



Hardware Maintenance Manual

Lenovo V510–14IKB and Lenovo V510–15IKB

Note: Before using this information and the product it supports, be sure to read the general information under Appendix A “Notices” on page 87.

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About this manual

This manual contains service and reference information for the following Lenovo® products.

Lenovo V510–14IKB	Machine Type (MT) 80WR
Lenovo V510–15IKB	Machine Type (MT) 80WQ

Use this manual along with the advanced diagnostic tests to troubleshoot problems.

Important: This manual is intended only for trained service technicians who are familiar with Lenovo products. Use this manual along with the advanced diagnostic tests to troubleshoot problems effectively. Before servicing a Lenovo product, be sure to read all the information under Chapter 1 “Safety information” on page 1 and Chapter 2 “Important service information” on page 19.

Chapter 1. Safety information

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

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

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.
 - 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 إعادة تشغيل الحاسب بعد الانتهاء من استبدال FRU، تأكد من أنه قد تم إعادة كل من المسامير و السويت 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 إلى حدوث دائرة قصر.



تحتوي بعض البطاريات الاحتياطية على كمية صغيرة من مادتي النيكل والكاديوم. لا تقم بفك أو إعادة 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 بإعادة شحن البطارية أو إزالة موصل الاستقطاب الخاص بها ولا تحاول أيضا فكها أو تسخينها لأكثر من ١٠٠ درجة مئوية (٢١٢١ 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 تقم بإزالة الغطاء البلاستيكي الذي يحمي الجزء الأسفل من بطاقة 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 הברגים, הקפיצים, 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 כמויות קטנות 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 והחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התפוצצות של הסוללה.



סכנה

מארו הסוללה מכיל כמויות קטנות 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 והחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה בזמן החלפת מארו הסוללה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התפוצצות של הסוללה.



סכנה

סוללות חליטיות עלולות 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 כנדרש בתקנות ובחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימים. שימוש בסוללה אחרת עלול לגרום לסכנת שריפה או התפוצצות.



סכנה

אם מסך חגביש חנוזלי (LCD) נשבר וחנוזל מתוך המסך בא במגע עם עיניכם או ידיכם, שטפו את האזורים חנוזים מיד במים במשך 15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים חנוזים מחמגע עם חנוזל נמשכים לאחר הטיפול.



סכנה

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



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 מחשקעים, חוציאו את מארו הסוללות ונתקו את כל הכבלים מחמוברים.



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、その極性コネクターの取り外し、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 달각거리는 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 지역의 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 despues 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。
金屬零件或鑄鐵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. Important service information

This chapter introduces following important service information that applies to all machine types supported by this manual:

- “Strategy for replacing FRUs” on page 19
 - “Strategy for replacing a hard disk drive or a solid-state drive” on page 19
 - “Important notice for replacing a system board” on page 20
 - “FRU identification” on page 20

Important:

- If the computer is equipped with both a hard disk drive and an M.2 solid-state drive, do not use the M.2 solid-state drive as a bootable device. The M.2 solid-state drive is designed and developed for “cache” function purpose only.
- Advise customers to contact the Lenovo® Customer Support Center if they need any assistance in obtaining or installing any software fixes, drivers, and Unified Extensible Firmware Interface basic input output system (UEFI BIOS) downloads. Telephone numbers for Lenovo Support are available at: <http://www.lenovo.com/support/phone>
- System Disassembly/Reassembly videos that show the FRU removals or replacements for the Lenovo authorized service technicians are available in the following support site: <http://www.lenovoservicetraining.com/ion/>

Strategy for replacing FRUs

Before replacing parts:

Ensure that all software fixes, drivers, and UEFI BIOS downloads are installed before replacing any FRUs listed in this manual.

After a system board is replaced, ensure that the latest UEFI BIOS is loaded to the system board before completing the service action.

To download software fixes, drivers, and UEFI BIOS, go to http://support.lenovo.com/en_US/downloads/detail.page?LegacyDocID=DRVR-MATRIX and follow the instructions on the screen.

Use the following strategy to prevent unnecessary expense for replacing and servicing FRUs:

- If you are instructed to replace a FRU but the replacement does not correct the problem, reinstall the original FRU before you continue.
- Some computers have both a processor board and a system board. If you are instructed to replace either the processor board or the system board, and replacing one of them does not correct the problem, reinstall that board, and then replace the other one.
- If an adapter or a device consists of more than one FRU, any of the FRUs might be the cause of the error. Before replacing the adapter or device, remove the FRUs, one by one, to see if the symptoms change. Replace only the FRU that changed the symptoms.

Strategy for replacing a hard disk drive or a solid-state drive

Always try to run a low-level format before replacing a hard disk drive or a solid-state drive. This will cause all customer data on the drive to be lost. Be sure that the customer has a current backup of the data before doing this task.

Attention: The drive startup sequence in the computer you are servicing may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. If you select an incorrect drive, data or programs can be overwritten.

Important notice for replacing a system board

Some components mounted on a system board are very sensitive. Improper handling of a system board can cause damage to those components, and may cause a system malfunction.

Attention: When handling a system board:

- Do not drop a system board or apply any excessive force to it.
- Avoid rough handling of any kind.
- Avoid bending a system board and hard pushing to prevent cracking at each ball-grid-array (BGA) chipset.

FRU identification

Use Lenovo eSupport to identify major FRUs, FRU part numbers, and FRU descriptions for a product at an MT - serial number level. Examples of major FRUs are hard disk drive, system board, liquid crystal display (LCD), and memory module.

To identify the major FRUs for a product, do the following:

1. Go to:
<http://www.lenovo.com/support>
2. Click **Warranty & Services**.
3. Click **Check Warranty Status**.
4. On the Warranty Status Lookup page, click **Parts Lookup**.
5. Type your machine type and serial number, and then click **Submit**.

eSupport also can be used to view the general FRU list for a product.

To get the general FRU list for a product, do the following:

1. Go to:
<http://www.lenovo.com/support>
2. Click **Parts**.
3. Follow the instructions on the screen to select product.
4. Click **Products and Parts Detail**.
5. On the PRODUCT AND PARTS DETAIL page, click the **Parts Detail** tab to view the FRU list.

Note: The FRU list is a general list of components and does not contain specific model information.

Chapter 3. General checkout

This chapter introduces following information:

- “What to do first” on page 21
- “Power system checkout” on page 22

Before you go to the checkout guide, be sure to 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, carefully remove and retain screws so they can be reused.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** The sequence of the drives in the computer that you are servicing 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, ensure 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.

Power system checkout

To verify if a battery pack or an ac power adapter is functional, do the following:

1. Turn off the computer.
2. Connect the ac power adapter.
3. Turn on the computer. If the computer can be turned on, it means that either the battery pack or the ac power adapter is functional.
4. Insert a straightened paper clip into the novo button to reset the computer. If the computer is still powered on, it means that the ac power adapter is functional.
5. Turn off the computer.
6. Disconnect the ac power adapter and turn on the computer. If the computer can be turned on, it means that the battery pack is functional.

If you suspect a power problem, see the appropriate one of the following power supply checkouts:

- “Checking the ac power adapter” on page 22
- “Checking the battery pack and the operational charging” on page 23

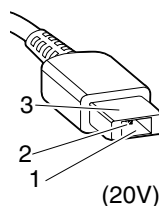
Checking the ac power adapter

You are here because the computer fails only when the ac power adapter is used.

- If the power problem occurs only when the docking station or the port replicator is used, replace the docking station or the port replicator.
- If the power-on indicator does not turn on, check the power cord of the AC adapter for correct continuity and installation.
- If the computer does not charge during operation, go to “Checking the battery pack and the operational charging” on page 23.

To check the ac power adapter, do the following:

1. Unplug the ac power adapter cable from the computer.
2. Measure the output voltage at the plug of the ac power adapter cable. See the following illustration:



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

Note: Output voltage of pin 2 of the ac power adapter might differ from the one you are servicing.

3. If the voltage is not correct, replace the ac power adapter.
4. If the voltage is acceptable, replace the system board.

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

Checking the battery pack and the operational charging

Checking the battery pack

This computer supports only batteries specially designed for this specific system and manufactured by Lenovo or an authorized builder. The system does not support unauthorized batteries or batteries designed for other systems. If an unauthorized battery or a battery designed for another systems is installed, the system will not charge.

Attention: Lenovo has no responsibility for the performance or safety of unauthorized batteries, and provides no warranties for failures or damage arising out of their use.

The battery status icon in the Windows notification area displays the percentage of the battery power remained.

Checking the operational charging

To check whether the battery pack charges properly during operation, do the following:

1. Discharge the battery pack until the remained battery power is less than 50%.
2. Connect the computer to ac power to charge the battery pack. If the battery status icon in the Windows notification area indicates that the battery pack is not charging, remove the battery pack and let it return to room temperature.
3. Reinstall the battery pack. If the battery pack is still not charging, replace the battery pack.
4. Check the battery status icon again. If the same error still exists, replace the system board.

Chapter 4. Related service information

This chapter presents following information:

- “Restoring the factory contents by using OneKey Recovery” on page 25
- “Power management” on page 25

Restoring the factory contents by using OneKey Recovery

Restore of factory default

The Lenovo E4030/E4070 computers come with pre-installed OneKey Recovery System. In order to save application files and the initial backed up files of the system, the hard disk in a Lenovo computer includes a hidden partition when it is shipped. If you need to restore the system to the point of your first boot up, just enter Lenovo OneKey Recovery System and run **System Recovery**. For details of OneKey Recovery System, see the User Guide for Lenovo OneKey Recovery system.

Note: This will delete all the new data on the system partition (C drive), which is not recoverable. Make sure to back up your critical data before you perform this action.

When you use the recovery discs to boot your computer, the system will enter the user interface for system recovery automatically. Please follow the prompt to insert the backup discs to complete the whole recovery process.

Note: The recovery process might take up to 2 hours.

Power management

To reduce power consumption, the computer has three power management modes: screen blank, sleep, and hibernation.

Screen blank mode (for the Windows 7 operating system only)

If the time set on the “Turn off monitor” timer in the operating system expires, the LCD backlight turns off.

To put the computer into screen blank mode, do the following:

1. Right-click the battery status indicator on the taskbar.
2. Select **Power off display**.

To end screen blank mode and resume normal operation, press any key.

Sleep mode

When the computer enters sleep mode, the following events occur in addition to what occurs in screen blank mode:

- The LCD is powered off.
- The hard disk drive or solid-state drive is powered off.
- The microprocessor stops.

To put your computer into sleep mode, please do the following:

- For Windows 7: Click the arrow beside the **Shut down** icon, and then select **Sleep**. To return from sleep mode, press any key.

- For Windows 10: Click **Start**, and then select **Sleep** from **Power** menu option.

To return to normal operation, press any key.

In certain circumstances, the computer goes into sleep mode automatically:

- After a period of inactivity specified in power plan settings
- When the battery power is low

Hibernation mode

In hibernation mode, the following occurs:

- The system status, random access memory (RAM), video random access memory (VRAM), and setup data are stored on the hard disk drive or solid-state drive.
- The system is powered off.

To put your computer into hibernation mode, do the following:

- For Windows 7: Click the arrow beside the **Shut down** icon, and then select **Hibernation**.
- For Windows 10: Click **Start**, and then select **Hibernate** from **Power** menu option.

Note: By default, the hibernation option is not shown in the start menu under Windows 10. To enable this option, do the followings:

1. Right-click **Start** to enter **Control Panel**, and then click **Hardware and sound** ® **Change what the power button do**
2. Click **Change settings that are currently unavailable**, and then tick **Hibernation** under **Shutdown settings**.
3. Click **Save changes**

To return to normal operation, press the power button.

Note: If the computer enters the hibernation mode while it is docked to the docking station or the port replicator, do not undock it before resuming normal operation. If you do undock it and then try to resume normal operation, you will get an error message, and you will have to restart the system.

If you have defined one of the following actions as the event that causes the system to go into hibernation mode, perform that action.

- Closing the lid.
- Pressing the power button.

Also, the computer goes into hibernation mode automatically after a period of inactivity specified in power plan settings.

When the power is turned on, the computer returns from hibernation mode and resumes operation. The hibernation file in the boot record on the hard disk drive or solid-state drive is read, and system status is restored from the hard disk drive or solid-state drive.

Chapter 5. Passwords

As many as three passwords may be needed for any Lenovo computer: the power-on password (POP), the hard disk password (HDP), and the administrator password.

If any of these passwords has been set, a prompt for it appears on the screen whenever the computer is turned on. The computer does not start until the password is entered.

Power-on password

A power-on password protects the system from being powered on by an unauthorized person. The password must be entered before an operating system can be started.

Hard disk password

There are two kinds of hard disk passwords:

- User hard disk password - for the user
- Master hard disk password - for the system administrator, who can use it to get access to the hard disk even if the user has changed the user hard disk password

Note: There are two modes for the hard disk password: **User only** and **Master + User**. The **Master + User** mode requires two hard disk passwords; the system administrator enters both in the same operation. The system administrator then provides the user hard disk password to the system user.

Attention: If the user hard disk password has been forgotten, check whether a master hard disk password has been set. If it has, it can be used for access to the hard disk drive. If no master hard disk password is available, neither Lenovo nor Lenovo authorized service technicians provide any services to reset either the user or the master hard disk password, or to recover data from the hard disk drive. The hard disk drive can be replaced for a scheduled fee.

Administrator password

Administrator password controls the access of the whole setup utility. Only Administrator password was set then User password can be set. If Administrator password was cleared, the User password was cleared too.

Attention: If the administrator password has been forgotten and cannot be made available to the service technician, there is no service procedure to reset the password. The system board must be replaced for a scheduled fee.

Chapter 6. Function keys

The following table describes the functions of function keys and key combinations.

F1	Cuts off or turns on the volume.
F2	Decreases the volume level.
F3	Increases the volume level.
F4	Enables or disables the built-in microphone.
F5	Refreshes the desktop or the currently active window.
F6	Enables or disables the touch pad and touch pad buttons.
F7	Changes the wireless settings (windows 7). Enables or disables the airplane mode. When airplane mode is enabled, all wireless communication from and to this computer is unavailable (windows 10).
F8	Enables or disables the built-in camera.
F9	Locks the screen. Note: Press any key on the keyboard to wake up the computer.
F10	Toggles the display between the computer and an external display device. Note: You also can use the Windows+P combination to access this function.
F11	Darkens the display.
F12	Brightens the display.

Chapter 7. Locations

This chapter introduces the locations of the hardware components on your computer.

Locating FRUs and CRUs

This topic introduces the following service parts:

- “Major FRUs and CRUs (for V510–14IKB)” on page 32
- “LCD FRUs (for V510–14IKB)” on page 55
- “Miscellaneous parts and other FRUs (for V510–14IKB)” on page 56

Notes:

- Each FRU is available for all types or models, unless otherwise specified.
- **CRU statement for customers:**

You can resolve some problems with your product with a replacement part you can install yourself, called a “Customer Replaceable Unit” or “CRU.” Some CRUs are designated as self-service CRUs and others are designated as optional-service CRUs. *Installation of self-service CRUs is your responsibility. For optional-service CRUs, you can either install the CRU yourself or you can request that a Service Provider install the CRU according to the warranty service for your product.* If you intend on installing the CRU, Lenovo will ship the CRU to you. CRU information and replacement instructions are shipped with your product and are available from Lenovo at any time upon request. You can find a list of CRUs for your product in this *Hardware Maintenance Manual*. An electronic version of this manual can be found at <http://www.lenovo.com/UserManuals>. Follow the on-screen instructions to find the manual for your product. You might be required to return the defective part that is replaced by the CRU. When return is required: (1) return instructions, a prepaid shipping label, and a container will be included with the replacement CRU; and (2) you might be charged for the replacement CRU if Lenovo does not receive the defective CRU within thirty (30) days of your receipt of the replacement CRU. See your Lenovo Limited Warranty documentation for full details.

Lenovo computers contain the following types of CRUs:

- **Self-service CRUs:** These CRUs unplug or are held by no more than two screws. Examples of these types of CRUs include the ac power adapter, power cord, and battery. Other self-service CRUs depending on product design might include the memory module, wireless card, keyboard, and palm rest with finger print reader and touch pad.
- **Optional-service CRUs:** These CRUs are isolated parts within the computer that are concealed by an access panel that is typically secured by more than two screws. Once the access panel is removed, the specific CRU is visible.

Major FRUs and CRUs (for V510-14IKB)

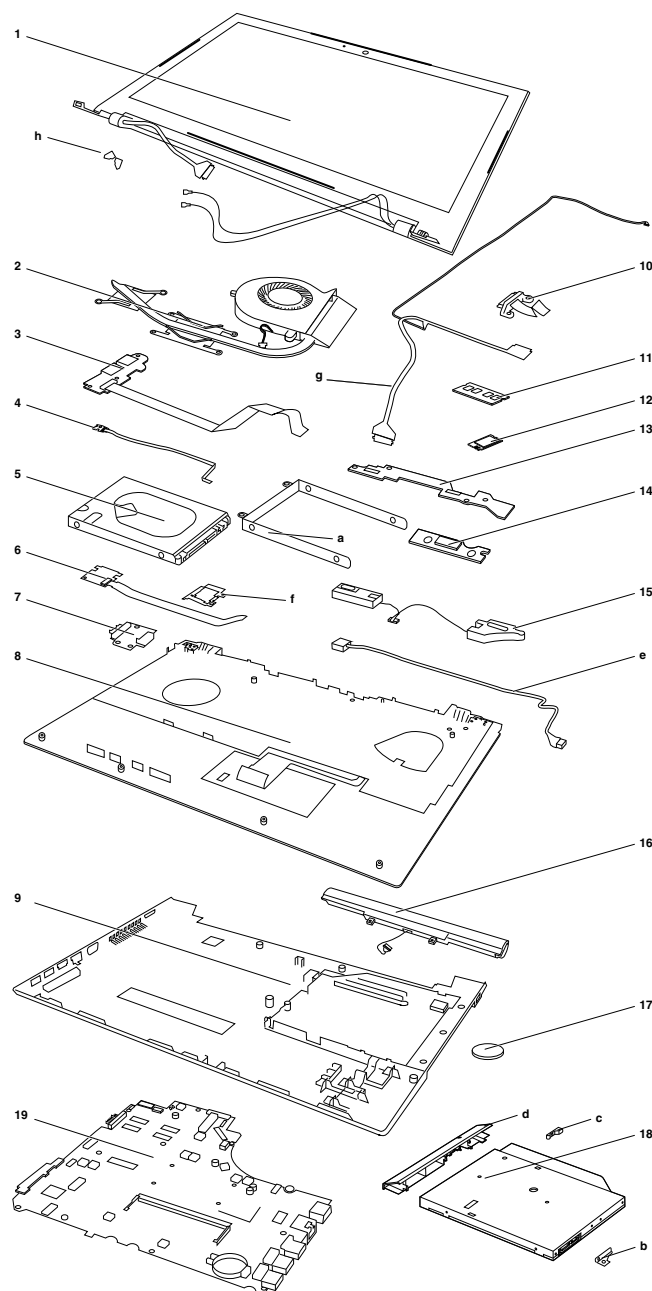


Table 1. Major FRUs

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
1	LCD unit	LCD unit	No	No	
2	Thermal Module	ThermalModule Q 80T8 DIS W/Fan	No	No	5H40M31771
2	Thermal Module	Thermal Module Q 80SY UMA W/Fan	No	No	5H40L46632
3	USB board	USB Board Q 80T8 W/Cable	No	No	5C50M31589
5	HDD	ST500LT012 6G 7mm 5.4K 500G HDD	No	No	16200383

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
5	HDD	HTS545050A7E660 6G 7mm 5.4K 500G HDD	No	No	5H20H14223
5	HDD	MQ01ABF050 6G 7mm 5.4K 500G HDD	No	No	5H20L34560
5	HDD	WD WD5000LPCX-24VHAT0 7mm 5400rpm 500G HDD	No	No	5H20J35762
5	HDD	ST500LM021 7mm 7200rpm 500G HDD	No	No	5H20K22136
5	HDD	Seagate ST1000LM035 1T 2.5" 7mm 5400rpm HDD	No	No	5H20L22184
5	HDD	HTS541010A9E660 6G 9.5mm 5.4K 1T HDD	No	No	16200400
5	HDD	TSB MQ01ABD100 6G 9.5mm 5.4K 1T HDD	No	No	5H20L34559
5	HDD	WD10JPCX-24UE4T0 6G 9.5mm 5.4K 1T HDD	No	No	16200393
5	SSD	CV3-8D128 M.2 2280128G SSD	No	No	5SD0L02318
5	SSD	MZNTY128HDHP-000L2 M.2 128G SSD	No	No	5SD0L14643
5	SSD	HFS128G39TND-N210A M.2 128GB SSD	No	No	5SD0L07408
5	SSD	CV3-8D256 M.2 2280 256G SSD	No	No	5SD0L02320
5	SSD	MZNTY256HDHP-000L2 M.2 256G SSD	No	No	5SD0L14642
5	SSD	HFS256G39TND-N210A M.2 256GB SSD	No	No	5SD0L07410
5	SSD	Intel 540s SSDSCKKW360H6 M.2 22x80 360G SSD	No	No	5SD0L82499
6	Finger Printer board	FP Board Q 80T8 W/Cable	No	No	5C50M31581
8	Upper case	Upper Case Q 80T8 FP W/KB US	No	No	5CB0M31805
8	Upper case	Upper Case Q 80T8 FP W/KB AR-E	No	No	5CB0M31724
8	Upper case	Upper Case Q 80T8 FP W/KB FR-AR	No	No	5CB0M31927
8	Upper case	Upper Case Q 80T8 FP W/KB BE	No	No	5CB0M31618
8	Upper case	Upper Case Q 80T8 FP W/KB BZ	No	No	5CB0M31667
8	Upper case	Upper Case Q 80T8 FP W/KB BU	No	No	5CB0M31992
8	Upper case	Upper Case Q 80T8 FP W/KB CF-E	No	No	5CB0M31877
8	Upper case	Upper Case Q 80T8 FP W/KB CZ-SK	No	No	5CB0M31662
8	Upper case	Upper Case Q 80T8 FP W/KB USINT'E	No	No	5CB0M31859
8	Upper case	Upper Case Q 80T8 FP W/KB FR	No	No	5CB0M32073
8	Upper case	Upper Case Q 80T8 FP W/KB GR	No	No	5CB0M31739
8	Upper case	Upper Case Q 80T8 FP W/KB GK	No	No	5CB0M31590
8	Upper case	Upper Case Q 80T8 FP W/KB HB	No	No	5CB0M31656

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
8	Upper case	Upper Case Q 80T8 FP W/KB NL	No	No	5CB0M31751
8	Upper case	Upper Case Q 80T8 FP W/KB HG	No	No	5CB0M31746
8	Upper case	Upper Case Q 80T8 FP W/KB ICE	No	No	5CB0M32039
8	Upper case	Upper Case Q 80T8 FP W/KB IT	No	No	5CB0M31757
8	Upper case	Upper Case Q 80T8 FP W/KB KO	No	No	5CB0M31623
8	Upper case	Upper Case Q 80T8 FP W/KB LA	No	No	5CB0M31622
8	Upper case	Upper Case Q 80T8 FP W/KB INDIA	No	No	5CB0M31860
8	Upper case	Upper Case Q 80T8 FP W/KB PO	No	No	5CB0M31838
8	Upper case	Upper Case Q 80T8 FP W/KB RU	No	No	5CB0M31926
8	Upper case	Upper Case Q 80T8 FP W/KB ND	No	No	5CB0M32011
8	Upper case	Upper Case Q 80T8 FP W/KB SA	No	No	5CB0M31889
8	Upper case	Upper Case Q 80T8 FP W/KB SP	No	No	5CB0M31973
8	Upper case	Upper Case Q 80T8 FP W/KB SW	No	No	5CB0M31678
8	Upper case	Upper Case Q 80T8 FP W/KB CH	No	No	5CB0M31774
8	Upper case	Upper Case Q 80T8 FP W/KB TI	No	No	5CB0M31628
8	Upper case	Upper Case Q 80T8 FP W/KB TR	No	No	5CB0M31893
8	Upper case	Upper Case Q 80T8 FP W/KB UKR	No	No	5CB0M31742
8	Upper case	Upper Case Q 80T8 FP W/KB UK	No	No	5CB0M31965
8	Upper case	Upper Case Q 80T8 FP W/KB JA	No	No	5CB0M31660
8	Upper case	Upper Case Q 80T8 NFP W/KB US	No	No	5CB0M31674
8	Upper case	Upper Case Q 80T8 NFP W/KB AR-E	No	No	5CB0M31639
8	Upper case	Upper Case Q 80T8 NFP W/KB FR-AR	No	No	5CB0M32037
8	Upper case	Upper Case Q 80T8 NFP W/KB BE	No	No	5CB0M32025
8	Upper case	Upper Case Q 80T8 NFP W/KB BZ	No	No	5CB0M31760
8	Upper case	Upper Case Q 80T8 NFP W/KB BU	No	No	5CB0M31984
8	Upper case	Upper Case Q 80T8 NFP W/KB CF-E	No	No	5CB0M31723
8	Upper case	Upper Case Q 80T8 NFP W/KB CZ-SK	No	No	5CB0M32033
8	Upper case	Upper Case Q 80T8 NFP W/KBUSINT'E	No	No	5CB0M31833
8	Upper case	Upper Case Q 80T8 NFP W/KB FR	No	No	5CB0M32019
8	Upper case	Upper Case Q 80T8 NFP W/KB GR	No	No	5CB0M31793
8	Upper case	Upper Case Q 80T8 NFP W/KB GK	No	No	5CB0M31978
8	Upper case	Upper Case Q 80T8 NFP W/KB HB	No	No	5CB0M31579
8	Upper case	Upper Case Q 80T8 NFP W/KB NL	No	No	5CB0M31998
8	Upper case	Upper Case Q 80T8 NFP W/KB HG	No	No	5CB0M32000
8	Upper case	Upper Case Q 80T8 NFP W/KB ICE	No	No	5CB0M32058
8	Upper case	Upper Case Q 80T8 NFP W/KB IT	No	No	5CB0M31630

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
8	Upper case	Upper Case Q 80T8 NFP W/KB KO	No	No	5CB0M31721
8	Upper case	Upper Case Q 80T8 NFP W/KB LA	No	No	5CB0M31764
8	Upper case	Upper Case Q 80T8 NFP W/KB INDIA	No	No	5CB0M31983
8	Upper case	Upper Case Q 80T8 NFP W/KB PO	No	No	5CB0M31728
8	Upper case	Upper Case Q 80T8 NFP W/KB RU	No	No	5CB0M31836
8	Upper case	Upper Case Q 80T8 NFP W/KB ND	No	No	5CB0M31942
8	Upper case	Upper Case Q 80T8 NFP W/KB SA	No	No	5CB0M31727
8	Upper case	Upper Case Q 80T8 NFP W/KB SP	No	No	5CB0M31824
8	Upper case	Upper Case Q 80T8 NFP W/KB SW	No	No	5CB0M32032
8	Upper case	Upper Case Q 80T8 NFP W/KB CH	No	No	5CB0M31967
8	Upper case	Upper Case Q 80T8 NFP W/KB TI	No	No	5CB0M31606
8	Upper case	Upper Case Q 80T8 NFP W/KB TR	No	No	5CB0M31896
8	Upper case	Upper Case Q 80T8 NFP W/KB UKR	No	No	5CB0M31870
8	Upper case	Upper Case Q 80T8 NFP W/KB UK	No	No	5CB0M31985
8	Upper case	Upper Case Q 80T8 NFP W/KB JA	No	No	5CB0M31989
9	Lower case	Lower Case Q 80T8 NULT	No	No	5CB0M32013
9	Lower case	Lower Case Q 80T8 ULT	No	No	5CB0M31698
11	Memory Module	2GB D4S M471A5644EB0-CRC	No	No	SM30G16500
11	Memory Module	2GB D4S HMA425S6AFR6N-UH	No	No	SM30G16501
11	Memory Module	2GB D4S RMSA3270MB76H8F-2400	No	No	SM30G16503
11	Memory Module	2GB D4S MTA4ATF25664HZ-2G3B1	No	No	SM30G16502
11	Memory Module	4GB D4S M471A5143EB1-CRC	No	No	SM30G16504
11	Memory Module	4GB D4S HMA851S6AFR6N-UH	No	No	SM30G16505
11	Memory Module	4GB D4S RMSA3270MB86H9F-2400	No	No	SM30G16507
11	Memory Module	4GB D4S MTA4ATF51264HZ-2G3B1	No	No	SM30G16506
11	Memory Module	16GB D4S M471A2K43BB1-CRC	No	No	SM30G16512
11	Memory Module	16GB D4S HMA82GS6AFR8N-UH	No	No	SM30G16513
11	Memory Module	SM30G16514 16GB D4S MTA16ATF2G64H-2G3B1	No	No	SM30G16514
12	Wlan	Intel 3165 1x1AC+BT PCIE M.2 WLAN	No	No	SW10H24486

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
12	Wlan	Ltn NFA435A 1x1AC+BT4.0 PCIE M.2 WLAN	No	No	SW10K97461
12	Wlan	Cbt RTL8821AE 1x1AC+BT4.0 PCIE M.2 WLAN	No	No	SW10A11648
12	Wlan	Intel 8265 2x2AC+BT PCIE M.2 WLAN NV	No	No	SW10K97453
12	Wlan	Ltn NFA344A 2x2AC+BT4.x PCIE M.2 WLAN	No	No	SW10K97465
14	Power board	Power Board Q 80SX W/Cable	No	No	5C50L46619
15	Speakers	Speaker Q 80SX L+R	No	No	5SB0L46729
16	Battery	V310 CP/L L15C4A02 14.4V32Wh4cell bty	No	No	5B10L04163
16	Battery	V310 LG L15L4A02 14.4V32Wh4cell bty	No	No	5B10L04164
16	Battery	V310 SY L15S4A02 14.4V32Wh4cell bty	No	No	5B10L04212
16	Battery	V310 CP/L L15C4E01 14.88V41Wh4cell bty	No	No	5B10L04160
16	Battery	V310 SY L15S4E02 14.4V41Wh4cell bty	No	No	5B10L04213
16	Battery	V310 CP/C L15C2P01 7.6V35Wh2cell bty	No	No	5B10L04162
16	Battery	V310 SY L15L2P01 7.6V35Wh2cell bty	No	No	5B10L04211
17	RTC battery	RTC Battery Q 80SY	No	No	5B10L46577
18	ODD	HLDS GUE0N 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0J46488
18	ODD	PLDS DA-8AESH 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0L08424
18	ODD	TSST SU-228HB 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0L08425
18	Secondary battery	SecondBattery Q 80T8ULT W/Bezel	Yes	No	5B10M31752
18	Secondary battery	SecondBatteryQ 80T8NULT W/Bezel	Yes	No	5B10M32022
19	System board	MBQ 80T8NOK I37100U DIS 4GNULT	No	No	5B20M31828
19	System board	MBQ 80T8WIN I37100U DIS 4GNULT	No	No	5B20M31871
19	System board	MBQ 80T8NOK I37100U DIS 4G2BAT	No	No	5B20M31972
19	System board	MBQ 80T8WIN I37100U DIS 4G2BAT	No	No	5B20M32031
19	System board	MBQ 80T8NOK I37100U UMA 4GNULT	No	No	5B20M31868
19	System board	MBQ 80T8WIN I37100U UMA 4GNULT	No	No	5B20M31599
19	System board	MBQ 80T8NOK I37100U UMA 4G2BAT	No	No	5B20M31690

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ 80T8WIN I37100U UMA 4G2BAT	No	No	5B20M32023
19	System board	MBQ80T8NOK I37100U DISNRAMNULT	No	No	5B20M31769
19	System board	MBQ80T8WIN I37100U DISNRAMNULT	No	No	5B20M32012
19	System board	MBQ80T8NOK I37100U DISNRAM2BAT	No	No	5B20M31803
19	System board	MBQ80T8WIN I37100U DISNRAM2BAT	No	No	5B20M31767
19	System board	MBQ80T8NOK I37100U UMANRAMNULT	No	No	5B20M32030
19	System board	MBQ80T8WIN I37100U UMANRAMNULT	No	No	5B20M31948
19	System board	MBQ80T8NOK I37100U UMANRAM2BAT	No	No	5B20M31808
19	System board	MBQ80T8WIN I37100U UMANRAM2BAT	No	No	5B20M31856
19	System board	MBQ 80T8NOK I57200U DIS 4GNULT	No	No	5B20M31714
19	System board	MBQ 80T8WIN I57200U DIS 4GNULT	No	No	5B20M31863
19	System board	MBQ 80T8NOK I57200U DIS 4G2BAT	No	No	5B20M31673
19	System board	MBQ 80T8WIN I57200U DIS 4G2BAT	No	No	5B20M31993
19	System board	MBQ 80T8NOK I57200U UMA 4GNULT	No	No	5B20M31906
19	System board	MBQ 80T8WIN I57200U UMA 4GNULT	No	No	5B20M31596
19	System board	MBQ 80T8NOK I57200U UMA 4G2BAT	No	No	5B20M31939
19	System board	MBQ 80T8WIN I57200U UMA 4G2BAT	No	No	5B20M31603
19	System board	MBQ80T8NOK I57200U DISNRAMNULT	No	No	5B20M31617
19	System board	MBQ80T8WIN I57200U DISNRAMNULT	No	No	5B20M31843
19	System board	MBQ80T8NOK I57200U DISNRAM2BAT	No	No	5B20M31648
19	System board	MBQ80T8WIN I57200U DISNRAM2BAT	No	No	5B20M31850
19	System board	MBQ80T8NOK I57200U UMANRAMNULT	No	No	5B20M31693
19	System board	MBQ80T8WIN I57200U UMANRAMNULT	No	No	5B20M31683
19	System board	MBQ80T8NOK I57200U UMANRAM2BAT	No	No	5B20M31672
19	System board	MBQ80T8WIN I57200U UMANRAM2BAT	No	No	5B20M31913

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ 80T8NOK I77500U DIS 4GNULT	No	No	5B20M31898
19	System board	MBQ 80T8WIN I77500U DIS 4GNULT	No	No	5B20M32047
19	System board	MBQ 80T8NOK I77500U DIS 4G2BAT	No	No	5B20M31932
19	System board	MBQ 80T8WIN I77500U DIS 4G2BAT	No	No	5B20M31687
19	System board	MBQ 80T8NOK I77500U UMA 4GNULT	No	No	5B20M31873
19	System board	MBQ 80T8WIN I77500U UMA 4GNULT	No	No	5B20M31995
19	System board	MBQ 80T8NOK I77500U UMA 4G2BAT	No	No	5B20M31620
19	System board	MBQ 80T8WIN I77500U UMA 4G2BAT	No	No	5B20M31612
19	System board	MBQ80T8NOK I77500U DISNRAMNULT	No	No	5B20M31644
19	System board	MBQ80T8WIN I77500U DISNRAMNULT	No	No	5B20M31905
19	System board	MBQ80T8NOK I77500U DISNRAM2BAT	No	No	5B20M31610
19	System board	MBQ80T8WIN I77500U DISNRAM2BAT	No	No	5B20M31587
19	System board	MBQ80T8NOK I77500U UMANRAMNULT	No	No	5B20M31699
19	System board	MBQ80T8WIN I77500U UMANRAMNULT	No	No	5B20M31829
19	System board	MBQ80T8NOK I77500U UMANRAM2BAT	No	No	5B20M31935
19	System board	MBQ80T8WIN I77500U UMANRAM2BAT	No	No	5B20M31981
19	System board	MBQ 80T8NOK I56200U DIS 4GNULT	No	No	5B20M31930
19	System board	MBQ 80T8WIN I56200U DIS 4GNULT	No	No	5B20M31802
19	System board	MBQ 80T8NOK I56200U DIS 4G2BAT	No	No	5B20M31718
19	System board	MBQ 80T8WIN I56200U DIS 4G2BAT	No	No	5B20M31943
19	System board	MBQ 80T8NOK I56200U UMA 4GNULT	No	No	5B20M32061
19	System board	MBQ 80T8WIN I56200U UMA 4GNULT	No	No	5B20M31661
19	System board	MBQ 80T8NOK I56200U UMA 4G2BAT	No	No	5B20M31846
19	System board	MBQ 80T8WIN I56200U UMA 4G2BAT	No	No	5B20M31775
19	System board	MBQ80T8NOK I56200U DISNRAMNULT	No	No	5B20M31895
19	System board	MBQ80T8WIN I56200U DISNRAMNULT	No	No	5B20M31613
19	System board	MBQ80T8NOK I56200U DISNRAM2BAT	No	No	5B20M31634

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80T8WIN I56200U DISNRAM2BAT	No	No	5B20M31923
19	System board	MBQ80T8NOK I56200U UMANRAMNULT	No	No	5B20M31928
19	System board	MBQ80T8WIN I56200U UMANRAMNULT	No	No	5B20M32024
19	System board	MBQ80T8NOK I56200U UMANRAM2BAT	No	No	5B20M31820
19	System board	MBQ80T8WIN I56200U UMANRAM2BAT	No	No	5B20M32063
19	System board	MBQ 80T8NOK I56267U DIS 4GNULT	No	No	5B20M31783
19	System board	MBQ 80T8WIN I56267U DIS 4GNULT	No	No	5B20M31945
19	System board	MBQ 80T8NOK I56267U DIS 4G2BAT	No	No	5B20M31600
19	System board	MBQ 80T8WIN I56267U DIS 4G2BAT	No	No	5B20M31954
19	System board	MBQ 80T8NOK I56267U UMA 4GNULT	No	No	5B20M32038
19	System board	MBQ 80T8WIN I56267U UMA 4GNULT	No	No	5B20M31670
19	System board	MBQ 80T8NOK I56267U UMA 4G2BAT	No	No	5B20M31784
19	System board	MBQ 80T8WIN I56267U UMA 4G2BAT	No	No	5B20M31780
19	System board	MBQ80T8NOK I56267U DISNRAMNULT	No	No	5B20M32010
19	System board	MBQ80T8WIN I56267U DISNRAMNULT	No	No	5B20M32003
19	System board	MBQ80T8NOK I56267U DISNRAM2BAT	No	No	5B20M32015
19	System board	MBQ80T8WIN I56267U DISNRAM2BAT	No	No	5B20M31929
19	System board	MBQ80T8NOK I56267U UMANRAMNULT	No	No	5B20M31982
19	System board	MBQ80T8WIN I56267U UMANRAMNULT	No	No	5B20M32029
19	System board	MBQ80T8NOK I56267U UMANRAM2BAT	No	No	5B20M31741
19	System board	MBQ80T8WIN I56267U UMANRAM2BAT	No	No	5B20M31949
19	System board	MBQ 80T8NOK I76500U DIS 4GNULT	No	No	5B20M31986
19	System board	MBQ 80T8WIN I76500U DIS 4GNULT	No	No	5B20M31770
19	System board	MBQ 80T8NOK I76500U DIS 4G2BAT	No	No	5B20M31917
19	System board	MBQ 80T8WIN I76500U DIS 4G2BAT	No	No	5B20M31781
19	System board	MBQ 80T8NOK I76500U UMA 4GNULT	No	No	5B20M31933
19	System board	MBQ 80T8WIN I76500U UMA 4GNULT	No	No	5B20M31633

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ 80T8NOK I76500U UMA 4G2BAT	No	No	5B20M31776
19	System board	MBQ 80T8WIN I76500U UMA 4G2BAT	No	No	5B20M31761
19	System board	MBQ80T8NOK I76500U DISNRAMNULT	No	No	5B20M31867
19	System board	MBQ80T8WIN I76500U DISNRAMNULT	No	No	5B20M31669
19	System board	MBQ80T8NOK I76500U DISNRAM2BAT	No	No	5B20M31938
19	System board	MBQ80T8WIN I76500U DISNRAM2BAT	No	No	5B20M32004
19	System board	MBQ80T8NOK I76500U UMANRAMNULT	No	No	5B20M31655
19	System board	MBQ80T8WIN I76500U UMANRAMNULT	No	No	5B20M31813
19	System board	MBQ80T8NOK I76500U UMANRAM2BAT	No	No	5B20M31735
19	System board	MBQ80T8WIN I76500U UMANRAM2BAT	No	No	5B20M32060
19	System board	MBQ 80T8NOK I76567U DIS 4GNULT	No	No	5B20M31645
19	System board	MBQ 80T8WIN I76567U DIS 4GNULT	No	No	5B20M31607
19	System board	MBQ 80T8NOK I76567U DIS 4G2BAT	No	No	5B20M31703
19	System board	MBQ 80T8WIN I76567U DIS 4G2BAT	No	No	5B20M31937
19	System board	MBQ 80T8NOK I76567U UMA 4GNULT	No	No	5B20M32062
19	System board	MBQ 80T8WIN I76567U UMA 4GNULT	No	No	5B20M31681
19	System board	MBQ 80T8NOK I76567U UMA 4G2BAT	No	No	5B20M31766
19	System board	MBQ 80T8WIN I76567U UMA 4G2BAT	No	No	5B20M32006
19	System board	MBQ80T8NOK I76567U DISNRAMNULT	No	No	5B20M32050
19	System board	MBQ80T8WIN I76567U DISNRAMNULT	No	No	5B20M31759
19	System board	MBQ80T8NOK I76567U DISNRAM2BAT	No	No	5B20M31755
19	System board	MBQ80T8WIN I76567U DISNRAM2BAT	No	No	5B20M32077
19	System board	MBQ80T8NOK I76567U UMANRAMNULT	No	No	5B20M31962
19	System board	MBQ80T8WIN I76567U UMANRAMNULT	No	No	5B20M31694

Table 1. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80T8NOK I76567U UMANRAM2BAT	No	No	5B20M31716
19	System board	MBQ80T8WIN I76567U UMANRAM2BAT	No	No	5B20M31720

Major FRUs and CRUs (for V510-15IKB)

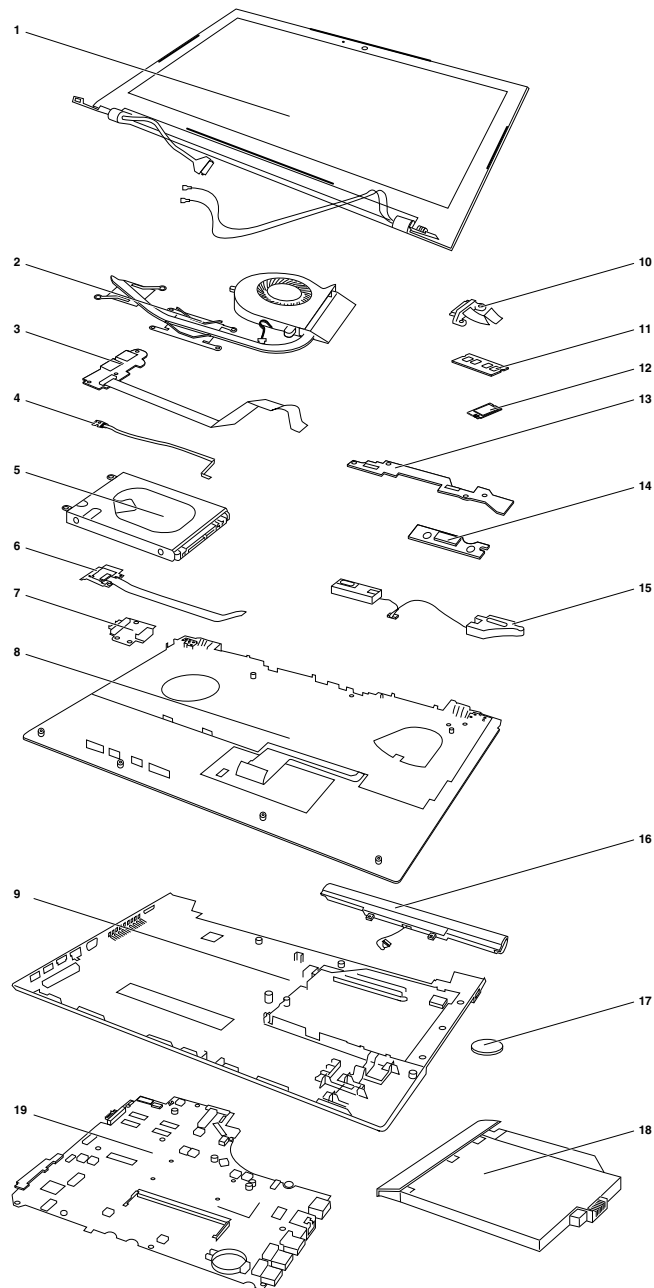


Table 2. Major FRUs

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
1	LCD unit	LCD unit	No	No	
2	Thermal Module	ThermalModule Q 80T8 DIS W/Fan	No	No	5H40M31771
2	Thermal Module	Thermal Module Q 80SY UMA W/Fan	No	No	5H40L46632
3	USB board	USB Board Q 80TA W/Cable	No	No	5C50M31604
4	LED board	LED Board Q 80SY W/Cable	No	No	5C50L59205
5	HDD	ST500LT012 6G 7mm 5.4K 500G HDD	No	No	16200383
5	HDD	HTS545050A7E660 6G 7mm 5.4K 500G HDD	No	No	5H20H14223
5	HDD	MQ01ABF050 6G 7mm 5.4K 500G HDD	No	No	5H20L34560
5	HDD	WD WD5000LPCX-24VHAT0 7mm 5400rpm 500G HDD	No	No	5H20J35762
5	HDD	ST500LM021 7mm 7200rpm 500G HDD	No	No	5H20K22136
5	HDD	Seagate ST1000LM035 1T 2.5" 7mm 5400rpm HDD	No	No	5H20L22184
5	HDD	HTS541010A9E660 6G 9.5mm 5.4K 1T HDD	No	No	16200400
5	HDD	TSB MQ01ABD100 6G 9.5mm 5.4K 1T HDD	No	No	5H20L34559
5	HDD	WD10JPCX-24UE4T0 6G 9.5mm 5.4K 1T HDD	No	No	16200393
5	HDD	ST500LM000 6G 7mm 500G+8G SSHD	No	No	5H20H24608
5	HDD	Toshiba MQ02ABF050H 7mm 5.4k 500GB+8GB SSHD	No	No	5H20H12631
5	SSD	CV3-8D128 M.2 2280128G SSD	No	No	5SD0L02318
5	SSD	MZNTY128HDHP-000L2 M.2 128G SSD	No	No	5SD0L14643
5	SSD	HFS128G39TND-N210A M.2 128GB SSD	No	No	5SD0L07408
5	SSD	CV3-8D256 M.2 2280 256G SSD	No	No	5SD0L02320
5	SSD	MZNTY256HDHP-000L2 M.2 256G SSD	No	No	5SD0L14642
5	SSD	HFS256G39TND-N210A M.2 256GB SSD	No	No	5SD0L07410
5	SSD	Intel 540s SSDSCKKW360H6 M.2 22x80 360G SSD	No	No	5SD0L82499
6	Finger Printer board	FP Board Q 80TA W/Cable	No	No	5C50M32066
7	secondary battery board	Second Battery Board Q 80SY	No	No	5C50L70682
8	Upper case	Upper Case Q 80TA FP W/KB US	No	No	5CB0M31795

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
8	Upper case	Upper Case Q 80TA FP W/KB UK	No	No	5CB0M31625
8	Upper case	Upper Case Q 80TA FP W/KB AR-E	No	No	5CB0M32070
8	Upper case	Upper Case Q 80TA FP W/KB FR-AR	No	No	5CB0M31947
8	Upper case	Upper Case Q 80TA FP W/KB BE	No	No	5CB0M31975
8	Upper case	Upper Case Q 80TA FP W/KB BU	No	No	5CB0M31953
8	Upper case	Upper Case Q 80TA FP W/KB CZ-SK	No	No	5CB0M31621
8	Upper case	Upper Case Q 80TA FP W/KB USINT'E	No	No	5CB0M31697
8	Upper case	Upper Case Q 80TA FP W/KB FR	No	No	5CB0M32048
8	Upper case	Upper Case Q 80TA FP W/KB GR	No	No	5CB0M31626
8	Upper case	Upper Case Q 80TA FP W/KB GK	No	No	5CB0M32034
8	Upper case	Upper Case Q 80TA FP W/KB HB	No	No	5CB0M32026
8	Upper case	Upper Case Q 80TA FP W/KB NL	No	No	5CB0M31729
8	Upper case	Upper Case Q 80TA FP W/KB HG	No	No	5CB0M31601
8	Upper case	Upper Case Q 80TA FP W/KB ICE	No	No	5CB0M31957
8	Upper case	Upper Case Q 80TA FP W/KB IT	No	No	5CB0M31709
8	Upper case	Upper Case Q 80TA FP W/KB INDIA	No	No	5CB0M31841
8	Upper case	Upper Case Q 80TA FP W/KB PO	No	No	5CB0M31676
8	Upper case	Upper Case Q 80TA FP W/KB RU	No	No	5CB0M31708
8	Upper case	Upper Case Q 80TA FP W/KB ND	No	No	5CB0M31586
8	Upper case	Upper Case Q 80TA FP W/KB SA	No	No	5CB0M31753
8	Upper case	Upper Case Q 80TA FP W/KB SP	No	No	5CB0M31994
8	Upper case	Upper Case Q 80TA FP W/KB SW	No	No	5CB0M31642
8	Upper case	Upper Case Q 80TA FP W/KB CH	No	No	5CB0M31925
8	Upper case	Upper Case Q 80TA FP W/KB TI	No	No	5CB0M32075
8	Upper case	Upper Case Q 80TA FP W/KB TR	No	No	5CB0M31585
8	Upper case	Upper Case Q 80TA FP W/KB CF-E	No	No	5CB0M31819
8	Upper case	Upper Case Q 80TA FP W/KB KO	No	No	5CB0M31961
8	Upper case	Upper Case Q 80TA FP W/KB LA	No	No	5CB0M31837
8	Upper case	Upper Case Q 80TA FP W/KB UKR	No	No	5CB0M31627
8	Upper case	Upper Case Q 80TA FP W/KB JA	No	No	5CB0M31807
8	Upper case	Upper Case Q 80TA FP W/KB BZ	No	No	5CB0M31651
8	Upper case	Upper Case Q 80TA NFP W/KB US	No	No	5CB0M32036
8	Upper case	Upper Case Q 80TA NFP W/KB UK	No	No	5CB0M31777
8	Upper case	Upper Case Q 80TA NFP W/KB AR-E	No	No	5CB0M31830
8	Upper case	Upper Case Q 80TA NFP W/KB FR-AR	No	No	5CB0M31991
8	Upper case	Upper Case Q 80TA NFP W/KB BE	No	No	5CB0M31814
8	Upper case	Upper Case Q 80TA NFP W/KB BU	No	No	5CB0M32045

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
8	Upper case	Upper Case Q 80TA NFP W/KB CZ-SK	No	No	5CB0M31855
8	Upper case	Upper Case Q 80TA NFP W/KBUSINT'E	No	No	5CB0M31717
8	Upper case	Upper Case Q 80TA NFP W/KB FR	No	No	5CB0M31902
8	Upper case	Upper Case Q 80TA NFP W/KB GR	No	No	5CB0M32064
8	Upper case	Upper Case Q 80TA NFP W/KB GK	No	No	5CB0M31816
8	Upper case	Upper Case Q 80TA NFP W/KB HB	No	No	5CB0M31654
8	Upper case	Upper Case Q 80TA NFP W/KB NL	No	No	5CB0M31831
8	Upper case	Upper Case Q 80TA NFP W/KB HG	No	No	5CB0M31840
8	Upper case	Upper Case Q 80TA NFP W/KB ICE	No	No	5CB0M31594
8	Upper case	Upper Case Q 80TA NFP W/KB IT	No	No	5CB0M31696
8	Upper case	Upper Case Q 80TA NFP W/KB INDIA	No	No	5CB0M31857
8	Upper case	Upper Case Q 80TA NFP W/KB PO	No	No	5CB0M31689
8	Upper case	Upper Case Q 80TA NFP W/KB RU	No	No	5CB0M31921
8	Upper case	Upper Case Q 80TA NFP W/KB ND	No	No	5CB0M31974
8	Upper case	Upper Case Q 80TA NFP W/KB SA	No	No	5CB0M31869
8	Upper case	Upper Case Q 80TA NFP W/KB SP	No	No	5CB0M31832
8	Upper case	Upper Case Q 80TA NFP W/KB SW	No	No	5CB0M31979
8	Upper case	Upper Case Q 80TA NFP W/KB CH	No	No	5CB0M31865
8	Upper case	Upper Case Q 80TA NFP W/KB TI	No	No	5CB0M32049
8	Upper case	Upper Case Q 80TA NFP W/KB TR	No	No	5CB0M32056
8	Upper case	Upper Case Q 80TA NFP W/KB CF-E	No	No	5CB0M32069
8	Upper case	Upper Case Q 80TA NFP W/KB KO	No	No	5CB0M31834
8	Upper case	Upper Case Q 80TA NFP W/KB LA	No	No	5CB0M31772
8	Upper case	Upper Case Q 80TA NFP W/KB UKR	No	No	5CB0M31864
8	Upper case	Upper Case Q 80TA NFP W/KB JA	No	No	5CB0M31701
8	Upper case	Upper Case Q 80TA NFP W/KB BZ	No	No	5CB0M31826
9	Lower case	Lower Case Q 80TA OL NULT	No	No	5CB0M31711
9	Lower case	Lower Case Q 80TA OL ULT	No	No	5CB0M32002
9	Lower case	Lower Case Q 80TA NOL ULT	No	No	5CB0M31636
9	Lower case	Lower Case Q 80TA NOL NULT	No	No	5CB0M31677
10	ODD board	ODD Board Q 80SY W/Cable	No	No	5C50L59207
11	Memory Module	2GB D4S M471A5644EB0-CRC	No	No	SM30G16500
11	Memory Module	2GB D4S HMA425S6AFR6N-UH	No	No	SM30G16501
11	Memory Module	2GB D4S RMSA3270MB76H8F-2400	No	No	SM30G16503

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
11	Memory Module	2GB D4S MTA4ATF25664HZ-2G3B1	No	No	SM30G16502
11	Memory Module	4GB D4S M471A5143EB1-CRC	No	No	SM30G16504
11	Memory Module	4GB D4S HMA851S6AFR6N-UH	No	No	SM30G16505
11	Memory Module	4GB D4S RMSA3270MB86H9F-2400	No	No	SM30G16507
11	Memory Module	4GB D4S MTA4ATF51264HZ-2G3B1	No	No	SM30G16506
11	Memory Module	16GB D4S M471A2K43BB1-CRC	No	No	SM30G16512
11	Memory Module	16GB D4S HMA82GS6AFR8N-UH	No	No	SM30G16513
11	Memory Module	SM30G16514 16GB D4S MTA16ATF2G64H-2G3B1	No	No	SM30G16514
12	Wlan	Intel 3165 1x1AC+BT PCIE M.2 WLAN	No	No	SW10H24486
12	Wlan	Ltn NFA435A 1x1AC+BT4.0 PCIE M.2 WLAN	No	No	SW10K97461
12	Wlan	Cbt RTL8821AE 1x1AC+BT4.0 PCIE M.2 WLAN	No	No	SW10A11648
12	Wlan	Intel 8265 2x2AC+BT PCIE M.2 WLAN NV	No	No	SW10K97453
12	Wlan	Ltn NFA344A 2x2AC+BT4.x PCIE M.2 WLAN	No	No	SW10K97465
13	OneLink board	OneLink Board Q 80SY W/Cable	No	No	5C50L70681
14	Power board	Power Board Q 80SY W/Cable	No	No	5C50L46667
15	Speakers	Speaker Q 80SY L+R	No	No	5SB0L46635
16	Battery	V310 CP/L L15C4A02 14.4V32Wh4cell bty	No	No	5B10L04163
16	Battery	V310 LG L15L4A02 14.4V32Wh4cell bty	No	No	5B10L04164
16	Battery	V310 SY L15S4A02 14.4V32Wh4cell bty	No	No	5B10L04212
16	Battery	V310 CP/L L15C4E01 14.88V41Wh4cell bty	No	No	5B10L04160
16	Battery	V310 SY L15S4E02 14.4V41Wh4cell bty	No	No	5B10L04213
16	Battery	V310 CP/C L15C2P01 7.6V35Wh2cell bty	No	No	5B10L04162
16	Battery	V310 SY L15L2P01 7.6V35Wh2cell bty	No	No	5B10L04211
17	RTC battery	RTC Battery Q 80SY	No	No	5B10L46577

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
18	ODD	HLDS GUE0N 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0J46488
18	ODD	PLDS DA-8AESH 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0L08424
18	ODD	TSST SU-228HB 9.0mm Slim Tray Rambo ODD	Yes	No	5DX0L08425
18	Secondary battery	SecondBatteryQ 80TANULT W/Bezel	Yes	No	5B10M31778
18	Secondary battery	SecondBatteryQ 80TA ULT W/Bezel	Yes	No	5B10M31872
19	System board	MBQ80TA NOKI37100U DIS4G OLNUL	No	No	5B20M31632
19	System board	MBQ80TA WINI37100U DIS4G OLNUL	No	No	5B20M31876
19	System board	MBQ80TA NOKI37100U DIS4G OL2BA	No	No	5B20M32059
19	System board	MBQ80TA WINI37100U DIS4G OL2BA	No	No	5B20M32057
19	System board	MBQ80TA NOKI37100U DIS4GNOLNUL	No	No	5B20M31786
19	System board	MBQ80TA WINI37100U DIS4GNOLNUL	No	No	5B20M31996
19	System board	MBQ80TA NOKI37100U DIS4GNOL2BA	No	No	5B20M31658
19	System board	MBQ80TA WINI37100U DIS4GNOL2BA	No	No	5B20M31719
19	System board	MBQ80TA NOKI37100U UMA4G OLNUL	No	No	5B20M31958
19	System board	MBQ80TA WINI37100U UMA4G OLNUL	No	No	5B20M32067
19	System board	MBQ80TA NOKI37100U UMA4G OL2BA	No	No	5B20M31653
19	System board	MBQ80TA WINI37100U UMA4G OL2BA	No	No	5B20M31847
19	System board	MBQ80TA NOKI37100U UMA4GNOLNUL	No	No	5B20M31666
19	System board	MBQ80TA WINI37100U UMA4GNOLNUL	No	No	5B20M31702
19	System board	MBQ80TA NOKI37100U UMA4GNOL2BA	No	No	5B20M31900
19	System board	MBQ80TA WINI37100U UMA4GNOL2BA	No	No	5B20M31890
19	System board	MBQ80TA NOK I37100U DIS OL NUL	No	No	5B20M31595
19	System board	MBQ80TA WIN I37100U DIS OL NUL	No	No	5B20M31688
19	System board	MBQ80TA NOK I37100U DIS OL 2BA	No	No	5B20M31792

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA WIN I37100U DIS OL 2BA	No	No	5B20M32076
19	System board	MBQ80TA NOKI37100U DIS NOL NUL	No	No	5B20M31894
19	System board	MBQ80TA WINI37100U DIS NOL NUL	No	No	5B20M31891
19	System board	MBQ80TA NOKI37100U DIS NOL 2BA	No	No	5B20M31722
19	System board	MBQ80TA WINI37100U DIS NOL 2BA	No	No	5B20M31844
19	System board	MBQ80TA NOK I37100U UMA OL NUL	No	No	5B20M31768
19	System board	MBQ80TA WIN I37100U UMA OL NUL	No	No	5B20M32005
19	System board	MBQ80TA NOK I37100U UMA OL 2BA	No	No	5B20M31908
19	System board	MBQ80TA WIN I37100U UMA OL 2BA	No	No	5B20M31657
19	System board	MBQ80TA NOKI37100U UMA NOL NUL	No	No	5B20M31810
19	System board	MBQ80TA WINI37100U UMA NOL NUL	No	No	5B20M31611
19	System board	MBQ80TA NOKI37100U UMA NOL 2BA	No	No	5B20M32054
19	System board	MBQ80TA WINI37100U UMA NOL 2BA	No	No	5B20M31934
19	System board	MBQ80TA NOKI57200U DIS4G OLNUL	No	No	5B20M31743
19	System board	MBQ80TA WINI57200U DIS4G OLNUL	No	No	5B20M31916
19	System board	MBQ80TA NOKI57200U DIS4G OL2BA	No	No	5B20M32009
19	System board	MBQ80TA WINI57200U DIS4G OL2BA	No	No	5B20M31773
19	System board	MBQ80TA NOKI57200U DIS4GNOLNUL	No	No	5B20M32027
19	System board	MBQ80TA WINI57200U DIS4GNOLNUL	No	No	5B20M31749
19	System board	MBQ80TA NOKI57200U DIS4GNOL2BA	No	No	5B20M31980
19	System board	MBQ80TA WINI57200U DIS4GNOL2BA	No	No	5B20M31745
19	System board	MBQ80TA NOKI57200U UMA4G OLNUL	No	No	5B20M32041
19	System board	MBQ80TA WINI57200U UMA4G OLNUL	No	No	5B20M31734
19	System board	MBQ80TA NOKI57200U UMA4G OL2BA	No	No	5B20M31629
19	System board	MBQ80TA WINI57200U UMA4G OL2BA	No	No	5B20M31762

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOKI57200U UMA4GNOLNUL	No	No	5B20M31866
19	System board	MBQ80TA WINI57200U UMA4GNOLNUL	No	No	5B20M31736
19	System board	MBQ80TA NOKI57200U UMA4GNOL2BA	No	No	5B20M31756
19	System board	MBQ80TA WINI57200U UMA4GNOL2BA	No	No	5B20M31884
19	System board	MBQ80TA NOK I57200U DIS OL NUL	No	No	5B20M31796
19	System board	MBQ80TA WIN I57200U DIS OL NUL	No	No	5B20M31582
19	System board	MBQ80TA NOK I57200U DIS OL 2BA	No	No	5B20M31798
19	System board	MBQ80TA WIN I57200U DIS OL 2BA	No	No	5B20M32016
19	System board	MBQ80TA NOKI57200U DIS NOL NUL	No	No	5B20M31915
19	System board	MBQ80TA WINI57200U DIS NOL NUL	No	No	5B20M31799
19	System board	MBQ80TA NOKI57200U DIS NOL 2BA	No	No	5B20M31597
19	System board	MBQ80TA WINI57200U DIS NOL 2BA	No	No	5B20M31730
19	System board	MBQ80TA NOK I57200U UMA OL NUL	No	No	5B20M31901
19	System board	MBQ80TA WIN I57200U UMA OL NUL	No	No	5B20M31848
19	System board	MBQ80TA NOK I57200U UMA OL 2BA	No	No	5B20M31692
19	System board	MBQ80TA WIN I57200U UMA OL 2BA	No	No	5B20M31950
19	System board	MBQ80TA NOKI57200U UMA NOL NUL	No	No	5B20M31640
19	System board	MBQ80TA WINI57200U UMA NOL NUL	No	No	5B20M31685
19	System board	MBQ80TA NOKI57200U UMA NOL 2BA	No	No	5B20M31904
19	System board	MBQ80TA WINI57200U UMA NOL 2BA	No	No	5B20M31919
19	System board	MBQ80TA NOKI77500U DIS4G OLNUL	No	No	5B20M31845
19	System board	MBQ80TA WINI77500U DIS4G OLNUL	No	No	5B20M32078
19	System board	MBQ80TA NOKI77500U DIS4G OL2BA	No	No	5B20M32007
19	System board	MBQ80TA WINI77500U DIS4G OL2BA	No	No	5B20M32043
19	System board	MBQ80TA NOKI77500U DIS4GNOLNUL	No	No	5B20M31789
19	System board	MBQ80TA WINI77500U DIS4GNOLNUL	No	No	5B20M31897

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOKI77500U DIS4GNOL2BA	No	No	5B20M31684
19	System board	MBQ80TA WINI77500U DIS4GNOL2BA	No	No	5B20M31811
19	System board	MBQ80TA NOKI77500U UMA4G OLNUL	No	No	5B20M31588
19	System board	MBQ80TA WINI77500U UMA4G OLNUL	No	No	5B20M32081
19	System board	MBQ80TA NOKI77500U UMA4G OL2BA	No	No	5B20M32079
19	System board	MBQ80TA WINI77500U UMA4G OL2BA	No	No	5B20M31941
19	System board	MBQ80TA NOKI77500U UMA4GNOLNUL	No	No	5B20M31615
19	System board	MBQ80TA WINI77500U UMA4GNOLNUL	No	No	5B20M31956
19	System board	MBQ80TA NOKI77500U UMA4GNOL2BA	No	No	5B20M31852
19	System board	MBQ80TA WINI77500U UMA4GNOL2BA	No	No	5B20M31738
19	System board	MBQ80TA NOK I77500U DIS OL NUL	No	No	5B20M31659
19	System board	MBQ80TA WIN I77500U DIS OL NUL	No	No	5B20M31931
19	System board	MBQ80TA NOK I77500U DIS OL 2BA	No	No	5B20M31758
19	System board	MBQ80TA WIN I77500U DIS OL 2BA	No	No	5B20M31649
19	System board	MBQ80TA NOKI77500U DIS NOL NUL	No	No	5B20M32080
19	System board	MBQ80TA WINI77500U DIS NOL NUL	No	No	5B20M31679
19	System board	MBQ80TA NOKI77500U DIS NOL 2BA	No	No	5B20M31823
19	System board	MBQ80TA WINI77500U DIS NOL 2BA	No	No	5B20M31800
19	System board	MBQ80TA NOK I77500U UMA OL NUL	No	No	5B20M31861
19	System board	MBQ80TA WIN I77500U UMA OL NUL	No	No	5B20M31663
19	System board	MBQ80TA NOK I77500U UMA OL 2BA	No	No	5B20M31853
19	System board	MBQ80TA WIN I77500U UMA OL 2BA	No	No	5B20M31878
19	System board	MBQ80TA NOKI77500U UMA NOL NUL	No	No	5B20M31619
19	System board	MBQ80TA WINI77500U UMA NOL NUL	No	No	5B20M31952
19	System board	MBQ80TA NOKI77500U UMA NOL 2BA	No	No	5B20M31825
19	System board	MBQ80TA WINI77500U UMA NOL 2BA	No	No	5B20M31650

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOKI56200U DIS4G OLNUL	No	No	5B20M31765
19	System board	MBQ80TA WINI56200U DIS4G OLNUL	No	No	5B20M31966
19	System board	MBQ80TA NOKI56200U DIS4G OL2BA	No	No	5B20M31955
19	System board	MBQ80TA WINI56200U DIS4G OL2BA	No	No	5B20M31911
19	System board	MBQ80TA NOKI56200U DIS4GNOLNUL	No	No	5B20M31987
19	System board	MBQ80TA WINI56200U DIS4GNOLNUL	No	No	5B20M31918
19	System board	MBQ80TA NOKI56200U DIS4GNOL2BA	No	No	5B20M32065
19	System board	MBQ80TA WINI56200U DIS4GNOL2BA	No	No	5B20M32052
19	System board	MBQ80TA NOKI56200U UMA4G OLNUL	No	No	5B20M31886
19	System board	MBQ80TA WINI56200U UMA4G OLNUL	No	No	5B20M31608
19	System board	MBQ80TA NOKI56200U UMA4G OL2BA	No	No	5B20M31849
19	System board	MBQ80TA WINI56200U UMA4G OL2BA	No	No	5B20M31944
19	System board	MBQ80TA NOKI56200U UMA4GNOLNUL	No	No	5B20M32008
19	System board	MBQ80TA WINI56200U UMA4GNOLNUL	No	No	5B20M31616
19	System board	MBQ80TA NOKI56200U UMA4GNOL2BA	No	No	5B20M31887
19	System board	MBQ80TA WINI56200U UMA4GNOL2BA	No	No	5B20M31801
19	System board	MBQ80TA NOK I56200U DIS OL NUL	No	No	5B20M31584
19	System board	MBQ80TA WIN I56200U DIS OL NUL	No	No	5B20M31907
19	System board	MBQ80TA NOK I56200U DIS OL 2BA	No	No	5B20M32001
19	System board	MBQ80TA WIN I56200U DIS OL 2BA	No	No	5B20M31733
19	System board	MBQ80TA NOKI56200U DIS NOL NUL	No	No	5B20M31854
19	System board	MBQ80TA WINI56200U DIS NOL NUL	No	No	5B20M32051
19	System board	MBQ80TA NOKI56200U DIS NOL 2BA	No	No	5B20M32017
19	System board	MBQ80TA WINI56200U DIS NOL 2BA	No	No	5B20M31641
19	System board	MBQ80TA NOK I56200U UMA OL NUL	No	No	5B20M31936
19	System board	MBQ80TA WIN I56200U UMA OL NUL	No	No	5B20M31675

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOK I56200U UMA OL 2BA	No	No	5B20M31969
19	System board	MBQ80TA WIN I56200U UMA OL 2BA	No	No	5B20M31647
19	System board	MBQ80TA NOKI56200U UMA NOL NUL	No	No	5B20M31680
19	System board	MBQ80TA WINI56200U UMA NOL NUL	No	No	5B20M32072
19	System board	MBQ80TA NOKI56200U UMA NOL 2BA	No	No	5B20M31827
19	System board	MBQ80TA WINI56200U UMA NOL 2BA	No	No	5B20M31909
19	System board	MBQ80TA NOKI56267U DIS4G OLNUL	No	No	5B20M31710
19	System board	MBQ80TA WINI56267U DIS4G OLNUL	No	No	5B20M31812
19	System board	MBQ80TA NOKI56267U DIS4G OL2BA	No	No	5B20M31851
19	System board	MBQ80TA WINI56267U DIS4G OL2BA	No	No	5B20M31910
19	System board	MBQ80TA NOKI56267U DIS4GNOLNUL	No	No	5B20M31705
19	System board	MBQ80TA WINI56267U DIS4GNOLNUL	No	No	5B20M31951
19	System board	MBQ80TA NOKI56267U DIS4GNOL2BA	No	No	5B20M31892
19	System board	MBQ80TA WINI56267U DIS4GNOL2BA	No	No	5B20M31712
19	System board	MBQ80TA NOKI56267U UMA4G OLNUL	No	No	5B20M31899
19	System board	MBQ80TA WINI56267U UMA4G OLNUL	No	No	5B20M31885
19	System board	MBQ80TA NOKI56267U UMA4G OL2BA	No	No	5B20M31602
19	System board	MBQ80TA WINI56267U UMA4G OL2BA	No	No	5B20M31787
19	System board	MBQ80TA NOKI56267U UMA4GNOLNUL	No	No	5B20M31922
19	System board	MBQ80TA WINI56267U UMA4GNOLNUL	No	No	5B20M31652
19	System board	MBQ80TA NOKI56267U UMA4GNOL2BA	No	No	5B20M31924
19	System board	MBQ80TA WINI56267U UMA4GNOL2BA	No	No	5B20M31700
19	System board	MBQ80TA NOK I56267U DIS OL NUL	No	No	5B20M31682
19	System board	MBQ80TA WIN I56267U DIS OL NUL	No	No	5B20M31794

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOK I56267U DIS OL 2BA	No	No	5B20M31691
19	System board	MBQ80TA WIN I56267U DIS OL 2BA	No	No	5B20M31583
19	System board	MBQ80TA NOKI56267U DIS NOL NUL	No	No	5B20M31637
19	System board	MBQ80TA WINI56267U DIS NOL NUL	No	No	5B20M32018
19	System board	MBQ80TA NOKI56267U DIS NOL 2BA	No	No	5B20M31988
19	System board	MBQ80TA WINI56267U DIS NOL 2BA	No	No	5B20M31686
19	System board	MBQ80TA NOK I56267U UMA OL NUL	No	No	5B20M31731
19	System board	MBQ80TA WIN I56267U UMA OL NUL	No	No	5B20M32040
19	System board	MBQ80TA NOK I56267U UMA OL 2BA	No	No	5B20M31990
19	System board	MBQ80TA WIN I56267U UMA OL 2BA	No	No	5B20M31809
19	System board	MBQ80TA NOKI56267U UMA NOL NUL	No	No	5B20M31695
19	System board	MBQ80TA WINI56267U UMA NOL NUL	No	No	5B20M31668
19	System board	MBQ80TA NOKI56267U UMA NOL 2BA	No	No	5B20M31788
19	System board	MBQ80TA WINI56267U UMA NOL 2BA	No	No	5B20M31635
19	System board	MBQ80TA NOKI76500U DIS4G OLNUL	No	No	5B20M31999
19	System board	MBQ80TA WINI76500U DIS4G OLNUL	No	No	5B20M31598
19	System board	MBQ80TA NOKI76500U DIS4G OL2BA	No	No	5B20M31971
19	System board	MBQ80TA WINI76500U DIS4G OL2BA	No	No	5B20M31914
19	System board	MBQ80TA NOKI76500U DIS4GNOLNUL	No	No	5B20M31580
19	System board	MBQ80TA WINI76500U DIS4GNOLNUL	No	No	5B20M31968
19	System board	MBQ80TA NOKI76500U DIS4GNOL2BA	No	No	5B20M31976
19	System board	MBQ80TA WINI76500U DIS4GNOL2BA	No	No	5B20M31715
19	System board	MBQ80TA NOKI76500U UMA4G OLNUL	No	No	5B20M31879
19	System board	MBQ80TA WINI76500U UMA4G OLNUL	No	No	5B20M31791
19	System board	MBQ80TA NOKI76500U UMA4G OL2BA	No	No	5B20M32020

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA WINI76500U UMA4G OL2BA	No	No	5B20M32068
19	System board	MBQ80TA NOKI76500U UMA4GNOLNUL	No	No	5B20M31874
19	System board	MBQ80TA WINI76500U UMA4GNOLNUL	No	No	5B20M31664
19	System board	MBQ80TA NOKI76500U UMA4GNOL2BA	No	No	5B20M31903
19	System board	MBQ80TA WINI76500U UMA4GNOL2BA	No	No	5B20M31883
19	System board	MBQ80TA NOK I76500U DIS OL NUL	No	No	5B20M31748
19	System board	MBQ80TA WIN I76500U DIS OL NUL	No	No	5B20M31750
19	System board	MBQ80TA NOK I76500U DIS OL 2BA	No	No	5B20M31835
19	System board	MBQ80TA WIN I76500U DIS OL 2BA	No	No	5B20M31804
19	System board	MBQ80TA NOKI76500U DIS NOL NUL	No	No	5B20M31920
19	System board	MBQ80TA WINI76500U DIS NOL NUL	No	No	5B20M31592
19	System board	MBQ80TA NOKI76500U DIS NOL 2BA	No	No	5B20M31638
19	System board	MBQ80TA WINI76500U DIS NOL 2BA	No	No	5B20M32044
19	System board	MBQ80TA NOK I76500U UMA OL NUL	No	No	5B20M31779
19	System board	MBQ80TA WIN I76500U UMA OL NUL	No	No	5B20M31732
19	System board	MBQ80TA NOK I76500U UMA OL 2BA	No	No	5B20M31881
19	System board	MBQ80TA WIN I76500U UMA OL 2BA	No	No	5B20M31706
19	System board	MBQ80TA NOKI76500U UMA NOL NUL	No	No	5B20M31624
19	System board	MBQ80TA WINI76500U UMA NOL NUL	No	No	5B20M31940
19	System board	MBQ80TA NOKI76500U UMA NOL 2BA	No	No	5B20M32014
19	System board	MBQ80TA WINI76500U UMA NOL 2BA	No	No	5B20M31785
19	System board	MBQ80TA NOKI76567U DIS4G OLNUL	No	No	5B20M31609
19	System board	MBQ80TA WINI76567U DIS4G OLNUL	No	No	5B20M31862
19	System board	MBQ80TA NOKI76567U DIS4G OL2BA	No	No	5B20M31605
19	System board	MBQ80TA WINI76567U DIS4G OL2BA	No	No	5B20M31790
19	System board	MBQ80TA NOKI76567U DIS4GNOLNUL	No	No	5B20M31959

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA WINI76567U DIS4GNOLNUL	No	No	5B20M32028
19	System board	MBQ80TA NOKI76567U DIS4GNOL2BA	No	No	5B20M32071
19	System board	MBQ80TA WINI76567U DIS4GNOL2BA	No	No	5B20M31737
19	System board	MBQ80TA NOKI76567U UMA4G OLNUL	No	No	5B20M32053
19	System board	MBQ80TA WINI76567U UMA4G OLNUL	No	No	5B20M31997
19	System board	MBQ80TA NOKI76567U UMA4G OL2BA	No	No	5B20M31593
19	System board	MBQ80TA WINI76567U UMA4G OL2BA	No	No	5B20M32074
19	System board	MBQ80TA NOKI76567U UMA4GNOLNUL	No	No	5B20M31875
19	System board	MBQ80TA WINI76567U UMA4GNOLNUL	No	No	5B20M31963
19	System board	MBQ80TA NOKI76567U UMA4GNOL2BA	No	No	5B20M31707
19	System board	MBQ80TA WINI76567U UMA4GNOL2BA	No	No	5B20M31842
19	System board	MBQ80TA NOK I76567U DIS OL NUL	No	No	5B20M31888
19	System board	MBQ80TA WIN I76567U DIS OL NUL	No	No	5B20M31839
19	System board	MBQ80TA NOK I76567U DIS OL 2BA	No	No	5B20M31912
19	System board	MBQ80TA WIN I76567U DIS OL 2BA	No	No	5B20M31763
19	System board	MBQ80TA NOKI76567U DIS NOL NUL	No	No	5B20M31740
19	System board	MBQ80TA WINI76567U DIS NOL NUL	No	No	5B20M31970
19	System board	MBQ80TA NOKI76567U DIS NOL 2BA	No	No	5B20M32021
19	System board	MBQ80TA WINI76567U DIS NOL 2BA	No	No	5B20M31665
19	System board	MBQ80TA NOK I76567U UMA OL NUL	No	No	5B20M31960
19	System board	MBQ80TA WIN I76567U UMA OL NUL	No	No	5B20M31822
19	System board	MBQ80TA NOK I76567U UMA OL 2BA	No	No	5B20M31882
19	System board	MBQ80TA WIN I76567U UMA OL 2BA	No	No	5B20M32035
19	System board	MBQ80TA NOKI76567U UMA NOL NUL	No	No	5B20M31977
19	System board	MBQ80TA WINI76567U UMA NOL NUL	No	No	5B20M31725

Table 2. Major FRUs (continued)

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	FRU No.
19	System board	MBQ80TA NOKI76567U UMA NOL 2BA	No	No	5B20M31726
19	System board	MBQ80TA WINI76567U UMA NOL 2BA	No	No	5B20M32046

LCD FRUs (for V510–14IKB)

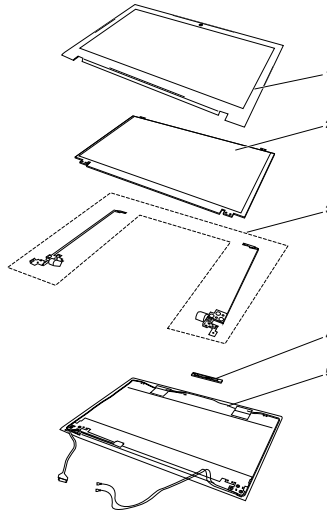


Table 3. LCD FRUs

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	PN number
1	LCD bezel	LCD Bezel Q 80T8	No	No	5B30M31964
1	LCD bezel	LCD Bezel Q 80T8 NOCAM	No	No	5B30M31744
2	Panel	LG LP140WHU-TPH1 HDT AG S NB	No	No	5D10K81464
2	Panel	AUO B140XTN02.E HW0A HD AG S NB	No	No	5D10G95364
2	Panel	IN N140BGA-EA3 HDT AG S NB	No	No	5D10K85755
2	Panel	BO NT140WHM-N41 HDT AG S NB	No	No	5D10K81099
2	Panel	IN N140HCE-EAA C3 FHD AG S NB	No	No	5D10K91452
2	Panel	LGD LP140WF6-SPB1 FHD AG S NB	No	No	5D10H34771
3	Hinge	Hinge Q 80T8 L+R	No	No	5H50M31821
4	Camera	Camera Q 80SY HD	No	No	5C20L46636
4	Camera	Camera Q 80SX 0.3	No	No	5C20L46663
5	LCD Cover	LCD Cover Q 80T8 W/Antenna	No	No	5CB0M32055
5	LCD Cover	LCD Cover Q 80T8 W/Antenna NOCAM	No	No	5CB0M31754

LCD FRUs (for V510–15IKB)

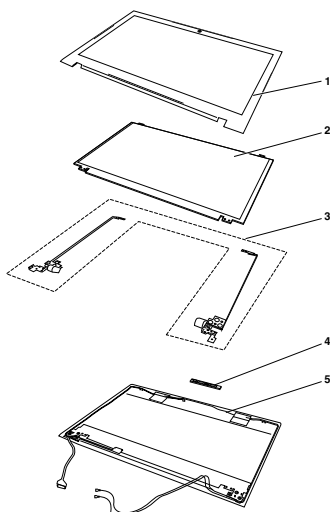


Table 4. LCD FRUs

No.	FRU parts	FRU descriptions	Self-service CRU	Optional-service CRU	PN number
1	LCD bezel	LCD Bezel Q 80TA W/O Camera	No	No	5B30M31858
1	LCD bezel	LCD Bezel Q 80TA	No	No	5B30M31946
2	Panel	LG LP156WHU-TPH1 HDT AG S NB	No	No	5D10K81461
2	Panel	INX N156BGA-EA2 HDT AG S NB	No	No	5D10K81086
2	Panel	BO NT156WHM-N42 V8 HDT AG S NB	No	No	5D10K81097
2	Panel	LG LP156WF6-SPK3 FHD AG S NB	No	No	5D10L79763
2	Panel	BO NV156FHM-N42 V8 FHD AG S NB	No	No	5D10L65980
3	Hinge	Hinge Q 80TA L+R	No	No	5H50M31782
4	Camera	Camera Q 80SY HD	No	No	5C20L46636
4	Camera	Camera Q 80SX 0.3	No	No	5C20L46663
5	LCD Cover	LCD Cover Q 80TA W/Antenna NOCAM	No	No	5CB0M31797
5	LCD Cover	LCD Cover Q 80TA W/Antenna	No	No	5CB0M31818

Miscellaneous parts and other FRUs (for V510–14IKB)

Table 5. Miscellaneous part

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
(a). HDD Bracket Q 80T8 SSS	No	No	5B40M31704
(b). ODD bracket: ODD Bracket Q 80SY SSS	No	No	5B40L46747
(c). ODD latch: ODD Latch Q 80SX SSS	No	No	5L20L80882
(d). ODD bezel: ODD Bezel Q 80T8 SSS	No	No	5B30M31631

Table 5. Miscellaneous part (continued)

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
(e): DC-in cable: DC-IN Cable Q 80SX SSS	No	No	5C10L46579
(f): Finger Printer bracket: FP Bracket Q 80SX SSS	No	No	5B40L46598
(g): EDP Cable: EDP Cable Q 80T8 SSS	No	No	5C10M31671
(h): Hinge Mylar: Hinge Mylar Q 80T8 SSS	No	No	5T10M31614
Screw Pack Q 80T8	No	No	5S10M31806
Dummy ODD Q 80T8 NULT	No	No	5M20M31815

Table 6. Other FRUs

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
ac adapter: Delta ADLX45NDC3A 20V2.25A adap DOE	Yes	No	5A10H03911
ac adapter: Liteon ADLX45DLC3A 20V2.25A adap DOE	Yes	No	5A10H03910
ac adapter: Chicony ADLX45NCC3A 20V2.25A adap DOE	Yes	No	5A10H03912
ac adapter: Acbel ADLX45NAC3A 20V2.25A adap	Yes	No	5A10K02213
ac adapter: Delta ADLX65NDC3A 20V3.25A BIS	Yes	No	5A10J46692
ac adapter: Liteon ADLX65NLC3A 20V3.25A AD BIS	Yes	No	5A10J75114
ac adapter: Chicony ADLX65NCC3A 20V3.25A AD BIS	Yes	No	5A10J75111
power code: LINETEK LP-61L+ H03VV-F+ LS15 1m cord	Yes	No	145-000593
power code: Longwell LP-61L+H03VV-F+LS-18 1m cord	Yes	No	145-000561
power code: VOLEX MP5004+H03VV-F+VAC5S 1m cord	Yes	No	145-000605
power code: lux 0031+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500000
power code: LINETEK LP-34+H03VV-F + LS15 1m cord	Yes	No	145-000585
power code: Longwell LP-34A+H03VV-F+LS-18 1m cord	Yes	No	145-000553
power code: VOLEX M2511+H03VV-F+VAC5S 1m cord	Yes	No	145-000525
power code: lux 0033+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500001
power code: LINETEK LP-30B + SPT-2 + LS15 1m cord	Yes	No	145-000594
power code: Longwell LP-30B+SPT-2 18AWG+LS-18 1m cord	Yes	No	145-000562
power code: Volex US15S3+SPT-2 + VAC5S 1m cord	Yes	No	145-000537
power code: lux 0014+SPT-2 60°C 18/3C+0016 1m cord	Yes	No	145-500002
power code: LINETEK PC323+RVV300/300+LS15 1m cord	Yes	No	145-000600
power code: Longwell LSG-31+RVV300/300+LS-18 1m cord	Yes	No	145-000568
power code: VOLEX GB10S3+RVV 300/500+VAC5S 1m cord	Yes	No	145-000538
power code: lux 0036+RVV 300/300 0.75/3C+0002 1m cord	Yes	No	145-500003
power code: LINETEK PE-361+ H05VV-F+ LS15 1m cord	Yes	No	145-000592
power code: Longwell LP-67+BIS+LS-18 1m cord	Yes	No	145-000560
power code: VOLEX IA6A3+IS694+VAC5S 1m cord	Yes	No	145-000536
power code: lux 0046+IS694 0.75/3C+0011 1m cord	Yes	No	145-500004
power code: LINETEK LS15+VCTF+LP-54 1m cord	Yes	No	145-000587

Table 6. Other FRUs (continued)

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
power code: Longwell LP-54+VCTF+LS-18 1m cord	Yes	No	145-000555
power code: VOLEX VAC5S+VCTF+M755 1m cord	Yes	No	145-000530
power code: lux 0018(E)+VCTF 0.75/3C+0021 1m cord	Yes	No	145-500005
power code: LINETEK LS15+H03VV-F+LP-23A 1m cord	Yes	No	145-000589
power code: Longwell LP-23A+LFC-3R+LS-18 1m cord	Yes	No	145-000557
power code: VOLEX AU10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000532
power code: lux 0038+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500006
power code: LINETEK LS15+VCTF+LP-53 1m cord	Yes	No	145-000588
power code: Longwell LP-71+VCTF+LS-33 1m cord	Yes	No	145-000556
power code: VOLEX TW15CS3+VCTF+VAC5S 1m cord	Yes	No	145-000531
power code: lux 0019+VCTF 0.75/3C+0021 1m cord	Yes	No	145-500007
power code: LINETEK LS15+H05VV-F+LP-E04A 1m cord	Yes	No	145-000590
power code: Longwell LP-486+KTLH03VV-F+LS-5 1m cord	Yes	No	145-000558
power code: VOLEX M2511+KETI IEC+VAC5S 1m cord	Yes	No	145-000533
power code: lux 0033+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500008
power code: LINETEK LS15+H03VV-F+PE-336 1m cord	Yes	No	145-000591
power code: Longwell LP-22+H03VV-F+LS-18 1m cord	Yes	No	145-000559
power code: VOLEX IT10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000535
power code: lux 0029+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500009
power code: LINETEK LS15+H03VV-F+PE-364 1m cord	Yes	No	145-000586
power code: Longwell LP-39+H03VV-F+LS-18 1m cord	Yes	No	145-000554
power code: lux 0044+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500010
power code: LINETEK LS15 H03VV-F LP26A 1m cord	Yes	No	145-000596
power code: Longwell LP-46+H03VV-F+LS-18 1m cord	Yes	No	145-000564
power code: VOLEX CH10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000527
power code: lux 0034+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500011
power code: LINETEK LS15+H03VV-F+LP-41 1m cord	Yes	No	145-000595
power code: Longwell LP-41+H03VV-F+LS-18 1m cord	Yes	No	145-000563
power code: VOLEX SI16S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000526
power code: lux 0041+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500012
power code: LINETEK LS15+H03VV-F+LP-37 1m cord	Yes	No	145-000597
power code: Longwell LP-37+H03VV-F+LS-18 1m cord	Yes	No	145-000565
power code: VOLEX MP232+H03VV-F+VAC5S 1m cord	Yes	No	145-000524
power code: lux 0027+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500013
power code: LINETEK LS15+H03VV-F+LP-38 1m cord	Yes	No	145-000598
power code: Longwell LP-40+H03VV-F+LS-18 1m cord	Yes	No	145-000566
power code: VOLEX MP233D+H03VV-F+VAC5S 1m cord	Yes	No	145-000534

Table 6. Other FRUs (continued)

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
power code: lux 0048+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500014
power code: lux 0014+H03VV-F 0.75/3C+0011 1m cord	Yes	No	5L60J33143
power code: LINETEK LS15+H03VV-F+LP39 1m cord	Yes	No	145-000599
power code: Longwell LP-24+H03VV-F+LS-18 1m cord	Yes	No	145-000567
power code: VOLEX VA2073+H03VV-F+VAC5S 1m cord	Yes	No	145-000528
power code: lux 0040+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500015

Miscellaneous parts and other FRUs (for V510–151KB)

Table 7. Miscellaneous part

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
(a). HDD Bracket Q 80T8	No	No	5B40M31704
(b). ODD bracket: ODD Bracket Q 80SY	No	No	5B40L46747
(c). ODD latch: ODD Latch Q 80SX	No	No	5L20L80882
(d). ODD bezel: ODD Bezel Q 80TA	No	No	5B30M31643
(e). DC-in cable: DC-IN Cable Q 80SY	No	No	5C10L46735
(f). Finger Printer bracket: FP Bracket Q 80SY	No	No	5B40L46678
(g). EDP Cable: EDP Cable Q 80TA W/O Camera	No	No	5C10M31880
(g). EDP Cable: EDP Cable Q 80TA	No	No	5C10M31713
(h). Hinge Mylar: Hinge Mylar Q 80TA	No	No	5T10M31817
Screw Pack Q 80TA	No	No	5S10M31646
Dummy ODD Q 80TA NULT	No	No	5M20M32042

Table 8. Other FRUs

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
ac adapter: Delta ADLX45NDC3A 20V2.25A adap DOE	Yes	No	5A10H03911
ac adapter: Liteon ADLX45DLC3A 20V2.25A adap DOE	Yes	No	5A10H03910
ac adapter: Chicony ADLX45NCC3A 20V2.25A adap DOE	Yes	No	5A10H03912
ac adapter: Acbel ADLX45NAC3A 20V2.25A adap	Yes	No	5A10K02213
ac adapter: Delta ADLX65NDC3A 20V3.25A BIS	Yes	No	5A10J46692
ac adapter: Liteon ADLX65NLC3A 20V3.25A AD BIS	Yes	No	5A10J75114
ac adapter: Chicony ADLX65NCC3A 20V3.25A AD BIS	Yes	No	5A10J75111
power code: LINETEK LP-61L+ H03VV-F+ LS15 1m cord	Yes	No	145-000593
power code: Longwell LP-61L+H03VV-F+LS-18 1m cord	Yes	No	145-000561
power code: VOLEX MP5004+H03VV-F+VAC5S 1m cord	Yes	No	145-000605
power code: lux 0031+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500000
power code: LINETEK LP-34+H03VV-F + LS15 1m cord	Yes	No	145-000585

Table 8. Other FRUs (continued)

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
power code: Longwell LP-34A+H03VV-F+LS-18 1m cord	Yes	No	145-000553
power code: VOLEX M2511+H03VV-F+VAC5S 1m cord	Yes	No	145-000525
power code: lux 0033+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500001
power code: LINETEK LP-30B + SPT-2 + LS15 1m cord	Yes	No	145-000594
power code: Longwell LP-30B+SPT-2 18AWG+LS-18 1m cord	Yes	No	145-000562
power code: Volex US15S3+SPT-2 + VAC5S 1m cord	Yes	No	145-000537
power code: lux 0014+SPT-2 60°C 18/3C+0016 1m cord	Yes	No	145-500002
power code: LINETEK PC323+RVV300/300+LS15 1m cord	Yes	No	145-000600
power code: Longwell LSG-31+RVV300/300+LS-18 1m cord	Yes	No	145-000568
power code: VOLEX GB10S3+RVV 300/500+VAC5S 1m cord	Yes	No	145-000538
power code: lux 0036+RVV 300/300 0.75/3C+0002 1m cord	Yes	No	145-500003
power code: LINETEK PE-361+ H05VV-F+ LS15 1m cord	Yes	No	145-000592
power code: Longwell LP-67+BIS+LS-18 1m cord	Yes	No	145-000560
power code: VOLEX IA6A3+IS694+VAC5S 1m cord	Yes	No	145-000536
power code: lux 0046+IS694 0.75/3C+0011 1m cord	Yes	No	145-500004
power code: LINETEK LS15+VCTF+LP-54 1m cord	Yes	No	145-000587
power code: Longwell LP-54+VCTF+LS-18 1m cord	Yes	No	145-000555
power code: VOLEX VAC5S+VCTF+M755 1m cord	Yes	No	145-000530
power code: lux 0018(E)+VCTF 0.75/3C+0021 1m cord	Yes	No	145-500005
power code: LINETEK LS15+H03VV-F+LP-23A 1m cord	Yes	No	145-000589
power code: Longwell LP-23A+LFC-3R+LS-18 1m cord	Yes	No	145-000557
power code: VOLEX AU10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000532
power code: lux 0038+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500006
power code: LINETEK LS15+VCTF+LP-53 1m cord	Yes	No	145-000588
power code: Longwell LP-71+VCTF+LS-33 1m cord	Yes	No	145-000556
power code: VOLEX TW15CS3+VCTF+VAC5S 1m cord	Yes	No	145-000531
power code: lux 0019+VCTF 0.75/3C+0021 1m cord	Yes	No	145-500007
power code: LINETEK LS15+H05VV-F+LP-E04A 1m cord	Yes	No	145-000590
power code: Longwell LP-486+KTLH03VV-F+LS-5 1m cord	Yes	No	145-000558
power code: VOLEX M2511+KETI IEC+VAC5S 1m cord	Yes	No	145-000533
power code: lux 0033+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500008
power code: LINETEK LS15+H03VV-F+PE-336 1m cord	Yes	No	145-000591
power code: Longwell LP-22+H03VV-F+LS-18 1m cord	Yes	No	145-000559
power code: VOLEX IT10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000535
power code: lux 0029+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500009
power code: LINETEK LS15+H03VV-F+PE-364 1m cord	Yes	No	145-000586
power code: Longwell LP-39+H03VV-F+LS-18 1m cord	Yes	No	145-000554

Table 8. Other FRUs (continued)

FRU descriptions	Self-service CRU	Optional-service CRU	PN number
power code: lux 0044+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500010
power code: LINETEK LS15 H03VV-F LP26A 1m cord	Yes	No	145-000596
power code: Longwell LP-46+H03VV-F+LS-18 1m cord	Yes	No	145-000564
power code: VOLEX CH10S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000527
power code: lux 0034+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500011
power code: LINETEK LS15+H03VV-F+LP-41 1m cord	Yes	No	145-000595
power code: Longwell LP-41+H03VV-F+LS-18 1m cord	Yes	No	145-000563
power code: VOLEX SI16S3+H03VV-F+VAC5S 1m cord	Yes	No	145-000526
power code: lux 0041+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500012
power code: LINETEK LS15+H03VV-F+LP-37 1m cord	Yes	No	145-000597
power code: Longwell LP-37+H03VV-F+LS-18 1m cord	Yes	No	145-000565
power code: VOLEX MP232+H03VV-F+VAC5S 1m cord	Yes	No	145-000524
power code: lux 0027+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500013
power code: LINETEK LS15+H03VV-F+LP-38 1m cord	Yes	No	145-000598
power code: Longwell LP-40+H03VV-F+LS-18 1m cord	Yes	No	145-000566
power code: VOLEX MP233D+H03VV-F+VAC5S 1m cord	Yes	No	145-000534
power code: lux 0048+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500014
power code: lux 0014+H03VV-F 0.75/3C+0011 1m cord	Yes	No	5L60J33143
power code: LINETEK LS15+H03VV-F+LP39 1m cord	Yes	No	145-000599
power code: Longwell LP-24+H03VV-F+LS-18 1m cord	Yes	No	145-000567
power code: VOLEX VA2073+H03VV-F+VAC5S 1m cord	Yes	No	145-000528
power code: lux 0040+H03VV-F 0.75/3C+0011 1m cord	Yes	No	145-500015

Chapter 8. FRU replacement notices

This chapter presents notices related to removing and replacing parts. Read this chapter carefully before replacing any FRU.

CRU statement for customers:

You can resolve some problems with your product with a replacement part you can install yourself, called a “Customer Replaceable Unit” or “CRU.” Some CRUs are designated as self-service CRUs and others are designated as optional-service CRUs. *Installation of self-service CRUs is your responsibility. For optional-service CRUs, you can either install the CRU yourself or you can request that a Service Provider install the CRU according to the warranty service for your product.* If you intend on installing the CRU, Lenovo will ship the CRU to you. CRU information and replacement instructions are shipped with your product and are available from Lenovo at any time upon request. You can find a list of CRUs for your product in this *Hardware Maintenance Manual*. An electronic version of this manual can be found at <http://www.lenovo.com/UserManuals>. Follow the on-screen instructions to find the manual for your product. You might be required to return the defective part that is replaced by the CRU. When return is required: (1) return instructions, a prepaid shipping label, and a container will be included with the replacement CRU; and (2) you might be charged for the replacement CRU if Lenovo does not receive the defective CRU within thirty (30) days of your receipt of the replacement CRU. See your Lenovo Limited Warranty documentation for full details.

Screw notices

Loose screws can cause a reliability problem. In the ThinkPad notebook computer, this problem is addressed with special nylon-coated screws that have the following characteristics:

- They maintain tight connections.
- They do not easily come loose, even with shock or vibration.
- They are harder to tighten.

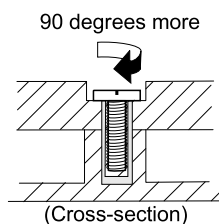
Do the following when you service this machine:

- Keep the screw kit in your tool bag. crew kit.
- Remove screws carefully for reuse.
- Use a torque screwdriver if you have one.

Tighten screws as follows:

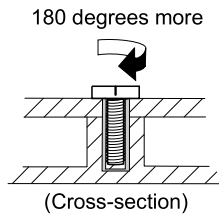
- **Plastic to plastic**

Turn an additional 90 degrees after the screw head touches the surface of the plastic part.



- **Logic card to plastic**

Turn an additional 180 degrees after the screw head touches the surface of the logic card.



Notes:

- Ensure that you use the correct screw. If you have a torque screwdriver, tighten all screws firmly to the torque specified in the screw information table for each step.
- Ensure that torque screwdrivers are calibrated correctly following country specifications.

Chapter 9. Removing or replacing a FRU

This chapter provides instructions on how to remove or replace a FRU.

CRU statement for customers:

You can resolve some problems with your product with a replacement part you can install yourself, called a “Customer Replaceable Unit” or “CRU.” Some CRUs are designated as self-service CRUs and others are designated as optional-service CRUs. *Installation of self-service CRUs is your responsibility. For optional-service CRUs, you can either install the CRU yourself or you can request that a Service Provider install the CRU according to the warranty service for your product.* If you intend on installing the CRU, Lenovo will ship the CRU to you. CRU information and replacement instructions are shipped with your product and are available from Lenovo at any time upon request. You can find a list of CRUs for your product in this *Hardware Maintenance Manual*. An electronic version of this manual can be found at <http://www.lenovo.com/UserManuals>. Follow the on-screen instructions to find the manual for your product. You might be required to return the defective part that is replaced by the CRU. When return is required: (1) return instructions, a prepaid shipping label, and a container will be included with the replacement CRU; and (2) you might be charged for the replacement CRU if Lenovo does not receive the defective CRU within thirty (30) days of your receipt of the replacement CRU. See your Lenovo Limited Warranty documentation for full details.

Note: The illustrations used in this section are of the Lenovo E40, unless otherwise stated.

General guidelines

When removing or replacing a FRU, be sure to 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. Before replacing any FRU, review Chapter 8 “FRU replacement notices” on page 63.
3. 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 section. Remove them in the order in which they are listed.
4. Follow the correct sequence in the steps for removing a FRU, as given in the illustrations by the numbers in square callouts.
5. When turning a screw, turn it in the direction as given by the arrow in the illustration.
6. When removing a FRU, move it in the direction as given by the arrow in the illustration.
7. To put the new FRU in place, reverse the removal procedure and follow any notes that pertain to replacement.
8. When replacing a FRU, use the correct screws as shown in the replacement procedures.



Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, and then disconnect any interconnecting cables.
--

Attention: After replacing a FRU, do not turn on the computer until you have made sure 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.

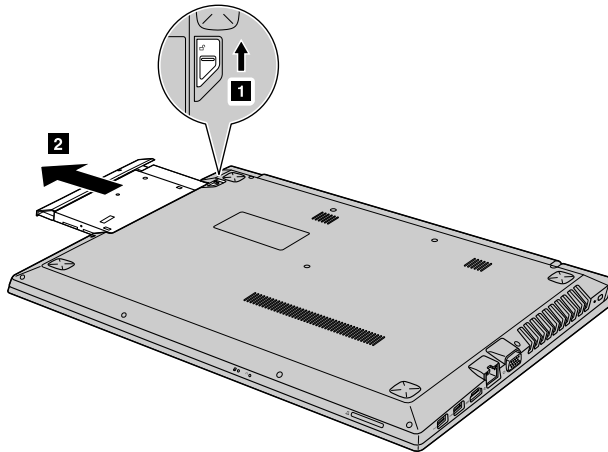
Attention: The system board is sensitive to, and can be damaged by, electrostatic discharge (ESD). Before touching it, establish personal grounding by touching a ground point with one hand or by using an electrostatic discharge strap.

1010 Optical disk drive/Removable battery

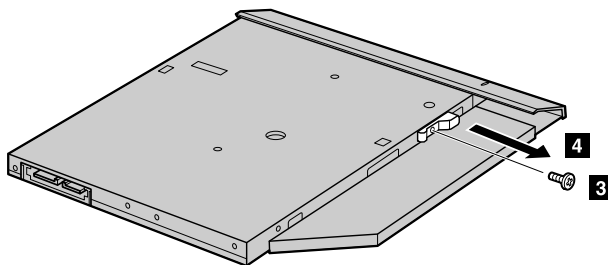
Removal steps of the Optical drive/Removable battery with spring-loaded latch

Push forward the spring-loaded latch and hold it in the unlocked position **1**.

Gently pull the optical disk drive/removable battery out **2**.

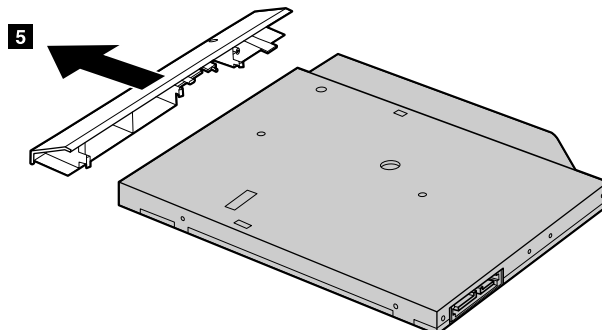


Loosen the screw **3**, and then remove the latch catch in the direction shown by arrow **4**.



Step	Screw (quantity)	Color	Torque
1	SCREW M2*3mm, flat-head, nylok-coated	Black	1.85 +/- 0.15kgf-cm

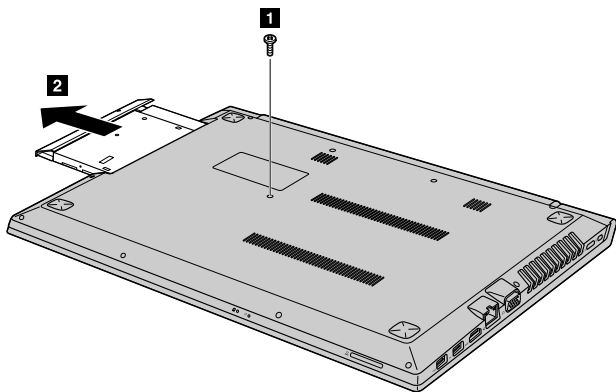
Carefully remove the bezel in the direction shown by arrow **5**.



Removal steps of the Optical drive/Removable battery without spring-loaded latch

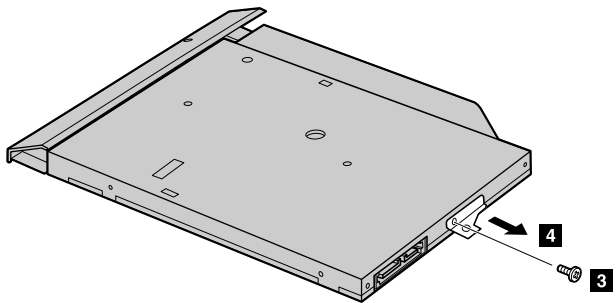
Remove the screw **1** .

Gently pull the optical disk drive/removable battery out **2**



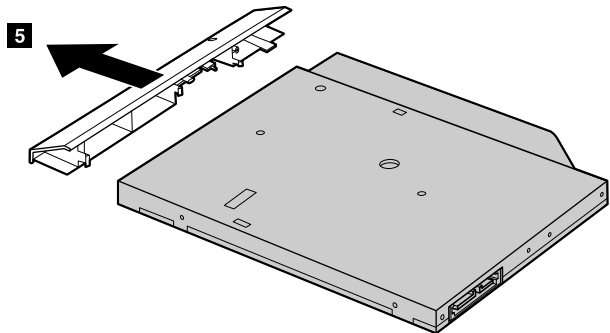
Step	Screw (quantity)	Color	Torque
1	SCREW M2*5.5mm, flat-head, nylok-coated	Black	1.85 +/- 0.15kgf-cm

Loosen the screw **3**, and then remove the bracket in the direction shown by arrow **4**.



Step	Screw (quantity)	Color	Torque
1	SCREW M2*3mm, flat-head, nylok-coated	Black	1.85 +/- 0.15kgf-cm

Carefully remove the bezel in the direction shown by arrow **5**.



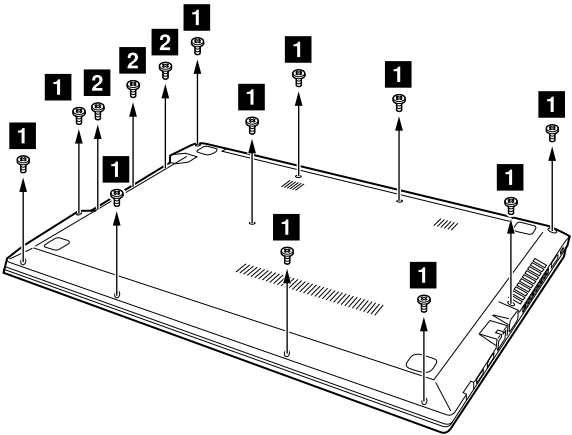
1020 Base cover assembly

For access, remove these FRUs:

- “1010 Optical disk drive/Removable battery” on page 66

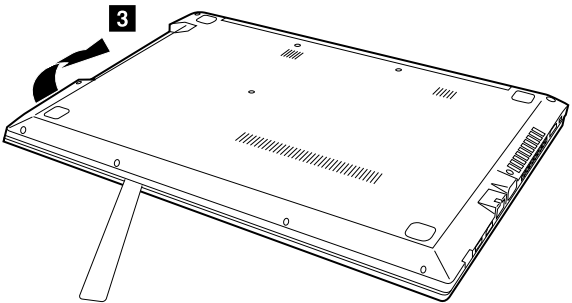
Removal steps of the base cover assembly

Remove eleven screws **1** and three screws **2** on the bottom.



Step	Screw (quantity)	Color	Torque
1	SCREW M2*5.5mm, flat-head, nylok-coated (11)	Black	1.85+/- 0.15kgf-cm
2	SCREW M2*1.5mm, flat-head, nylok-coated (3)	Black	1.85+/- 0.15kgf-cm

Use a pry bar to slide through the grooves between the base cover and the upper case, and then remove the base cover in the direction shown by arrow **3**.

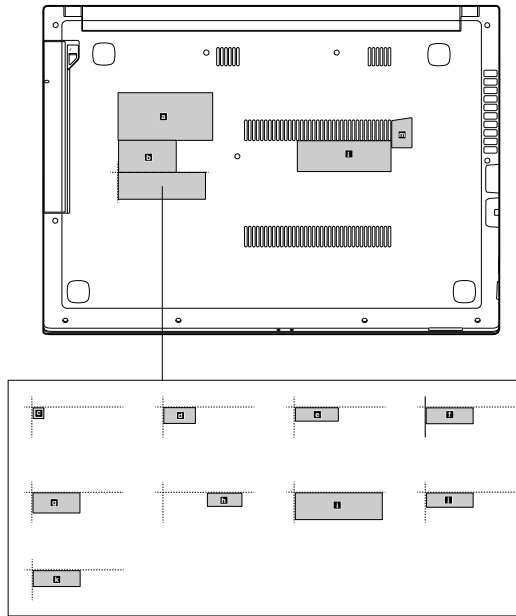


Applying labels to the base cover assembly:

The new base cover assembly is shipped with a kit containing labels of several kinds. Apply those labels when you replace the base cover assembly. For the labels that are not shipped with the new base cover assembly, peel them from the old base cover assembly, and adhere them to the new one.

Note: If the Certificate of Authenticity (COA) label (b) is attached to a replaced part, return the replaced part to the customer, or provide a letter to the customer stating the original label part number, serial number, and product key.

The following illustration shows the location of each label on Lenovo V510–14IKB.

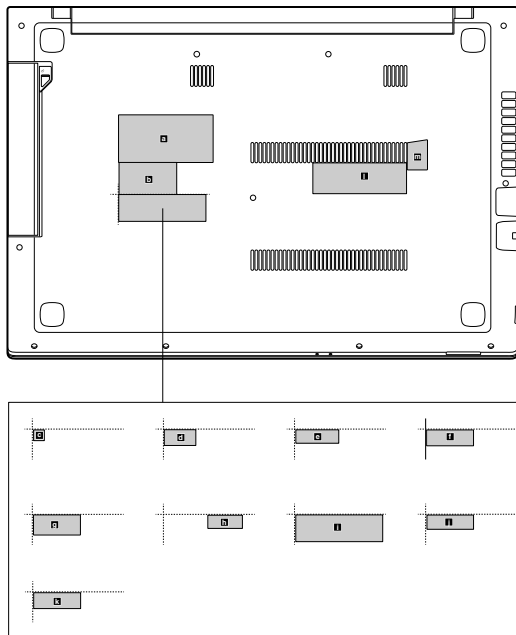


- a** Rating label
- b** Rating print label
- c** SLP label
- d** SA label
- e** Wlan Indonesia label

- f** Korean label
- g** Brazil label
- h** Indonesia rating label
- i** ARG LBL label
- j** Israel label

- k** KCC label
- l** COA label
- m** GML label

The following illustration shows the location of each label on Lenovo V510-15IKB.



- a** Rating label
- b** Rating print label
- c** SLP label
- d** SA label
- e** Wlan Indonesia label

- f** Korean label
- g** Brazil label
- h** Indonesia rating label
- i** ARG LBL label
- j** Israel label

- k** KCC label
- l** COA label
- m** GML label

1030 Memory module and RTC battery

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68

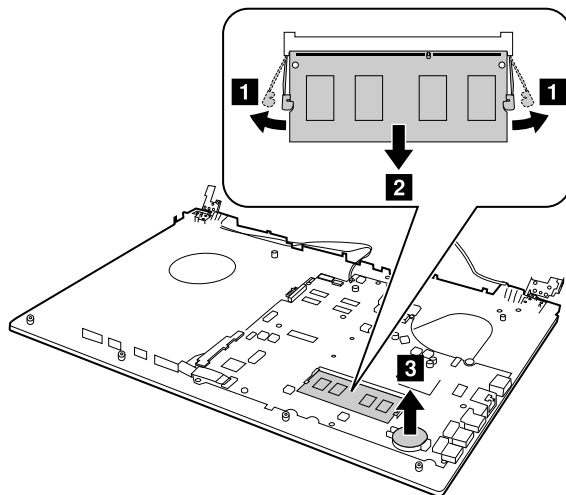
Removal steps of the memory module and RTC battery

Release the two latches on both edges of the socket at the same time in the direction shown by arrows **1**, and then unplug the DIMM in the direction shown by arrow **2**.

When installing:

Insert the notched end of the memory module into the memory slot. Press the memory module in firmly, and pivot it downward until it snaps into place. Ensure that the memory module is firmly installed in the slot and does not move easily.

Remove the RTC battery with the help of a pry bar in the direction shown by arrow **3**.



1040 Battery pack

Important notices for replacing a battery pack

Attention: Lenovo has no responsibility for the performance or safety of unauthorized batteries, and provides no warranties for failures or damage arising out of their use.

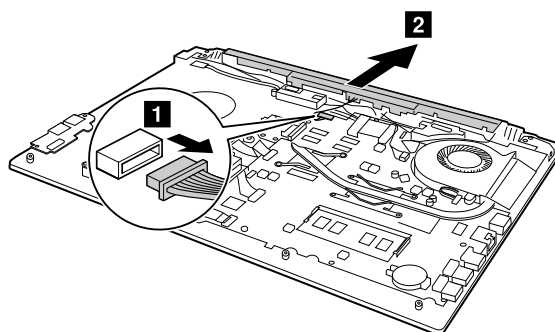
The Lenovo Solution Center program provides an automatic battery diagnostic test that determines if the battery pack is defective. A battery pack FRU should not be replaced unless this diagnostic test shows that the battery is defective. The only exception to this is if the battery pack is physically damaged or a customer is reporting a possible safety issue.

Removal steps of the external battery pack



Use only the authorized battery specified for your computer. Any other battery could ignite or explode.

Detach the battery cable **1**, and then remove the battery pack in the direction shown by arrow **2**.



1050 Hard disk drive or solid-state hybrid drive

For access, remove these FRUs in order:

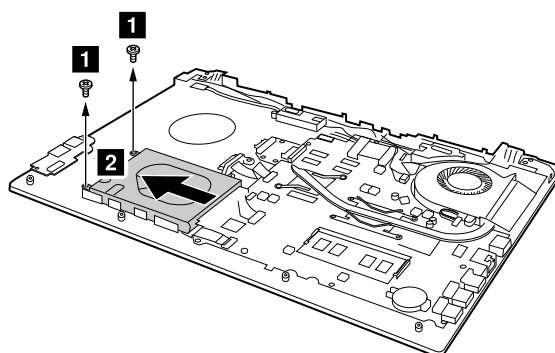
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Attention:

- Do not drop the drive or apply any physical shock to it. The drive is sensitive to physical shock. Improper handling can cause damage and permanent loss of data.
- Before removing the drive, have the user make a backup copy of all the information on it if possible.
- Never remove the drive while the system is operating or in suspend mode.

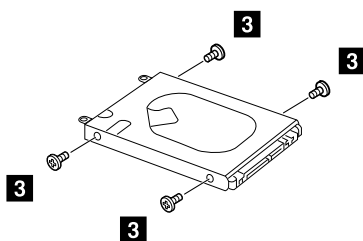
Removal steps of the hard disk drive or the solid-state drive

Remove two screws **1**, and then slide the hard disk drive out in the direction shown by arrow **2**.



Step	Screw (quantity)	Color	Torque
1	M2 × 3mm, flat-head, nylon-coated (2)	Black	1.85 +/- 0.15kgf-cm

Detach the bracket by removing the four screws **3**.



Step	Screw (quantity)	Color	Torque
3	M3 × 3mm, flat-head, nylon-coated (4)	Black	3.0 +/- 0.3kgf-cm

When installing:

Ensure that the hard disk drive or solid-state hybrid drive is firmly attached.

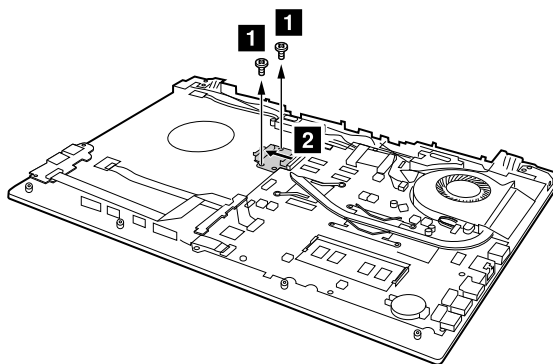
1060 Secondary battery board

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the secondary battery board

Remove two screws **1**, and then remove the secondary battery board in the direction shown by arrow **2**.



Step	Screw (quantity)	Color	Torque
1	M2 × 4mm, flat-head, nylon-coated (2)	Black	1.85 +/- 0.15kgf-cm

When installing:

Ensure that the secondary battery board is firmly attached.

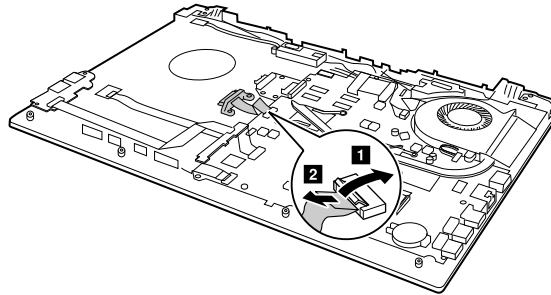
1070 Optical disk drive connector

For access, remove these FRUs in order:

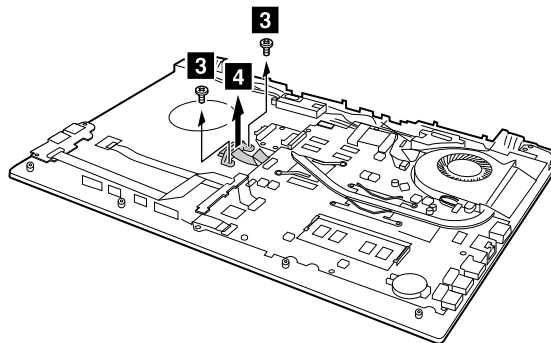
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the optical disk drive connector

Open the socket **1**, and then pull out the optical disk drive cable **2**.



Remove two screws **3**, and then remove the optical disk drive connector in the direction shown by arrow **4**.



Step	Screw (quantity)	Color	Torque
3	M2 × 4mm, flat-head, nylon-coated (2)	Black	1.85 +/- 0.15kgf-cm

When installing:

Ensure that the optical disk drive connector is firmly attached.

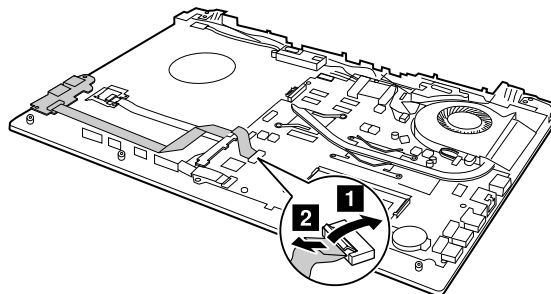
1080 USB board

For access, remove these FRUs in order:

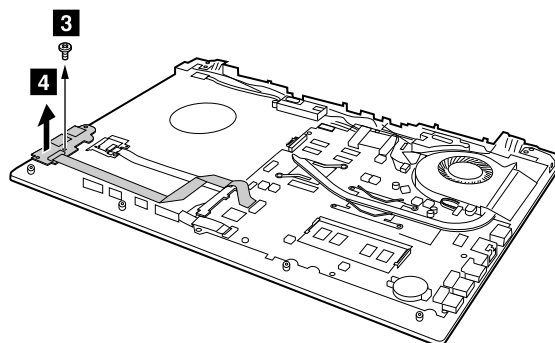
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the USB board

Open the socket **1**, and then pull out the USB cable **2**.



Remove one screw **3**, and then remove the USB board in the direction shown by arrow **4**.



Step	Screw (quantity)	Color	Torque
3	M2 × 3mm, flat-head, nylon-coated (1)	Black	1.85 +/- 0.15kgf-cm

When installing:

Ensure that the USB board is firmly attached.

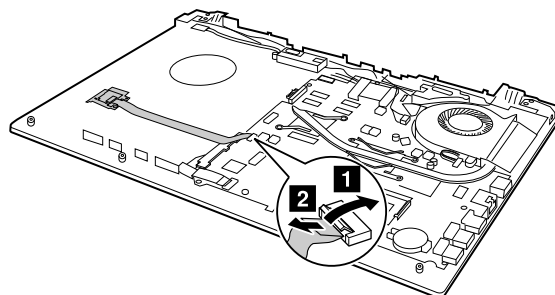
1090 Finger printer board and finger printer bracket

For access, remove these FRUs in order:

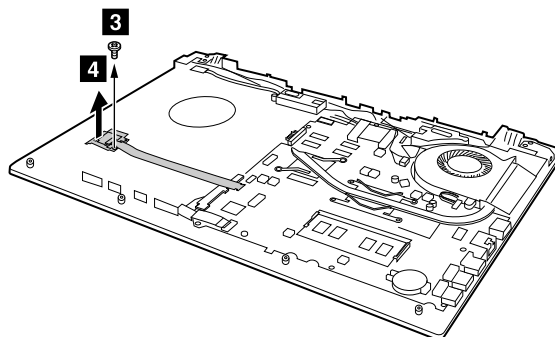
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the USB board

Open the socket **1**, and then pull out the finger printer cable **2**.



Remove one screw **3**, and then remove the finger printer bracket and finger printer board in the direction shown by arrow **4**.



Step	Screw (quantity)	Color	Torque
3	M2 × 3mm, flat-head, nylon-coated (1)	Black	1.85 +/- 0.15kgf-cm

When installing:

Ensure that the finger printer bracket and finger printer board are firmly attached.

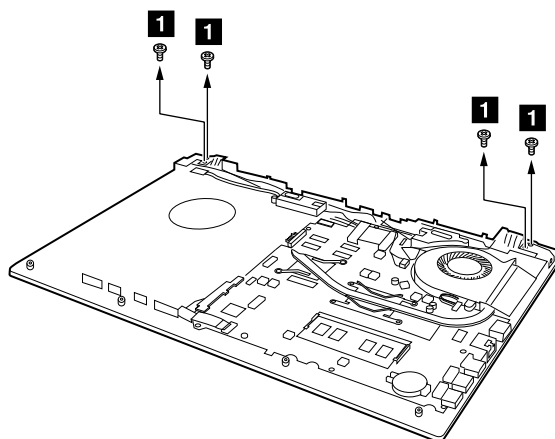
1100 DC-in cable

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

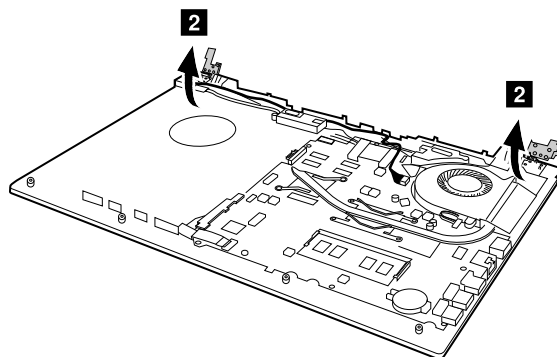
Removal steps of the DC-in cable

Remove four screws **1**.

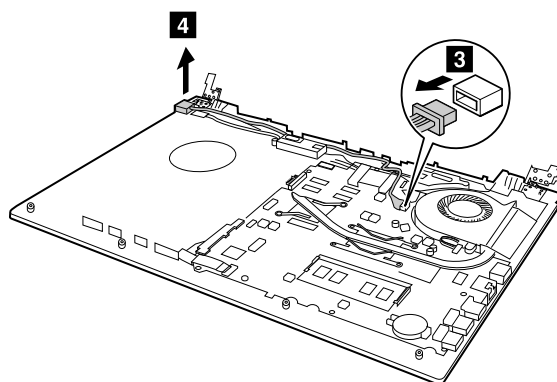


Step	Screw (quantity)	Color	Torque
1	M2.5 × 4mm, flat-head, nylon-coated (1)	Black	3.0 +/- 0.3kgf-cm

Flip the hinge bracket in the direction shown by arrow **2**.



Detach the DC-in cable **3**, and then gently remove the DC-in cable from the cable guide **4**.



When installing:

Ensure that the DC-in cable is firmly attached.

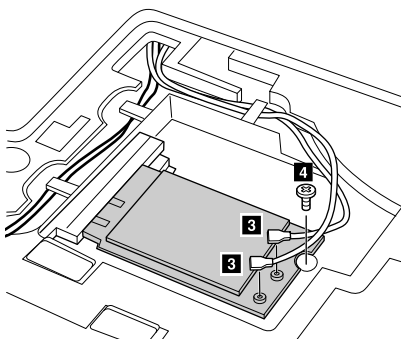
1110 Wireless-LAN /Bluetooth card

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

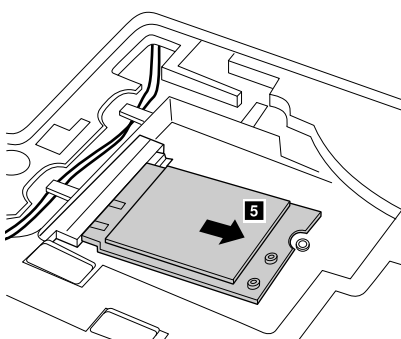
Removal steps of the Wireless-LAN /Bluetooth card

Unplug the two wireless Lan cable (black and white) in the direction shown by arrow **1**, and then remove the screw **2**



Step	Screw (quantity)	Color	Torque
2	M2 × 4.7 mm, flat-head, nylon-coated (1)	Black	1.85 +/- 0.15kgf-cm

Remove the card in the direction shown by arrow **3**.



When installing:

1. In models with a wireless LAN card that has two antenna connectors, plug the black cable (1st) (MAIN) into the jack labeled **MAIN** or **1** on the card, and the white cable (2nd) (AUX) into jack labeled **AUX** or **2** on the card.
2. In models with a wireless LAN card that has three antenna connectors, plug the black cable (1st) (MAIN) into the jack labeled **MAIN** or **1**, the grey cable (3rd) into jack labeled **1**, and the white cable (2nd) (AUX) into jack labeled **2** on the card.

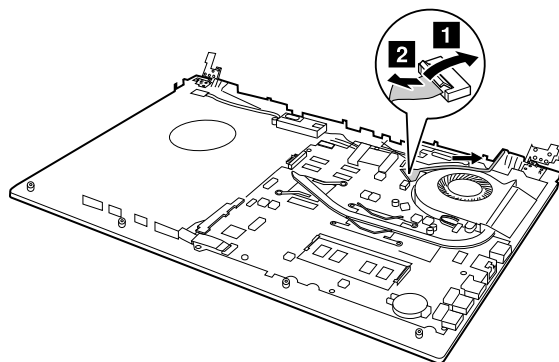
1120 Thermal fan assembly and Heat Sink assembly

For access, remove these FRUs in order:

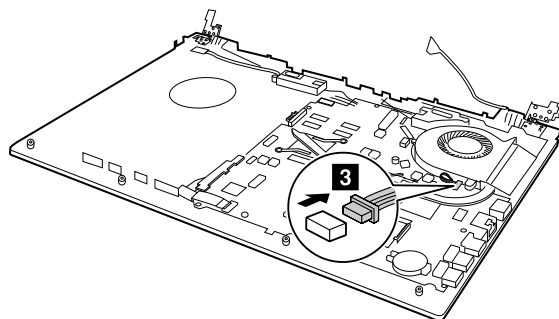
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the thermal fan assembly and heat sink assembly

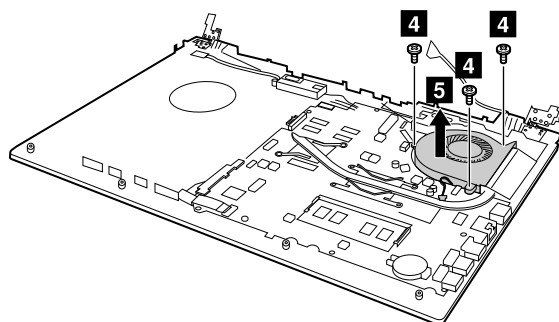
Open the socket **1**, pull out the LCD cable **2**, and then release it from the cable guide.



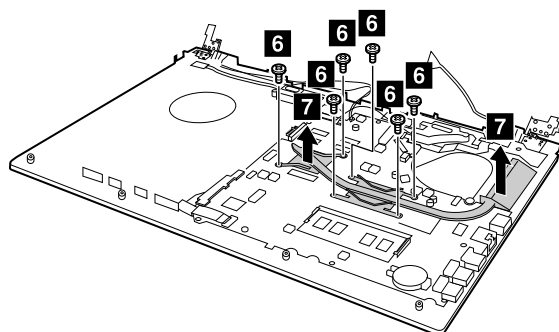
Detach the fan cable connector **3**.



Remove three screws **4**, and then remove the fan assembly in the direction shown by arrow **5**.



Remove six screws **6**, and then remove the heat sink assembly in the direction shown by arrow **7**.



When installing:

Ensure that the thermal fan assembly and heat sink assembly are firmly attached.

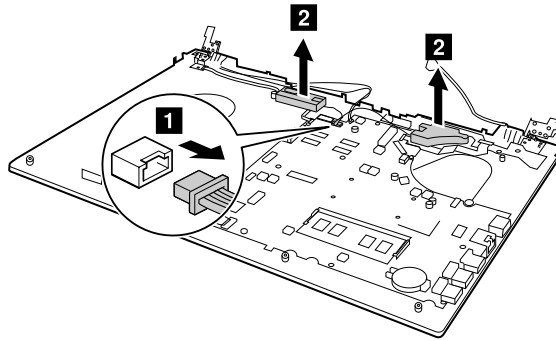
1130 Speaker assembly

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the speaker assembly

Detach the speaker cable connector **1**, and then carefully remove the two speakers in the direction shown by arrow **2**.

**When installing:**

Ensure that the speaker assembly is firmly attached.

1140 Power board/ OneLink board

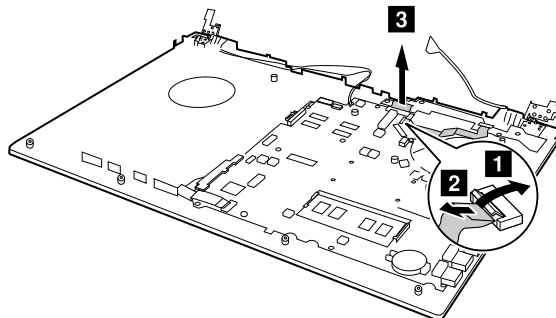
For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

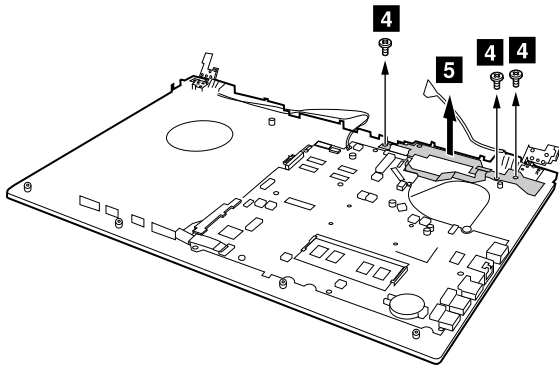
Removal steps of the OneLink board (for the models with OneLink+ dock port)

Open the socket **1**, and then pull out the power cable **2**.

Detach the OneLink+ dock port cable connector **3**.



Remove three screws **4**, and then remove the OneLink board **5**.

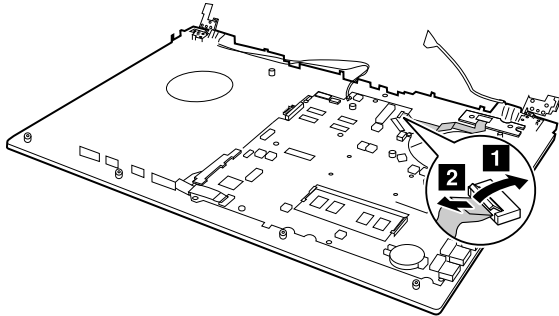


Step	Screw (quantity)	Color	Torque
4	M2 × 3mm, flat-head, nylon-coated (3)	Black	1.85 +/- 0.15kgf-cm

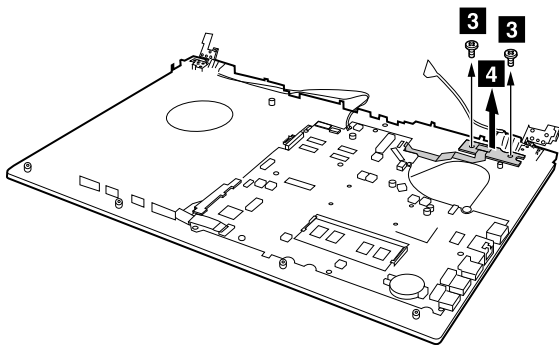
When installing:
Ensure that the OneLink board is firmly attached.

Removal steps of the power board (for the models without OneLink+ dock port)

Open the socket **1**, and then pull out the power cable **2**.



Remove two screws **3**, and then remove the power board **4**.



Step	Screw (quantity)	Color	Torque
3	M2 × 3mm, flat-head, nylon-coated (2)	Black	1.85 +/- 0.15kgf-cm

When installing:
Ensure that the power board is firmly attached.

1150 LED board

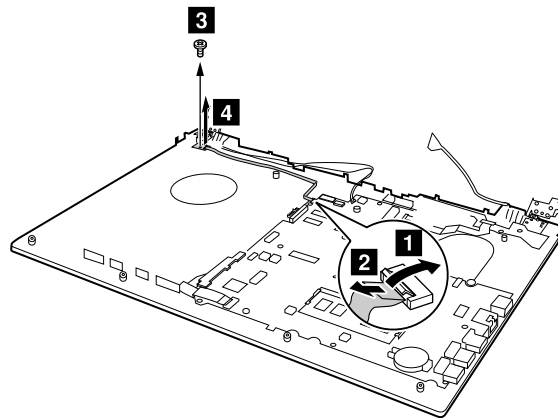
For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70

Removal steps of the LED board

Open the socket **1**, and then pull out the LED board cable **2**.

Remove one screw **3**, and then remove the LED board **4**.



Step	Screw (quantity)	Color	Torque
4	M2 × 3mm, flat-head, nylon-coated (3)	Black	1.85 +/- 0.15kgf-cm

When installing:

Ensure that the LED board is firmly attached.

1160 System board

Important notices for handling the system board

When handling the system board, read the following:

- Be careful not to drop the system board on a bench top that has a hard surface, such as metal, wood, or composite.
- Avoid rough handling of any kind.
- At every point in the process, be sure not to drop or stack the system board.
- If you put a system board down, be sure to put it only on a padded surface such as an ESD mat or a corrugated conductive material.

For access, remove these FRUs in order:

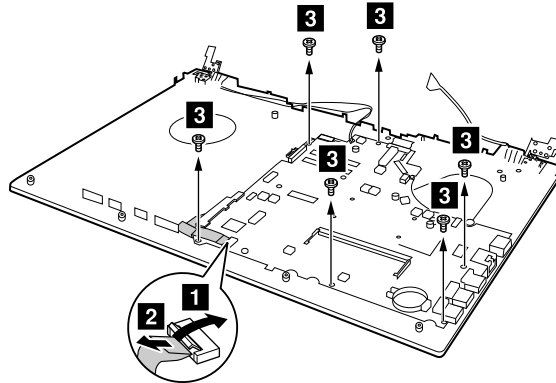
- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70
- “1080 USB board” on page 73
- “1090 Finger printer board and finger printer bracket” on page 74
- “1100 DC-in cable” on page 75

- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1120 Thermal fan assembly and Heat Sink assembly” on page 77
- “1130 Speaker assembly” on page 79
- “1140 Power board/ OneLink board” on page 79
- “1150 LED board” on page 81

Removal steps of the system board

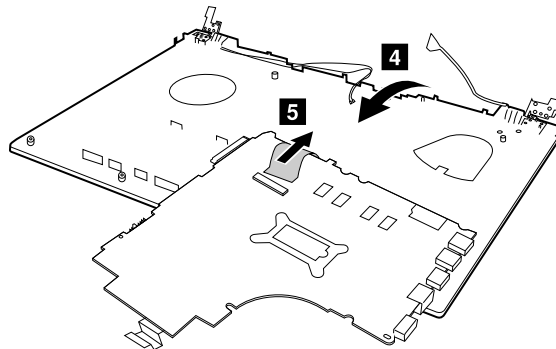
Open the socket **1**, and then pull out the touch pad cable connector **2**.

Remove six screws **3**.



Step	Screw (quantity)	Color	Torque
3	M2 × 3mm, flat-headed, nylon-coated (6)	Black	1.85 +/- 0.15kgf-cm

Turn the system board over in the direction shown by arrow **4**, detach the keyboard cable connector **5**, and then remove the system board.



When installing:

- Ensure that the connectors are attached firmly.
- When attaching the system board to the base cover, adjust the placement of the USB ports to make sure that they are properly attached to the holes on the base cover. Improper placement of those jacks might cause a damage.

1170 Upper case and LCD unit

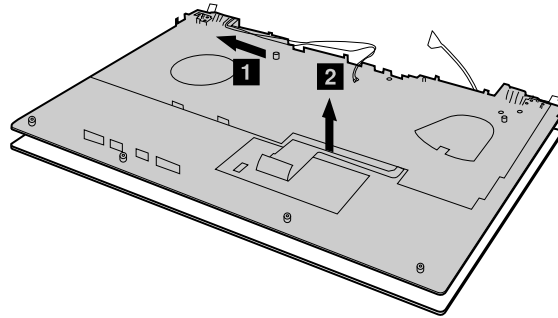
For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68

- “1040 Battery pack” on page 70
- “1100 DC-in cable” on page 75
- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1130 Speaker assembly” on page 79

Removal steps of the upper case

Release the antenna cable from the cable guides **1**, and then detach the LCD unit from the upper case in the direction shown by arrow **2**.



When installing: Ensure that the upper case is attached firmly to the LCD unit.

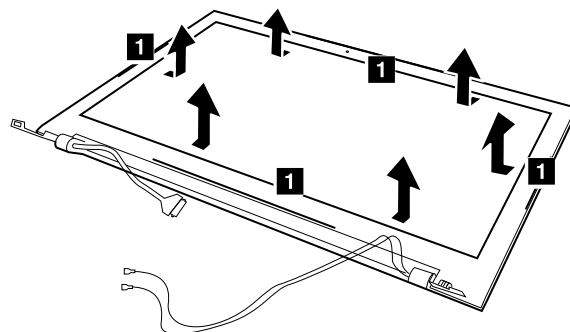
1180 LCD front bezel

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70
- “1100 DC-in cable” on page 75
- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1130 Speaker assembly” on page 79
- “1170 Upper case and LCD unit” on page 82

Removal steps of the LCD front bezel

Insert a pry bar into the inner side between the LCD panel and the LCD bezel, and then carefully pull the LCD bezel outwards. Repeat this action along the inner edges of the LCD bezel until all the hooks that secure the LCD bezel are detached **1**.



When installing: Ensure that the upper case is attached firmly to the LCD unit.

Remove the LCD bezel.

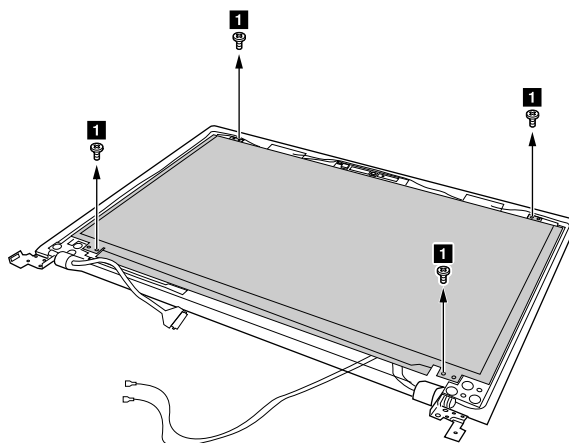
1190 LCD panel

For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70
- “1100 DC-in cable” on page 75
- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1130 Speaker assembly” on page 79
- “1170 Upper case and LCD unit” on page 82
- “1180 LCD front bezel” on page 83

Removal steps of the LCD panel

Remove four screws **1**, and then remove the LCD panel.



When installing: Ensure that the upper case is attached firmly to the LCD unit.

1200 Hinges

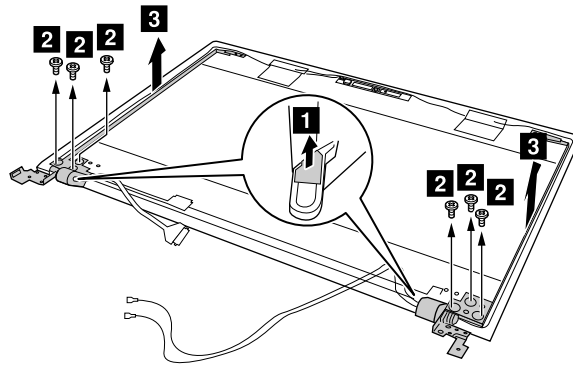
For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70
- “1100 DC-in cable” on page 75
- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1130 Speaker assembly” on page 79
- “1170 Upper case and LCD unit” on page 82
- “1180 LCD front bezel” on page 83
- “1190 LCD panel” on page 84

Removal steps of the hinges

Remove two hinge mylar tapes **1**.

Remove six screws **2**, and then remove two hinges **3**.



Step	Screw (quantity)	Color	Torque
2	M2.5 × 3mm, flat-headed, nylon-coated (6)	Black	3.0 +/- 0.3kgf-cm

When installing: Ensure that the hinges are attached firmly.

1210 EDP cable and camera module

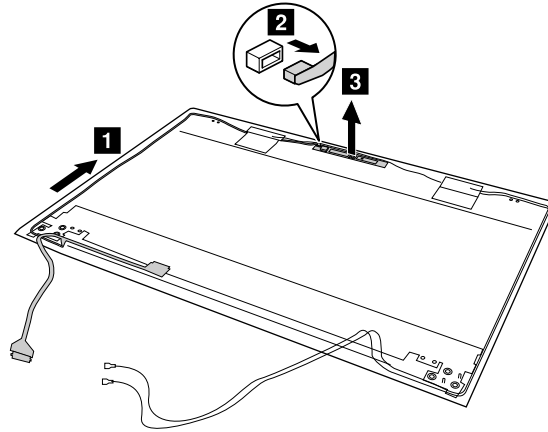
For access, remove these FRUs in order:

- “1010 Optical disk drive/Removable battery” on page 66
- “1020 Base cover assembly” on page 68
- “1040 Battery pack” on page 70
- “1100 DC-in cable” on page 75
- “1110 Wireless-LAN /Bluetooth card” on page 76
- “1130 Speaker assembly” on page 79
- “1170 Upper case and LCD unit” on page 82
- “1180 LCD front bezel” on page 83
- “1190 LCD panel” on page 84
- “1200 Hinges” on page 84

Removal steps of the EDP cable and camera module

Release the EDP cable from the cable guide **1**.

Detach the connector **2**, and then remove the camera from the LCD cover **3**.



When installing: Ensure that the EDP cable and camera are attached firmly.

Appendix A. Notices

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Appendix B. Abbreviation table

The following table lists all abbreviations and acronyms used in this manual.

Abbreviation	Term
3G	third generation of mobile telecommunications technology
BGA	Ball Grid Array
BIOS	basic input/output system
CMOS	complementary metal-oxide semiconductor
COA	Certificate of Authentication
CRC	cyclic redundancy check
CRT	cathode ray tube
CRU	customer-replaceable unit
CTO	configure to order
EAIA	Enhanced Asset Information Area
ECA	Engineering Change Announcements
EEPROM	Electrically Erasable Programmable Read-Only Memory
EFI	Extensible Firmware Interface
EPO	emergency power-off
ESD	electrostatic discharge
EU	European Union
FCC	Federal Communications Commission
FRU	Field Replaceable Unit
GAV	General Announce Variant
GPU	graphics processing unit
HDD	hard disk drive
HDMI	high-definition multimedia interface
ICs	integrated circuits
ICCID	integrate circuit card identity
ISO	International Standardization Organization
LAN	local area network
LCD	liquid crystal display
MAC	media access control
MT	machine type
MTM	machine type and model
PC	personal computer
PCH	Platform Controller Hub
POST	power-on self-test
RAM	random-access memory

Abbreviation	Term
RF	radio frequency
RFID	radio-frequency identification
RI	ring indicator
RJ	registered jack
SATA	Serial Advanced Technology Attachment
SIM	subscriber identity module
SVP	supervisor password
TFTs	thin-film transistors
UEFI	Unified Extensible Firmware Interface
USB	Universal Serial Bus
UUID	universally unique identifier
VGA	video graphics array
VRAM	video random-access memory
WAN	wide area network

