



Hardware Maintenance Manual

Lenovo V730-13



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Contents

Chapter 1. Safety information 1

General safety	1
Electrical safety	1
Safety inspection guide	2
Handling devices that are sensitive to electrostatic discharge	3
Grounding requirements	4
Safety notices (multilingual translations)	4

Chapter 2. General checkout 21

What to do first	21
Checking the ac power adapter	22
Lenovo V730 – 13 CRU list	22

Chapter 3. Identifying FRUs (CRUs) . . 25

All FRUs (CRUs) for Lenovo V730 – 13	25
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Chapter 4. Removing a FRU or CRU 29

General guidelines	29
Remove the lower case	29
Remove the battery pack	31

Remove the solid-state drive	32
Remove the wireless module	33
Remove the speakers	34
Remove the heat sink	35
Remove the system board and the dc-in cable	36
Remove the touch pad bracket, fingerprint board, and fingerprint bracket	38
Disassemble the LCD module	39
Remove the LCD bezel	39
Remove the LCD panel and the LCD cable	40
Remove the hinges	41
Remove the adapter, microphone, and camera boards	42

Appendix A. Lenovo part numbers for replacement FRUs 45

Appendix B. Lenovo part numbers for CRUs and miscellaneous parts . . 51

Appendix C. Label locations 55

Trademarks	lvii
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Chapter 1. Safety information

This chapter presents the following safety information that you need to be familiar with before you service a Lenovo notebook computer.

General safety

Follow these rules to ensure general safety:

- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object:
 1. Make sure that you can stand safely without slipping.
 2. Distribute the weight of the object equally between your feet.
 3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
 4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any object that weighs more than 16 kg (35 lb) or that you think is too heavy for you.*
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, make sure that other service technicians and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool case away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Make sure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a non-conductive clip, about 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

Attention: Metal objects are good electrical conductors.

- Wear safety glasses when you are hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.
- Fan louvers on the machine help to prevent overheating of internal components. Do not obstruct fan louvers or cover them with labels or stickers.

Electrical safety

Observe the following rules when working on electrical equipment.

Important: Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents. Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
 - Performing a mechanical inspection
 - Working near power supplies

- Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine, and to lock the wall box in the off position.
- If you need to work on a machine that has *exposed* electrical circuits, observe the following precautions:
 - Ensure that another person, familiar with the power-off controls, is near you.

Attention: Another person must be there to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.

Attention: An electrical shock can occur only when there is a complete circuit. By observing the above rule, you may prevent a current from passing through your body.

- When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
- Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

Observe the special safety precautions when you work with very high voltages; Instructions for these precautions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.

- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, non-grounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts *with the power on* when they are removed from their normal operating places in a machine:
 - Power supply units
 - Pumps
 - Blowers and fans
 - Motor generators
 - Similar units as listed above

This practice ensures correct grounding of the units.

- If an electrical accident occurs:
 - Use caution; do not become a victim yourself.
 - Switch off power.
 - Send another person to get medical aid.

Safety inspection guide

The purpose of this inspection guide is to assist you in identifying potentially unsafe conditions. As each machine was designed and built, required safety items were installed to protect users and service technicians from injury. This guide addresses only those items. You should use good judgment to identify potential safety hazards due to attachment of non-Lenovo features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock)
- Explosive hazards, such as a damaged cathode ray tube (CRT) face or a bulging capacitor
- Mechanical hazards, such as loose or missing hardware

To determine whether there are any potentially unsafe conditions, use the following checklist at the beginning of every service task. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power off the computer. Disconnect the power cord.
3. Check the power cord for:
 - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
 - b. The power cord should be the authorized type specified for your computer. Go to: <http://www.lenovo.com/serviceparts-lookup>
 - c. Insulation must not be frayed or worn.
4. Check for cracked or bulging batteries.
5. Remove the cover.
6. Check for any obvious non-Lenovo alterations. Use good judgment as to the safety of any non-Lenovo alterations.
7. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
8. Check for worn, frayed, or pinched cables.
9. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling devices that are sensitive to electrostatic discharge

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

Note: The use of a grounding system to guard against ESD damage is desirable but not necessary.

- Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
- When working on a double-insulated or battery-operated system, use an ESD common ground or reference point. You can use coax or connector-outside shells on these systems.
- Use the round ground prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices (multilingual translations)

The safety notices in this section are provided in the following languages:

- English
- Arabic
- Brazilian Portuguese
- French
- German
- Hebrew
- Japanese
- Korean
- Spanish
- Traditional Chinese



DANGER

Before the computer is powered on after FRU replacement, make sure that all screws, springs, and other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical short circuits.



DANGER

Some standby batteries contain a small amount of nickel and cadmium. Do not disassemble a standby battery, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.



DANGER

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.



DANGER

The lithium battery can cause a fire, an explosion, or a severe burn. Do not recharge it, remove its polarized connector, disassemble it, heat it above 100°C (212°F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.



DANGER

If the LCD breaks and the fluid from inside the LCD gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes. Seek medical care if any symptoms from the fluid are present after washing.



DANGER

To avoid shock, do not remove the plastic cover that protects the lower part of the inverter card.



DANGER

Though the main batteries have low voltage, a short-circuited or grounded battery can produce enough current to burn personnel or combustible materials.



DANGER

Unless hot swap is allowed for the FRU being replaced, do as follows before removing it: power off the computer, unplug all power cords from electrical outlets, remove the battery pack, and disconnect any interconnecting cables.



قبل اعادة تشغيل الحاسب بعد الانتهاء من استبدال FRU، تأكد من أنه قد تم اعادة كل من المسامير و السوست وكل الأجزاء الصغيرة الأخرى في أماكنهم ولم يتم فقدهم داخل الحاسب. ويمكن التحقق من ذلك عن طريق هز الحاسب والاستماع لأي صوت صاخب يصدر منه. قد تؤدي الأجزاء أو الرقائق المعدنية الى حدوث دائرة قصر.



تحتوي بعض البطاريات الاحتياطية على كمية صغيرة من مادتي النيكل والكاديوم. لا تقم بفك أو اعادة شحن البطارية الاحتياطية ولا تقم أيضا بالقاءها في النار أو الماء ولا تتسبب في احدث دائرة قصر بها. قم بالتخلص من البطارية كما هو موضح في القوانين المحلية. استخدم نوع البطارية المحدد والذي يوصى باستخدامه. حيث أنه قد يؤدي استخدام نوع بطارية غير صحيح الى اشتعالها أو انفجارها.



تحتوي حزمة البطارية على كمية صغيرة من مادة النيكل. لا تقم بفكها أو القاءها في النار أو الماء ولا تتسبب في احدث دائرة قصر بها. تخلص من حزمة البطارية وفقا لما هو موضح في القوانين المحلية. قم، عند استبدال حزمة البطارية، باستخدام الأنواع المحددة فقط والتي يوصى باستخدامها. حيث أنه قد يؤدي استخدام نوع بطارية غير صحيح الى اشتعالها أو انفجارها.



قد تتسبب بطارية الليثيوم في حدوث حريق أو انفجار أو حدوث حروق شديدة. لا تقم باعادة شحن البطارية أو ازالة موصل الاستقطاب الخاص بها ولا تحاول أيضا فكها أو تسخينها لأكثر من ١٠٠ درجة مئوية (٢١٢ فهرنهايت) أو حرقها أو تعريض محتويات الخانة الخاصة بها للماء. قم بالتخلص من البطارية وفقا لما هو موضح في القوانين المحلية. استخدم نوع البطارية المحدد والذي يوصى باستخدامه. حيث أنه قد يؤدي استخدام نوع بطارية غير صحيح الى اشتعالها أو انفجارها.



إذا ما انكسرت شاشة LCD ولامس السائل الداخلي عينيك أو يديك، قم في الحال بغسلهما بالماء لمدة لا تقل عن ١٥ دقيقة. إذا ما وجدت أي أعراض بعد الغسل اطلب عندئذ المساعدة الطبية.



لتجنب التعرض لأي صدمات، لا تلم بازالة الغطاء البلاستيكي الذي يحمي الجزء الأسفل من بطارية العاكس.



على الرغم من أن البطاريات الرئيسية يكون لها جهد منخفض، إلا أنه قد تقوم البطاريات التي حدث قصور بها أو التي تم توصيلها أرضيا بإصدار تيار يكفي لحدوث حروق للأفراد أو تعرض المواد القابلة للاشتعال للحريق.



ما لم يتم السماح بالتبديل الفوري لأي FRU الجاري استبداله بدون ضرورة اغلاق النظام، قم بتنفيذ ما يلي قبل ازالته، قم بإيقاف تشغيل الحاسب ونزع كل أسلاك الطاقة من المخارج الكهربائية وقم أيضا بإزالة حزمة البطارية ثم قم بفصل أي كابلات متصلة.



PERIGO

Antes de ligar o computador após a substituição da FRU, certifique-se de que todos os parafusos, molas e outras peças pequenas estejam no lugar e não estejam soltos dentro do computador. Verifique isso sacudindo o computador e procurando ouvir sons de peças soltas. Peças metálicas ou lascas de metal podem causar curto-circuito.



PERIGO

Algumas baterias reserva contêm uma pequena quantidade de níquel e cádmio. Não desmonte uma bateria reserva, recarregue-a, jogue-a no fogo ou na água, ou deixe-a entrar em curto-circuito. Descarte a bateria conforme requerido pelas leis ou regulamentos locais. Use somente a bateria nas partes listadas apropriadas. O uso de uma bateria incorreta pode resultar em combustão ou explosão da bateria.



PERIGO

O pacote da bateria contém uma pequena quantidade de níquel. Não o desmonte, jogue-o no fogo ou na água, ou deixe-o entrar em curto-circuito. Descarte o pacote da bateria conforme requerido pelas leis ou regulamentos locais. Use somente a bateria nas partes listadas apropriadas ao substituir o pacote da bateria. O uso de uma bateria incorreta pode resultar em combustão ou explosão da bateria.



PERIGO

A bateria de lítio pode causar incêndio, explosão ou graves queimaduras. Não a recarregue, remova seu conector polarizado, desmonte-a, aqueça-a acima de 100°C (212°F), incinere-a, ou exponha o conteúdo de sua célula à água. Descarte a bateria conforme requerido pelas leis ou regulamentos locais. Use somente a bateria nas partes listadas apropriadas. O uso de uma bateria incorreta pode resultar em combustão ou explosão da bateria.



PERIGO

Se o LCD quebrar e o fluido de dentro dele entrar em contato com seus olhos ou com suas mãos, lave as áreas afetadas imediatamente com água durante pelo menos 15 minutos. Procure cuidados médicos se algum sintoma causado pelo fluido surgir após a lavagem.



PERIGO

Para evitar choque elétrico, não remova a capa plástica que protege a parte inferior da placa inversora.



PERIGO

Embora as principais baterias possuam baixa voltagem, uma bateria em curto-circuito ou aterrada pode produzir corrente o bastante para queimar materiais de pessoal ou inflamáveis.



PERIGO

A menos que uma hot swap seja permitida para a FRU que está sendo substituída, faça o seguinte antes de removê-la: desligue o computador, desconecte todos os cabos de energia das tomadas, remova o pacote de baterias e desconecte quaisquer cabos de interconexão.



DANGER

Avant de remettre l'ordinateur sous tension après remplacement d'une unité en clientèle, vérifiez que tous les ressorts, vis et autres pièces sont bien en place et bien fixées. Pour ce faire, secouez l'unité et assurez-vous qu'aucun bruit suspect ne se produit. Des pièces métalliques ou des copeaux de métal pourraient causer un court-circuit.



DANGER

Certaines batteries de secours contiennent du nickel et du cadmium. Ne les démontez pas, ne les rechargez pas, ne les exposez ni au feu ni à l'eau. Ne les mettez pas en court-circuit. Pour les mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la pile de sauvegarde ou celle de l'horloge temps réel, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. Une batterie ou une pile inappropriée risque de prendre feu ou d'exploser.



DANGER

La batterie contient du nickel. Ne la démontez pas, ne l'exposez ni au feu ni à l'eau. Ne la mettez pas en court-circuit. Pour la mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la batterie, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. En effet, une batterie inappropriée risque de prendre feu ou d'exploser.



DANGER

La pile de sauvegarde contient du lithium. Elle présente des risques d'incendie, d'explosion ou de brûlures graves. Ne la rechargez pas, ne retirez pas son connecteur polarisé et ne la démontez pas. Ne l'exposez pas à une température supérieure à 100°C, ne la faites pas brûler et n'en exposez pas le contenu à l'eau. Mettez la pile au rebut conformément à la réglementation en vigueur. Une pile inappropriée risque de prendre feu ou d'exploser.



DANGER

Si le panneau d'affichage à cristaux liquides se brise et que vous recevez dans les yeux ou sur les mains une partie du fluide, rincez-les abondamment pendant au moins quinze minutes. Consultez un médecin si des symptômes persistent après le lavage.



DANGER

Afin d'éviter tout risque de choc électrique, ne retirez pas le cache en plastique protégeant la partie inférieure de la carte d'alimentation.



DANGER

Bien que le voltage des batteries principales soit peu élevé, le court-circuit ou la mise à la masse d'une batterie peut produire suffisamment de courant pour brûler des matériaux combustibles ou causer des brûlures corporelles graves.



DANGER

Si le remplacement à chaud n'est pas autorisé pour l'unité remplaçable sur site que vous remplacez, procédez comme suit avant de retirer l'unité : mettez l'ordinateur hors tension, débranchez tous les cordons d'alimentation des prises de courant, retirez le bloc de batterie et déconnectez tous les câbles d'interconnexion.



VORSICHT

Bevor nach einem FRU-Austausch der Computer wieder angeschlossen wird, muß sichergestellt werden, daß keine Schrauben, Federn oder andere Kleinteile fehlen oder im Gehäuse vergessen wurden. Der Computer muß geschüttelt und auf Klappergeräusche geprüft werden. Metallteile oder-splitter können Kurzschlüsse erzeugen.



VORSICHT

Die Bereitschaftsbatterie, die sich unter dem Diskettenlaufwerk befindet, kann geringe Mengen Nickel und Cadmium enthalten. Sie darf nur durch die Verkaufsstelle oder den IBM Kundendienst ausgetauscht werden. Sie darf nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Die Batterie kann schwere Verbrennungen oder Verätzungen verursachen. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Bereitschafts-oder Systembatterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.



VORSICHT

Akkus enthalten geringe Mengen von Nickel. Sie dürfen nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.



VORSICHT

Die Systembatterie ist eine Lithiumbatterie. Sie kann sich entzünden, explodieren oder schwere Verbrennungen hervorrufen. Batterien dieses Typs dürfen nicht aufgeladen, zerlegt, über 100°C erhitzt oder verbrannt werden. Auch darf ihr Inhalt nicht mit Wasser in Verbindung gebracht oder der zur richtigen Polung angebrachte Verbindungsstecker entfernt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.



VORSICHT

Die Leuchtstoffröhre im LCD-Bildschirm enthält Quecksilber. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Der LCD-Bildschirm besteht aus Glas und kann zerbrechen, wenn er unsachgemäß behandelt wird oder der Computer auf den Boden fällt. Wenn der Bildschirm beschädigt ist und die darin befindliche Flüssigkeit in Kontakt mit Haut und Augen gerät, sollten die betroffenen Stellen mindestens 15 Minuten mit Wasser abgespült und bei Beschwerden anschließend ein Arzt aufgesucht werden.



VORSICHT

Aus Sicherheitsgründen die Kunststoffabdeckung, die den unteren Teil der Spannungswandlerplatine umgibt, nicht entfernen.



VORSICHT

Obwohl Hauptbatterien eine niedrige Spannung haben, können sie doch bei Kurzschluß oder Erdung genug Strom abgeben, um brennbare Materialien zu entzünden oder Verletzungen bei Personen hervorzurufen.



VORSICHT

Wenn ein Austausch der FRU bei laufendem Betrieb nicht erlaubt ist, gehen Sie beim Austausch der FRU wie folgt vor: Schalten Sie den Computer aus, ziehen Sie alle Netzkabel von den Netzsteckdosen ab, entfernen Sie den Akku und ziehen Sie alle miteinander verbundenen Kabel ab.



סכנה

לפני הפעלת המחשב לאחר החלפת FRU יש לוודא שכל תברגים, חקפצים, וחלקים קטנים אחרים נמצאים במקומם ואינם חופשיים לזוז בתוך המחשב. כדי לוודא זאת, יש לטלטל את המחשב ולחקשיב לגילוי קולות שקשוק. חלקי או שבבי מתכת עלולים לגרום לקצרים חשמליים.



סכנה

סוללות המתנה מסוימות מכילות כמוט קטנה של ניקל וקדמיום. אין לפרק סוללות המתנה, לטעון אותה מחדש, להשליך אותה לאש או למים או לקצר אותה. יש לסלק את הסוללה כנדרש על ידי התקנות וחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התמוצות של הסוללה.



סכנה

מארו הסוללה מכיל כמוט קטנה של ניקל וקדמיום. אין לפרק את מארו הסוללה, להשליך אותו לאש או למים או לקצר אותו. יש לסלק את מארו הסוללה הסוללה כנדרש על ידי התקנות וחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה בזמן החלפת מארו הסוללה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התמוצות של הסוללה.



סכנה

סוללת חליתיום עלולה לגרום לשריפה, להתפוצצות או לכוויות קשות. אין לטעון אותה מחדש, לסלק את המחבר המקוטב שלה, לפרק אותה או לחמם אותה לטמפרטורה העולה על 100 מעלות צלזיוס. אין לשרוף את הסוללה ואין לחשוף את תוכן התא למים. יש לסלק את הסוללה בנדרש בתקנות ובחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימים. שימוש בסוללה אחרת עלול לגרום לסכנת שריפה או התפוצצות.



סכנה

אם מסך חגביש העוזלי (LCD) נשבר והנוזל מתוך המסך בא במגע עם עיניכם או ידיכם, שטפו את האזורים הנוגעים מיד במים במשך 15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים חנוכיים מחמגע עם הנוזל נמשכים לאחר חשיפה.



סכנה

כדי למנוע התחשמלות, אין להסיר את מכסה הפלסטיק המגן על חלקו התחתון של הכרטיס ההפוך.



סכנה

אף שהסוללות הראשיות הן בעלות מתח נמוך, סוללה מקוצרת או מוארכת עלולה להפיק זרם מספיק לגרימת כוויות או להצתת חומרים דליקים.



סכנה

אלא אם כן מותרת 'החלפה חמה' של ה-FRU המוחלף, פעלו כדלהלן לפני חסרתו: כבו את המחשב, נתקו את כל כבלי החשמל מהשקעים, חוציאו את מארז הסוללות ונתקו את כל הכבלים המחוברים.



危険

FRU の交換後、ThinkPad の電源を入れる前に、ねじ、パネ、その他の小さな部品がすべて正しい位置にあり、また ThinkPad の内部で緩んでいないことを確認してください。
これを確認するには、ThinkPad を振って、カチャカチャと音がしないか確かめます。金属部品や金属破片はショートの原因になることがあります。



危険

予備バッテリーの中には少量のニッケルとカドミウムが含まれているものがあります。したがって、予備バッテリーの分解、再充電、火または水の中への投棄、またはショートさせることは決して行わないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。



危険

バッテリー・パックには少量のニッケルが含まれています。バッテリー・パックを分解したり、火または水の中に投げ込んだり、ショートさせないでください。バッテリー・パックの廃棄にあたっては、地方自治体の条例または規則に従ってください。バッテリー・パックを交換するときは、適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。



危険

リチウム・バッテリーは、火災、爆発、または重症のやけどを引き起こすことがあります。バックアップ・バッテリーの充電、その極性コネクタの取り外し、バッテリー本体の分解、100 °C (212 °F) 以上への加熱、焼却、電池の中身を水に浸すことはしないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。



危険

LCD が破損し、LCD 中の液体が目に入ったり、手に触れたりした場合は、液体が触れた部分を少なくとも 15 分間洗い流してください。洗い流した後に、液体によって何らかの症状が現れた場合は、医師の治療を受けてください。



危険

感電を防ぐため、インバーター・カードの下部を保護しているプラスチック・カバーを外さないでください。



危険

メイン・バッテリーの電圧は低くても、ショートしたり、接地したバッテリーが、作業者にやけどを負わせたり、可燃物を燃やすだけの電流を発生させる場合があります。



危険

交換しようとしている FRU がホット・スワップに対応していない場合、それを取り外す前に、コンピューターの電源をオフにし、すべての電源コードをコンセントから抜き、バッテリー・バックを取り外して、相互接続しているケーブルをすべて切り離してください。



위험

FRU를 교체하고 나서 컴퓨터 전원을 켜기 전에 모든 나사, 스프링 및 기타 작은 부품들이 올바른 위치에 있는지, 컴퓨터 내부에 단단하게 연결되어 있는지 확인하십시오. 컴퓨터를 흔들어 달걀거리는 소리가 나지 않는지 확인하십시오. 금속 부품 또는 금속 조각은 누전을 일으킬 수 있습니다.



위험

일부 보조 배터리에는 소량의 니켈 및 카드뮴이 포함되어 있습니다. 보조 배터리를 분해하거나, 다시 충전하거나, 불 또는 물에 던지거나, 단락시키지 마십시오. 배터리 팩을 폐기할 때에는 해당 지역의 법률 규정을 따르십시오. 배터리 팩을 교체할 때에는 올바른 배터리만 사용하십시오. 올바르지 않은 배터리를 사용하면 배터리가 발화되거나 폭발할 수 있습니다.



위험

배터리 팩에는 소량의 니켈이 포함되어 있습니다. 배터리 팩을 분해하거나, 불 또는 물에 던지거나, 단락시키지 마십시오. 배터리 팩을 폐기할 때에는 해당 지역의 법률 규정을 따르십시오. 배터리 팩을 교체할 때에는 올바른 배터리만 사용하십시오. 올바르지 않은 배터리를 사용하면 배터리가 발화되거나 폭발할 수 있습니다.



위험

리튬 배터리는 화재, 폭발 또는 심각한 화상을 일으킬 수 있습니다. 리튬 배터리를 다시 충전하거나, 극성 커넥터를 제거하거나, 분해하거나, 100°C(212°F) 이상으로 가열하거나, 소각하거나, 전지 내용물을 물에 노출시키지 마십시오. 배터리를 폐기할 때에는 해당 지역을 법률 규정을 따르십시오. 올바른 배터리만 사용하십시오. 올바르지 않은 배터리를 사용하면 배터리가 발화되거나 폭발할 수 있습니다.



위험

LCD가 파손되어 LCD 내부의 액체가 눈에 들어가거나 손에 묻으면 즉시 깨끗한 물로 15분 이상 닦아 내십시오. 씻은 후에 조금이라도 이상을 느끼면 즉시 병원에 가서 의사의 진찰을 받아야 합니다.



위험

전기적 위험을 방지하려면 인버터 카드의 아래 부분을 보호하는 플라스틱 덮개를 제거하지 마십시오.



위험

기본 배터리의 전압은 낮지만, 단락되거나 접지된 배터리는 화상을 입히기에 충분한 전류와 가연성 물질을 발생시킬 수 있습니다.



위험

FRU 교체 시 Hot Swap이 지원되지 않는 경우, FRU를 제거하기 전에 컴퓨터의 전원을 끄고, 전기 콘센트에서 전원 코드를 분리하고, 배터리를 제거한 후, 연결된 모든 케이블을 분리하십시오.



PELIGRO

Antes de encender el sistema después de sustituir una FRU, compruebe que todos los tornillos, muelles y demás piezas pequeñas se encuentran en su sitio y no se encuentran sueltas dentro del sistema. Compruébelo agitando el sistema y escuchando los posibles ruidos que provocarían. Las piezas metálicas pueden causar cortocircuitos eléctricos.



PELIGRO

Algunas baterías de reserva contienen una pequeña cantidad de níquel y cadmio. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.



PELIGRO

Las baterías contienen pequeñas cantidades de níquel. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas al sustituir la batería. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.



PELIGRO

La batería de repuesto es una batería de litio y puede provocar incendios, explosiones o quemaduras graves. No la recargue, ni quite el conector polarizado, ni la desmonte, ni caliente por encima de los 100°C (212°F), ni la incinere ni exponga el contenido de sus celdas al agua. Deséchela tal como dispone la normativa local.



PELIGRO

Si la LCD se rompe y el fluido de su interior entra en contacto con sus ojos o sus manos, lave inmediatamente las áreas afectadas con agua durante 15 minutos como mínimo. Obtenga atención medica si se presenta algún síntoma del fluido despues de lavarse.



PELIGRO

Para evitar descargas, no quite la cubierta de plástico que rodea la parte baja de la tarjeta invertida.



PELIGRO

Aunque las baterías principales tienen un voltaje bajo, una batería cortocircuitada o con contacto a tierra puede producir la corriente suficiente como para quemar material combustible o provocar quemaduras en el personal.



PELIGRO

Salvo que se permita el intercambio en caliente para la unidad sustituible localmente, realice lo siguiente antes de extraerla: apague el sistema, desconecte todos los cables de alimentación de las tomas de alimentación eléctrica, extraiga la batería y desconecte los cables de interconexión.



危險

完成 FRU 更換之後，在開啟電腦的電源之前，請確定所有螺絲、彈簧及其他小零件都已歸位，沒有遺留在電腦內部。
若要確認這一點，請搖晃電腦，聽聽看是否有卡嗒的聲響。
金屬零件或儀錶的火花會造成電線短路。



危險

部分備用電池含有微量的鎳和鎘。請勿拆開備用電池、再充電、丟入火或水中，或使其形成短路。請按照當地法令或規定來棄置電池。
僅限使用零件清單中的電池。使用不適當的電池會導致電池起火或爆炸。



危險

電池套件含有微量的鎳。請勿拆開電池套件、丟入火或水中，或使其形成短路。請按照當地法令或規定來棄置電池套件。
更換電池套件時，僅限使用零件清單中的電池。使用不適當的電池會導致電池起火或爆炸。



危險

鋰電池會導致起火、爆炸或嚴重燒傷。請勿再充電、拔除其電極接頭、拆開、加熱超過 100°C (212°F)、焚燒，或讓電池組成物浸到水。請按照當地法令或規定來棄置電池。
僅限使用零件清單中的電池。使用不適當的電池會導致電池起火或爆炸。



危險

如果 LCD 破裂導致 LCD 流出的液體沾到您的眼睛或手，請立即以清水沖洗沾染部位至少 15 分鐘。如果在清洗後出現該液體所造成的任何症狀，請就醫治療。



危險

為避免電擊，請勿拆下轉換卡下面的塑膠護蓋。



危險

雖然主電池的電壓很低，但短路或接地電池所產生的電流，仍足以使人燒傷或使可燃物質起火。



危險

除非 FRU 允許以熱抽換來替換，否則請依下列方式將其移除：將電腦關機，拔除插座上所有電源線，移除電池包，並拔開任何交互連接的線材。

Chapter 2. General checkout

This chapter contains the following topics:

Before you go to the checkout instructions, ensure that you read the following important notes.

Important notes:

- **Only certified trained personnel should service the computer.**
- **Before replacing any FRU, read the entire page on removing and replacing FRUs.**
- **When you replace FRUs, it is recommended to use new nylon-coated screws.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** Drives in the computer that you are servicing sequence might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace a FRU only with another FRU of the correct model.** When you replace a FRU, make sure that the model of the machine and the FRU part number are correct by referring to the FRU parts list.
- **A FRU should not be replaced because of a single, unreproducible failure.** Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. Consider replacing a FRU only when a problem recurs. If you suspect that a FRU is defective, clear the error log and run the test again. If the error does not recur, do not replace the FRU.
- **Be careful not to replace a nondefective FRU.**

What to do first

When you return a FRU, you must include the following information in the parts exchange form or parts return form that you attach to it:

1. Name and phone number of service technician
2. Date of service
3. Date on which the machine failed
4. Date of purchase
5. Failure symptoms, error codes appearing on the display, and beep symptoms
6. Procedure index and page number in which the failing FRU was detected
7. Failing FRU name and part number
8. Machine type, model number, and serial number
9. Customer's name and address

Note: During the warranty period, the customer may be responsible for repair costs if the computer damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer. Following is a list of some common items that are not covered under warranty and some symptoms that might indicate that the system was subjected to stress beyond normal use.

Before checking problems with the computer, determine whether the damage is covered under the warranty by referring to the following list:

The following are not covered under warranty:

- LCD panel cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) parts
- Distortion, deformation, or discoloration of the cosmetic parts
- Plastic parts, latches, pins, or connectors that have been cracked or broken by excessive force

- Damage caused by liquid spilled into the system
- Damage caused by the improper insertion of a personal-computer card (PC card) or the installation of an incompatible card
- Improper disc insertion or use of an external optical drive
- Fuses blown by attachment of a non-supported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard
- Use of an incorrect ac power adapter on laptop products

The following symptoms might indicate damage caused by non-warranted activities:

- Missing parts might be a symptom of unauthorized service or modification.
- Check for obvious damage to a hard disk drive. If the spindle of a hard disk drive becomes noisy, the hard disk drive might have been dropped or subject to excessive force.

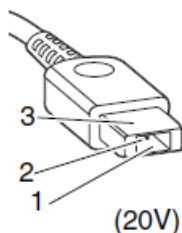
Checking the ac power adapter

If the computer fails only when the ac power adapter is used, refer to the information in this topic to check the ac power adapter.

If the power-on indicator does not turn on, check the power cord of the ac power adapter for correct continuity and installation.

To check the ac power adapter, do the following:

1. Unplug the ac power adapter cable from the computer.
2. Measure the output voltage across the plug of the ac power adapter cable. The correct voltages are shown in the following table.



Pin	Voltage (V dc)
1	+20
2	0
3	Ground

Note: The output voltage across pin 2 might differ from the voltage that you measure.

3. Depending on the voltage that you measure, do one of the following:
 - If the voltage is not correct, replace the ac power adapter.
 - If the voltage is acceptable, do the following:
 - a. Replace the system board.
 - b. If the problem persists, call the Customer Support Center.

Note: Noise from the ac power adapter does not always indicate a defect.

Lenovo V730 – 13 CRU list

Model: Lenovo V730 – 13	
MT: 81AV	
CRU	Type

ac power adapter	self-service
power cord	self-service

Chapter 3. Identifying FRUs (CRUs)

All FRUs (CRUs) for Lenovo V730 – 13

The exploded illustrations help Lenovo service technicians identify FRUs or CRUs that they may need to replace when servicing a customer's computer.

Refer to Appendix A “Lenovo part numbers for replacement FRUs” on page 45 if you need to look up Lenovo part numbers for a particular FRU or CRU.

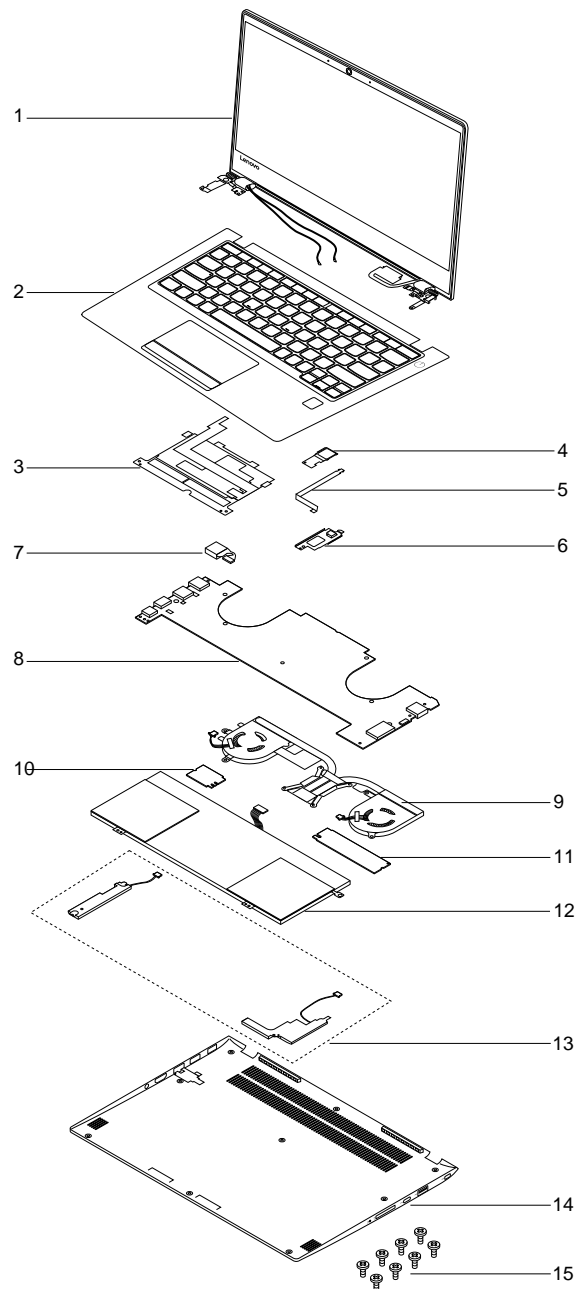


Figure 1. Lenovo V730 – 13 exploded view

Table 1. FRU (CRU) categories

No.	FRU (CRU) category
1	LCD module
2	Upper case (with keyboard)
3	Touch pad bracket
4	Fingerprint board
5	Fingerprint board cable
6	Fingerprint bracket
7	dc-in cable
8	System board
9	Heat sink
10	Wireless module
11	Solid state drive
12	Battery pack
13	Speakers
14	Base cover
15	Screw pack

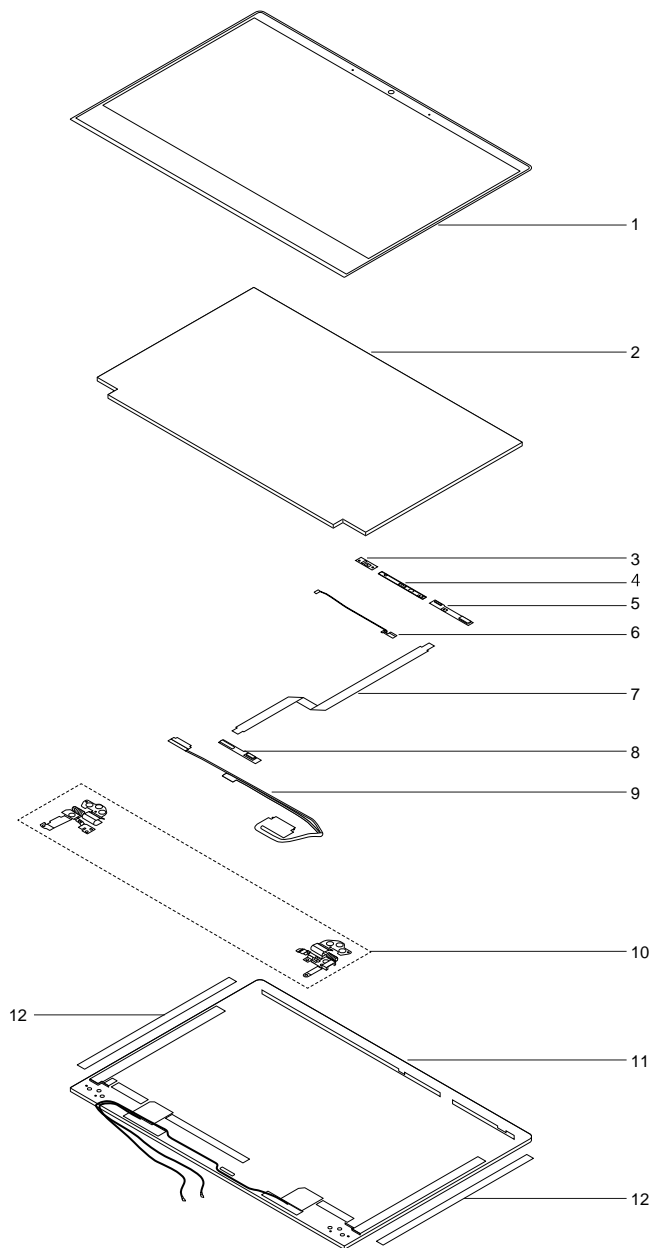


Figure 2. LCD module — exploded view

Table 2. FRU categories for the LCD module

No.	FRU (CRU) category
1	LCD bezel
2	LCD panel
3	Microphone board (left)
4	Camera board
5	Microphone board (right)
6	Camera cable (left)

Table 2. FRU categories for the LCD module (continued)

7	Adapter board cable
8	Adapter board
9	eDP cable
10	Hinges
11	LCD base cover
12	Adhesive tape

Chapter 4. Removing a FRU or CRU

General guidelines

When removing or replacing a FRU, ensure that you observe the following general guidelines:

1. Do not try to service any computer unless you have been trained and certified. An untrained person runs the risk of damaging parts.
2. Begin by removing any FRUs that have to be removed before replacing the failing FRU. Any such FRUs are listed at the beginning of each FRU replacement procedure. Remove them in the order in which they are listed.
3. Follow the correct sequence in the steps for removing a FRU, as shown in the illustrations by the numbers in square callouts.
4. When removing a FRU, move it in the direction as shown by the arrow in the illustration.
5. To install a new FRU in place, perform the removal procedure in reverse and follow any notes that pertain to replacement.
6. When replacing a FRU, carefully retain and reuse all screws. If screws are missing, look up the Lenovo parts numbers in Appendix B “Lenovo part numbers for CRUs and miscellaneous parts” on page 51 for replacement screws and order them through the Lenovo CRM system.
7. When replacing the base cover, reapply all labels that come with the replacement base cover. If some original labels are not included with the replacement base cover, peel them off from the original base cover and paste them on the replacement base cover.



Before removing any FRU or CRU, shut down the computer and unplug all power cords from electrical outlets.

Attention: After replacing a FRU, do not turn on the computer until you have ensured that all screws, springs, and other small parts are in place and none are loose inside the computer. Verify this by shaking the computer gently and listening for rattling sounds. Metallic parts or metal flakes can cause electrical short circuits.

Attention: The system board is sensitive to and can be damaged by ESD. Before touching it, establish personal grounding by touching a ground point with one hand or by using an ESD strap (P/N 6405959).

Remove the lower case

Make sure the computer has been shut down before servicing the computer..

- Step 1. Place the computer upside down on a flat surface.
- Step 2. Remove 9 screws.

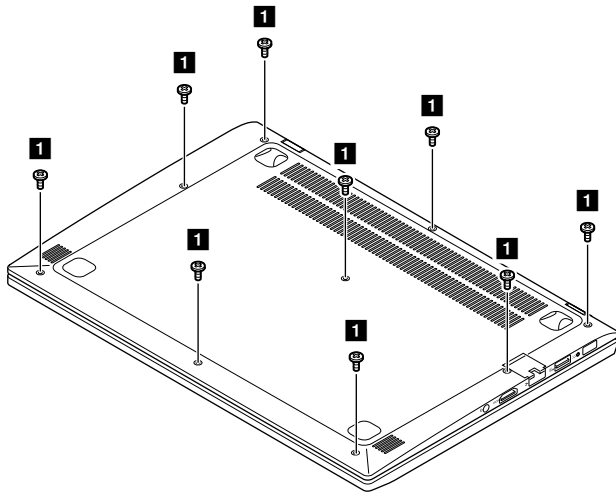


Figure 3. Remove 9 screws

Screw specifications	Quantity
M2.0 x 3.5	9

Step 3. Use a pry bar to detach the base cover, starting from the upper edge, then along the left edge. (2)

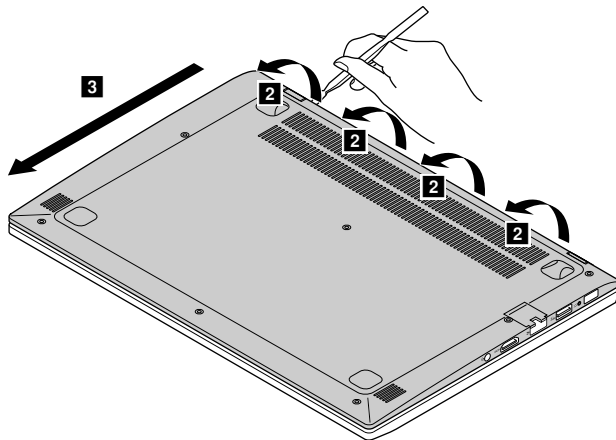


Figure 4. Detach from the upper edge

Step 4. Lift up the cover to detach it.

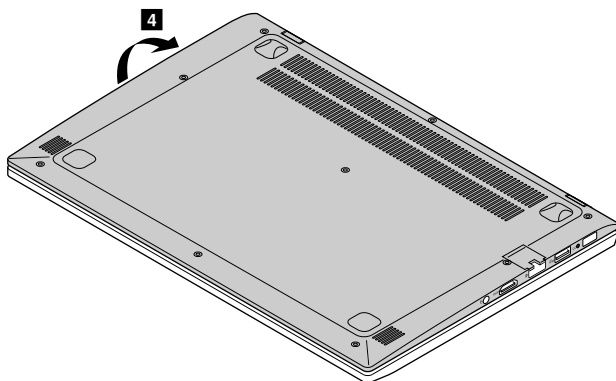


Figure 5. Lift up the cover

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Lower case

Remove the battery pack

Make sure the following FRUs (or CRUs) have been removed.

“Remove the lower case” on page 29

Step 1. Disconnect the cable from the system board.

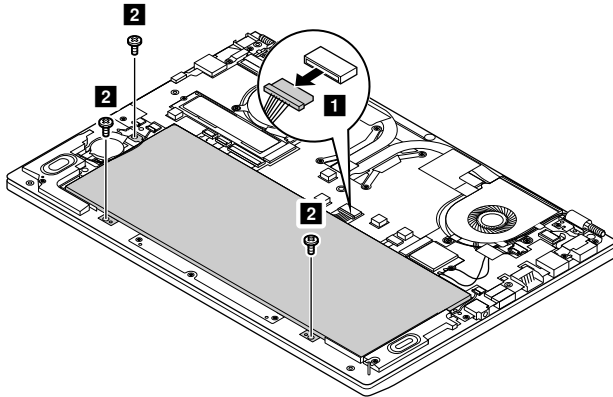


Figure 6. Disconnect cable and remove screws

Attention: Use your fingernail to pull the connector to unplug it. Do not pull the cable.

Step 2. Remove 3 screws.

Screw specifications	Quantity
M2.0 x 3	3

Step 3. Remove the battery pack.

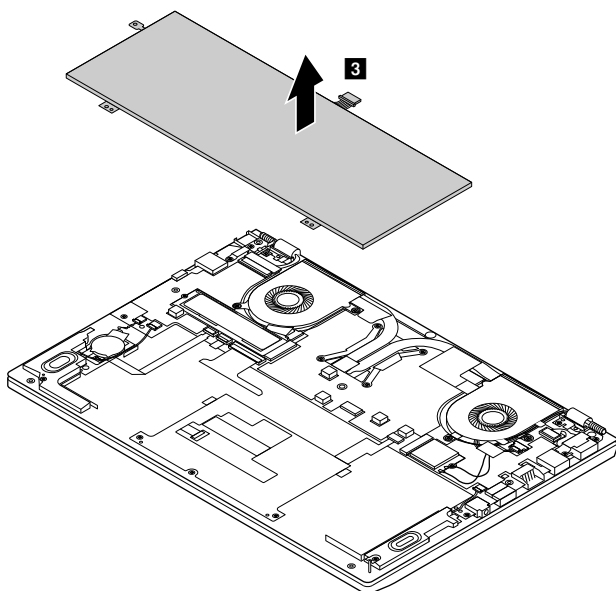


Figure 7. Remove the battery pack

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Battery pack

Remove the solid-state drive

Make sure the following FRUs (or CRUs) have been removed.

“Remove the lower case” on page 29

Step 1. Remove 1 screw.

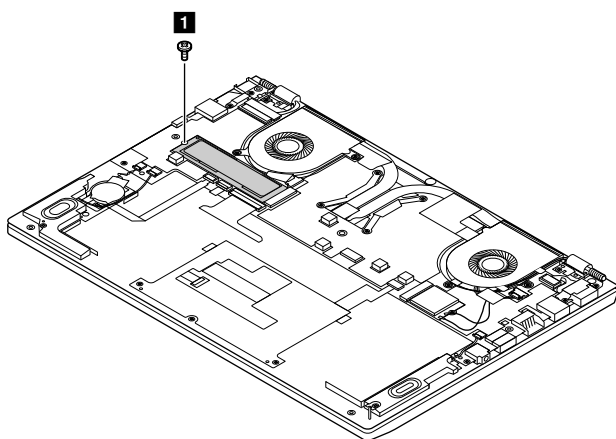


Figure 8. Remove 1 screw

Screw specifications	Quantity
M2.0 x 3	1

Step 2. Remove the solid-state drive by pulling it away from the slot.

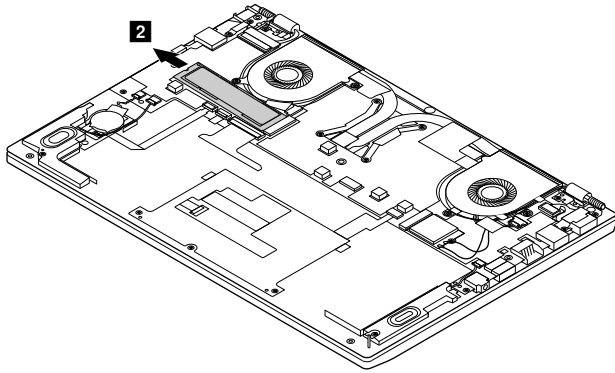


Figure 9. Remove by pulling the solid-state drive

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Solid-state drive

Remove the wireless module

Make sure the following FRUs (or CRUs) have been removed.

“Remove the lower case” on page 29

Step 1. Disconnect the main and auxiliary antenna cables.

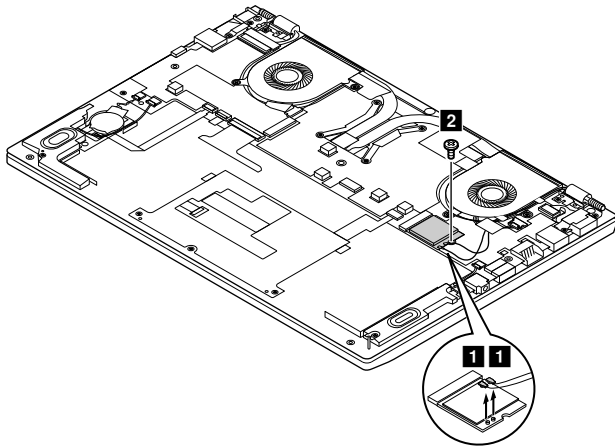


Figure 10. Disconnect antenna cables

Step 2. Remove 1 screw.

Screw specifications	Quantity
M2.0 x 3	1

Step 3. Remove the wireless module by pulling it away from the slot.

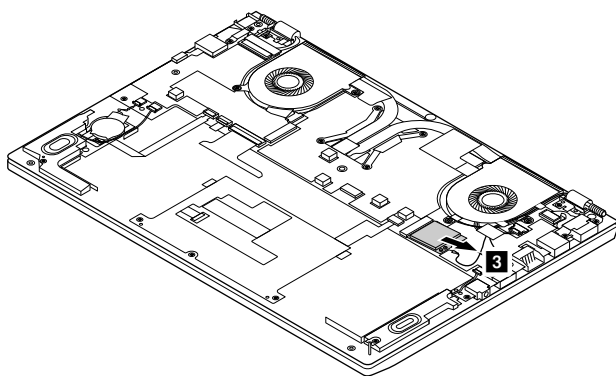


Figure 11. Remove the wireless module

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Wireless module

Remove the speakers

Make sure the following FRUs (CRUs) have been removed.

“Remove the lower case” on page 29

“Remove the battery pack” on page 31

Step 1. Disconnect the cables from the system board. **1**

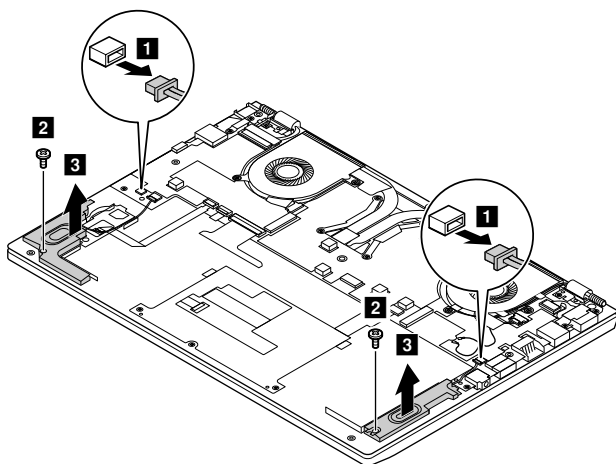


Figure 12. Disconnect the cables

Step 2. Remove 2 screws, then remove the speakers.

Screw specifications	Quantity
M2.0 x 3	2

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of replacement speakers.

Remove the heat sink

Make sure the following FRUs (or CRUs) have been removed.

“Remove the lower case” on page 29

Step 1. Disconnect two plugs.

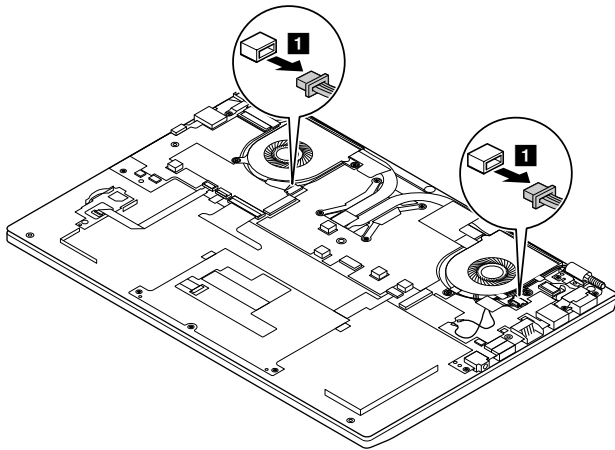


Figure 13. Disconnect two plugs

Step 2. Remove 4 screws (2) and loosen another 4 screws (3).

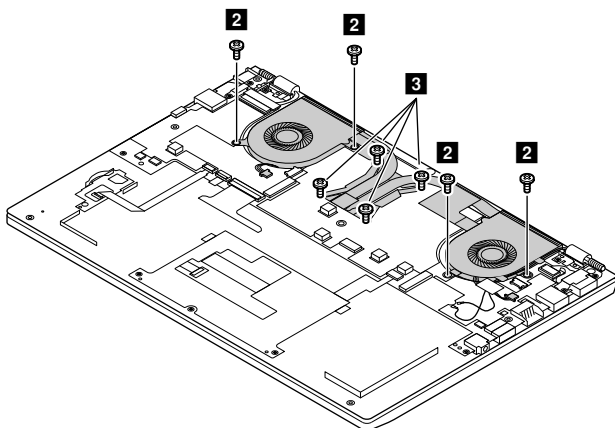


Figure 14. Remove and loosen screws

Screw specifications	Quantity
M2.0 x 3	8

Step 3. Remove the heat sink.

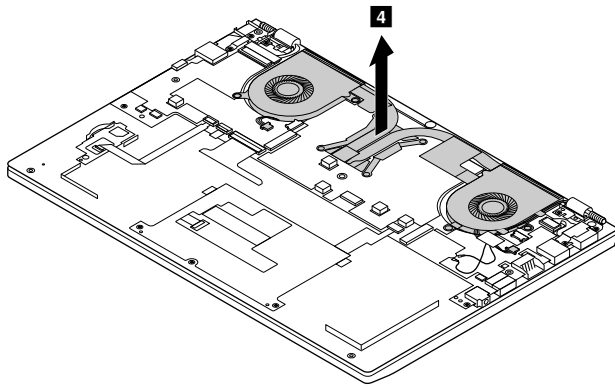


Figure 15. Remove the heat sink

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Heat sink

Remove the system board and the dc-in cable

Make sure the following FRUs (or CRUs) have been removed.

“Remove the lower case” on page 29

“Remove the heat sink” on page 35

Step 1. Unplug the dc-in cable from the socket **3** and disconnect all other cables from the system board.

Note: The hardware components that are connected with the system board through cables include:

- Keyboard
- Fingerprint reader
- dc-in connector
- LCD module

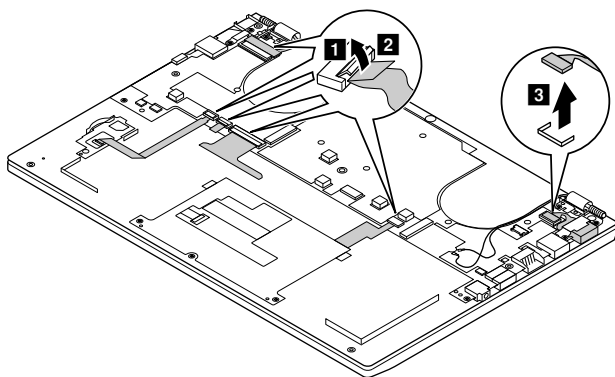


Figure 16. Disconnect all cables from the system board

Step 2. Remove 6 screws (**4**) to disconnect the hinges from the base cover, then remove another 2 screws (**5**).

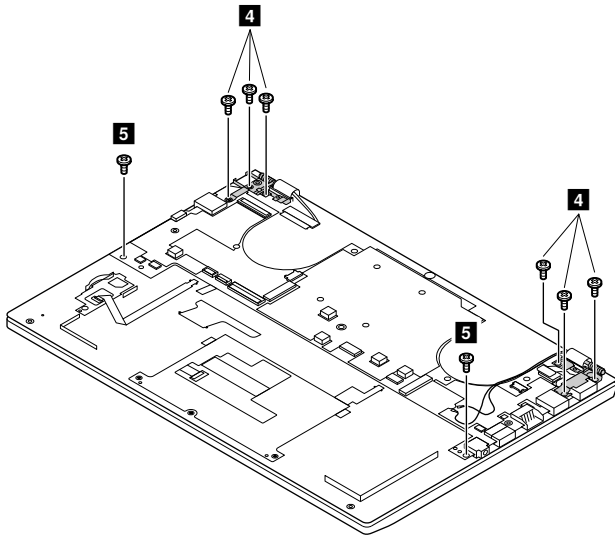


Figure 17. Remove 8 screws

Screw specifications	Number of screws
M2.0 x 4 (4)	6
M2.0 x 3 (5)	2

Step 3. Remove the dc-in cable.

Step 4. Remove the system board.

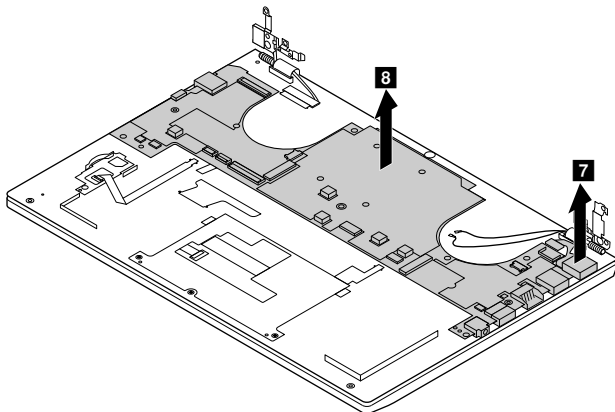


Figure 18. Remove the system board

The LCD module is disconnected from the base cover at step 2.

Note: The LCD module is not a FRU part. Instead, it includes FRU parts as its components. Refer to “Disassemble the LCD module” on page 39 for instructions on how to disassemble the LCD modules.

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

System board

dc-in cable

Remove the touch pad bracket, fingerprint board, and fingerprint bracket

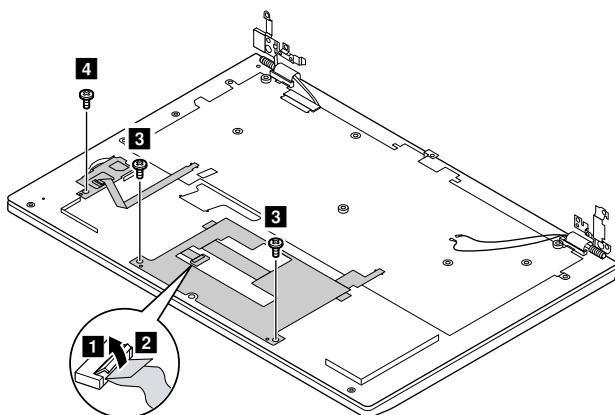
Make sure the following FRUs (or CRUs) have been removed. Also make sure the cable connecting the fingerprint board to the system board has been disconnected.

Note: Not all Lenovo V730 – 13 SKUs include the fingerprint board.

“Remove the lower case” on page 29

“Remove the battery pack” on page 31

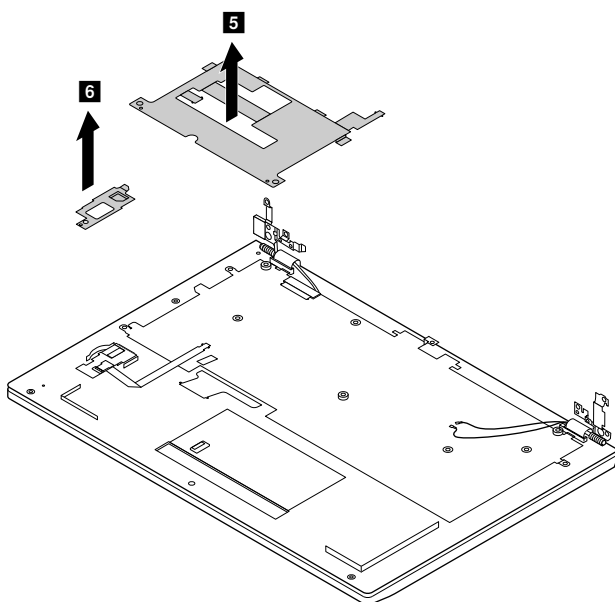
Step 1. Disconnect the cable from the touch pad bracket.



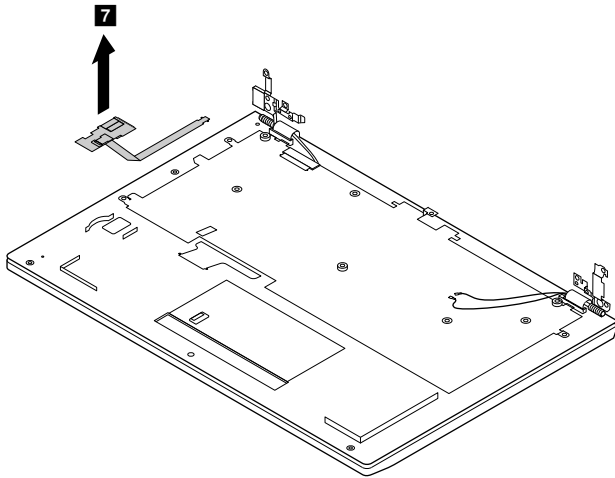
Screw specifications	Number of screws
M2.0 x 3	1

Step 2. Remove the screws that secure the touch pad bracket and the fingerprint board.

Step 3. Remove the touch pad bracket and the fingerprint bracket.



Step 4. Remove the fingerprint board.



Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Touch pad bracket (with two click buttons)

Fingerprint board

Fingerprint bracket

Disassemble the LCD module

The LCD module as a whole is not a FRU. Instead, it contains FRUs as its components. Before disassembling the LCD module, make sure it has been detached from the base cover. Refer to “Remove the system board and the dc-in cable” on page 36 for instructions.

Remove the LCD bezel

Step 1. Insert your fingernails under the lower inner side of the LCD bezel and then carefully pull the LCD bezel outwards. Repeat this action along the inner edges of the LCD bezel until all hooks that secure the LCD bezel are detached.

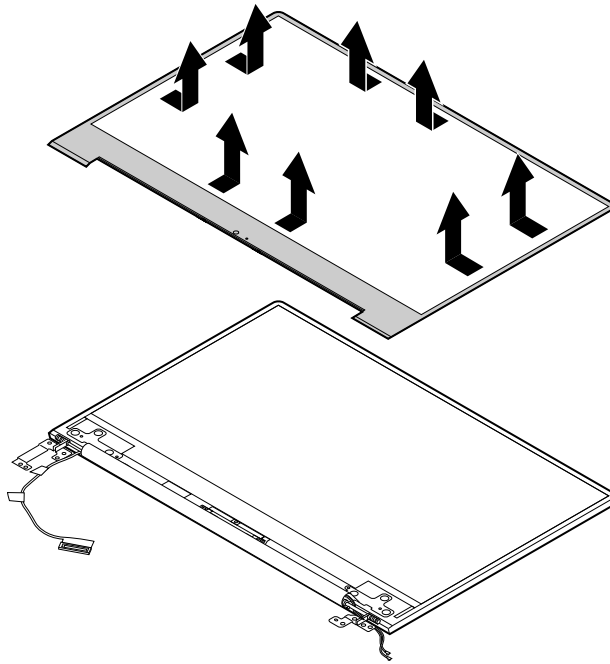


Figure 19. Pull the inner sides of the LCD bezel

Attention: Do not pull the LCD bezel from the outer sides of the LCD bezel, otherwise the hooks may be damaged. The lower side of the LCD bezel is fixed to the LCD panel with adhesive tape. Detach with care.

Step 2. Remove the LCD bezel.

Refer to Table 4 “Part numbers for LCD FRUs” on page 49 to look up the Lenovo part numbers for the replacement LCD bezel.

Remove the LCD panel and the LCD cable

Make sure the following FRUs (or CRUs) have been removed.

“Remove the LCD bezel” on page 39

Step 1. Pull the two tapes (located on left and right edges under the LCD panel) downwards steadily; with the bottom edge as an axis, lift up the top edge of the LCD panel.

Attention: Do not remove the LCD panel at this step. The LCD panel is connected by a cable at the back side. Detach the cable before removing the LCD panel.

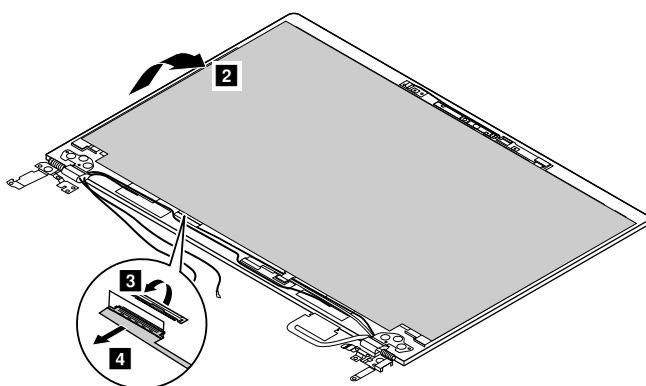


Figure 20. Remove 4 screws and lift up the LCD panel

Step 2. Check the back side of the LCD panel for the LCD connector and then unplug the LCD cable.

Step 3. Remove the LCD panel.

Step 4. Remove the LCD cable.

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

LCD panel

Refer to Appendix B “Lenovo part numbers for CRUs and miscellaneous parts” on page 51 to look up the Lenovo part numbers of the replacement tape.

Remove the hinges

Make sure the following FRUs (or CRUs) have been removed.

“Remove the LCD bezel” on page 39

“Remove the LCD panel and the LCD cable” on page 40

Step 1. Remove 6 screws.

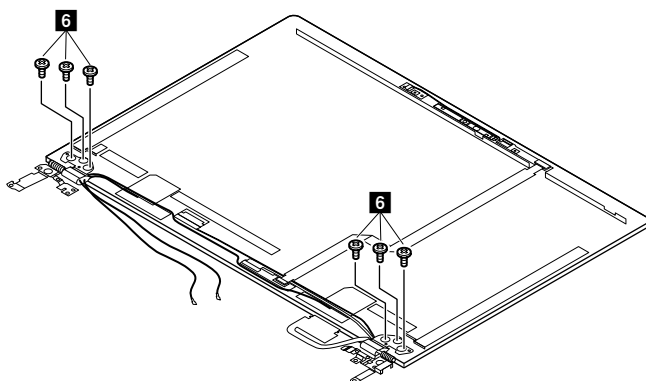


Figure 21. Remove 6 screws

Screw specifications	Quantity
M2.5 x 2.5	6

Step 2. Remove the hinges.

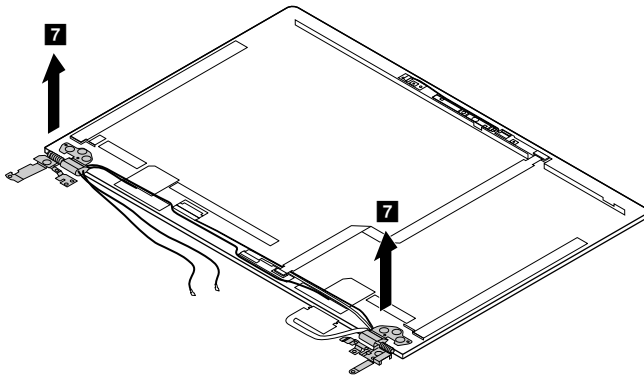


Figure 22. Remove the hinges

Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

Hinges

Remove the adapter, microphone, and camera boards

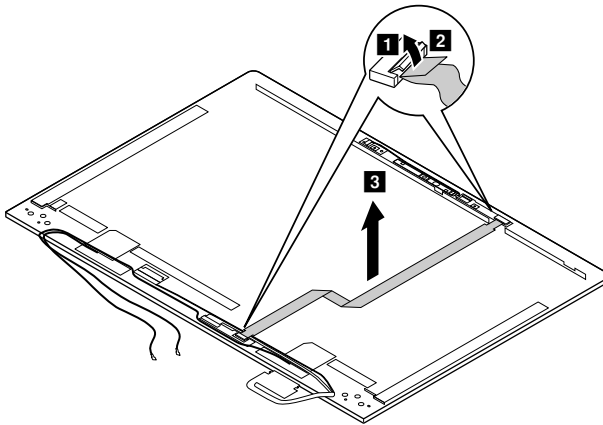
Make sure the following FRUs (or CRUs) have been removed.

“Remove the LCD bezel” on page 39

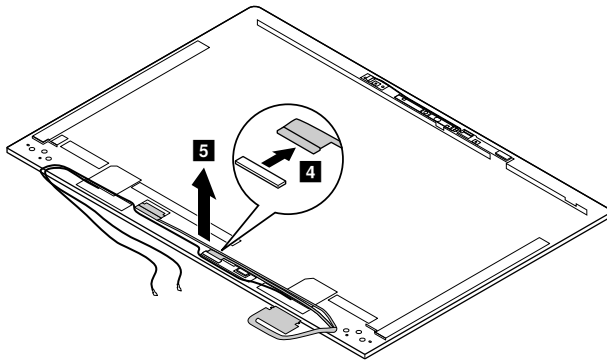
“Remove the LCD panel and the LCD cable” on page 40

“” on page

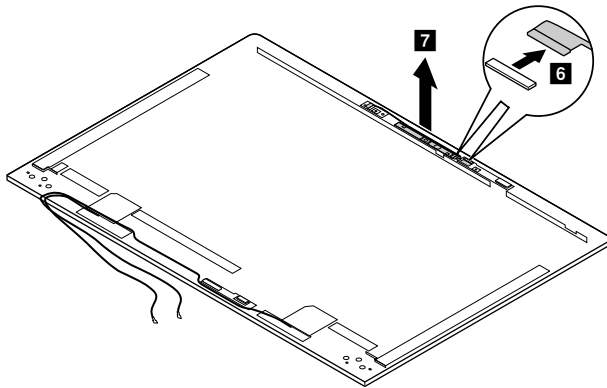
Step 1. Unplug the adapter board cable and remove it.



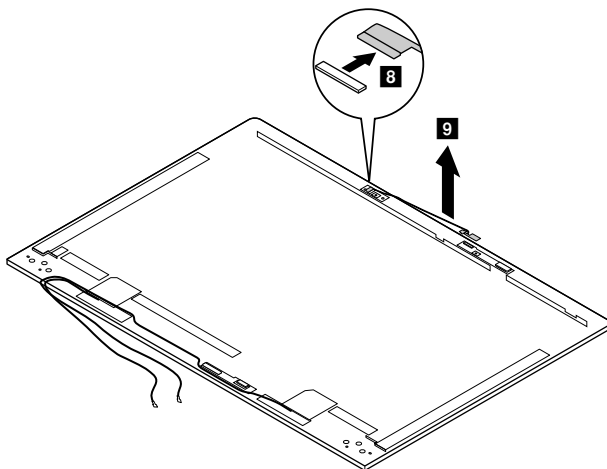
Step 2. Unplug the eDP cable and remove it.



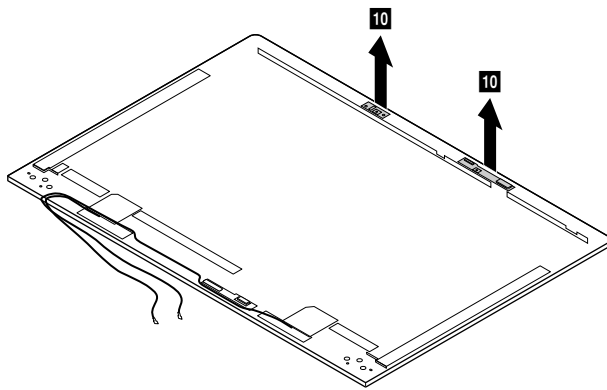
Step 3. Disconnect the camera board from the right microphone board, then remove the camera board.



Step 4. Disconnect the cable connected with the left microphone board, then remove the cable.



Step 5. Remove the left and right microphone board.



Refer to Table 3 “Part numbers for FRUs (CRUs)” on page 45 to look up the Lenovo part numbers of the following replacement parts:

- eDP cable
- Microphone board cable
- Adapter board
- Adapter board cable
- Camera board
- Microphone board (left)
- Microphone board (right)
- LCD base cover

Appendix A. Lenovo part numbers for replacement FRUs

When servicing a customer's computer, Lenovo service technicians may use part numbers listed in the following tables to order replacement parts through Lenovo CRM (customer relationship management) system.

Table 3. Part numbers for FRUs (CRUs)

No.	FRU (CRU) category	Parts description	Lenovo part number
2	Upper case (with keyboard)		
		Upper CaseW 81AV BLK W/TP/KB-US FP	5CB0Q56273
		Upper CaseW81AV BLK W/TP/KB-US NFP	5CB0Q56368
		Upper CaseW 81AV BLK W/TP/KB-KO FP	5CB0Q98097
		Upper CaseW81AV BLK W/TP/KB-KO NFP	5CB0Q98100
		Upper CaseW 81AV BLK W/TP/KB-TC FP	5CB0Q98098
		Upper CaseW81AV BLK W/TP/KB-TC NFP	5CB0Q98101
		Upper CaseW 81AV BLK W/TP/KB-JP FP	5CB0Q98099
		Upper CaseW81AV BLK W/TP/KB-JP NFP	5CB0Q98102
3	Touch pad bracket		
		TP button Board W 81AV	5C50Q56346
4	Fingerprint board		
		FP Board W 80VT	5C50N75450
5	Fingerprint board cable		
		FP Cable W 80VT	5C10N75480
6	Fingerprint bracket		
		FP Brackete W 80VT	5B40N75479
7	Fingerprint cable		
		FP Cable W 80VT	5C10N75480
6	System board		
		MBW81AV NOK I36006U UMA 4G NTCM	5B20Q56333
		MBW 81AV NOK I36006U UMA 4G TCM	5B20Q56352
		MBW81AV NOK I36006U UMA 8G NTCM	5B20Q56371
		MBW 81AV NOK I36006U UMA 8G TCM	5B20Q56287
		MBW81AVNOK I36006U UMA 16G NTCM	5B20Q56304
		MBW81AV NOK I36006U UMA 16G TCM	5B20Q56344
		MBW81AV NOK I36100U UMA 4G NTCM	5B20Q56340
		MBW 81AV NOK I36100U UMA 4G TCM	5B20Q56373
		MBW81AV NOK I36100U UMA 8G NTCM	5B20Q56369

Table 3. Part numbers for FRUs (CRUs) (continued)

		MBW 81AV NOK I36100U UMA 8G TCM	5B20Q56256
		MBW81AVNOK I36100U UMA 16G NTCM	5B20Q56305
		MBW81AV NOK I36100U UMA 16G TCM	5B20Q56375
		MBW81AV NOK I56200U UMA 4G NTCM	5B20Q56320
		MBW 81AV NOK I56200U UMA 4G TCM	5B20Q56356
		MBW81AV NOK I56200U UMA 8G NTCM	5B20Q56298
		MBW 81AV NOK I56200U UMA 8G TCM	5B20Q56283
		MBW81AVNOK I56200U UMA 16G NTCM	5B20Q56301
		MBW81AV NOK I56200U UMA 16G TCM	5B20Q56290
		MBW81AV NOK I56300U UMA 4G NTCM	5B20Q56328
		MBW 81AV NOK I56300U UMA 4G TCM	5B20Q56361
		MBW81AV NOK I56300U UMA 8G NTCM	5B20Q56327
		MBW 81AV NOK I56300U UMA 8G TCM	5B20Q56326
		MBW81AVNOK I56300U UMA 16G NTCM	5B20Q56285
		MBW81AV NOK I56300U UMA 16G TCM	5B20Q56281
		MBW81AV NOK I76500U UMA 4G NTCM	5B20Q56335
		MBW 81AV NOK I76500U UMA 4G TCM	5B20Q56254
		MBW81AV NOK I76500U UMA 8G NTCM	5B20Q56291
		MBW 81AV NOK I76500U UMA 8G TCM	5B20Q56334
		MBW81AVNOK I76500U UMA 16G NTCM	5B20Q56275
		MBW81AV NOK I76500U UMA 16G TCM	5B20Q56366
		MBW81AV NOK I37100U UMA 4G NTCM	5B20Q56311
		MBW 81AV NOK I37100U UMA 4G TCM	5B20Q56271
		MBW81AV NOK I37100U UMA 8G NTCM	5B20Q56276
		MBW 81AV NOK I37100U UMA 8G TCM	5B20Q56282
		MBW81AVNOK I37100U UMA 16G NTCM	5B20Q56343
		MBW81AV NOK I37100U UMA 16G TCM	5B20Q56300
		MBW81AV NOK I57200U UMA 4G NTCM	5B20Q56266
		MBW 81AV NOK I57200U UMA 4G TCM	5B20Q56255
		MBW81AV NOK I57200U UMA 8G NTCM	5B20Q56325
		MBW 81AV NOK I57200U UMA 8G TCM	5B20Q56338
		MBW81AVNOK I57200U UMA 16G NTCM	5B20Q56367
		MBW81AV NOK I57200U UMA 16G TCM	5B20Q56357
		MBW81AV NOK I77500U UMA 4G NTCM	5B20Q56257
		MBW 81AV NOK I77500U UMA 4G TCM	5B20Q56355
		MBW81AV NOK I77500U UMA 8G NTCM	5B20Q56365
		MBW 81AV NOK I77500U UMA 8G TCM	5B20Q56310

Table 3. Part numbers for FRUs (CRUs) (continued)

		MBW81AVNOK I77500U UMA 16G NTCM	5B20Q56313
		MBW81AV NOK I77500U UMA 16G TCM	5B20Q56322
		MBW81AV NOK I37130U UMA 4G NTCM	5B20Q56289
		MBW 81AV NOK I37130U UMA 4G TCM	5B20Q56347
		MBW81AV NOK I37130U UMA 8G NTCM	5B20Q56359
		MBW 81AV NOK I37130U UMA 8G TCM	5B20Q56349
		MBW81AVNOK I37130U UMA 16G NTCM	5B20Q56293
		MBW81AV NOK I37130U UMA 16G TCM	5B20Q56267
		MBW81AV WIN I36006U UMA 4G NTCM	5B20Q56360
		MBW 81AV WIN I36006U UMA 4G TCM	5B20Q56350
		MBW81AV WIN I36006U UMA 8G NTCM	5B20Q56354
		MBW 81AV WIN I36006U UMA 8G TCM	5B20Q56286
		MBW81AVWIN I36006U UMA 16G NTCM	5B20Q56262
		MBW81AV WIN I36006U UMA 16G TCM	5B20Q56332
		MBW81AV WIN I36100U UMA 4G NTCM	5B20Q56345
		MBW 81AV WIN I36100U UMA 4G TCM	5B20Q56362
		MBW81AV WIN I36100U UMA 8G NTCM	5B20Q56268
		MBW 81AV WIN I36100U UMA 8G TCM	5B20Q56316
		MBW81AVWIN I36100U UMA 16G NTCM	5B20Q56318
		MBW81AV WIN I36100U UMA 16G TCM	5B20Q56277
		MBW81AV WIN I56200U UMA 4G NTCM	5B20Q56339
		MBW 81AV WIN I56200U UMA 4G TCM	5B20Q56279
		MBW81AV WIN I56200U UMA 8G NTCM	5B20Q56294
		MBW 81AV WIN I56200U UMA 8G TCM	5B20Q56265
		MBW81AVWIN I56200U UMA 16G NTCM	5B20Q56308
		MBW81AV WIN I56200U UMA 16G TCM	5B20Q56319
		MBW81AV WIN I56300U UMA 4G NTCM	5B20Q56307
		MBW 81AV WIN I56300U UMA 4G TCM	5B20Q56370
		MBW81AV WIN I56300U UMA 8G NTCM	5B20Q56330
		MBW 81AV WIN I56300U UMA 8G TCM	5B20Q56296
		MBW81AVWIN I56300U UMA 16G NTCM	5B20Q56364
		MBW81AV WIN I56300U UMA 16G TCM	5B20Q56331
		MBW81AV WIN I76500U UMA 4G NTCM	5B20Q56258
		MBW 81AV WIN I76500U UMA 4G TCM	5B20Q56348
		MBW81AV WIN I76500U UMA 8G NTCM	5B20Q56295
		MBW 81AV WIN I76500U UMA 8G TCM	5B20Q56337
		MBW81AVWIN I76500U UMA 16G NTCM	5B20Q56372

Table 3. Part numbers for FRUs (CRUs) (continued)

		MBW81AV WIN I76500U UMA 16G TCM	5B20Q56261
		MBW81AV WIN I37100U UMA 4G NTCM	5B20Q56351
		MBW 81AV WIN I37100U UMA 4G TCM	5B20Q56336
		MBW81AV WIN I37100U UMA 8G NTCM	5B20Q56306
		MBW 81AV WIN I37100U UMA 8G TCM	5B20Q56292
		MBW81AVWIN I37100U UMA 16G NTCM	5B20Q56317
		MBW81AV WIN I37100U UMA 16G TCM	5B20Q56269
		MBW81AV WIN I57200U UMA 4G NTCM	5B20Q56323
		MBW 81AV WIN I57200U UMA 4G TCM	5B20Q56272
		MBW81AV WIN I57200U UMA 8G NTCM	5B20Q56324
		MBW 81AV WIN I57200U UMA 8G TCM	5B20Q56270
		MBW81AVWIN I57200U UMA 16G NTCM	5B20Q56329
		MBW81AV WIN I57200U UMA 16G TCM	5B20Q56314
		MBW81AV WIN I77500U UMA 4G NTCM	5B20Q56263
		MBW 81AV WIN I77500U UMA 4G TCM	5B20Q56321
		MBW81AV WIN I77500U UMA 8G NTCM	5B20Q56280
		MBW 81AV WIN I77500U UMA 8G TCM	5B20Q56299
		MBW81AVWIN I77500U UMA 16G NTCM	5B20Q56363
		MBW81AV WIN I77500U UMA 16G TCM	5B20Q56302
		MBW81AV WIN I37130U UMA 4G NTCM	5B20Q56264
		MBW 81AV WIN I37130U UMA 4G TCM	5B20Q56353
		MBW81AV WIN I37130U UMA 8G NTCM	5B20Q56297
		MBW 81AV WIN I37130U UMA 8G TCM	5B20Q56253
		MBW81AVWIN I37130U UMA 16G NTCM	5B20Q56341
		MBW81AV WIN I37130U UMA 16G TCM	5B20Q56260
9	Heat sink		
		Thermal Module W 80VT UMA I3	5H40N75472
10	Wireless module		
		Intel Windstorm Peak 8265 2*2ac+BT4.x Non-Vpro M.2 Module	SW10K97453
		Liteon NFA344A QCA6174A 2*2ac+BT4.x PCIE M.2 WLAN Module	SW10K97465
11	Solid state drive (SSD)		
		PM961 MZVLW128HEGR PCIE 128G SSD	5SD0L73445
		XG4 128GB M.2 2280 PCIe-NVMe THNSN5128GPUK SSD	5SD0M56301
		Intel 600p 256GB M.2 2280 PCIe -NVMe SSDPEKKW256G7 SSD	5SD0M56358

Table 3. Part numbers for FRUs (CRUs) (continued)

		XG4 256GB M.2 2280 PCIe-NVMe THNSN5256GPUK SSD	5SD0M56299
		Lenovo AM6671 M.2 2280 256GB PCIe LENS20256GMSP34MEAT2TA SSD	5SD0N26459
		Hynix PC401 256G M.2 2280 PCIe HFS256GD9TNG-62A0A SSD	SSS0Q59628
		XG4 512GB M.2 2280 PCIe-NVMe THNSN5512GPUK SSD	5SD0M56300
		Lenovo AM6671 M.2 2280 512GB PCIe LENS20512GMSP34MEAT2TA SSD	5SD0N26460
		Samsung PM981 512GB M.2 2280 PCIe MZVLB512HAJQ-000L2 SSD	SSD0P20906
		Hynix PC401 512G M.2 2280 PCIe HFS512GD9TNG-62A0A SSD	SSS0Q59627
12	Battery pack		
		710S SP/A L15M4PC0 7.5V46Wh4cell bty	5B10K84291
		720S SP/A L15M6PC0 7.5V46Wh6cell bty	5B10L55039
		710S LG L15L4PC0 7.6V46Wh4cell bty	5B10K85625
13	Speakers		
		Speaker W 80VT L&R	5SB0N75490
14	Lower case		
		Lower Case W 80WJ gray	5CB0N75452
15	Screw pack		
		Screw Pack W 80VT	5S10N75465

Note: Refer to Appendix B “Lenovo part numbers for CRUs and miscellaneous parts” on page 51 to look up the Lenovo part numbers of ac power adapters and power cords.

Table 4. Part numbers for LCD FRUs

No.	FRU (CRU) category	Spare parts description	Lenovo part number
1	LCD bezel		
		LCD Bezel W 81AV	5B30Q56288
2	LCD panel		
		BO NV133FHM-N61 FHDI AG S NB	5D10M42884
		LG LP133WF4 SPB1 FHDI AG S NB	5D10K81089
		IV M133NWF4 R0 FHDI AG S NB	5D10M42877
3	Microphone board (left)		
		MIC Board-Left W 81AV	5C50Q56374
4	Camera board		
		Camera W 81AV 1M	5C20Q56312

Table 4. Part numbers for LCD FRUs (continued)

5	Microphone board (right)		
		MIC Board-Right W 81AV W/Senor	5C50Q56284
6	Microphone board cable		
		MIC Board-Left Cable W 81AV	5C10Q56303
7	Adapter board cable		
		Change Board Cable W 81AV	5C50Q56358
8	Adapter board		
		Change Board W 81AV	5C50Q56284
9	eDP cable		
		LCD Cable W 81AV HD	5C10Q56309
10	Hinges		
		Hinge W 80VT L&R	5H50N75463
11	LCD base cover		
		LCD Cover W 81AV Gray W/ant/tape	5CB0Q56259
12	Adhesive tape		
		Removable tape W 81AV	5T10Q56342

Appendix B. Lenovo part numbers for CRUs and miscellaneous parts

The power cords and ac adapters are CRUs.

Table 5. Part numbers for FRUs (CRUs)

Category	Parts description	Lenovo part number
Screw pack		
	Screw Pack W 80VT	5S10N75465
Tape		
	Removable tape W 81AV	5T10Q56342
ac power adapter		
	Acbel ADLX45NAC3A 20V2.25A COO	SA10M42789
	Delta ADLX45NDC3A 20V2.25A COO	SA10M42787
	Liteon ADLX45DLC3A 20V2.25A COO	SA10M42529
	Chicony ADLX45NCC3A 20V2.25A COO	SA10M42722
Power cord		
	LINETEK PC323+RVV300/300+LS15 1米电源线	145000600
	Longwell LSG-31+RVV300/300+LS-18 1米电源线	145000568
	VOLEX GB10S3+RVV 300/500+VAC5S 1米电源线	145000538
	lux 0036+RVV 300/300 0.75/3C+0002 1米电源线	145500003
	LINETEK LP-61L+ H03VV-F+ LS15 1米电源线	145000593
	Longwell LP-61L+H03VV-F+LS-18 1米电源线	145000561
	VOLEX MP5004+H03VV-F+VAC5S 1米电源线	145000605
	lux 0031+H03VV-F 0.75/3C+0011 1米电源线	145500000
	LINETEK LP-34+H03VV-F + LS15 1米电源线	145000585
	Longwell LP-34A+H03VV-F+LS-18 1米电源线	145000553
	VOLEX M2511+H03VV-F+VAC5S 1米电源线	145000525
	lux 0033+H03VV-F 0.75/3C+0011 1米电源线	145500001
	LINETEK LP-30B + SPT-2 + LS15 1米电源线	145000594
	Longwell LP-30B+SPT-2 18AWG+LS-18 1米电源线	145000562
	Volex US15S3+SPT-2 + VAC5S 1米电源线	145000537
	lux 0014+SPT-2 60°C 18/3C+0016 1米电源线	145500002
	LINETEK PE-361+ H05VV-F+ LS15 1米电源线	145000592
	Longwell LP-67+BIS+LS-18 1米电源线	145000560
	lux 0046+IS694 0.75/3C+0011 1米电源线	145500004
	LINETEK LS15+VCTF+LP-54 1米电源线	145000587

Table 5. Part numbers for FRUs (CRUs) (continued)

	Longwell LP-54+VCTF+LS-18 1米电源线	145000555
	VOLEX VAC5S+VCTF+M755 1米电源线	145000530
	lux 0018(E)+VCTF 0.75/3C+0021 1米电源线	145500005
	LINETEK LS15+H03VV-F+LP-23A 1米电源线	145000589
	Longwell LP-23A+LFC-3R+LS-18 1米电源线	145000557
	VOLEX AU10S3+H03VV-F+VAC5S 1米电源线	145000532
	lux 0038+H03VV-F 0.75/3C+0011 1米电源线	145500006
	LINETEK LS15+VCTF+LP-53 1米电源线	145000588
	LINETEK LS15+VCTF+LP-53 1米电源线	SL60M91981
	Longwell LP-71+VCTF+LS-33 1米电源线	145000556
	Longwell LP-71+VCTF+LS-33 1米电源线	SL60P41024
	VOLEX TW15CS3+VCTF+VAC5S 1米电源线	145000531
	VOLEX TW15CS3+VCTF+VAC5S 1米电源线	SL60P41028
	lux 0019+VCTF 0.75/3C+0021 1米电源线	145500007
	lux 0019+VCTF 0.75/3C+0021 1米电源线	SL60P41026
	LINETEK LS15+H05VV-F+LP-E04A 1米电源线	145000590
	Longwell LP-486+KTLH03VV-F+LS-5 1米电源线	145000558
	VOLEX M2511+KETI IEC+VAC5S 1米电源线	145000533
	lux 0033+H03VV-F 0.75/3C+0011 1米电源线	145500008
	LINETEK LS15+H03VV-F+PE-336 1米电源线	145000591
	Longwell LP-22+H03VV-F+LS-18 1米电源线	145000559
	VOLEX IT10S3+H03VV-F+VAC5S 1米电源线	145000535
	lux 0029+H03VV-F 0.75/3C+0011 1米电源线	145500009
	LINETEK LS15+H03VV-F+PE-364 1米电源线	145000586
	Longwell LP-39+H03VV-F+LS-18 1米电源线	145000554
	lux 0044+H03VV-F 0.75/3C+0011 1米电源线	145500010
	LINETEK LS15 H03VV-F LP26A 1米电源线	145000596
	Longwell LP-46+H03VV-F+LS-18 1米电源线	145000564
	VOLEX CH10S3+H03VV-F+VAC5S 1米电源线	145000527
	lux 0034+H03VV-F 0.75/3C+0011 1米电源线	145500011
	LINETEK LS15+H03VV-F+LP-41 1米电源线	145000595
	Longwell LP-41+H03VV-F+LS-18 1米电源线	145000563
	VOLEX SI16S3+H03VV-F+VAC5S 1米电源线	145000526
	lux 0041+H03VV-F 0.75/3C+0011 1米电源线	145500012
	LINETEK LS15+H03VV-F+LP-37 1米电源线	145000597
	Longwell LP-37+H03VV-F+LS-18 1米电源线	145000565
	VOLEX MP232+H03VV-F+VAC5S 1米电源线	145000524

Table 5. Part numbers for FRUs (CRUs) (continued)

	lux 0027+H03VV-F 0.75/3C+0011 1米电源线	145500013
	lux 0014+H03VV-F 0.75/3C+0011 1米电源线	5L60J33143
	LINETEK LS15+H03VV-F+LP39 1米电源线	145000599
	Longwell LP-24+H03VV-F+LS-18 1米电源线	145000567
	VOLEX VA2073+H03VV-F+VAC5S 1米电源线	145000528
	lux 0040+H03VV-F 0.75/3C+0011 1米电源线	145500015

Appendix C. Label locations

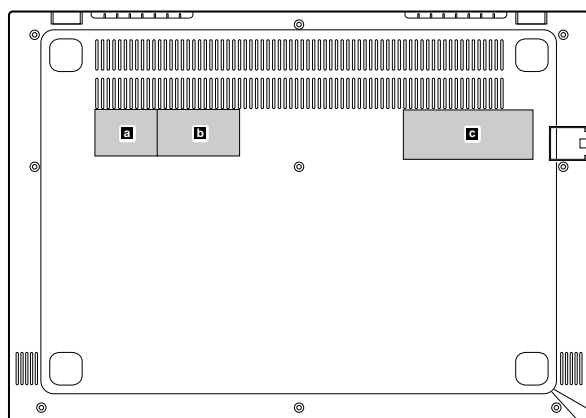


Figure 23. Label layout on the back side of the base cover

Labels attached to the base cover are country/region specific. Make sure to apply the appropriate labels to the replacement base cover.

Table 6. All base cover labels

Label	Label description	Applied country/region	Label dimensions
a	Rating label	all	33 mm x 24 mm
b	Print rating label	all	43 mm x 24 mm
c	Country specific label		
	Taiwan warning label	Taiwan	70 mm x 10 mm
	US FCC & Canada IC label	USA, Canada	32 mm x 10 mm
	Argentina CNC label	Argentina	68 mm x 6 mm
	Argentina label	Argentina	65 mm x 20 mm
	Korea KCC label	Korea	43 mm x 24 mm
	Indonesia POSTEL label	Indonesia	15 mm x 10 mm
	Indonesia rating label	Indonesia	26 mm x 10 mm
	Brazil Anatel label	Brazil	35 mm x 15 mm
	South Africa ICASA label	South Africa	20 mm x 10 mm

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