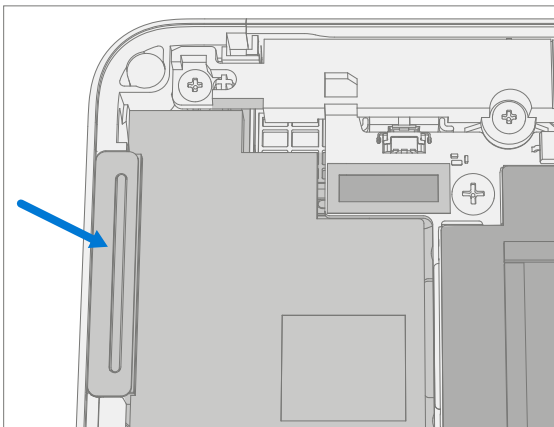
5. **Disconnect Display Connector** – Lay the display down gently next to the chassis on the work surface. Remove the shield lid on the motherboard connector by inserting the flat end of a spudger underneath the inner edge of the shield. Then gently pry upwards and the shield will come off. Disconnect the display connector using the pointed end of a spudger.

⚠ WARNING: Do not pull on the Display FPC to disconnect the display.

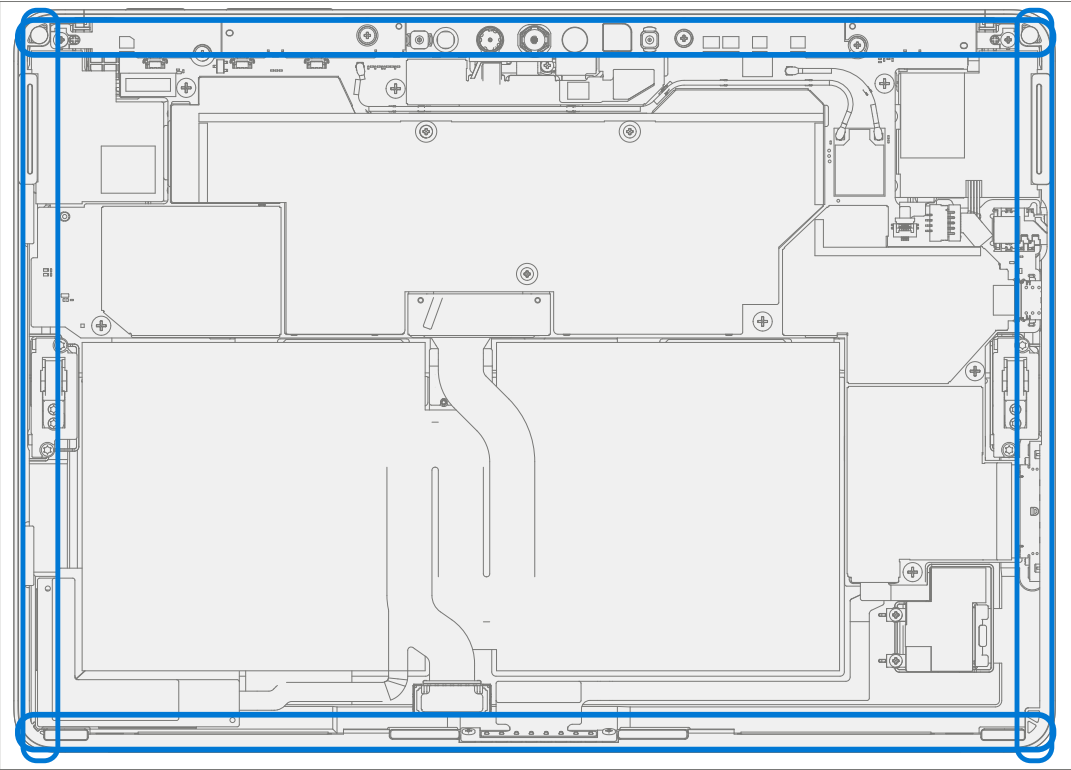
⚠ WARNING: Take care not to puncture or press on the battery when removing connectors. See Battery Safety ([page 10](#)) for additional information.



6. **Remove Speaker Mesh From Chassis** – Remove any remaining speaker mesh from the chassis. Use a handheld pick to remove it by inserting the pick between the Speaker mesh and the enclosure. Confirm a successful removal of the speaker mesh and its adhesive by verifying the three cutouts of the chassis are exposed.



- 7. **Remove Residual Adhesive** – Using IPA and cotton swabs clean residual PSA off the chassis. Ensure area around the Camera and IR Sensor is clean and free of any dust or other contamination. Wipe the area around the camera with a lint free cloth.



Procedure – Installation (Display)

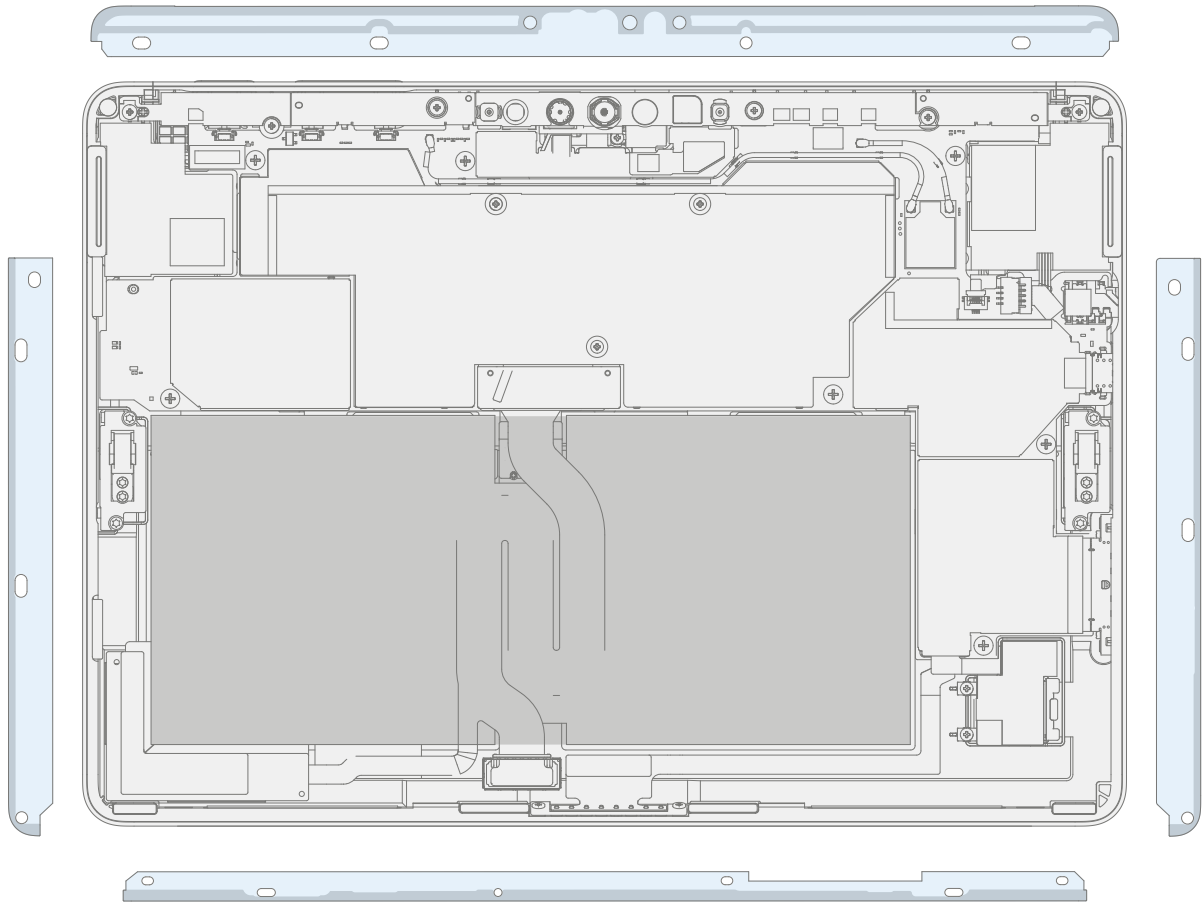
1. Pre-Installation Device Inspection

⚠ WARNING: Verify the battery's condition. Devices exhibiting battery issues as outlined in the Battery Inspection Process require whole unit replacement.

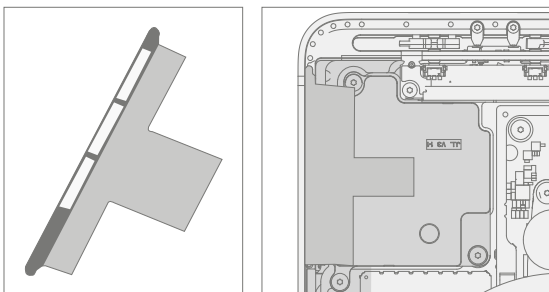
📌 IMPORTANT: Leave protective cling on new display during all installation steps.

📌 IMPORTANT: Carefully inspect the internal areas of the bucket. Ensure the area around battery is free of any foreign objects.

2. **Display Adhesive Application** – Thoroughly clean the chassis along the display PSA bonding surface using IPA and a cotton swab. Wait at least 30 seconds before applying the new PSA. Apply the 4 strips of PSA to the chassis. Align the PSA following the outline on the chassis. Leave the blue liner on the PSA, it will be removed at a later step. Refer to the illustration below for PSA locations.

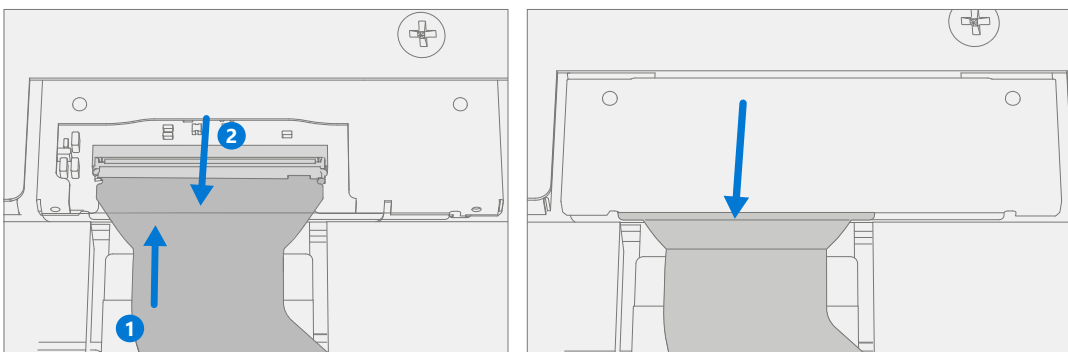


3. **Speaker Mesh Application** – Place the display face-down on a Soft ESD safe mat. Wipe down the outer edges of the display with a lint free cloth. When installing the **originally removed display** ensure outer edges are clean and clear of PSA residue. Remove the protective liner from the speaker mesh. Using the clear handle align the speaker mesh into the chassis speaker opening. Press onto the mesh for 10 seconds to activate the adhesive. Carefully remove the clear handle. Repeat this process for the other side of the chassis.

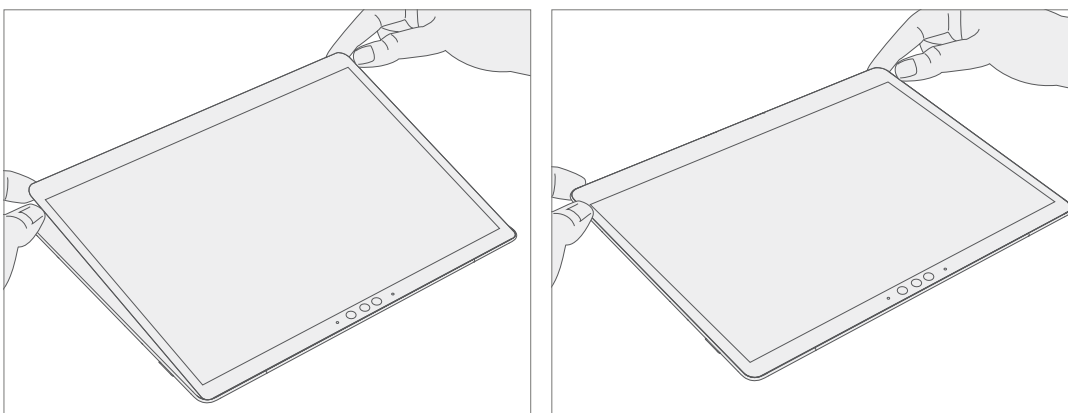


4. **Final Inspection** – Prior to continuing with the reassembly, inspect the device internals to ensure no screws, foam, tape, or other foreign material has been misplaced. If any damage is observed to the battery, contact Microsoft for a device exchange.

5. **Connect Display Connector** – While supporting the display with one hand, connect the Display FPC by pressing it into the mating connector on the motherboard, then press down on the locking tab. Install a new shield over the Display FPC. Ensure all edges of the shield are snapped into place.



6. **Apply Display to Chassis** – Hold the display and remove the PSA Liners to expose adhesive. Turn the display over and place it on the chassis. Align the display along the top edge first (Toe-in) and lower after alignment is found. Ensure that the glass sits flush in the chassis and does not rest anywhere on top of the chassis lip.



7. **Bond Adhesive** – Place the bonding frame on the device, ensuring that the cutouts on the sides line up with the volume/power buttons. Place foam pad over bonding frame. Place 22.5 kg of weight on top of the foam pad and bonding frame. Leave weight in place for 2 minutes.

Weight Requirement:

Minimum 22.5 kg (50 lbs.) / Maximum 30 kg (66 lbs.)

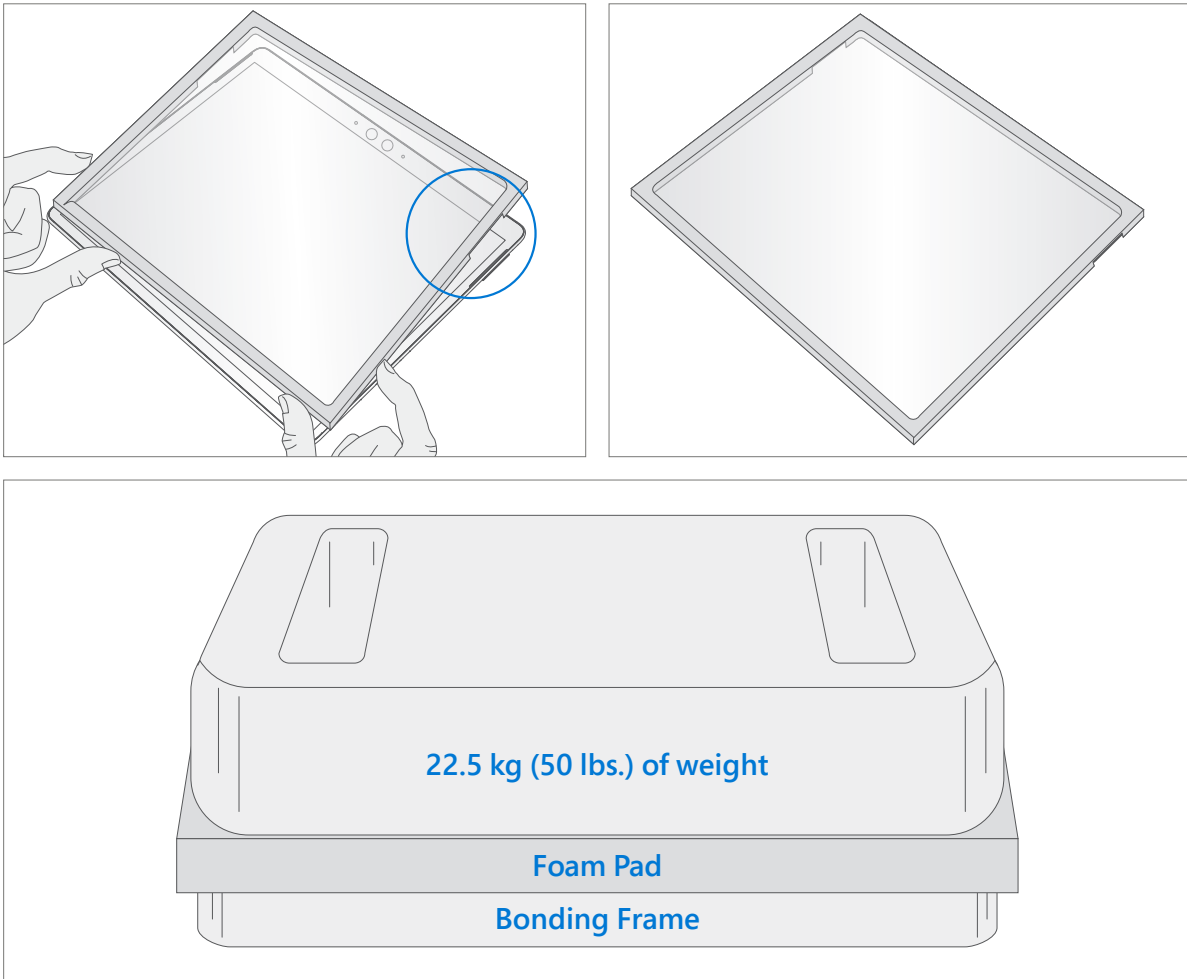
Minimum Dimensions: 280mm x 200mm

 **IMPORTANT:**


Geometry must be symmetrical, to allow for even weight distribution. Weight used must be a flat plate, with consistent flatness and not protrude from contact plane with Bonding Frame.

Weight must contact the full perimeter of the frame when placed above it. Recommended weights (Ruck Plates of 9 kg + 14 kg, or 20 lbs. + 30 lbs.)

When using Ruck weights place the 14 kg weight first, then stack the 9 kg weight on top. Ensure foam pad covers entire bonding frame.



8. **After Bonding Inspection** – Remove the weights, foam pad, and the frame. Lift carefully to avoid damaging the device. Inspect the display for scratches, cracks, large gaps, and its flushness with respect to the chassis.
9. **New Display Calibration** – On installation of a new display device final calibration relies on the successful completion of the display Replacement Mode. Display calibration is not required when installing the originally removed display.
 - a. **Connect software tools USB drive** with SDT to USB connector on device under repair.
 - b. **Power on device** – Depress the power button on the side of the device.
 - c. **Perform Setup** – Lorem Ipsum
 - d. **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 conducted on the device successfully on installation of a new display or when installing any display onto a new motherboard. Ensure light levels in the work area remain consistent during the touch display calibration process. Any tool failures require restarting the process with a new display.

10. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.
11. **Final Display Installation Inspection** – Remove protective cling from the new display. Verify the side edges of the display are flush, and that there are no obvious steps/gaps between the display and the chassis. Wipe the device thoroughly (including under the kickstand) with the microfiber cloth to remove all fingerprints.

Procedure – Alternate Installation (Display)

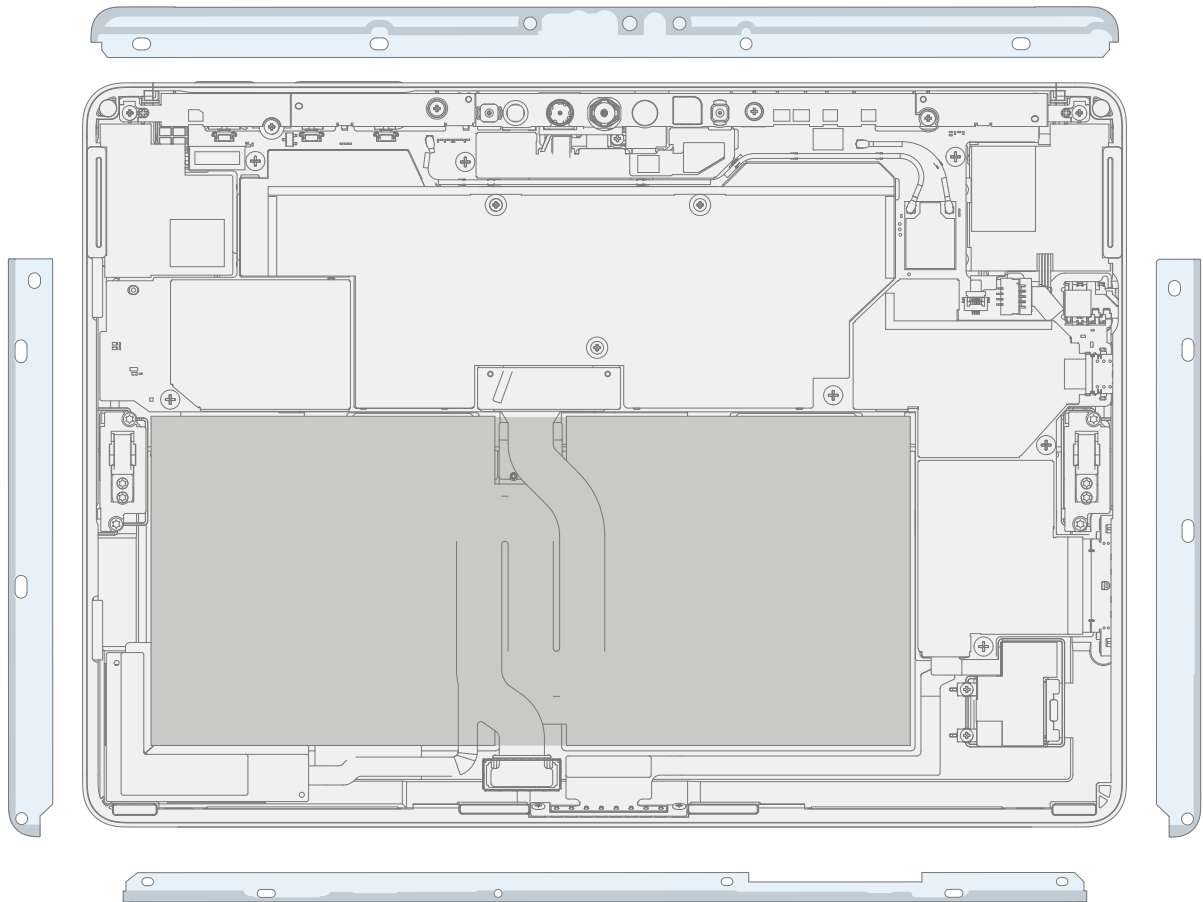
1. Pre-Installation Device Inspection

⚠ WARNING: Verify the battery's condition. Devices exhibiting battery issues as outlined in the Battery Inspection Process require whole unit replacement.

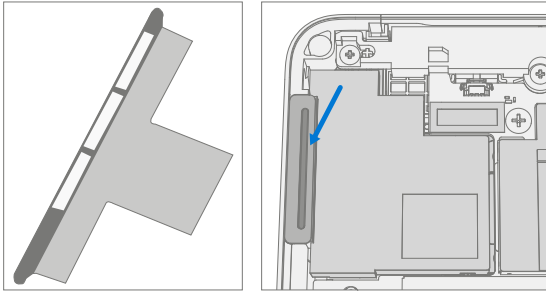
✍ IMPORTANT: Leave protective cling on **new Display** during all installation steps.

✍ IMPORTANT: Carefully inspect the internal areas of the bucket. Ensure the area around battery is free of any foreign objects.

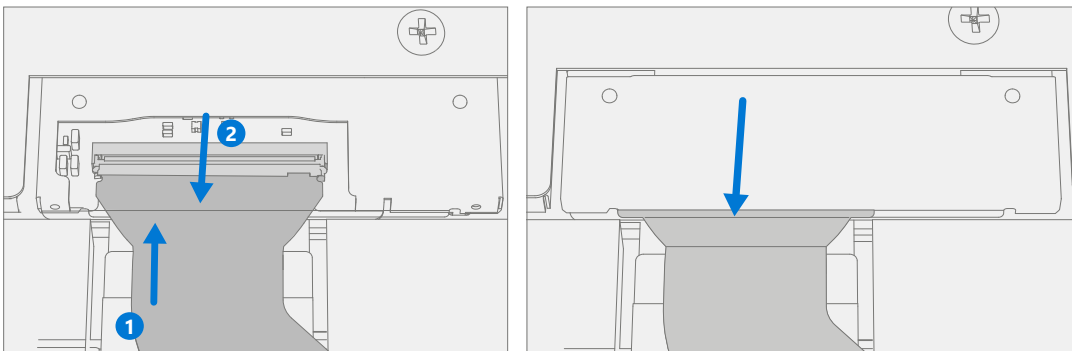
2. **Display Adhesive Application** – Thoroughly clean the chassis along the display PSA bonding surface using IPA and a cotton swab. Wait at least 30 seconds before applying the new PSA. Apply the 4 strips of PSA to the chassis. Align the PSA following the outline on the chassis. Leave the blue liner on the PSA, it will be removed at a later step. Refer to the illustration below for PSA locations.



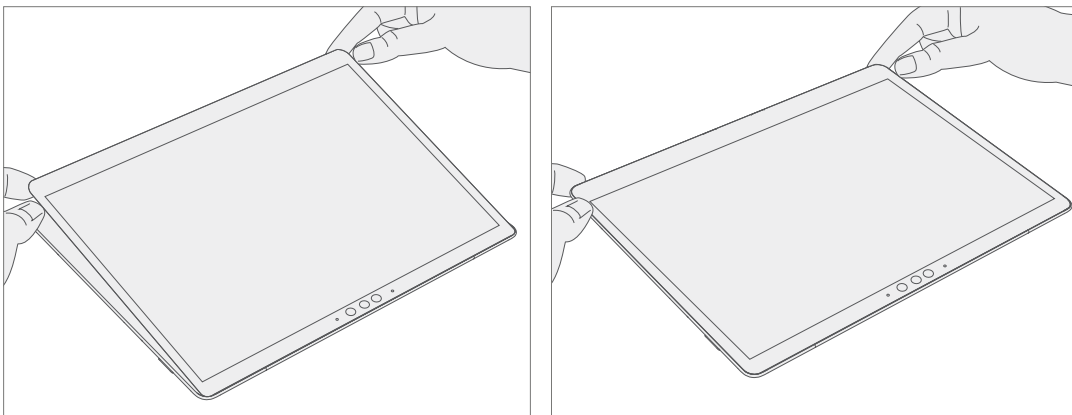
- 3. Speaker Mesh Application** – Place the display face-down on a Soft ESD safe mat. Wipe down the outer edges of the display with a lint free cloth. When installing the **originally removed display** ensure outer edges are clean and clear of PSA residue. Remove the protective liner from the speaker mesh. Using the clear handle align the speaker mesh into the chassis speaker opening. Press onto the mesh for 10 seconds to activate the adhesive. Carefully remove the clear handle. Repeat this process for the other side of the chassis.



- 4. Connect Display Connector** – While supporting the display with one hand, connect the Display FPC by pressing it into the mating connector on the motherboard, then press down on the locking tab. Install a new shield over the Display FPC. Ensure all edges of the shield are snapped into place.

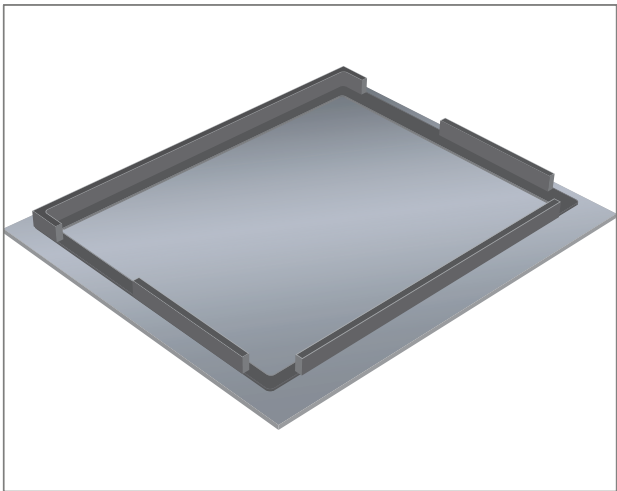


- 5. Apply Display to Chassis** – Hold the display and remove the PSA Liners to expose adhesive. Turn the display over and place it on the chassis. Align the display along the top edge first (Toe-in) and lower after alignment is found. Ensure that the glass sits flush in the chassis and does not rest anywhere on top of the chassis lip. Lightly press on the edges of the display to create an initial bond.

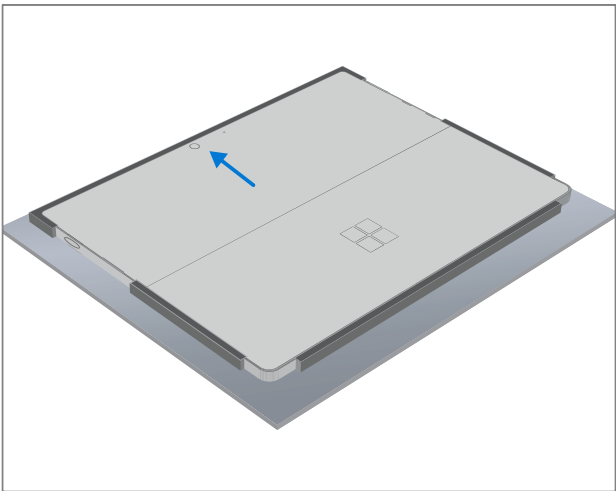


6. **Alternate Bonding PSA** – Bonding is a multi-step process. Refer to the illustrations below.

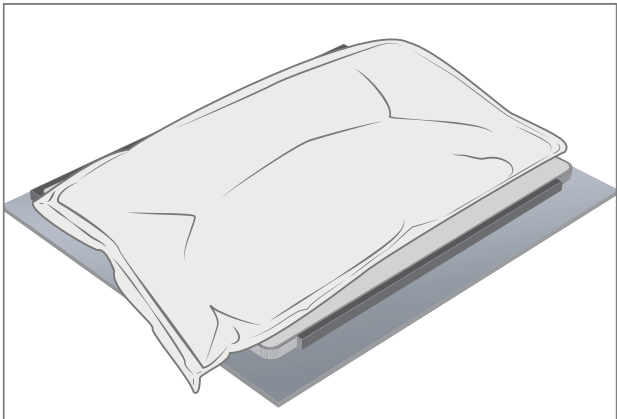
IMPORTANT: Use steel shot bags, one 9 kg and one 14 kg. Apply the 1st 9 kg bag, then the 14 kg bag.



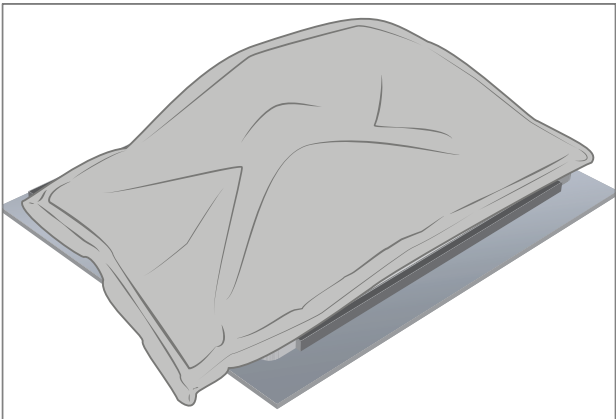
Foam pad with bonding frame face down



Place device display side down into bonding frame




Place 9 kg steel shot bag onto device



Place 14 kg steel shot bag onto 9 kg steel shot bag
Bond for 2 minutes



7. **After Bonding Inspection** – Remove the steel shot bags and lift device out of the frame. Lift carefully to avoid damaging the device. Inspect the display for scratches, cracks, large gaps, and its flushness with respect to the chassis.
8. **New Display Calibration** – On installation of a **new display** device final calibration relies on the successful completion of the Display Replacement Mode. Display calibration is not required when installing the originally removed display.
 - a. **Connect software tools USB drive** with SDT to USB connector on device under repair.
 - b. **Power on device** – Depress the power button on the side of the device.
 - c. **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 conducted on the device successfully on installation of a **new display** or when installing any display onto a new motherboard. Ensure light levels in the work area remain consistent during the touch display calibration process. Any tool failures require restarting the process with a new display.

9. **Run SDT** – Run SDT to ensure all device features and functions operate as expected.
10. **Final Display Installation Inspection** – Remove protective cling from the display. Verify the side edges of the display are flush, and that there are no obvious steps/gaps between the display and the chassis. Wipe the device thoroughly (including under the kickstand) with the microfiber cloth to remove all fingerprints.



SD Slot Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))

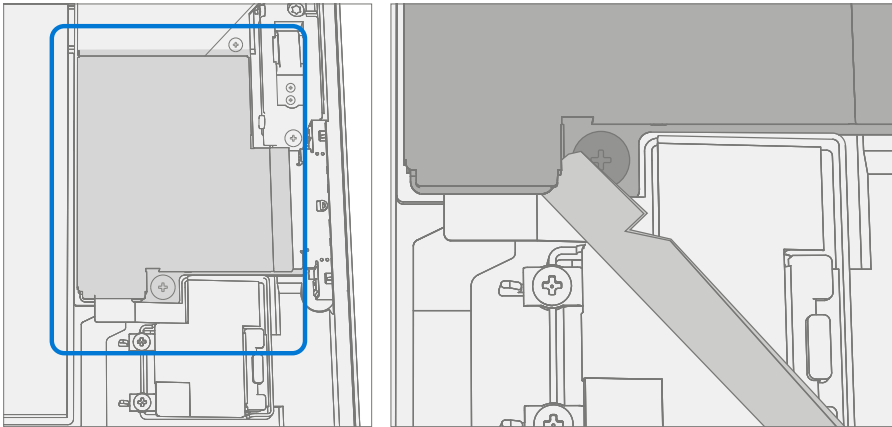


Procedure – Removal (SD Slot)

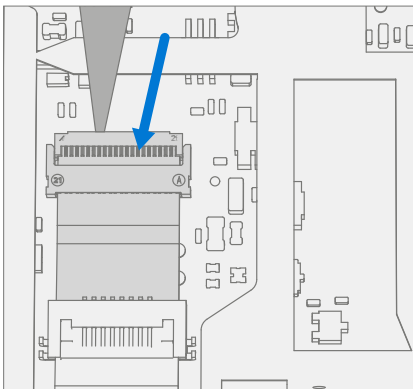
IMPORTANT: There are foams around the SD slot that reduce emissions from the device. Do not remove this foam as it is critical for emissions compliance.

WARNING: Take care not to puncture or press on the battery when removing connectors or shields. See Battery Safety (page 10) for additional information.

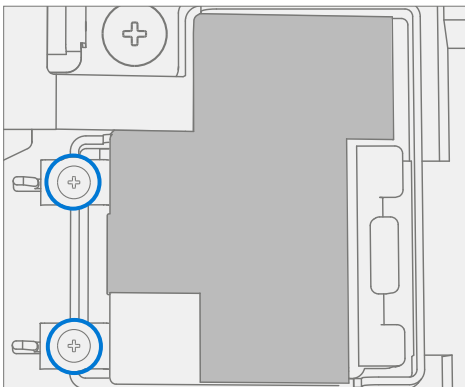
1. **Remove Shield** – Using a plastic spudger remove the shield highlighted below.




2. **Disconnect SD Slot Connector** – Disconnect the FPC for the SD slot using a plastic spudger by lifting black tab then pulling the connector from the socket. and



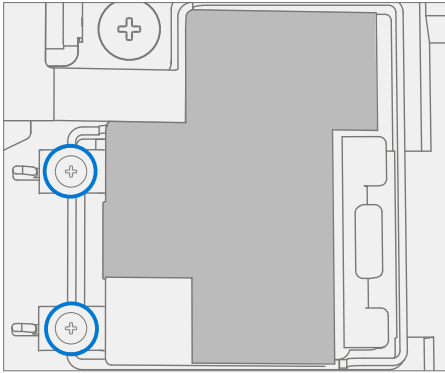
3. **Remove Screws** – Using a T3 Torx driver remove the two highlighted screws. Lift card slot out of chassis.



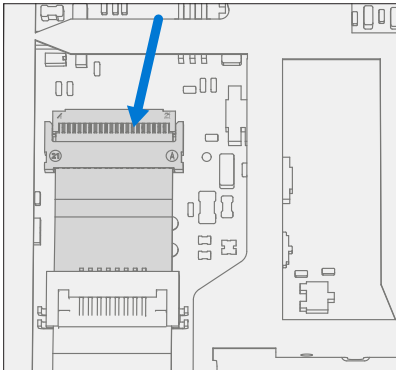
Procedure – Installation (SD Slot)

-  **IMPORTANT:** There are foams around the SD slot that reduce emissions from the device. Do not remove this foam as it is critical for emissions compliance.

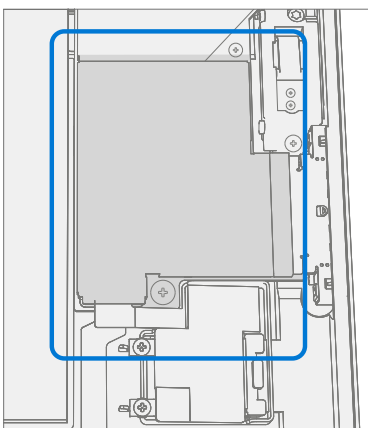
1. **Install SD Slot and Screws** – Using your fingers place SD slot in chassis. Using a T3 Torx driver install 2 new MS16020I300 screws. Tighten both screws until snug then turn another 45-degrees (1/8 turn) or until fully fastened.



2. **Connect SD Slot** – Connect the FPC for the SD slot into the socket on the motherboard. Once fully inserted, press down on locking tab.




3. **Install Shield** – Place shield over frame on motherboard. Press down along all edges, snapping them into place.



4. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
5. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.

Blade Connector Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

Prerequisite Steps

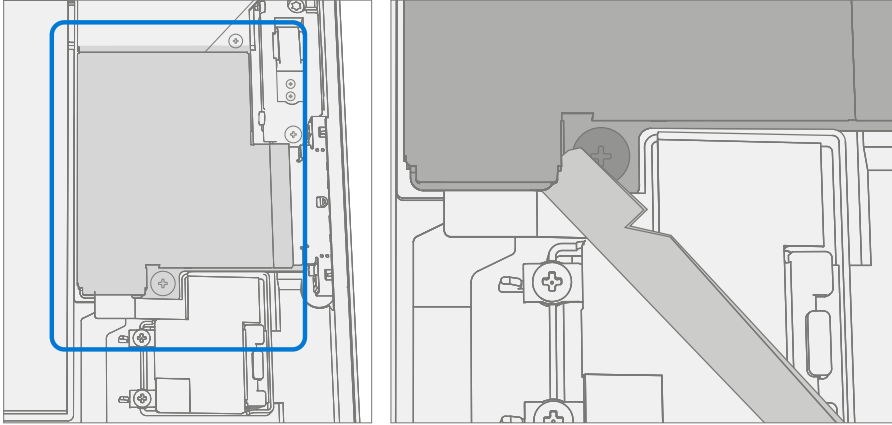
- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove SD Slot** – Follow steps for Procedure – Removal (SD Slot) on ([page 38](#)).



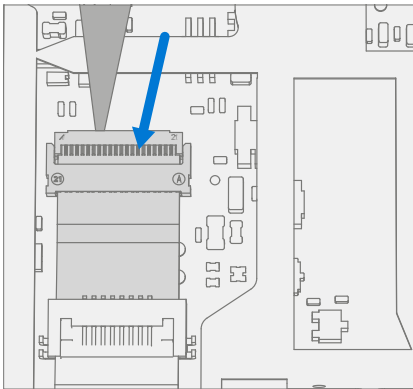
Procedure – Removal (Blade Connector)

⚠ WARNING: Take care not to puncture or press on the battery when removing connectors or shields. See Battery Safety (page 10) for additional information.

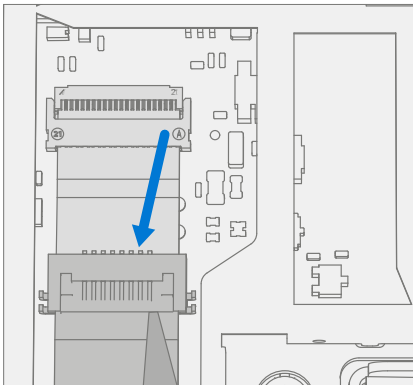
1. **Remove Shield** – Using a plastic spudger remove the shield highlighted below.



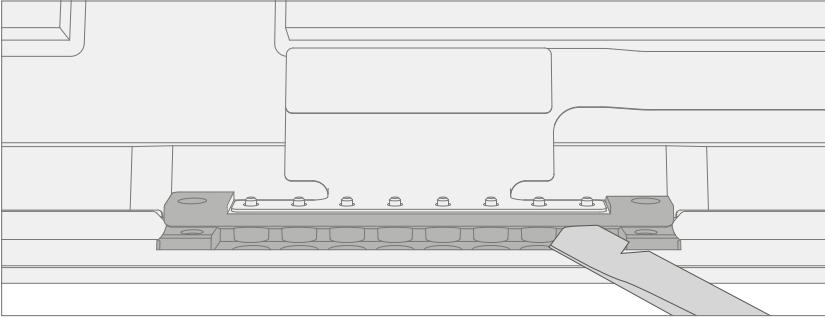
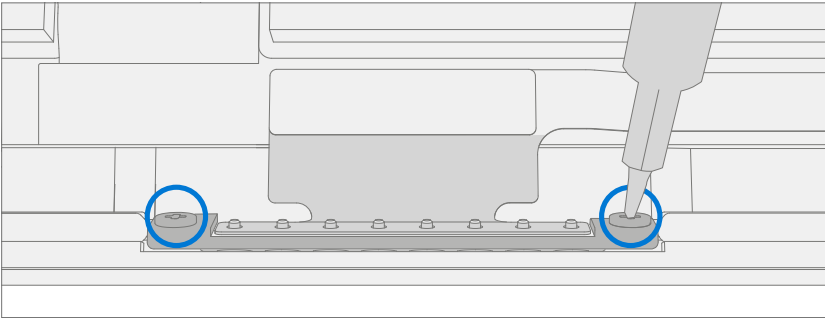
2. **Disconnect SD Slot Connector** – Disconnect the FPC for the SD slot using a plastic spudger by lifting black tab then pulling the connector from the socket. and



3. **Disconnect Blade Connector** – Disconnect the FPC for the Blade Connector using a plastic spudger by lifting black tab then pulling the connector from the socket.

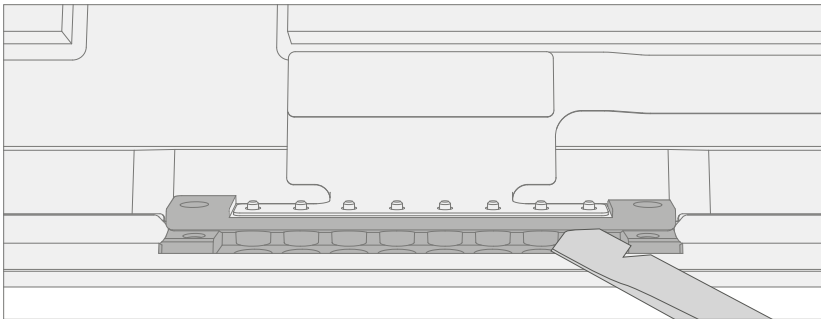
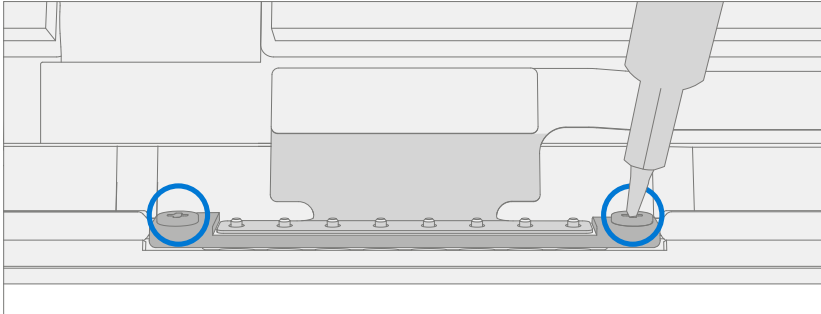


4. **Remove Screws** – Using a T3 Torx driver remove the two highlighted screws. Lift connector out of chassis.

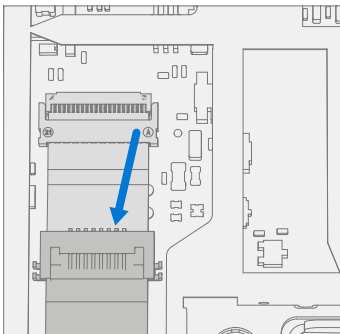


Procedure – Installation (Blade Connector)

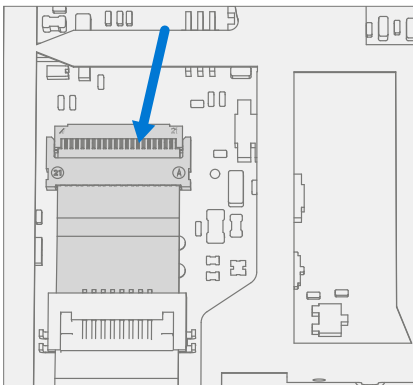
1. **Install Blade Connector** – Place connector into chassis, aligning screw holes with holes in the chassis. Using a T3 Torx driver install 2 new MS16020I400 screws and tighten each screw until snug then turn another 45-degrees (1/8 turn) or until fully fastened.



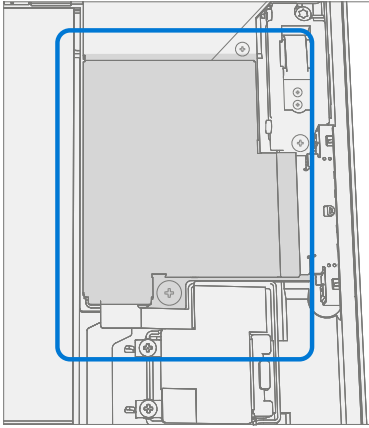
2. **Connect Blade Connector** – Connect the FPC for the Blade Connector into the socket on the motherboard. Once fully inserted, press down on locking tab.



3. **Connect SD Slot** – Connect the FPC for the SD slot into the socket on the motherboard. Once fully inserted, press down on locking tab.



4. **Install Shield** – Place shield over frame on motherboard. Press down along all edges, snapping them into place.



5. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
6. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.

Antenna Deck Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

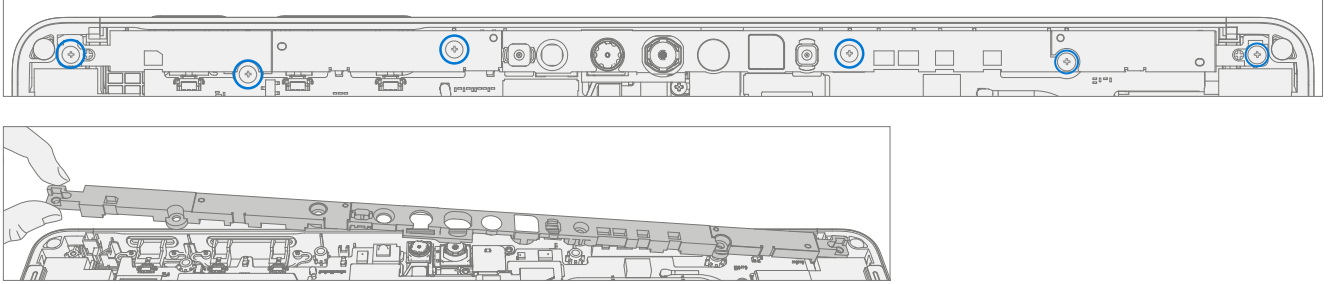
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))



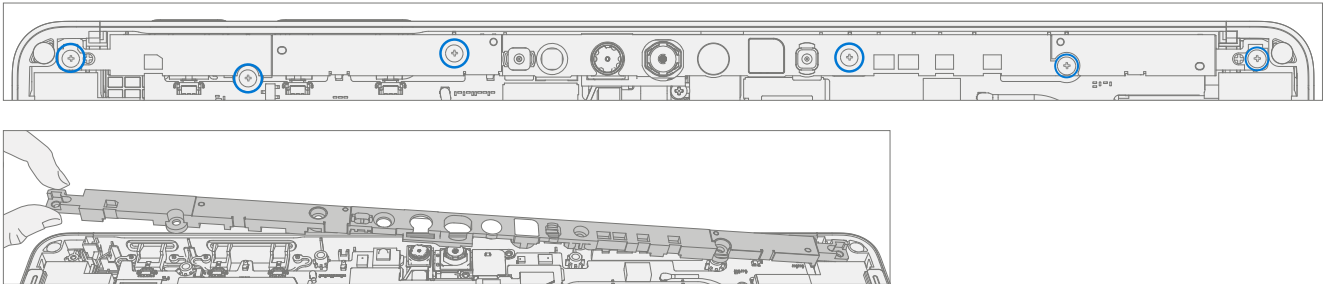
Procedure – Removal (Antenna Deck)

1. **Remove Screws** – Using a PH0 Phillips driver remove the 6 screws on the antenna deck. Lift the deck out of the chassis and set aside. Retain Antenna deck for future reinstallation.



Procedure – Installation (Antenna Deck)

2. **Install Antenna Deck Screws** – Place antenna deck over front camera. Using a PH0 Phillips driver install 6 new MS160301640 screws. Tighten each screw until snug then turn another 45-degrees (1/8 turn) or until fully fastened.




3. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
4. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.



Rear Camera Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

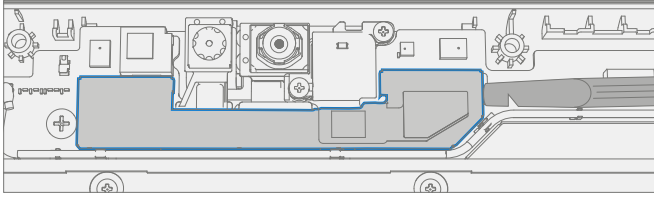
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).

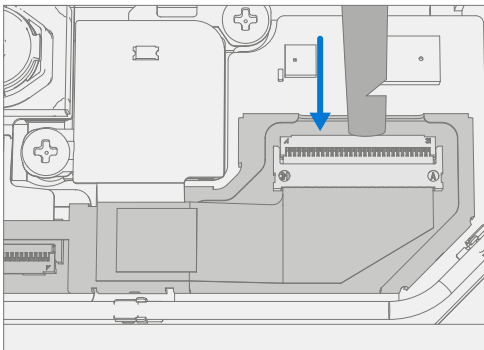


Procedure – Removal (Rear Camera)

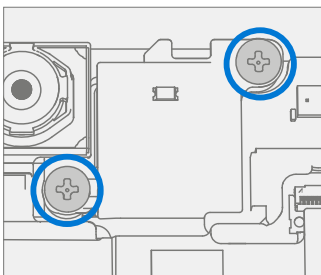
1. **Remove Shield** – Use a plastic spudger to remove the shield covering the camera connectors.



2. **Disconnect Camera Connector** – Disconnect the FPC for the rear camera using a plastic spudger by lifting black tab then pulling the connector from the socket.

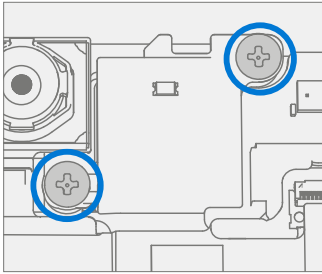


3. **Remove Rear Camera** – Using a PH0 Phillips driver remove the two screws securing the camera to the chassis. Then, using a spudger, lift out the rear camera.

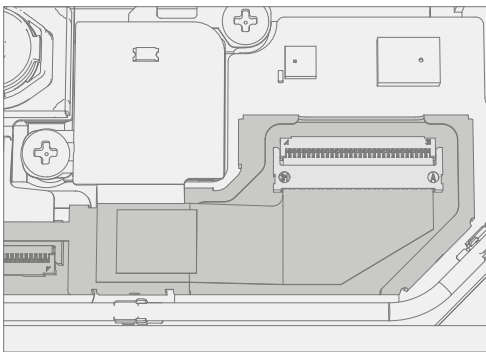


Procedure – Installation (Rear Camera)

1. **Install Rear Camera** – Clean lens with microfiber cloth. Then, using your fingers, gently place rear camera in the chassis. Using a PH0 Phillips driver tighten install 2 new MS16020I300 screws. Tighten until snug then turn another 45-degrees (1/8 turn) or until fully fastened.



2. **Connect Rear Camera** – Connect the FPC for the rear camera into the socket on the motherboard. Once fully inserted, press down on locking tab.



3. **Install Antenna Deck** – Install the antenna deck as detailed in the Procedure – Installation (Antenna Deck) ([page 46](#))
4. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
5. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected. If no further repairs are required proceed to final steps.



Front Camera Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

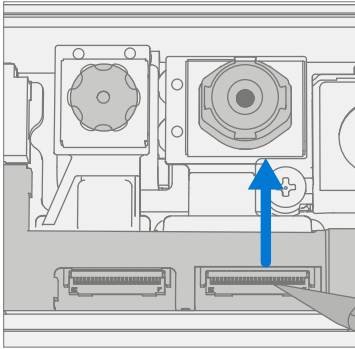
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).
- **Remove Rear Camera** – Follow steps for Procedure – Removal (Rear Camera) on ([page 48](#)).

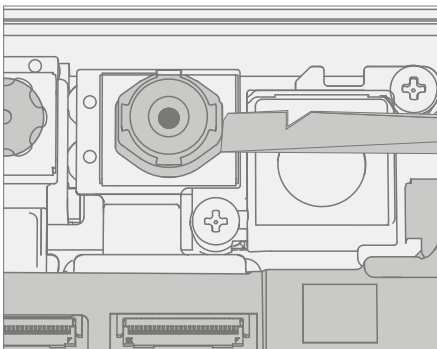


Procedure – Removal (Front Camera)

1. **Disconnect Camera Connector** – Disconnect the FPC for the front camera using a plastic

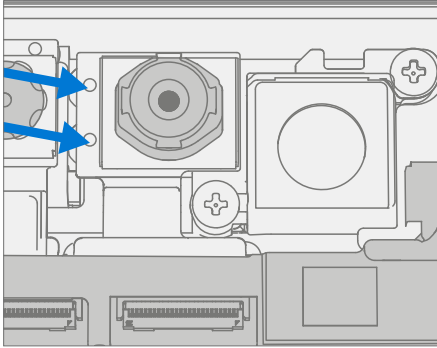


2. **Remove Front Camera** – Using a plastic spudger lift out the front camera.

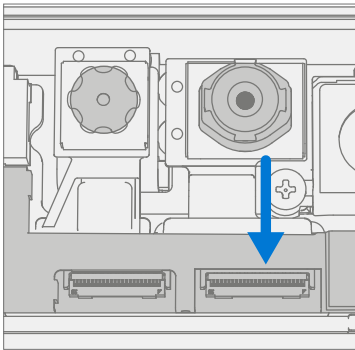


Procedure – Installation (Front Camera)

1. **Install Front Camera** – Using your fingers gently place front camera on aligning posts. Clean lens with microfiber cloth.



2. **Connect Front Camera** – Connect the FPC for the front camera into the socket on the motherboard. Once fully inserted, press down on locking tab.



3. **Clean Camera** – Using a microfiber cloth, clean the lens of the front camera.
4. **Install Rear Camera** – Install the rear camera as detailed in the Procedure – Installation (Rear Camera)
5. **Install Antenna Deck** – Install the antenna deck as detailed in the Procedure – Installation (Antenna Deck) ([page 46](#))
6. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
7. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.

IR Camera Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

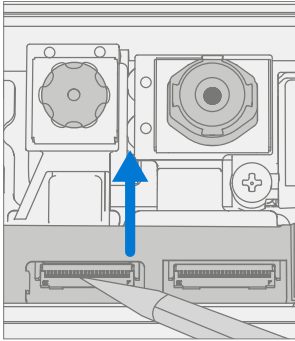
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).
- **Remove Rear Camera** – Follow steps for Procedure – Removal (Rear Camera) on ([page 48](#)).

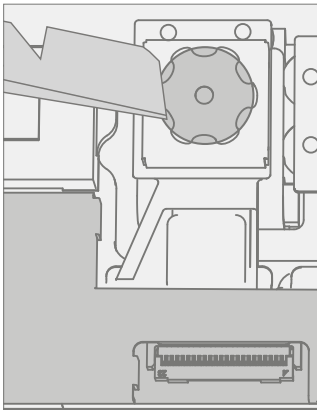


Procedure – Removal (IR Camera)

1. **Disconnect Camera Connector** – Disconnect the FPC for the IR camera using a plastic spudger by lifting black tab then pulling the connector from the socket. and

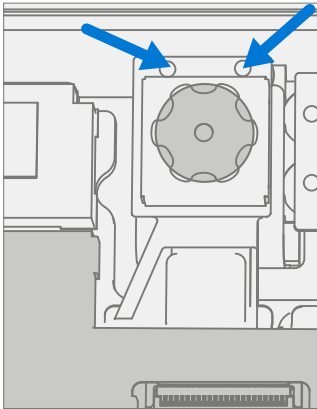


2. **Remove IR Camera** – Using a plastic spudger lift out the IR camera.

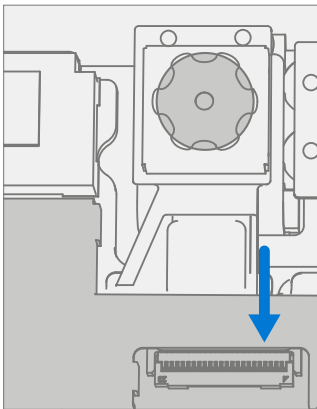


Procedure – Installation (IR Camera)

1. **Install IR Camera** – Using your fingers gently place camera on aligning posts. Clean lens with microfiber cloth.



2. **Connect IR Camera** – Connect the FPC for the camera into the socket on the motherboard. Once fully inserted, press down on locking tab.



3. **Clean Camera** – Using a microfiber cloth, clean the lens of the front camera.
4. **Install Rear Camera** – Install the rear camera as detailed in the Procedure – Installation (Rear Camera)
5. **Install Antenna Deck** – Install the antenna deck as detailed in the Procedure – Installation (Antenna Deck) ([page 46](#))
6. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
7. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.

Motherboard Replacement Process


Preliminary Requirements

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


Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

Prerequisite Steps

 **IMPORTANT:** If replacing both the Motherboard and Display, complete the Motherboard repair first and ensure functionality before beginning the Display replacement procedure. Failure to do so may result in TDM functionality being impacted.

- **Prep Device** – Device must be set in Display Replacement Mode prior to removing a faulty display.
 - **Connect software tools USB drive** – Use 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.

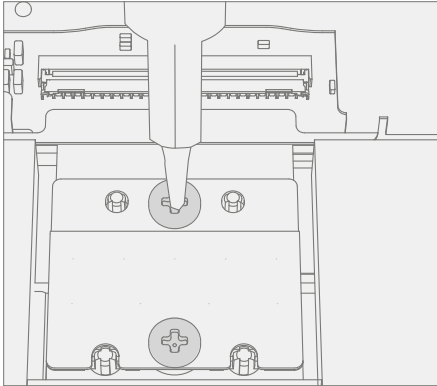
 **IMPORTANT:** This step must be conducted on the device successfully before removal of a faulty display. Ensure light levels in the work area remain consistent during the touch display setup process.

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).
- **Remove Rear Camera** – Follow steps for Procedure – Removal (Rear Camera) on ([page 48](#)).
- **Remove Front Camera** – Follow steps for Procedure – Removal (Front Camera) on ([page 51](#)).
- **Remove IR Camera** – Follow steps for Procedure – Removal (IR Camera) on ([page 54](#)).

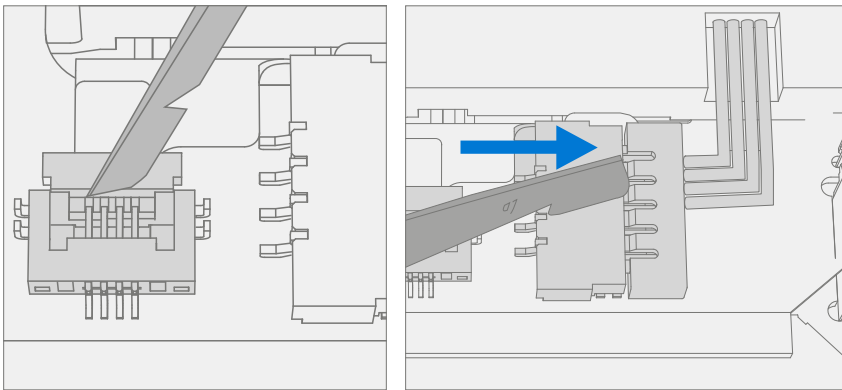


Procedure – Removal (Motherboard)

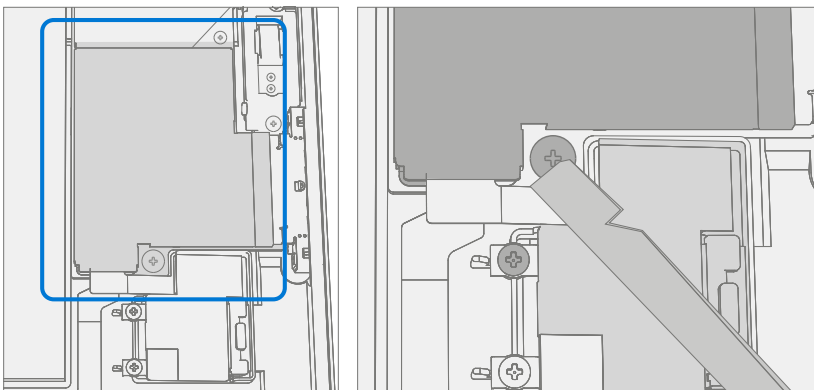
1. **Disconnect Battery** – Using a PH0 Phillips driver remove the 2 Battery Bracket Screws securing the battery bracket. Lift the bracket away from the motherboard.



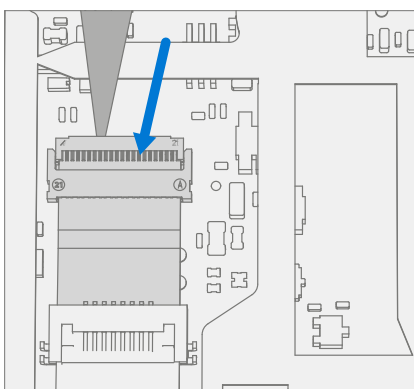
2. **Disconnect FPC's** – On the upper right portion of the motherboard use a plastic spudger lift up the locking tab on the Speaker FPC and pull the FPC from the connector. Then push the connector to the right of the previous connector out of its socket.



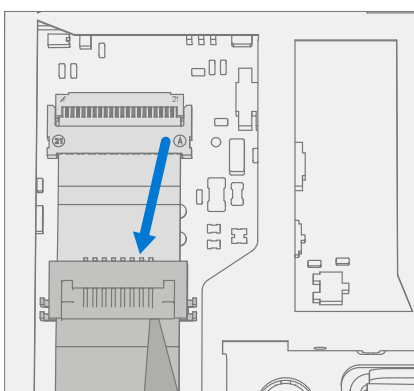
3. **Remove Shield** – Using a plastic spudger remove the shield highlighted below.



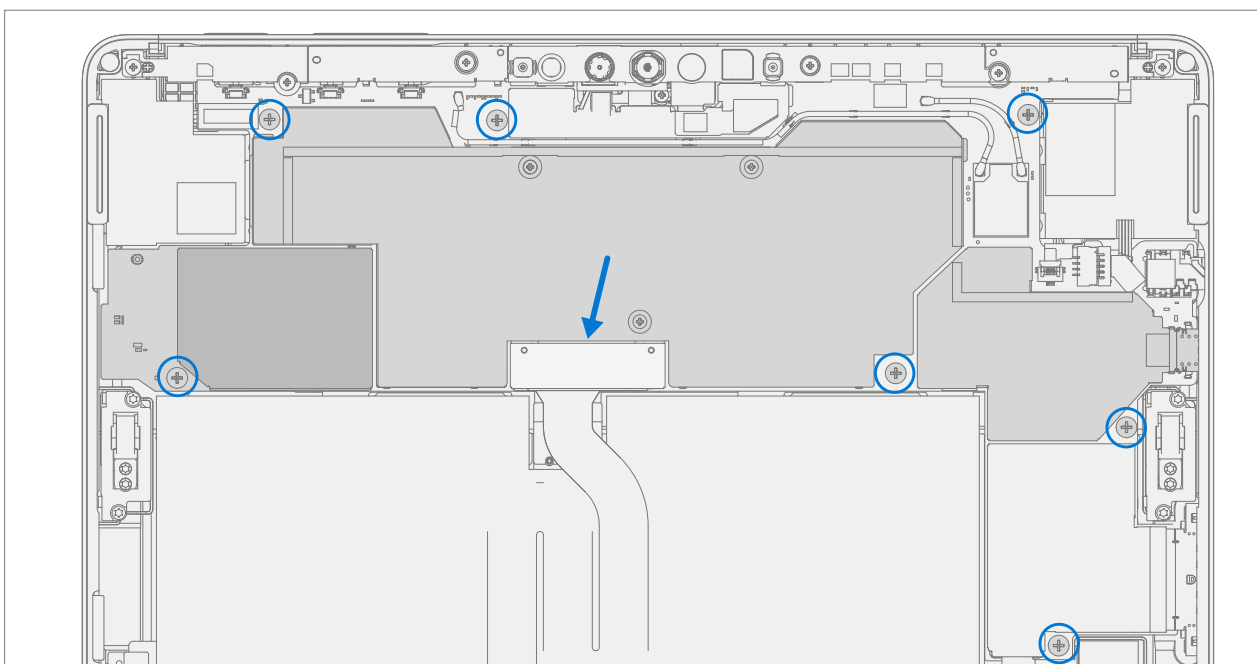
4. **Disconnect SD Slot Connector** – Disconnect the FPC for the SD slot using a plastic spudger by lifting black tab then pulling the connector from the socket.



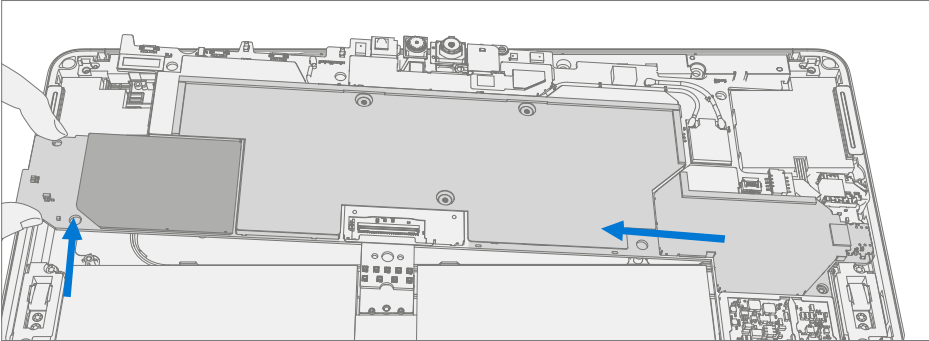
5. **Disconnect Blade Connector** – Disconnect the FPC for the Blade Connector using a plastic spudger by lifting black tab then pulling the connector from the socket.



6. **Remove Screws** – Using a PH0 Phillips driver remove the 7 Motherboard Screws securing the motherboard to the chassis.

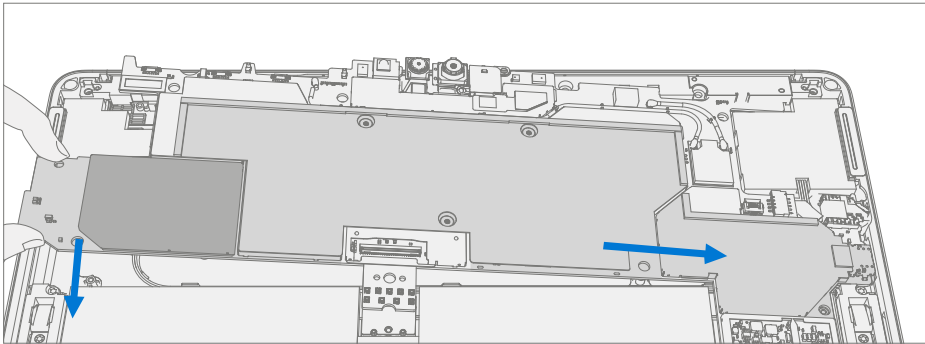


7. **Remove Motherboard** – Lift the left side of the motherboard from the chassis and slide out to the left.

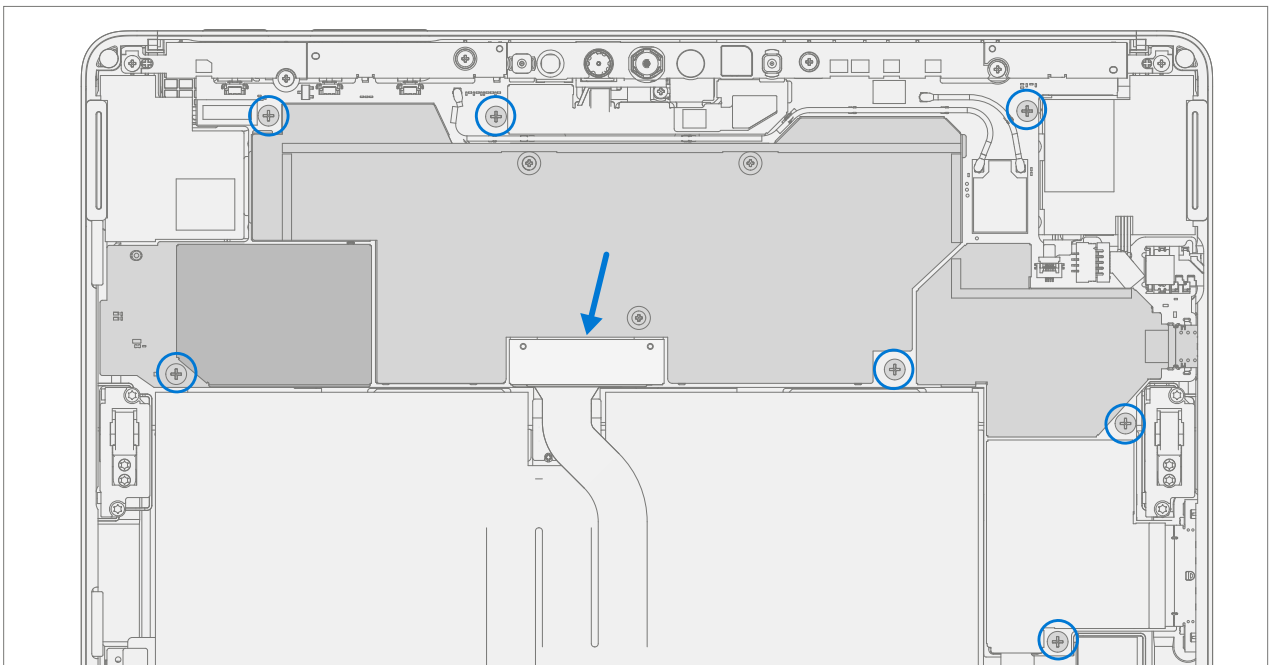


Procedure – Installation (Motherboard)

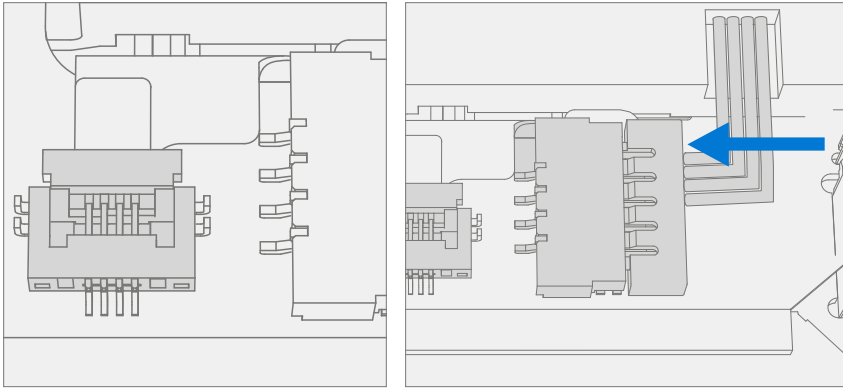
1. **Install motherboard** – Using two hands align screw holes on motherboard with the chassis and place motherboard in the chassis, first aligning the USB connector into the opening and then lowering onto the screw posts in the chassis.



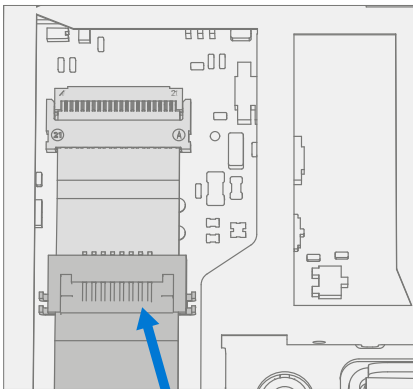
2. **Install screws** – Using a PH0 Phillips driver install 7 new MS160151100 screws as marked below, turning each screw until finger tight then tightening by an additional 1/8 turn (45-degrees) or until fully fastened.



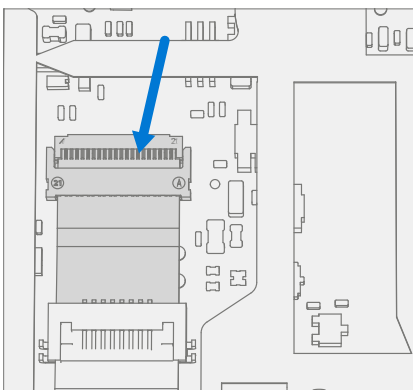
3. **Connect FPC's** – On the upper right portion of the motherboard connect the speaker FPC and press down on the locking tab. Then push the connector to the right of the previous connector into its socket.



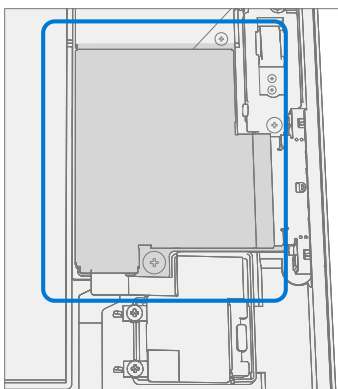
4. **Connect Blade Connector** – Connect the FPC for the Blade Connector into the socket on the motherboard. Once fully inserted, press down on locking tab.



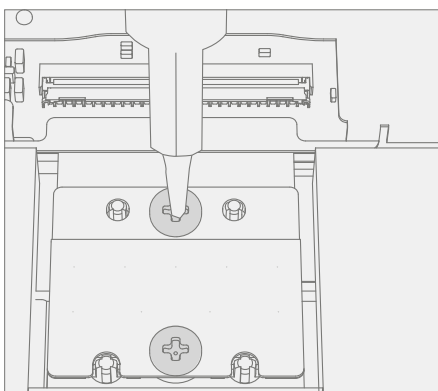
5. **Connect SD Slot** – Connect the FPC for the SD slot into the socket on the motherboard. Once fully inserted, press down on locking tab.



6. **Install Shield** – Place shield over frame on motherboard. Press down along all edges, snapping them into place.




7. **Connect Battery** – Using a PH0 Phillips driver install 2 new MS160201300 screws securing the battery bracket.




8. **Install IR Camera** – Install the thermal module as detailed in the Procedure – Installation (IR Camera) ([page 54](#))
9. **Install Front Camera** – Install the Surflink as detailed in the Procedure – Installation (Front Camera) ([page 52](#))
10. **Install Rear Camera** – Install the Surflink as detailed in the Procedure – Installation (Rear Camera) ([page 49](#))
11. **Install Antenna Camera** – Install the Surflink as detailed in the Procedure – Installation (Antenna Camera) ([page 46](#))
12. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
13. **Power On Device** – Carefully place device top side up. Connect device to power supply, open display, and power on.
14. **Complete Display Calibration**
 - a. Connect software tools USB drive with SDT to USB connector on device under repair.
 - b. Run software tool – At the device OS, use Windows Explorer, navigate to USB drive, and run:



15. **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 conducted on the device successfully on installation of a new motherboard to ensure proper display functionality.

16. **New Battery Authentication** – Ensure the battery reads as authenticated in the Battery Repair (Validation) workflow in SDT. If the battery shows as inauthentic run the SDT Battery Repair (Validation) workflow in its entirety.
 - Connect the SDT Configuration USB drive.
 - Run the SDT Battery Repair (Validation) to ensure the battery is properly authenticated and all features and functions operate as expected.

 **IMPORTANT:** Battery authentication requires a stable internet connection. If any battery steps fail retry with a new internet connection. If failures continue reach out to Microsoft Support.

17. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected. If no further repairs are required proceed to final steps.

Speaker Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

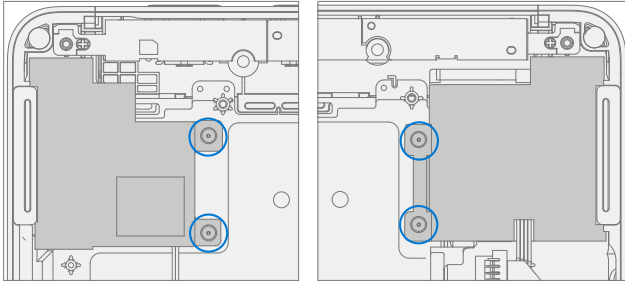
Prerequisite Steps

- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).
- **Remove Rear Camera** – Follow steps for Procedure – Removal (Rear Camera) on ([page 48](#)).
- **Remove Front Camera** – Follow steps for Procedure – Removal (Front Camera) on ([page 51](#)).
- **Remove IR Camera** – Follow steps for Procedure – Removal (IR Camera) on ([page 54](#)).
- **Remove Motherboard** – Follow steps for Procedure – Removal (Motherboard) on ([page 57](#)).



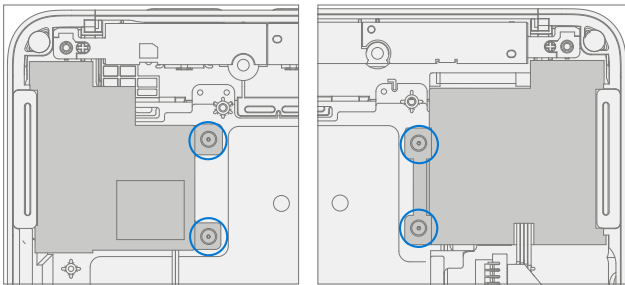
Procedure – Removal (Speakers)

1. **Remove Screws From Speakers** – Using a PH0 Phillips driver remove the 2 marked screws each speaker. Lift speakers out of chassis.




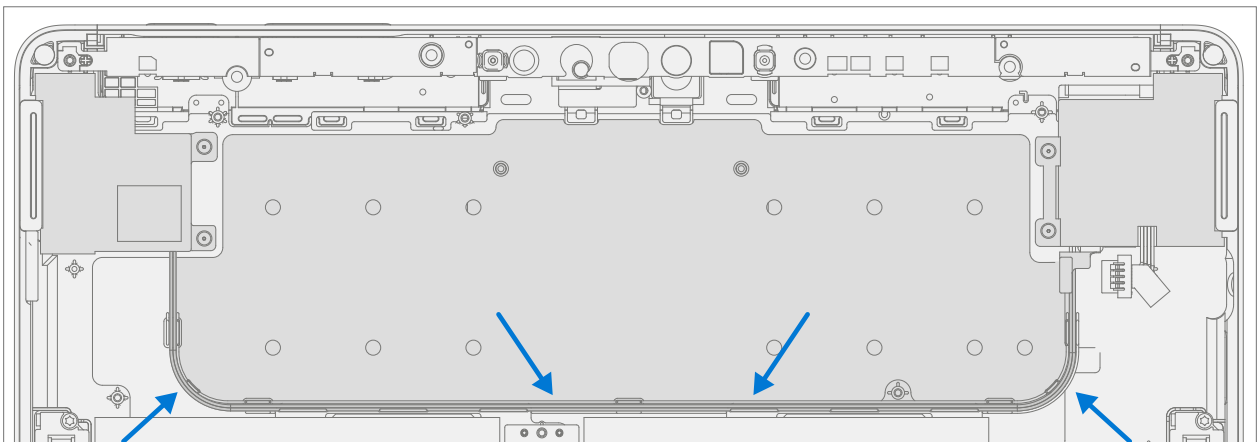
Procedure – Installation (Speaker)

1. **Install Speakers** – Place speakers in chassis, aligning screw holes. Using a PH0 Phillips driver install the 4 new MM12010I080 screws (2 per speaker) marked below, turning each screw until finger tight then tightening by an additional 1/8 turn (45-degrees).



2. **Route Wire** – Route speaker wire through the channel on the chassis.

 **IMPORTANT:** Failure to route wire properly can cause the wires to be pinched between the chassis and motherboard. This can cause failure in both the speakers and the motherboard. Any damage to the speaker wire requires both speakers to be replaced.



3. **Install Motherboard** – Install the thermal module as detailed in the Procedure – Installation (Motherboard) ([page 60](#))
4. **Install IR Camera** – Install the thermal module as detailed in the Procedure – Installation (IR Camera) ([page 55](#))
5. **Install Front Camera** – Install the Surflink as detailed in the Procedure – Installation (Front Camera) ([page 52](#))
6. **Install Rear Camera** – Install the Surflink as detailed in the Procedure – Installation (Rear Camera) ([page 49](#))
7. **Install Antenna Deck** – Install the Surflink as detailed in the Procedure – Installation (Antenna Deck) ([page 46](#))
8. **Install Display** – Install the display as detailed in the Procedure – Installation (Display) ([page 29](#))
9. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected. If no further repairs are required proceed to final steps.



Chassis + Battery Replacement Process

Preliminary Requirements

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

Required Tools and Components

- All tools required for repair are listed under Service Tools and Jigs ([page 7](#))
- All parts required for this repair will be provided in the CRU kit being purchased. CRU kits are listed on the Illustrated Parts List ([page 14](#)).

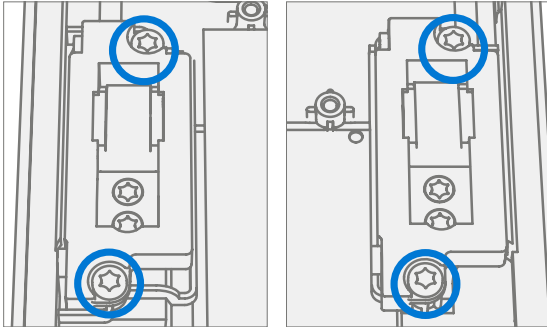
Prerequisite Steps

- **Device Serial Number Notation** – The serial number for this device model is located on its original cover. To keep track of the device’s serial number, please record it using waterproof ink ([page 5](#)) on a sticker or label and apply the sticker or label to an easily accessible area on the device exterior. The serial number cannot be added permanently to a replacement part. Microsoft may have provided a label for this use in the replacement part’s packaging.
- **Power Off Device** – Ensure device is powered off by fully discharging the battery. Refer to Repair-Specific Precautions and Warnings section ([page 9](#)) for details. Ensure device is disconnected from a power supply and all cables and drives are removed.
- **ESD Prevention** – Check to make sure that general guidelines and ESD Prevention steps are followed prior to opening device. Refer to ESD Prevention section ([page 13](#)) for details.
- **Remove Display** – Remove the display as detailed in the Procedure – Removal (Display) ([page 23](#))
- **Remove Antenna Deck** – Follow steps for Procedure – Removal (Antenna Deck) on ([page 46](#)).
- **Remove Rear Camera** – Follow steps for Procedure – Removal (Rear Camera) on ([page 48](#)).
- **Remove Front Camera** – Follow steps for Procedure – Removal (Front Camera) on ([page 51](#)).
- **Remove IR Camera** – Follow steps for Procedure – Removal (IR Camera) on ([page 54](#)).
- **Remove SD Slot** – Follow steps for Procedure – Removal (SD Slot) on ([page 38](#)).
- **Remove Blade Connector** – Follow steps for Procedure – Removal (Blade Connector) on ([page 41](#)).
- **Remove Motherboard** – Follow steps for Procedure – Removal (Motherboard Camera) on ([page 57](#)).
- **Remove Speakers** – Follow steps for Procedure – Removal (Speakers) on ([page 64](#)).



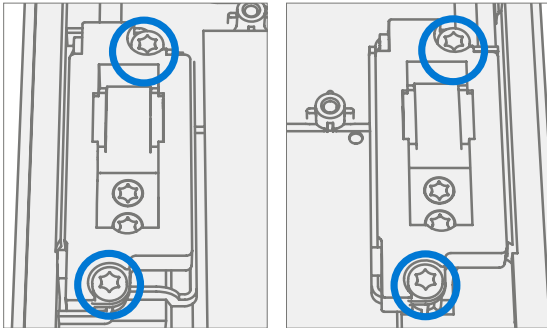
Procedure – Removal (Chassis + Battery)

1. **Prepare Parts** – Follow all removal steps in the Prerequisite Steps section of this chapter.
2. **Remove Hinges** – Using a T5 Torx driver remove the two Hinge Screws securing the left and right hinges to the chassis.



Procedure – Installation (Chassis + Battery)

1. **Install Hinges** – Using a T5 Torx driver install 4 New MS160201540 Screws (2 per hinge) marked on each hinge, turning each screw until finger tight then tightening by an additional 1/8 turn (45-degrees).



2. **Install Speakers** – Follow steps for Procedure – Installation (Speakers) on (page 64).
3. **Install Motherboard** – Follow steps for Procedure – Installation (Motherboard) on (page 60).
4. **Install Blade Connector** – Follow steps for Procedure – Installation (Blade Connector) on (page 43).
5. **Install SD Slot** – Follow steps for Procedure – Installation (SD Slot) on (page 39).
6. **Install IR Camera** – Follow steps for Procedure – Installation (IR Camera) on (page 55).
7. **Install Front Camera** – Follow steps for Procedure – Installation (Front Camera) on (page 52).
8. **Install Rear Camera** – Follow steps for Procedure – Installation (Rear Camera) on (page 49).
9. **Install Antenna Deck** – Follow steps for Procedure – Installation (Antenna Deck) on (page 46).
10. **Install Display** – Remove the display as detailed in the Procedure – Installation (Display) (page 29)
11. **Run SDT** – Power on device and connect USB drive with SDT Configuration Files. Run SDT to ensure all device features and functions operate as expected.



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

