

**ThinkPad**

**ThinkPad W700, W700ds, W701, and W701ds  
Hardware Maintenance Manual**

Before using this information and the product it supports, be sure to read the general information under Appendix A “Notices” on page 209.

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## About this manual

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

**ThinkPad W700 and W700ds**

MT 2752, 2753, 2754, 2757, 2758, 2762, and 2763

**ThinkPad W701 and W701ds**

MT 2500, 2541, 2542, 2543, 2544, 4323, and 4326

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 ThinkPad products. Use this manual along with the advanced diagnostic tests to troubleshooting problems effectively.

Before servicing a ThinkPad product, be sure to read all the information under Chapter 1 “Safety information” on page 1 and Chapter 2 “Important service information” on page 25.



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## Chapter 1. Safety information

This chapter presents following safety information that you need to be familiar with before you service a ThinkPad Notebook.

- “General safety” on page 1
- “Electrical safety” on page 2
- “Safety inspection guide” on page 3
- “Handling devices that are sensitive to electrostatic discharge” on page 3
- “Grounding requirements” on page 4
- “Safety notices (multilingual translations)” on page 4
- “Laser compliance statement (multilingual translations)” on page 17

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### 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 toolcase 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 nonconductive 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.

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## 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, nongrounded 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 to 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.

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## 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-ThinkPad 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 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 type specified in the parts list.
  - 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-ThinkPad alterations. Use good judgment as to the safety of any non-ThinkPad 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.

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## 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.

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## 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.

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## 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.



خطر

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



خطر

تحتوي بعض البطاريات الاحتياطية على كمية صغيرة من مادتي النيكل والكاديوم. لا تقم بفك أو اعادة شحن البطارية الاحتياطية ولا تقم أيضا بالقاءها في النار أو الماء ولا تتسبب في احداث 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.



خطر

تحتوي حزمة البطارية على كمية صغيرة من مادة النيكل. لا تقم بفكها أو القاءها في النار أو الماء ولا تتسبب في احداث 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.



خطر

قد تتسبب بطارية الليثيوم في حدوث حريق أو انفجار أو حدوث حروق شديدة. لا تقم باعادة شحن البطارية أو ازالة موصل الاستقطاب الخاص بها ولا تحاول أيضا فكها أو تسخينها لأكثر من ١٠٠ درجة مئوية (٢١٢ فهرنهايت) أو حرقها أو تعريض محتويات الخاتمة 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.



خطر

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.



خطر

لتجنب التعرض لأي صدمات، لا تقم بإزالة الغطاء البلاستيكي الذي يحمي الجزء الأسفل من بطاقة العاكس.



خطر

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.



خطر

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.



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 ולקשיב לגילוי קולות שקשוק. חלקי או שבבי מותכת עלולים לגרום לקצרים חשמליים.



סוללות המתנה מסוימות מכילות כמות קטנה של ניקל וקדמיום. אין לפרק סוללת 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.



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



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



אם מסך הנביש הנוזלי (LCD) נשבר והנוזל מתוך המסך בא במגע עם עיניכם או ידיכם, שטפו את האזורים הנגועים מיד במים במשך 15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים הנובעים מהמגע עם הנוזל נמשכים לאחר השטיפה.



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



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 יחלפה חמח' של ח-FRU המוחלף, פעלו כדלחלו לפני הסרתו :  
כבו את המחשב, נתקו את כל כבלי החשמל מהשקעים, הוציאו את מארז הסוללות ונתקו את כל הכבלים  
המחוברים.



החלפה

FRU の交換後、ThinkPad の電源を入れる前に、ねじ、バネ、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。



החלפה

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。



החלפה

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。



החלפה

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



החלפה

LCD が破損し、LCD の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・パックを取り外して、相互接続しているケーブルをすべて切り離してください。



위험

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



위험

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



위험

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



위험

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



위험

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



위험

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



위험

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



위험

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



PELIGRO

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



PELIGRO

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



PELIGRO

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



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.



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 médica si se presenta algún síntoma del fluido después de lavarse.



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



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.



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.



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



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。



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。



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。



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。



為避免電擊，請勿拆下轉換卡下面的塑膠護蓋。



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。



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。

## Laser compliance statement (multilingual translations)

The laser compliance statements in this section are provided in the following languages:

- English
- Arabic
- Brazilian Portuguese

- French
- German
- Hebrew
- Japanese
- Korean
- Spanish
- Traditional Chinese



**CAUTION:**

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.



**DANGER**

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.



تحذير:

عند تثبيت منتجات الليزر (مثل أقراص CD-ROM أو محركات تشغيل أقراص DVD أو أجهزة الألياف البصرية أو النواقل)، لاحظ ما يلي:

- لا تقم بنزع الغطاء. قد ينتج عن نزع غطاء منتج ليزر التعرض لأشعة ليزر في منتهى الخطورة. لا توجد أجزاء يمكن صيانتها داخل الجهاز.
- قد ينتج عن استخدام مفاتيح أو تنفيذ عمليات ضبط أو إجراءات بطريقة مختلفة عما هو محدد هنا التعرض لأشعة ليزر في منتهى الخطورة.



خطر

تحتوي بعض منتجات الليزر على صمام ثنائي ليزري مضمن من Class 3A أو Class 3B. لاحظ ما يلي. توجد أشعة ليزر عند الفتح. لا تنظر للشعاع ولا تنظر بطريقة مباشرة باستخدام أدوات ضوئية وتجنب التعرض المباشر للشعاع.





**CUIDADO:**

Quando produtos a laser (como CD-ROMs, unidades de DVD, dispositivos de fibra ótica ou transmissores) estão instalados, observe o seguinte:

- Não remova as tampas. A remoção das tampas do produto a laser pode resultar em exposição prejudicial à radiação de laser. Não há peças que permitam manutenção no interior do dispositivo.
- A utilização de controles ou ajustes ou a execução de procedimentos diferentes daqueles especificados aqui pode resultar em exposição perigosa à radiação.



**PERIGO**

Algumas produtos a laser contêm um diodo de laser Classe 3A ou Classe 3B integrado. Observe o seguinte:

Radiação a laser quando aberta. Não olhe diretamente para o feixe a olho nu ou com instrumentos óticos e evite exposição direta ao feixe.



**ATTENTION :**

Si des produits laser (tels que des unités de CD, DVD, à fibre optique ou des émetteurs) sont installés, lisez les informations suivantes :

- **Ne retirez pas les carters. En ouvrant le produit laser, vous vous exposez au rayonnement dangereux du laser. Aucune pièce de l'unité n'est réparable.**
- **Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites dans le présent manuel.**



**DANGER**

**Certains produits à laser contiennent une diode à laser intégrée de classe 3A ou 3B. Prenez connaissance des informations suivantes.**

**Rayonnement laser lorsque le carter est ouvert. Evitez toute exposition directe au rayon laser. Evitez de regarder fixement le faisceau ou de l'observer à l'aide d'instruments optiques.**



#### Vorsicht:

Bei der Installation von Lasergeräten (wie CD-ROM-Laufwerken, DVD-Laufwerken, Einheiten mit Lichtwellenleitertechnik oder Sendern) Folgendes beachten:

- Die Abdeckungen nicht entfernen. Durch Entfernen der Abdeckungen des Lasergeräts können gefährliche Laserstrahlungen freigesetzt werden. Das Gerät enthält keine zu wartenden Teile.
- Werden Steuerelemente, Einstellungen oder Durchführungen von Prozeduren anders als hier angegeben verwendet, kann gefährliche Laserstrahlung auftreten.



#### Gefahr

Einige Lasergeräte enthalten eine Laserdiode der Klasse 3A oder 3B. Beachten Sie Folgendes:

Laserstrahlung bei geöffneter Verkleidung. Nicht in den Strahl blicken. Keine Lupen oder Spiegel verwenden. Strahlungsbereich meiden.



זהירות:

כאשר מוצרי לייזר (כגון תקליטורים, כונני DVD, התקני סיבים אופטיים או משדרים) מותקנים, שימו לב להנחיות הבאות:

- אל תסירו את הכיסויים. הסרת הכיסויים של מוצר הלייזר עלולה לגרום לחשיפה מסוכנת לקרינת לייזר. ההתקן אינם כוללים רכיבים להחלפה עצמית.
- שימוש בבקורות ובהתאמות שלא צוינו או ביצוע תהליכים שלא צוינו, יכולים לגרום לחשיפה מסוכנת לקרינה.



סכנה

כמה ממוצרי הלייזר מכילים דיודת לייזר מובנית Class 3A או Class 3B. שימו לב לדברים שלהלן. קיימת פליטת קרני לייזר כאשר המוצר פתוח. אל תביטו ישירות אל הקרן, אל תביטו אל הקרן ישירות דרך אמצעים אופטיים, והימנעו מחשיפה ישירה לקרן.



**警告:**

レーザー製品 (CD-ROM、DVD ドライブ、光ファイバー装置、または送信機など) を取り付ける場合には、以下のことに注意してください。

- カバーを外さないこと。カバーを取り外すと有害なレーザー光を浴びることがあります。この装置の内部には保守が可能な部品はありません。
- 本書で指定された内容以外の、お客様による整備、調整、または手順を行った場合、レーザー放射の危険があります。



**危険**

一部のレーザー製品には、クラス 3A またはクラス 3B のレーザー・ダイオードが組み込まれています。次の点に注意してください。

開けるとレーザー光が放射されます。光線を見つめたり、光学機械を使って直接見たり、光線を直接浴びることは避けてください。



**경고:**

레이저 제품 (CD-ROM, DVD 드라이브, 광섬유 장치 또는 송신기) 이 설치되어 있는 경우, 다음과 같은 취급 주의사항을 참고하십시오.

- 덮개를 제거하지 마십시오. 레이저 제품의 덮개를 제거하면 유해한 레이저 복사에 노출될 위험이 있습니다. 장치 내부에는 사용자가 수리할 수 있는 부분이 없습니다.
- 본 내용에서 설명한 이외의 방법으로 드라이브를 조정하거나 제어 또는 작동하는 경우, 해로운 레이저 복사에 노출될 수 있습니다.



**위험**

일부 레이저 제품은 임베디드 클래스 3A 또는 클래스 3B 레이저 다이오드가 포함되어 있습니다. 다음 주의사항을 유의하십시오.

드라이브의 덮개를 열면 전자파가 발생합니다. 광선 또는 광 장치를 직접 보거나 광선에 노출되지 않도록 주의하십시오.



### **PRECAUCIÓN:**

Cuando haya instalados productos láser (por ejemplo, unidades de CD-ROM, unidades de DVD, dispositivos de fibra óptica o transmisores), tenga en cuenta lo siguiente:

- No extraiga las cubiertas. La extracción de las cubiertas del producto láser podría producir una exposición a radiación láser peligrosa. No hay ninguna pieza dentro del dispositivo que pueda reparar.
- La utilización de controles, ajustes o la realización de procedimientos diferentes a los especificados puede dar como resultado una exposición peligrosa a radiaciones.



### **PELIGRO**

Algunos productos láser contienen un diodo láser de Clase 3A o Clase 3B incorporado. Tenga en cuenta lo siguiente.

Emite radiación láser cuando está abierto. No fije la vista en el rayo, no lo mire directamente con instrumentos ópticos y evite la exposición directa al rayo.



### **警告：**

安裝雷射產品（如 CD-ROM、DVD 光碟機、光纖裝置或轉送器）時，請注意下列事項：

- 請勿卸下外蓋。卸下雷射產品的外蓋可能導致曝露於危險的雷射輻射。裝置內沒有可維修的零件。
- 若不遵守本文規定的控制、調整或操作程序，可能會導致危險的輻射外洩。



### **危險**

某些雷射產品包含內嵌式 3A 類或 3B 類雷射二極體。這類光碟機的使用者應注意下列聲明。

在開啟光碟機時，會有雷射輻射。請勿直視光束或以光學儀器直接觀看光束，並避免直接暴露在光束中。



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## Chapter 2. Important service information

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

- “Strategy for replacing FRUs” on page 25
  - “Strategy for replacing a hard disk drive” on page 26
  - “Important notice for replacing a system board” on page 26
  - “How to use error message” on page 26
- “Strategy for replacing FRUs for CTO, CMV, and GAV” on page 26
  - “Product definition” on page 26
  - “FRU identification for CTO, CMV, and GAV products” on page 27

**Important:** Advise customers to contact the Lenovo Customer Support Center if they need any assistance in obtaining or installing any software fixes, drivers, and 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:

Advise customers to contact the Customer Support Center at 800-426-7378 if they need assistance in obtaining or installing any software fixes, drivers, and BIOS downloads.

Customers in Canada should call the Customer Support Center at 800-565-3344 for assistance or download information.

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### Strategy for replacing FRUs

#### **Before replacing parts:**

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

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

To download software fixes, drivers, and BIOS, do as follows:

1. Go to <http://www.lenovo.com/support>.
2. Enter the product number of the computer or press Auto-detect button on the screen.
3. Select **Downloads and drivers**.
4. Follow the directions on the screen and install the necessary software.

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 may 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.

**Attention:** The setup configuration on the computer you are servicing may have been customized. Running Automatic Configuration may alter the settings. Note the current configuration settings (using the View Configuration option); then, when service has been completed, verify that those settings remain in effect.

## Strategy for replacing a hard disk drive

Always try to run a low-level format before replacing a hard disk drive. This will cause all customer data on the hard disk 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 BGA (Ball Grid Array) chipset.

## How to use error message

Use the error codes displayed on the screen to diagnose failures. If more than one error code is displayed, begin the diagnosis with the first error code. Whatever causes the first error code may also cause false error codes. If no error code is displayed, see whether the error symptom is listed in the Symptom-to-FRU Index for the computer you are servicing.

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## Strategy for replacing FRUs for CTO, CMV, and GAV

### Product definition

#### Dynamic Configure To Order (CTO)

This provides the ability for a customer to configure an IBM® or a Lenovo solution from an eSite, and have this configuration sent to fulfillment, where it is built and shipped directly to the customer. The machine label, Product Entitlement Warehouse (PEW), eSupport, and the HMM will load these products as the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO).

#### Custom Model Variant (CMV)

This is a unique configuration that has been negotiated between IBM or Lenovo and the customer. A unique 4-digit MT and 3-digit model is provided to the customer to place orders (Example: 1829-W15). A CMV is a special bid offering. Therefore, it is NOT generally announced.

- The MTM portion of the machine label is the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO). The PRODUCT ID portion of the machine label is the 4-digit MT and 3-digit CMV model (Example: 1829-W15).
- The PEW record is the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO).
- eSupport will show both the CTO and CMV machine type models (Example: 1829-CTO and 1829-W15 will be found on the eSupport site.)



- The HMM will have the 4-digit MT and 3-digit CTO model only (Example: 1829-CTO). Again, CMVs are custom models and are not found in the HMM.

### **General Announce Variant (GAV)**

This is a standard model (fixed configuration). GAVs are announced and offered to all customers. The MTM portion of the machine label is a 4-digit MT and 3-digit model, where model = a “fixed part number”, not “CTO” (Example: 1829-F1U). Also, PEW, eSupport, and the HMM will list these products under the same fixed model number.

## **FRU identification for CTO, CMV, and GAV products**

There are three information resources to identify which FRUs are used to support CTO, CMV, and GAV products. These sources are PEW, eSupport, and the HMM.

### **Using PEW**

- **PEW** is the primary source for identifying FRU part numbers and FRU descriptions for the key commodities for CTO, CMV and GAV products at a MT - serial number level. An example of key commodities are hard disk drives, system boards, microprocessors, Liquid Crystal Displays (LCDs), and memory.
- Remember, all CTO and CMV products are loaded in PEW under the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO). GAVs are loaded in PEW under the 4-digit MT and 3-digit model, where model = a “fixed part number”, not “CTO” (Example: 1829-F1U).
- PEW can be accessed at the following Web site:  
<http://www.lenovo.com/support/site.wss/document.do?Indocid=LOOK-WARNTY>  
 Select Warranty lookup. Input the MT and the Serial number and the list of key commodities will be returned in the PEW record under COMPONENT INFORMATION.

### **Using eSupport**

#### **For Key Commodities (Examples - hard disk drive, system board, microprocessor, LCD, and memory)**

- eSupport can be used to view the list of key commodities built in a particular machine serial (this is the same record found in PEW).
- PEW can be accessed at the following Web site:  
<http://www.lenovo.com/support/site.wss/document.do?Indocid=LOOK-WARNTY>  
 Select Warranty lookup. Input the MT and the Serial number and the list of key commodities will be returned in the PEW record under COMPONENT INFORMATION.
- To view the key commodities, click on PARTS INFORMATION, then PARTS LOOKUP. Type in the model type and serial number. The key commodities will be returned in the eSupport record under PARTS SHIPPED WITH YOUR SYSTEM.

#### **For the Remaining FRUs (the complete list of FRUs at the MT Model level)**

- eSupport can be used to view the complete list of FRUs for a machine type and model.
- To view the complete list of FRUs, type in the machine type and model (Example: 1829-CTO) under QUICK PATH. Under “View by Document Type” select PARTS INFORMATION. Under “Filter by Category” select SERVICE PARTS. Under “Parts Information by Date” select SYSTEM SERVICE PARTS. The list of service parts by description, with applicable machine type model and FRU will be displayed.

### **Using the HMM**

#### **For Key Commodities (Examples - hard disk drive, system board, microprocessor, LCD, and memory)**

Use the HMM as a back-up to PEW and eSupport to view the complete list of FRUs at the MT Model level.



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## Chapter 3. General checkout

This chapter presents following information:

- “What to do first” on page 29
- “Checkout guide” on page 30
  - “Diagnostics using PC-Doctor for Dos” on page 30
  - “Lenovo ThinkVantage Toolbox (Lenovo System Toolbox)” on page 33
  - “PC-Doctor for Windows” on page 33
  - “FRU tests” on page 33
- “Power system checkout” on page 35

The descriptions in this chapter apply to any ThinkPad model that supports the PC-Doctor® for DOS diagnostics program. Some descriptions might not apply to your particular computer.

Before you go to the checkout guide, be sure to read the following important notes.

### Important:

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

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## What to do first

When you do 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 PC Card or the installation of an incompatible card
- Improper disc insertion or use of an optical drive
- Diskette drive damage caused by pressure on the diskette drive cover, foreign material in the drive, or the insertion of a diskette with multiple labels
- Damaged or bent diskette eject button
- Fuses blown by attachment of a nonsupported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard
- Use of an incorrect ac adapter on laptop products

**The following symptoms might indicate damage caused by nonwarranted activities:**

- Missing parts might be a symptom of unauthorized service or modification.
- If the spindle of a hard disk drive becomes noisy, it may have been subjected to excessive force, or dropped.

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## Checkout guide

Use the following procedures as a guide in identifying and correcting problems with the ThinkPad Notebook.

**Note:** The diagnostic tests are intended to test only ThinkPad products. The use of non-ThinkPad products, prototype cards, or modified options can lead to false indications of errors and invalid system responses.

1. Identify the failing symptoms in as much detail as possible.
2. Verify the symptoms. Try to re-create the failure by running the diagnostic test or by repeating the operation.

## Diagnostics using PC-Doctor for DOS

The ThinkPad Notebook has a test program called PC-Doctor for DOS (hereafter called *PC-Doctor*.) You can detect errors by running the diagnostics test included in PC-Doctor.

**Note:**

PC-Doctor for DOS is available at the following Web site: <http://www.lenovo.com/support>

To create the PC-Doctor diagnostic CD, follow the instructions on the Web site.

For some possible configurations of the computer, PC-Doctor might not run correctly. To avoid this problem, you need to initialize the computer setup by use of the BIOS Setup Utility before you run PC-Doctor.

To enter BIOS Setup Utility, do as follows:

1. Turn on the computer.
2. When the ThinkPad logo comes up, immediately press F1 to enter the BIOS Setup Utility.

**Note:** If a supervisor password has been set by the customer, BIOS Setup Utility menu appears after the password is entered. You can start the utility by pressing Enter instead of entering the supervisor password; however, you cannot change the parameters that are protected by the supervisor password.

On the BIOS Setup Utility screen, press F9, Enter, F10, and then Enter.

**Note:** When you initialize the computer configuration, some devices are disabled, such as the serial port. If you test one of these devices, you will need to enable it by using Configuration utility for DOS. The utility is available on the following Web site: <http://www.lenovo.com/support>

PC-Doctor cannot be used to test a device that is in the docking station, even if the computer supports the docking station. To test a USB device, connect it to the USB connector of the computer.

## Testing the computer

**Note:** The PC-Doctor diagnostic CD does not support any optical drives connected through USB devices or any others. It supports only the internal optical drive of the ThinkPad Notebook.

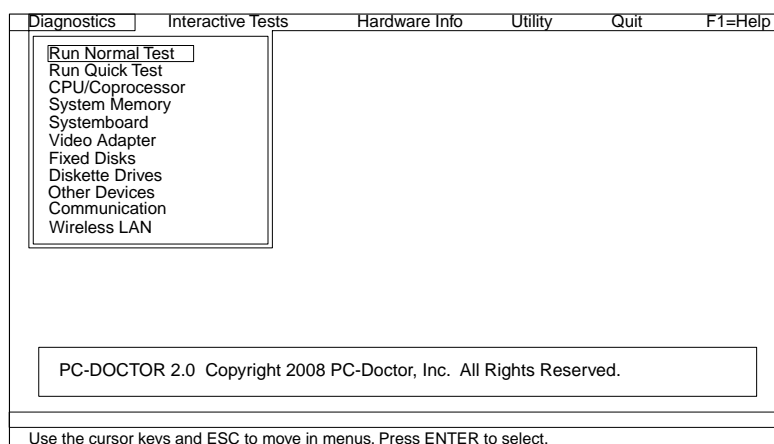
To run the test, do as follows:

1. Turn off the computer.
2. Make sure that the internal optical drive that is supported as a startup device is attached to the computer.
3. Turn on the computer. If the computer cannot be powered on, go to “Power system checkout” on page 35, and check the power sources.  
If an error code appears, go to “Symptom-to-FRU index” on page 44.
4. When the ThinkPad logo comes up, immediately press F12 to enter the Boot Menu.
5. Insert the ThinkPad CD into the internal optical drive.
6. Press cursor keys to select **ATAPI CDx** (x: 0, 1, ...) and then press Enter.
7. Follow the instructions on the screen.
8. The main panel of ThinkPad appears.
9. Select **Diagnostics** with the arrow keys, and press Enter.

**Note:** You can select an item not only with the arrow keys, but also with the TrackPoint® pointer. Instead of pressing Enter, click the left button.

A pull-down menu appears. (Its exact form depends on the model.)

**Note:** PC-Doctor menu does not mean the formal support device list. Some unsupported device names may appear in the PC-Doctor menu.



The options on the test menu are as follows:

Diagnostics	Interactive Tests
<ul style="list-style-type: none"> <li>• Run Normal Test</li> <li>• Run Quick Test</li> <li>• CPU/Coprocessor</li> <li>• Systemboard</li> <li>• Video Adapter</li> <li>• Fixed Disks</li> <li>• Diskette Drives</li> <li>• Other Devices</li> <li>• ThinkPad Devices</li> <li>• Communication</li> <li>• Wireless LAN</li> <li>• PM Memory</li> </ul>	<ul style="list-style-type: none"> <li>• Keyboard</li> <li>• Video</li> <li>• Internal Speaker</li> <li>• Mouse</li> <li>• Diskette</li> <li>• System Load</li> <li>• Optical Drive Test</li> <li>• Intel 5XXX WLAN Radio Test</li> </ul>
<p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• In the <b>Keyboard</b> test in <b>Interactive Tests</b>, the Fn key should be held down for at least 2 seconds; otherwise, it cannot be sensed.</li> <li>• <b>Video Adapter</b> test supports only the LCD display on the ThinkPad computer. If you have an external monitor attached to your computer, detach it before running PC-Doctor for DOS.</li> <li>• To test <b>Digital Signature Chip</b>, the security chip must be set to Active.</li> </ul>	

10. Run the applicable function test.

11. Follow the instructions on the screen. If there is a problem, PC-Doctor shows messages describing it.

12. To exit the test, select **Quit → Exit Diag**. To cancel the test, press Esc.

**Note:** After running PC-Doctor, check the time and date on the system and reset them if they are incorrect.

## Detecting system information with PC-Doctor

PC-Doctor can detect the following system information:

### Hardware Info

- System Configuration
- Memory Contents
- Physical Disk Drives
- Logical Disk Drives
- VGA Information
- IDE Drive Info
- PCI Information
- PNPISA Info
- SMBIOS Info
- VESA LCD Info
- Hardware Events Log

### Utility

- Run External Tests
- Surface Scan Hard Disk
- Benchmark System
- DOS Shell
- Tech Support Form
- Battery Rundown
- View Test Log
- Print Log
- Save Log
- Full Erase Hard Drive
- Quick Erase Hard Drive

## Lenovo ThinkVantage Toolbox (Lenovo System Toolbox)

Lenovo ThinkVantage® Toolbox (Lenovo System Toolbox in Windows Vista® and Windows® XP) is a diagnostic program that works through the Windows operating system. It enables you to view symptoms of computer problems and solutions for them, and includes automatic notification when action is required, computing assistance, advanced diagnostics, and diagnostic history.

**Note:** The latest Lenovo ThinkVantage Toolbox is available at the following Web site:

<http://www.lenovo.com/support>To install the latest Lenovo ThinkVantage Toolbox on the computer, follow the instructions on the Web site.

To run this program, do as follows:

### Windows 7:

While the Windows operating system is running, press the ThinkVantage button.

You can also run this program as either of the following:

- Click **Start** → **All Programs** → **Lenovo ThinkVantage Tools** → **System Health and Diagnostics**.
- Click **Start** → **Control Panel** → **System and Security** → **Lenovo's System Health and Diagnostics**.

### Windows Vista and Windows XP:

Click **Start** → **All Programs** → **Lenovo Services** → **Lenovo System Toolbox**.

Follow the instructions on the screen. Lenovo ThinkVantage Toolbox also has problem determination aids that determine software and usage problems.

For additional information about this program, see the Help for the program.

## PC-Doctor for Windows

In some models of ThinkPad Notebook, PC-Doctor for Windows enables you to troubleshoot and resolve problems related to the computer.

Select one of the categories listed below to display symptoms and solutions:

- Check System Health
- System and Device Tests
- Lenovo Troubleshooting Center
- System Reports
- Updates and Support

## FRU tests

The following table shows the test for each FRU.

Table 1. FRU tests

FRU	Applicable test
System board	<ol style="list-style-type: none"> <li>1. <b>Diagnostics → CPU/Coprocessor.</b></li> <li>2. <b>Diagnostics → Systemboard.</b></li> <li>3. If the docking station or the port replicator is attached to the ThinkPad Notebook, detach it.</li> <li>4. Place the computer on a horizontal surface, and run <b>Diagnostics → ThinkPad Devices → HDD Active Protection Test.</b></li> </ol> <p><b>Note:</b> Do not apply any physical shock to the computer while the test is running.</p>
Power	<b>Diagnostics → ThinkPad Devices → AC Adapter, Battery 1 (Battery 2)</b>
LCD unit	<ol style="list-style-type: none"> <li>1. <b>Diagnostics → Video Adapter.</b></li> <li>2. <b>Interactive Tests → Video.</b></li> </ol>
Audio	Enter the BIOS Setup Utility and change Serial ATA (SATA) setting to <b>Compatibility</b> , and run <b>Diagnostics → Other Device → Conexant Audio.</b>
Speaker	<b>Interactive Tests → Internal Speaker.</b> <b>Note:</b> Once Modem/Audio test is done, the no sound is heard this test. In this case, turn off and turn on the computer. Then, run this test again.
ExpressCard slot	<b>Diagnostics → Systemboard → PCMCIA</b>
ExpressCard slot	<ol style="list-style-type: none"> <li>1. Insert a PCI-Express/USB Wrap card into the ExpressCard slot.</li> <li>2. Turn on the computer.</li> <li>3. Run <b>Diagnostics → ThinkPad Devices → ExpressCard slot.</b></li> </ol>
Keyboard	<ol style="list-style-type: none"> <li>1. <b>Diagnostics → Systemboard.</b></li> <li>2. <b>Interactive Tests → Keyboard.</b></li> </ol>
Hard disk drive	Enter the BIOS Setup Utility and change Serial ATA (SATA) setting to <b>Compatibility</b> , and run <b>Diagnostics → Fixed Disks.</b>  You can also diagnose the drive without starting up the operating system. To diagnose the drive from the BIOS Setup Utility, do as follows: <ol style="list-style-type: none"> <li>1. Remove any diskette from the diskette drive, and then turn off the computer.</li> <li>2. Turn on the computer.</li> <li>3. While the message, "To interrupt normal startup, press the blue ThinkVangate button," is displayed at the lower left of the screen, press F1 to enter the BIOS Setup Utility.</li> <li>4. Using cursor keys, select <b>HDD diagnostic program.</b> Press Enter.</li> <li>5. Using cursor keys, select <b>Main hard disk drive</b> or <b>Ultrabay hard disk drive.</b></li> <li>6. Press Enter to start the diagnostic program.</li> </ol>
Diskette drive	<ol style="list-style-type: none"> <li>1. <b>Diagnostics → Diskette Drives.</b></li> <li>2. <b>Interactive Tests → Diskette.</b></li> </ol>
Optical drive	<ol style="list-style-type: none"> <li>1. <b>Diagnostics → Other Devices → Optical Drive.</b></li> <li>2. <b>Interactive Tests → Optical Drive Test.</b></li> </ol>
Memory	<ol style="list-style-type: none"> <li>1. If two DIMMs are installed, remove one of them and run <b>Diagnostics → System Memory.</b></li> <li>2. If the problem does not recur, return the DIMM to its place, remove the other one, and run the test again.</li> <li>3. If the problem does not recur, return the DIMM to its place, remove the other one, and run the test again.</li> </ol>



Table 1. FRU tests (continued)

FRU	Applicable test
TrackPoint or pointing device	<p>If the TrackPoint does not work, check the configuration as specified in the BIOS Setup Utility. If the Trackpoint is disabled, select <b>Automatic</b> to enable it.</p> <p>After you use the TrackPoint, the pointer may drift on the screen for a short time. This drift can occur when a slight, steady pressure is applied to the TrackPoint pointer. This symptom is not a hardware problem. If the pointer stops after a short time, no service action is necessary.</p> <p>If enabling the TrackPoint does not correct the problem, continue with the following:</p> <ul style="list-style-type: none"> <li>• <b>Interactive Tests → Mouse.</b></li> </ul>
Touch Pad	<p>If the Touch Pad does not work, check the configuration as specified in the BIOS Setup Utility. If the Touch Pad is disabled, select <b>Automatic</b> to enable it. If enabling the Touch Pad does not correct the problem, continue with the following:</p> <ul style="list-style-type: none"> <li>• <b>Interactive Tests → Mouse.</b></li> </ul>

## Power system checkout

To verify a symptom, do the following:

1. Turn off the computer.
2. Remove the battery pack.
3. Connect the ac adapter.
4. Check that power is supplied when you turn on the computer.
5. Turn off the computer.
6. Disconnect the ac adapter and install the charged battery pack.
7. Check that the battery pack supplies power when you turn on the computer.

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

- “Checking the ac adapter” on page 35
- “Checking operational charging” on page 36
- “Checking the battery pack” on page 36
- “Checking the backup battery” on page 37

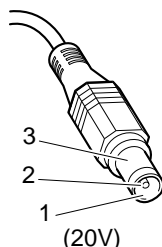
## Checking the ac adapter

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

- If the power problem occurs only when the ThinkPad W700 Mini Dock is used, replace the Mini Dock.
- 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 operational charging” on page 36

To check the ac adapter, do the following:

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



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

**Note:** Output voltage of pin no.2 of the ac adapter may differ from the one you are servicing.

3. If the voltage is not correct, replace the ac adapter.
4. If the voltage is acceptable, do the following:
  - Replace the system board.
  - If the problem persists, go to “FRU tests” on page 33.

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

## Checking operational charging

To check whether the battery charges properly during operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.

Perform operational charging. If the battery status indicator or icon does not turn on, remove the battery pack and let it return to room temperature. Reinstall the battery pack. If the charge indicator or icon still does not turn on, replace the battery pack.

If the charge indicator still does not turn on, replace the system board. Then reinstall the battery pack. If it is still not charged, go to the next section.

## Checking the battery pack

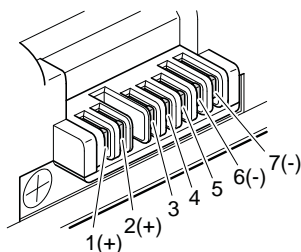
Battery charging does not start until the Power Manager Battery Gauge shows that less than 96% of the total power remains; under this condition the battery pack can charge to 100% of its capacity. This protects the battery pack from being overcharged or from having a shortened life.

To check your battery, move your cursor to the Power Manager Battery Gauge icon in the icon tray of the Windows taskbar and wait for a moment (but do not click), and the percentage of battery power remaining is displayed. To get detailed information about the battery, double-click the Power Manager Battery Gauge icon.

**Note:** If the battery pack becomes hot, it may not be able to charge. Remove it from the computer and leave it at room temperature for a while. After it cools down, reinstall and recharge it.

To check the battery pack, do the following:

1. Power off the computer.
2. Remove the battery pack and measure the voltage between battery terminals 1 (+) and 7 (-). See the following figure:



Terminal	Voltage (V dc)
1	+ 0 to + 12.6
7	Ground (-)

3. If the voltage is less than +11.0 V dc, the battery pack has been discharged.

**Note:** Recharging will take at least 3 hours, even if the indicator does not turn on.

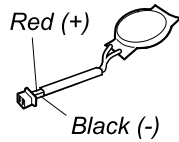
If the voltage is still less than +11.0 V dc after recharging, replace the battery.

4. If the voltage is more than +11.0 V dc, measure the resistance between battery terminals 5 and 7. The resistance must be 4 to 30 K  $\Omega$ . If the resistance is not correct, replace the battery pack. If the resistance is correct, replace the system board.

## Checking the backup battery

Do the following:

1. Power off the computer, and unplug the ac adapter from it.
2. Turn the computer upside down.
3. Remove the battery pack (see “1010 Battery pack” on page 68).
4. Remove the backup battery (see “1100 Backup battery” on page 82).
5. Measure the voltage of the backup battery. See the following figure.



Wire	Voltage (V dc)
Red	+2.5 to +3.2
Black	Ground

- If the voltage is correct, replace the system board.
- If the voltage is not correct, replace the backup battery.
- If the backup battery discharges quickly after replacement, replace the system board.



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## Chapter 4. Related service information

This chapter presents following information:

- “Restoring the factory contents by using Product Recovery discs” on page 39
- “Restoring the factory contents by using Recovery Disc Set” on page 39
- “Passwords” on page 41
- “Power management” on page 42
- “Symptom-to-FRU index” on page 44

**Service Web site:** When the latest maintenance diskette and the system program service diskette become available, they will be posted on <http://www.lenovo.com/spm>

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### Restoring the factory contents by using Product Recovery discs

When the hard disk drive (HDD) or solid state drive (SSD) is replaced because of a failure, no Product Recovery program is on the new drive. In this case, you must use the recovery discs for the computer. Order the recovery discs and the drive at the same time so that you can recover the new drive with the pre-installed software when they arrive. For information on which discs to order, see “Recovery discs” on page 200.

To install the factory contents by using Product Recovery discs, do the following:

**Note:** Recovery takes several hours. The length of time depends on the method you use. If you use recovery discs, recovery takes at least five hours.

1. Insert the bootable **Start Recovery Disc** into the DVD drive.
2. Select your language and click **Next**.
3. Read the license. If you agree with the terms, select **I accept these terms and conditions** and then click **Next**.
4. Insert the **Operating System Recovery Disc** when prompted and click **Yes** to begin the operating system recovery process.
5. Insert the **Product Recovery Disc** when prompted and click **OK**.
6. If you have a **Supplemental Recovery Disc**, insert it when prompted and click **Yes**. If you do not have a **Supplemental Recovery Disc**, click **No**.

**Note:** Not all recovery disc sets come with a **Supplemental Recovery Disc**. If there is a **Supplemental Recovery Disc**, it will be clearly marked as such.

7. When all of the data has been copied from the last disc in the set, a message is displayed prompting you to restart the computer. Remove the disc and then click **Yes**.

**Note:** The remainder of the recovery process is fully automated and no action is required by you. The computer will restart into the Windows desktop several times and you might experience periods when no activity is apparent on the screen for several minutes at a time. This is normal.

8. When the recovery process is complete, the Welcome to Microsoft Windows screen is displayed. Follow the instructions on the screen to complete the Windows setup.

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### Restoring the factory contents by using Recovery Disc Set

When the hard disk drive (HDD) or solid state drive (SSD) is replaced because of a failure, no product recovery program is on the new drive. In this case, you must use the Recovery Disc Set for the computer. Order the Recovery Disc Set and the drive at the same time so that you can recover the new drive with the pre-installed software when they arrive. For information on which discs to order, see “Recovery discs” on page 200.

The recovery disc set consists of the user instructions and the following set of DVDs to restore the computer to the original factory configuration.

*Operating System Recovery Disc* (one disc)

This disc restores the Microsoft® Windows operating system. Use this disc to start the recovery process.

*Applications and Drivers Recovery Disc* (one or more discs)

This disc restores the preinstalled applications and drivers on the computer.

*Supplemental Recovery Disc*

This disc contains additional content, such as updates to the software that was preinstalled on the computer. Not all recovery disc sets come with a *Supplemental Recovery Disc*.

#### Notes:

- You must have a DVD drive to use the recovery discs. If you do not have an internal DVD drive, you can use an external USB DVD drive.
- During the recovery process, all data on the drive will be deleted. If possible, copy any important data or personal files that you want to keep onto removable media or a network drive before you start the recovery process.

To restore the computer to the original factory configuration using the recovery disc set, do the following:

**Note:** Recovery takes several hours. The length of time depends on the method you use. If you use recovery discs, recovery takes at least five hours.

1. Make the CD/DVD drive the first startup device in the startup sequence using the following procedure:
  - a. Press and hold down the F1 key, and then turn on the computer. When the logo screen is displayed or if you hear repeating beeps, release the F1 key. The Setup Utility program opens.
  - b. Use the arrow keys to select **Startup → Boot**.
  - c. Select the CD/DVD drive as the **1st Boot Device**.
2. Insert the *Operating System Recovery Disc* into the DVD drive.
3. Press F10 to save the Setup Utility configuration changes. Follow the instructions on the screen to begin the recovery process.
4. Select your language and click **Next**.
5. Read the license. If you agree with the terms and conditions, select **I accept these terms and conditions** and then click **Next**. If you do not agree with the terms and conditions, follow the instructions on the screen.
6. Click **Yes** in the displayed window to begin the operating system recovery process.
7. Insert the *Applications and Drivers Recovery Disc* when prompted and then click **OK** to begin the applications and drivers recovery process.
8. If you have a *Supplemental Recovery Disc*, insert it when prompted and click **Yes**. If you do not have a *Supplemental Recovery Disc*, click **No**.
9. When all of the data has been copied from the last disc in the set and has been processed, remove the disc and restart the computer.

**Note:** The rest of the recovery process is fully automated and no action is required by you. The computer will restart into the Microsoft Windows desktop several times and you might experience periods when no activity is apparent on the screen for several minutes at a time. This is normal.

10. When the recovery process is complete, the Set Up Windows screen is displayed. Follow the instructions on the screen to complete the Windows setup.
11. After you have completed the Windows setup, you might want to restore the original startup sequence. Start the Setup Utility program and then press F9 to restore the default settings. Press F10 to save and exit the Setup Utility.

**Note:** After restoring a drive to the factory default settings, you might need to reinstall some device drivers.

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## Passwords

As many as three passwords may be needed for any ThinkPad Notebook: the power-on password (POP), the hard-disk password (HDP), and the supervisor password (SVP).

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.

**Note:** If only an SVP is installed, the password prompt does not appear when the operating system is booted.

### Power-on password

A power-on password (POP) protects the system from being powered on by an unauthorized person. The password must be entered before an operating system can be booted. For how to remove the POP, see “How to remove the power-on password” on page 41.

### Hard-disk password

There are two hard-disk passwords (HDPs):

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

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

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

For how to remove the POP, see “How to remove the hard-disk password” on page 42.

### Supervisor password

A supervisor password (SVP) protects the system information stored in the BIOS Setup Utility. The user must enter the SVP in order to get access to the BIOS Setup Utility and change the system configuration.

**Attention:** If the SVP 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.

### How to remove the power-on password

To remove a POP that you have forgotten, do the following:

*(A) If no SVP has been set:*

1. Turn off the computer.
2. Remove the battery pack. For how to remove the battery pack, see “1010 Battery pack” on page 68.
3. Remove the backup battery. For how to remove the backup battery, see “1100 Backup battery” on page 82.

4. Turn on the computer and wait until the POST ends. After the POST ends, the password prompt does not appear. The POP has been removed.
5. Reinstall the backup battery and the battery pack.

*(B) If an SVP has been set and is known by the service technician:*

1. Turn on the computer.
2. When the ThinkPad logo comes up, immediately press F1 to enter BIOS Setup Utility. For models supporting the Passphrase function, press F1 while the POP icon is appearing on the screen; then enter the POP. For the other models, enter the POP.

**Note:** To check whether the ThinkPad Notebook you are servicing supports the Passphrase function, enter the BIOS Setup Utility and go to **Security** → **Password**. If the **Using Passphrase** item is displayed in the menu, this function is available on the ThinkPad Notebook.

3. Select **Security**, using the cursor directional keys to move down the menu.
4. Select **Password**.
5. Select **Power-On Password**.
6. Type the current SVP in the **Enter Current Password** field. then leave the **Enter New Password** field blank, and press Enter twice.
7. In the Changes have been saved window, press Enter.
8. Press F10; then, in the Setup confirmation window, select **Yes**.

## How to remove the hard-disk password

**Attention:** If **User only** mode is selected and the user HDP has been forgotten and cannot be made available to the service technician, neither Lenovo nor Lenovo authorized service technicians provide any services to reset the user HDPs or to recover data from the hard disk drive. The hard disk drive can be replaced for a scheduled fee.

To remove a user HDP that has been forgotten, when the SVP and the master HDP are known, do the following:

1. Turn on the computer.
2. When the ThinkPad logo comes up, immediately press F1 to enter BIOS Setup Utility. For models supporting the Passphrase function, press F1 while HDP icon is appearing on the screen; then enter the master HDP. For the other models, enter the master HDP.

**Note:** To check whether the ThinkPad Notebook you are servicing supports the Passphrase function, enter the BIOS Setup Utility and go to **Security** → **Password**. If **Using Passphrase** item is displayed in the menu, this function is available on the ThinkPad Notebook.

3. Select **Security**, using the cursor directional keys to move down the menu.
4. Select **Password**.
5. Select **Hard-disk x password**, where x is the letter of the hard disk drive. A pop-up window opens.
6. Select **Master HDP**.
7. Type the current master HDP in the **Enter Current Password** field. then leave the **Enter New Password** field blank, and press Enter twice.
8. Press F10.
9. Select **Yes** in the Setup Configuration window. Both user HDP and master HDP will have been removed.

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## Power management

To reduce power consumption, the computer has three power management modes: screen blank, sleep (standby in Windows XP), and hibernation.



## Screen blank mode

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 as follows:

1. Press Fn+F3. A panel for selecting a power plan (in Windows XP, power scheme) appears.
2. Select **Power off display (keep current power plan)** (in Windows XP, **keep current power scheme**).

You can also put the computer into screen blank mode, press ThinkVantage button and use the ThinkVantage Productivity Center.

**Note:** If the computer is a Windows 7 model, it does not support ThinkVantage Productivity Center.

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

## Sleep (standby) mode

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

- The LCD is powered off.
- The hard disk drive is powered off.
- The CPU stops.

To enter sleep (standby) mode, press Fn+F4.

**Note:** You can change the action of the Fn+F4 key combination by changing the settings in Power Manager.

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

- If a “suspend time” has been set on the timer, and the user does not do any operation with the keyboard, the Trackpoint, the hard disk, the parallel connector, or the diskette drive within that time.
- If the battery indicator blinks orange, indicating that the battery power is low.

**Note:** Even if you do not set the low-battery alarm, the charge indicator notifies you when the battery is low, and then the computer enters the power-saving mode automatically.

To cause the computer to return from sleep (standby) mode and resume operation, do one of the following:

- Press the Fn key.
- Open the LCD cover.
- Turn on the power switch.

Also, in either of the following events, the computer automatically returns from sleep (standby) mode and resumes operation:

- The ring indicator (RI) is signaled by a serial device or a PC Card device.
- The time set on the resume timer elapses.

**Note:** The computer does not accept any input immediately after it enters sleep (standby) mode. Wait a few seconds before taking any action to reenter operation mode.

## Hibernation mode

In hibernation mode, the following occurs:

- The system status, RAM, VRAM, and setup data are stored on the hard disk.
- The system is powered off.

**Note:** If the computer enters the hibernation mode while it is docked to the ThinkPad Advanced Dock or ThinkPad Advanced Mini Dock, 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.

To cause the computer to enter hibernation mode, do any of the following:

- Press the Fn+F12 keys.
- If you are using the APM operating system and have set the mode to **Power switch mode [Hibernation]**, turn off the power switch.
- If you are using the ACPI operating system and 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.
  - Pressing Fn+F4 keys.

Also, the computer goes into hibernation mode automatically in either of the following conditions:

- If a “hibernation time” has been set on the timer, and if the user does not do any operation with the keyboard, the Trackpoint, the hard disk drive, the parallel connector, or the diskette drive within that time.
- If the timer conditions are satisfied in suspend mode.
- If you are using the APM operating system and have set the mode to **Hibernate when battery becomes low**, and the battery charge becomes critically low.

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 is read, and system status is restored from the hard disk drive.

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## Symptom-to-FRU index

This section contains following information:

- “Numeric error codes” on page 45
- “Error messages” on page 49
- “Beep symptoms” on page 50
- “No-beep symptoms” on page 50
- “LCD-related symptoms” on page 50
- “Intermittent problems” on page 51
- “Undetermined problems” on page 51

The symptom-to-FRU index in this section lists symptoms and errors and their possible causes. The most likely cause is listed first, in boldface type.

**Note:** Do the FRU replacement or other actions in the sequence shown in the column headed “FRU or action, in sequence.” If replacing a FRU does not solve the problem, put the original part back in the computer. Do not replace a nondefective FRU.

This index can also help you determine, during regular servicing, what FRUs are likely to need to be replaced next.

A numeric error is displayed for each error detected in POST or system operation. In the displays, **n** can be any number.

If no numeric code is displayed, check the narrative descriptions of symptoms. If the symptom is not described there, go to “Intermittent problems” on page 51.

**Note:**

For a device not supported by diagnostic codes in the ThinkPad Notebooks, see the manual for that device.

**Numeric error codes**

Table 2. Numeric error codes

Symptom or error	FRU or action, in sequence
<b>0175</b> Bad CRC1, stop POST task—The EEPROM checksum is not correct.	<b>System board.</b>
<b>0176</b> System Security—The system has been tampered with.	<ol style="list-style-type: none"> <li>1. <b>Run BIOS Setup Utility, and save the current setting by pressing F10.</b></li> <li>2. System board.</li> </ol>
<b>0177</b> Bad SVP data, stop POST task—The checksum of the supervisor password in the EEPROM is not correct.	<b>System board.</b>
<b>0182</b> Bad CRC2. Enter BIOS Setup and load Setup defaults.—The checksum of the CRS2 setting in the EEPROM is not correct.	<ol style="list-style-type: none"> <li>1. <b>Run BIOS Setup Utility. Press F9, and Enter to load the default setting. Then save the current setting by pressing F10.</b></li> <li>2. System board.</li> </ol>
<b>0185</b> Bad startup sequence settings. Enter BIOS Setup and load Setup defaults.	<ol style="list-style-type: none"> <li>1. <b>Run BIOS Setup Utility. Press F9, and Enter to load the default setting. Then save the current setting by pressing F10.</b></li> </ol>
<b>0187</b> EAIA data access error—The access to EEPROM is failed.	<b>System board.</b>
<b>0188</b> Invalid RFID Serialization Information Area.	<b>System board.</b>
<b>0189</b> Invalid RFID configuration information area—The EEPROM checksum is not correct.	<b>System board.</b>
<b>0190</b> Critical low-battery error	<ol style="list-style-type: none"> <li>1. <b>Charge the battery pack.</b></li> <li>2. Battery pack.</li> </ol>
<b>0191</b> System Security—Invalid Remote Change requested.	<ol style="list-style-type: none"> <li>1. <b>Run BIOS Setup Utility, and then save current setting by pressing F10.</b></li> <li>2. System board.</li> </ol>
<b>0192</b> System Security— Embedded Security hardware tamper detected.	<b>System board.</b>
<b>0193</b> RF antenna has been removed	<b>Enter the supervisor password.</b>
<b>0194</b> The computer has been carried through a security gate	<b>Enter the supervisor password.</b>
<b>0195</b> Security hardware tamper detected	<ol style="list-style-type: none"> <li>1. <b>Enter BIOS Setup Utility by entering supervisor password, and select Password → Security Chip → Clear Security Chip to clear this error.</b></li> <li>2. Security chip.</li> <li>3. System board.</li> </ol>

Table 2. Numeric error codes (continued)

Symptom or error	FRU or action, in sequence
<b>0196</b> Security hardware removed	<ol style="list-style-type: none"> <li>1. <b>Enter BIOS Setup Utility by entering supervisor password, and select Password → Security Chip → Clear Security Chip to clear this error.</b></li> <li>2. Security chip.</li> <li>3. System board.</li> </ol>
<b>0197</b> Invalid remote change requested.	<b>The remote configuration for the security chip has failed. Confirm the operation and try again.</b>
<b>0199</b> System Security— Security password retry count exceeded.	<ol style="list-style-type: none"> <li>1. <b>Run BIOS Setup Utility, and then save the current setting by pressing F10.</b></li> <li>2. System board.</li> </ol>
<b>01C8</b> Two or more modem devices are found. Remove all but one of them. Press <Esc> to continue.	<ol style="list-style-type: none"> <li>1. <b>Remove either a Mini-PCI Card or a modem daughter card. Otherwise, press Esc to ignore the warning message.</b></li> <li>2. System board.</li> </ol>
<b>01C9</b> Two or more Ethernet devices are found. Remove all but one of them. Press <Esc> to continue.	<ol style="list-style-type: none"> <li>1. <b>Remove either a Mini PCI Ethernet card or an Ethernet daughter card. Otherwise, press Esc to ignore the warning message.</b></li> <li>2. System board.</li> </ol>
<b>01C9</b> More than one Ethernet devices are found. Remove one of them. Press <Esc> to continue.	<ol style="list-style-type: none"> <li>1. <b>Remove the Ethernet device that you installed; or press Esc to ignore the warning message.</b></li> <li>2. System board.</li> </ol>
<b>01CA</b> More than one Wireless LAN devices are found. Remove one of them.	<ol style="list-style-type: none"> <li>1. <b>Remove the wireless LAN device that you installed.</b></li> <li>2. System board.</li> </ol>
<b>0200</b> Hard disk error—The hard disk is not working.	<ol style="list-style-type: none"> <li>1. <b>Reseat the hard disk drive.</b></li> <li>2. Load Setup Defaults in BIOS Setup Utility.</li> <li>3. Hard disk drive.</li> <li>4. System board.</li> </ol>
<b>021x</b> Keyboard error.	<b>Run interactive tests of the keyboard and the auxiliary input device.</b>
<b>0220</b> Monitor type error—Monitor type does not match the one specified in CMOS.	<b>Load Setup Defaults in BIOS Setup Utility.</b>
<b>0230</b> Shadow RAM error—Shadow RAM fails at offset nnnn.	<b>System board.</b>
<b>0231</b> System RAM error—System RAM fails at offset nnnn.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
<b>0232</b> Extended RAM error— Extended RAM fails at offset nnnn.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
<b>0250</b> System battery error—System battery is dead.	<ol style="list-style-type: none"> <li>1. <b>Charge the backup battery for more than 8 hours by connecting the ac adapter.</b></li> <li>2. Replace the backup battery and run BIOS Setup Utility to reset the time and date.</li> </ol>
<b>0251</b> System CMOS checksum bad— Default configuration used.	<ol style="list-style-type: none"> <li>1. <b>Charge the backup battery for more than 8 hours by connecting the ac adapter.</b></li> <li>2. Replace the backup battery and run BIOS Setup Utility to reset the time and date.</li> </ol>
<b>0252</b> Password checksum bad—The password is cleared.	<b>Reset the password by running BIOS Setup Utility.</b>

Table 2. Numeric error codes (continued)

Symptom or error	FRU or action, in sequence
<b>0260</b> System timer error.	<ol style="list-style-type: none"> <li>1. <b>Charge the backup battery for more than 8 hours by connecting the ac adapter.</b></li> <li>2. Replace the backup battery and run BIOS Setup Utility to reset the time and date.</li> <li>3. System board.</li> </ol>
<b>0270</b> Real-time clock error.	<ol style="list-style-type: none"> <li>1. <b>Charge the backup battery for more than 8 hours by connecting the ac adapter.</b></li> <li>2. Replace the backup battery and run BIOS Setup Utility to reset the time and date.</li> <li>3. System board.</li> </ol>
<b>0271</b> Date and time error—Neither the date nor the time is set in the computer.	<b>Run BIOS Setup Utility to reset the time and date.</b>
<b>0280</b> Previous boot incomplete— Default configuration used.	<ol style="list-style-type: none"> <li>1. <b>Load Setup Default in BIOS Setup Utility.</b></li> <li>2. DIMM.</li> <li>3. System board.</li> </ol>
<b>02B2</b> Incorrect drive A type.	<ol style="list-style-type: none"> <li>1. <b>Diskette drive.</b></li> <li>2. External FDD cable.</li> <li>3. I/O card.</li> </ol>
<b>02D0</b> System cache error.	
<b>02F0</b> CPU ID:xx Failed.	<ol style="list-style-type: none"> <li>1. <b>CPU.</b></li> <li>2. System board.</li> </ol>
<b>02F4</b> EISA CMOS not writable.	<ol style="list-style-type: none"> <li>1. <b>Load Setup Defaults in BIOS Setup Utility.</b></li> <li>2. Replace the backup battery.</li> <li>3. System board.</li> </ol>
<b>02F5</b> DMA test failed.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
<b>02F6</b> Software NMI failed	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
<b>02F7</b> Fail-safe timer NMI failed	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
<b>1801</b> Attached docking station is not supported	<b>Shut down the computer and remove it from the docking station.</b>
<b>1802</b> Unauthorized network card is plugged in— Turn off and remove the miniPCI network card.	<ol style="list-style-type: none"> <li>1. <b>Remove Mini PCI network card.</b></li> <li>2. System board.</li> </ol>
<b>1803</b> Unauthorized daughter card is plugged in— Turn off and remove the daughter card.	<ol style="list-style-type: none"> <li>1. <b>Remove the daughter card that you installed.</b></li> <li>2. System board.</li> </ol>
<b>1804</b> Unauthorized WAN card is plugged in— Power off and remove the WAN card.	<ol style="list-style-type: none"> <li>1. <b>Remove the WAN card that you installed.</b></li> <li>2. System board.</li> </ol>
<b>1805</b> Unauthorized Wireless USB card is plugged in— Power off and remove the Wireless USB card.	<ol style="list-style-type: none"> <li>1. <b>Remove the Wireless USB card that you installed.</b></li> <li>2. System board.</li> </ol>

Table 2. Numeric error codes (continued)

Symptom or error	FRU or action, in sequence
<p><b>1810</b> Hard disk partition layout error.</p>	<ol style="list-style-type: none"> <li>1. <b>If the Access Predesktop Area has been previously disabled, then go to the BIOS Setup Utility by pressing F1 to open the BIOS Setup Utility. Select Security ® Predesktop Area ® Access Predesktop Area. Set this item to Disabled. Save and exit.</b></li> <li>2. If the Access Predesktop Area has not been previously disabled, press Enter to load Access Predesktop Area. Then run <b>RECOVER TO FACTORY CONTENTS</b> in Access Predesktop Area.</li> <li>3. If item 2 failed, press F3 in the Welcome screen in <b>RECOVER TO FACTORY CONTENTS</b>. Run FDISK, and then delete all partitions. Run <b>RECOVER TO FACTORY CONTENTS</b> in Access Predesktop Area again.</li> <li>4. If item 3 failed, select CD-ROM boot in <b>Startup</b> in Access Predesktop Area. Boot from the Recovery CD and perform full recovery from it.</li> <li>5. If item 4 failed, replace the hard disk drive.</li> </ol>
<p><b>1820</b> More than one external fingerprint reader is attached. Power off and remove all but the reader that you set up within your main operating system.</p>	<p><b>Remove all but the reader that you set up for the authentication.</b></p>
<p><b>1830</b> Invalid memory configuration—Power off and install a memory module to Slot-0 or the lower slot.</p>	<p><b>Install DIMM in Slot-0, but not in Slot-1.</b> <b>Note:</b> For the construction of the DIMM slot, see “1050 DIMM slot cover and DIMM” on page 72.</p>
<p><b>2000</b> Hard Drive Active Protection sensor diagnostics failed.Press &lt;Esc&gt; to continue.Press &lt;F1&gt; to enter SETUP</p>	<ol style="list-style-type: none"> <li>1. Undock docking station or port replicator if it is attached to the ThinkPad Notebook.</li> <li>2. Place the ThinkPad Notebook on a horizontal surface. Do not apply any physical shock to the computer.</li> <li>3. Run <b>Diagnostics → ThinkPad Device → HDD Active Protection Test</b>.</li> </ol>
<p><b>2010</b> Warning: Your internal hard disk drive (HDD) may not function correctly on this system. Ensure that your HDD is supported on this system and that the latest HDD firmware is installed.</p>	<p>Inform the following information to the customer: If in the primary bay the customer is using a non-IBM or non-Lenovo hard disk drive (HDD), or an old generation IBM HDD which is not supported by this system, with the risk in mind, the customer can still use it by pressing ESC. If in the primary drive bay the customer is using a supported IBM/Lenovo HDD with an old firmware, the customer needs to update its firmware to the latest. The latest version is available at <a href="http://www.lenovo.com/support">http://www.lenovo.com/support</a></p>
<p><b>201x</b> The solid state drive you have installed has not passed qualification for use in this computer. Using this drive may cause compatibility issues and potential issues with data integrity, including data loss. Press &lt;Esc&gt; to continue.</p>	<p>Inform the following information to the customer: If the customer is using a non qualified SSD which is not supported by this system, with the risk in mind, the customer can still use it by pressing ESC. Location of the SSD is designated as below:</p> <p>2010: HDD0 (in HDD slot-0) 2011: HDD1 (in HDD slot-1) 2012: Ultrabay with HDD adapter</p>
<p><b>2100</b> Initialization error on HDD0 (Main hard disk drive)</p>	<ol style="list-style-type: none"> <li>1. <b>Reseat the hard disk drive.</b></li> <li>2. Main hard disk drive.</li> <li>3. System board.</li> </ol>
<p><b>2102</b> Initialization error on HDD1 (Ultrabay hard disk drive)</p>	<ol style="list-style-type: none"> <li>1. <b>Reseat the hard disk drive.</b></li> <li>2. Ultrabay™ hard disk drive.</li> <li>3. System board.</li> </ol>

Table 2. Numeric error codes (continued)

Symptom or error	FRU or action, in sequence
<b>2110</b> Read error on HDD0 (Main hard disk drive)	<ol style="list-style-type: none"> <li>1. <b>Reseat the hard disk drive.</b></li> <li>2. Main hard disk drive.</li> <li>3. System board.</li> </ol>
<b>2112</b> Read error on HDD1 (Ultrabay hard disk drive)	<ol style="list-style-type: none"> <li>1. <b>Reseat the hard disk drive.</b></li> <li>2. Ultrabay hard disk drive.</li> <li>3. System board.</li> </ol>

## Error messages

Table 3. Error messages

Symptom or error	FRU or action, in sequence
Device address conflict.	<ol style="list-style-type: none"> <li>1. <b>Load Setup Defaults in the BIOS Setup Utility.</b></li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Allocation error for device.	<ol style="list-style-type: none"> <li>1. <b>Load Setup Defaults in the BIOS Setup Utility.</b></li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Failing bits: nnnn.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
Invalid system configuration data.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board.</li> </ol>
I/O device IRQ conflict.	<ol style="list-style-type: none"> <li>1. <b>Load Setup Defaults in the BIOS Setup Utility.</b></li> <li>2. Backup battery.</li> <li>3. System board.</li> </ol>
Hibernation error.	<ol style="list-style-type: none"> <li>1. <b>Restore the system configuration to what it was before the computer entered hibernation mode.</b></li> <li>2. If memory size has been changed, re-create the hibernation file.</li> </ol>
Fan error.	<ol style="list-style-type: none"> <li>1. <b>Fan.</b></li> <li>2. Thermal grease.</li> <li>3. System board.</li> </ol>
Thermal sensing error.	<b>System board.</b>
Cannot boot from any device.	<p><b>Check the status of device which you want to boot from.</b></p> <p>Device not found.</p> <ol style="list-style-type: none"> <li>1. The device you want to boot from.</li> <li>2. System board.</li> </ol> <p>Device Error.</p> <ol style="list-style-type: none"> <li>1. The device you want to boot from.</li> <li>2. System board.</li> </ol> <p>No valid operating system.</p> <ol style="list-style-type: none"> <li>1. Check that the operating system has no failure and is installed correctly.</li> <li>2. Reinstall the operation system.</li> </ol> <p>Excluded from boot order.</p> <ul style="list-style-type: none"> <li>• Enter the BIOS Setup Utility and add the device in boot order.</li> </ul>

## Beep symptoms

Table 4. Beep symptoms

Symptom or error	FRU or action, in sequence
One beep and a blank, unreadable, or flashing LCD.	<ol style="list-style-type: none"> <li>1. <b>Reseat the LCD connector.</b></li> <li>2. LCD assembly.</li> <li>3. External CRT.</li> <li>4. System board.</li> </ol>
One long and two short beeps, and a blank or unreadable LCD.	<ol style="list-style-type: none"> <li>1. <b>System board.</b></li> <li>2. LCD assembly.</li> <li>3. DIMM.</li> </ol>
Two short beeps with error codes.	<b>POST error. See “Numeric error codes” on page 45.</b>
Two short beeps and a blank screen.	<ol style="list-style-type: none"> <li>1. <b>System board.</b></li> <li>2. DIMM.</li> </ol>
Two or more beeps, or a continuous beep. Operating system starts successfully.	If a mini-PCI Ethernet card is installed, confirm that <b>Alert On LAN 2</b> in BIOS Setup Utility is <b>disabled</b> .
Three short beeps, pause, three more short beeps, and one short beep.	<ol style="list-style-type: none"> <li>1. <b>DIMM.</b></li> <li>2. System board</li> </ol>
One short beep, pause, three short beeps, pause, three more short beeps, and one short beep.	
Only the cursor appears.	<b>Reinstall the operating system.</b>
Four cycles of four short beeps and a blank screen.	<b>System board</b> (security chip)
Five short beeps and a blank screen.	<b>System board</b>

## No-beep symptoms

Table 5. No-beep symptoms

Symptom or error	FRU or action, in sequence
No beep, power-on indicator on, LCD blank, and no POST.	<ol style="list-style-type: none"> <li>1. <b>Make sure that every connector is connected tightly and correctly.</b></li> <li>2. DIMM.</li> <li>3. System board.</li> </ol>
No beep, power-on indicator on, and LCD blank during POST.	<ol style="list-style-type: none"> <li>1. <b>Reseat DIMM.</b></li> <li>2. System board.</li> </ol>
The power-on password prompt appears.	A power-on password or a supervisor password is set. Type the password and press <b>Enter</b> .
The hard-disk password prompt appears.	A hard-disk password is set. Type the password and press <b>Enter</b> .

## LCD-related symptoms

**Important:** The TFT LCD for the notebook computer contains many thin-film transistors (TFTs). The presence of a small number of dots that are missing, discolored, or always lighted is characteristic of TFT LCD technology, but excessive pixel problems can cause viewing concerns.

If the LCD you are servicing has two or less visible defective pixels, it should not be considered faulty. However, if the LCD has three or more visible defective pixels, it will be deemed as defective by Lenovo and it should be replaced.

### Notes:



- This policy applies to all ThinkPad Notebooks purchased on 1 January, 2008 or later.
- Lenovo will not provide replacement if the LCD is within specification as we cannot guarantee that any replacement LCD will have zero pixel defects.
- One pixel consists of R, G, B sub-pixels.

Table 6. LCD-related symptoms

Symptom or error	FRU or action, in sequence
No beep, power-on indicator on, and a blank LCD during POST.	<b>System board.</b>
<ul style="list-style-type: none"> <li>• LCD backlight not working.</li> <li>• LCD too dark.</li> <li>• LCD brightness cannot be adjusted.</li> <li>• LCD contrast cannot be adjusted.</li> </ul>	<ol style="list-style-type: none"> <li>1. <b>Reseat the LCD connectors.</b></li> <li>2. LCD assembly.</li> <li>3. System board.</li> </ol>
<ul style="list-style-type: none"> <li>• LCD screen unreadable.</li> <li>• Characters missing pixels.</li> <li>• Screen abnormal.</li> <li>• Wrong color displayed.</li> </ul>	<ol style="list-style-type: none"> <li>1. <b>See important note for LCD-related symptoms.</b></li> <li>2. Reseat all LCD connectors.</li> <li>3. LCD assembly.</li> <li>4. System board.</li> </ol>
Horizontal or vertical lines displayed on LCD.	<b>LCD assembly.</b>

## Intermittent problems

Intermittent system hang problems can be due to a variety of causes that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. FRU replacement should be considered only when a problem recurs.

When analyzing an intermittent problem, do the following:

1. Run the diagnostic test for the system board in loop mode **at least 10 times**.
2. If no error is detected, do **not** replace any FRUs.
3. If any error is detected, replace the FRU shown by the FRU code. Rerun the test to verify that no more errors exist.

## Undetermined problems

If the diagnostic tests did not identify the adapter or device that has failed, if wrong devices are installed, or if the system simply is not operating, follow these procedures to isolate the failing FRU (do not isolate FRUs that have no defects).

Verify that all attached devices are supported by the computer.

Verify that the power supply being used at the time of the failure is operating correctly. (See “Power system checkout” on page 35.)

1. Turn off the computer.
2. Visually check each FRU for damage. Replace any damaged FRU.
3. Remove or disconnect all of the following devices:
  - a. Non-ThinkPad devices
  - b. Devices attached to the docking station or the port replicator
  - c. Printer, mouse, and other external devices
  - d. Battery pack
  - e. Hard disk drive
  - f. External diskette drive or optical drive
  - g. DIMM
  - h. Optical disk or diskette in the internal drive

- i. PC Cards
- 4. Turn on the computer.
- 5. Determine whether the problem has been solved.
- 6. If the problem does not recur, reconnect the removed devices one at a time until you find the failing FRU.
- 7. If the problem remains, replace the following FRUs one at a time (do not replace a nondefective FRU):
  - a. System board
  - b. LCD assembly

---

## Chapter 5. Installing and configuring RAID

This chapter presents following information about attaching SATA devices and configuring RAID for this product.

### **Important notices for setting RAID:**

Before you install and configure RAID, make sure of the current RAID setting on the computer you are servicing.

ThinkPad W700, W700ds, W701, and W701ds supports either RAID Level 0 (RAID 0) or RAID Level 1 (RAID 1). Confirm the RAID setting information provided from the customer at first, then proceed with the installation.

**In this product, if the BIOS was formatted or the system board was replaced, RAID is not enabled by default.**

Good or non failing drives have to be in HDD bay 0 if you have RAID 1.

- “Supported RAID configurations” on page 53
- “Configuring the system BIOS to enable embedded SATA RAID functionality” on page 53
- “Creating RAID volumes” on page 53
- “Deleting RAID volumes” on page 54

---

## Supported RAID configurations

The following RAID configurations are supported on ThinkPad W700, W700ds, W701, and W701ds:

### **RAID Level 0 (RAID 0) – Striped disk array**

Better performance and no fault tolerance.

### **RAID Level 1 (RAID 1) – Mirrored disk array**

Improved read performance and 100% redundancy.

---

## Configuring the system BIOS to enable embedded SATA RAID functionality

To configure the BIOS for RAID, do as follows:

1. Press F1 to enter the BIOS Setup Utility menu.
2. Select **Config**.
3. Select **Serial ATA (SATA)**.
4. Select **SATA Controller Mode Option**
5. Select **RAID**
6. Press F10 to save the settings.

---

## Creating RAID volumes

This section describes how to use the Intel® Matrix Storage Manager option ROM Configuration Utility to create RAID volumes.

To create RAID volumes, do as follows:

1. Turn on the computer.

2. During the startup, when a prompt to press **Ctrl+I** to enter the Configuration Utility is displayed on the screen, press and hold the **Ctrl** key, and press the **I** key.
3. The screen for Intel Matrix Storage Manager option ROM is displayed. Select “Create RAID Volume” and press **Enter**.
4. Using the up and down arrow keys, Tab keys, and Enter key select the RAID level and fill in other fields.
5. Select “Create Volume” by pressing the **Enter** key. When the dialog box appears, press the **Y** key.

**Attention:** All existing data will be erased while the RAID volume is being created.

6. Exit the Configuration Utility.

---

## Deleting RAID volumes

This section describes how to use the Intel Matrix Storage Manager option ROM Configuration Utility to delete RAID volumes.

To delete RAID volumes, do as follows:

1. Turn on the computer.
2. During the startup, when a prompt to press **Ctrl+I** to enter the Configuration Utility is displayed on the screen, press and hold the **Ctrl** key, and press the **I** key.
3. The screen for Intel Matrix Storage Manager option ROM is displayed. Select the RAID volume to be deleted, and press **Delete**.
4. When prompted, press **Y** key to confirm the deletion of the selected RAID volume.
5. After deleting a RAID volume, you can:
  - Return to step 2 to delete additional RAID volume.
  - See “Creating RAID volumes” on page 53 for RAID volume creation.
  - Use the arrow keys to select **Exit** and press **Enter**.
  - Use the arrow keys to select **Resetting disks to non-RAID**, and press Enter.

**Attention:** If the Serial ATA item in the BIOS Setup Utility menu of the computer you are servicing was set to AHCI when it was manufactured, then to create a RAID array you must first enable RAID in BIOS, create RAID volume, and then reinstall the operating system. All data on the hard disks will be erased during this process. For more information, see “Creating RAID volumes” on page 53.

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## Chapter 6. Status indicators

This chapter presents the system status indicators that show the status of the computer.

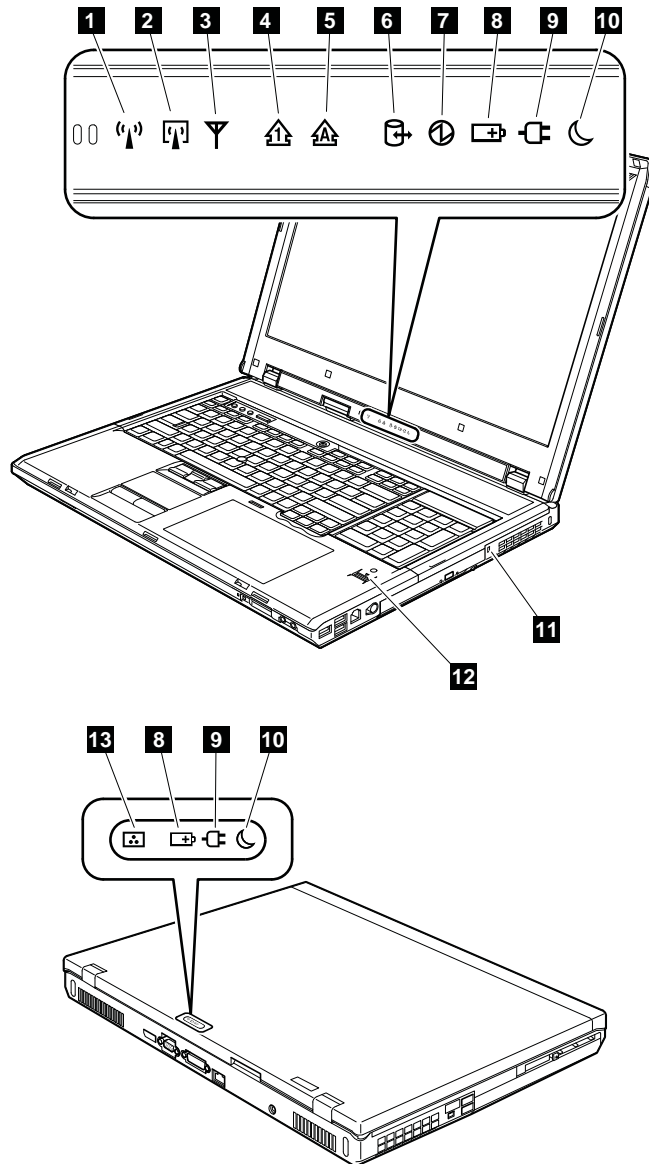


Table 7. Status indicators














Indicator	Meaning
<p><b>1</b> Wireless LAN status</p> 	<p>Green: The wireless feature (802.11 standard) is on, and the radio link is ready for use.</p> <p>Blinking green: Data is being transmitted.</p>
<p><b>2</b> Bluetooth wireless or Wireless USB status</p>  <p>or</p> 	<p>Green: The Bluetooth wireless feature or Wireless USB feature is on, and the radio link is ready for use.</p> <p>Blinking green: Data is being transmitted.</p>
<p><b>3</b> Wireless WiMAX status</p> 	<p>Green: The WiMAX feature is on, and the radio link is ready for use.</p> <p>Blinking green: Data is being transmitted.</p>
<p><b>4</b> Num lock</p> 	<p>Green: The numeric keypad on the keyboard is enabled. To enable or disable the keypad, press and hold the Shift key, and press the NumLk (ScrLk) key.</p>
<p><b>5</b> Caps lock</p> 	<p>Green: Caps Lock mode is enabled. To enable or disable Caps Lock mode, press the Caps Lock key.</p>
<p><b>6</b> Drive in use</p> 	<p>Green: Data is being read from or written to the hard disk drive, the diskette drive, or the drive in the Serial Ultrabay Enhanced device. When this indicator is on, do not put the computer into sleep (standby) mode or turn off the computer.</p> <p><b>Note:</b> Do not move the system while the green drive-in-use light is on. Sudden physical shock could cause drive errors.</p>
<p><b>7</b> Power on</p> 	<p>Green: The computer is on and ready to use. This indicator stays lit whenever the computer is on and is not in sleep (standby) mode.</p>
<p><b>8</b> Battery status</p> 	<p>Green: The battery is charged between 80% to 100% of the capacity, and being discharged between 0% to 80% of the capacity.</p> <p>Blinking green: The battery is charged between 20% to 80% of the capacity, and being charged.</p> <p>Orange: The battery is charged between 5% and 20% of the capacity, and being discharged.</p> <p>Blinking orange (slow): The battery is charged between 5% to 20% of the capacity, and being charged.</p> <p>Blinking orange (rapid): The battery is charged between 0% to 5% of the capacity.</p>

Table 7. Status indicators (continued)

Indicator	Meaning
<p><b>9</b> AC power status</p> 	<p>Green: The computer is connected to the ac power supply.</p>
<p><b>10</b> Sleep (standby) status</p> 	<p>Green: The computer is in sleep (standby) mode.</p> <p>Blinking green: The computer is entering sleep (standby) mode or hibernation mode, or is resuming normal operation.</p>
<p><b>11</b> Serial Ultrabay Enhanced status only for W700 and W700ds</p>	<p>Green: An Serial Ultrabay Enhanced device is installed and in use.</p> <p>Blinking green: An Serial Ultrabay Enhanced device is in the process of being detached.</p> <p>Turn off: An Serial Ultrabay Enhanced device is ready to be attached or detached.</p>
<p><b>12</b> Fingerprint reader status only for W701 and W701ds</p> 	<p>Green: The fingerprint reader is ready to swipe.</p> <p>Blinking green: The fingerprint is being authenticated or has been authenticated.</p> <p>Blinking amber: The fingerprint could not be authenticated.</p>
<p><b>13</b> Color sensor status</p> 	<p>Green: Calibration is complete. When the lid is opened, the indicator turns off.</p> <p>Blinking green: Display colors are being calibrated.</p>





## Chapter 7. Fn key combinations

The following table shows the function of each combination of Fn with a function key.

Table 8. Fn key combinations

Key combination	Description
Fn+F1	Reserved.
Fn+F2	Lock your computer.
Fn+F3	<p>Select a power plan (in Windows XP, power scheme) that has been created by Power Manager, or adjust the power level by using the slider control. When you press this combination, a panel for selecting a power plan (power scheme) appears.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>To use the Fn+F3 key combinations, you must have the ThinkPad PM device driver installed on the computer.</li> <li>If you have logged on with an administrator user ID, and you press Fn+F3, the panel for selecting a power plan (power scheme) appears. If you have logged on with another user ID, and you press Fn+F3, the panel does not appear.</li> <li>You cannot turn off the computer display by pressing Fn+F3.</li> </ul>
Fn+F4	<p>Put the computer in sleep (standby) mode. To return to normal operation, press the Fn key only, without pressing a function key.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>To use the Fn+F4 key combination, you must have the ThinkPad PM device driver installed on the computer.</li> <li>If you want to use the combination to put the computer into hibernation mode or do-nothing mode (in Windows XP, shut the computer down or show the panel for turning off the computer), change the settings in the Power Manager.</li> </ul>
Fn+F5	<p>Enable or disable the built-in wireless networking features. If you press Fn+F5, a list of wireless features is displayed. You can quickly change the power state of each feature in the list.</p> <p><b>Notes:</b> If you want to use Fn+F5 to enable or disable the wireless features, the following device drivers must be installed on the computer beforehand:</p> <ul style="list-style-type: none"> <li>Power Management driver</li> <li>OnScreen Display Utility</li> <li>Wireless device drivers</li> </ul>
Fn+F6	Reserved.
Fn+F7	<p>Apply a presentation scheme directly, with no need to start Presentation Director.</p> <p>To disable this function and use the Fn+F7 key combination for switching a display output location, start Presentation Director, and change the settings.</p> <p><b>Note:</b> If the computer is a Windows 7 model, it does not support presentation schemes, but the Fn+F7 combination is available for switching a display output location.</p> <p><b>For Windows 7:</b> Switch a display output location</p> <ul style="list-style-type: none"> <li>Computer display only (LCD)</li> <li>Computer display and external monitor (same image)</li> <li>Computer display and external monitor (extended desktop)</li> <li>External monitor only</li> </ul> <p><b>Note:</b> To switch between the computer display and an external monitor, the Win+P key combination is also available.</p>

Table 8. Fn key combinations (continued)

Key combination	Description
	<p><b>For Windows Vista and Windows XP:</b> Switch a display output location</p> <ul style="list-style-type: none"> <li>• External monitor (CRT display)</li> <li>• Computer display and external monitor (LCD + CRT display)</li> <li>• Computer display (LCD)</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• This function is not supported if different desktop images are displayed on the computer display and the external monitor (the Extend desktop function).</li> <li>• This function does not work while a DVD movie or a video clip is playing.</li> </ul> <p>To enable this function, start Presentation Director, and change the Fn+F7 settings.</p> <p><b>Note:</b> Multiple users can log on to a single operating system by using different user IDs. Each user needs to change the settings.</p>
Fn+F8	Change the settings of the UltraNav <sup>®</sup> pointing device.
Fn+F9	<p>Open the EasyEject Utility screen. Buttons for the following choices are displayed:</p> <ul style="list-style-type: none"> <li>• <b>Eject ThinkPad PC from Mini Dock:</b> This button is displayed only if the ThinkPad computer has been attached to a ThinkPad W700 Mini Dock. If you click this button, the computer is detached from the ThinkPad W700 Mini Dock.</li> <li>• <b>Run EasyEject Actions:</b> This button is used to select, stop, or remove external devices connected to the ThinkPad computer.</li> <li>• <b>Configure EasyEject Actions:</b> This button is used to open the EasyEject Utility main window.</li> <li>• <b>Fn+F9 Settings:</b> Configures the settings for the Fn+F9 function.</li> </ul> <p><b>Note:</b> If the computer is a Windows 7 model, it does not support the EasyEject Utility function.</p>
Fn+F10	Reserved.
Fn+F11	Reserved.
Fn+F12	<p>Put the computer into hibernation mode. To return to normal operation, press the power button for less than four seconds.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Though the screen fades out immediately after Fn+F12 are pressed, the computer does not enter the hibernation mode immediately. Do not move the system until the sleep (standby) status indicator stops blinking. Moving the computer when it is entering hibernation may cause corruption of the hard disk drive.</li> <li>• To use this combination of the keys, you must have the ThinkPad PM device driver installed on the computer.</li> </ul>
Fn+PgUp	<p>Turn the ThinkLight<sup>®</sup> on or off.</p> <p><b>Note:</b> This function is supported only on the ThinkPad computers that have the ThinkLight. The on or off status of the ThinkLight is shown on the screen for a few seconds when you press Fn+PgUp.</p>
Fn+Home	<p>The computer display becomes brighter.</p> <p>The purpose of this method is to change the brightness level temporarily. On Windows Vista the default brightness level is loaded after sleep (standby), hibernation, reboot, or detaching or attaching an ac adapter. To change the default brightness level, change the settings of the Power Option in the Control Panel or use the Power Manager.</p>

Table 8. Fn key combinations (continued)

Key combination	Description
Fn+End	The computer display becomes dimmer.  The purpose of this method is to change the brightness level temporarily. On Windows Vista, the default brightness level is loaded after sleep (standby), hibernation, reboot, or detaching or attaching an ac adapter. To change the default brightness level, change the settings of the Power Option in the Control Panel or use the Power Manager.
Fn+Spacebar	Enable the FullScreen Magnifier function.
Fn+PrtSc	Has the same function as the SysRq key.
Fn+ScrLk	Enable or disable the numeric keypad.
Fn+Pause	Has the same function as the Break key.
Fn+cursor keys	These key combinations work with Windows Media Player. They have the following functions: <ul style="list-style-type: none"> <li>• Fn+down arrow key: Play or Pause</li> <li>• Fn+up arrow key: Stop</li> <li>• Fn+right arrow key: Next Track</li> <li>• Fn+left arrow key: Previous Track</li> </ul>
Fn+NmLk (on the numeric keypad)	Enable or disable the calculator function.



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## Chapter 8. FRU replacement notices

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

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### Screw notices

Loose screws can cause a reliability problem. In the ThinkPad Notebook, 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.
- Each one should be used only once.

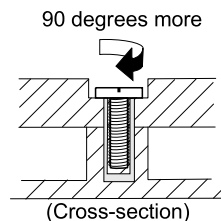
Do the following when you service this machine:

- Keep the screw kit (for the P/N, see “Miscellaneous parts” on page 195) in your tool bag.
- Always use new screws.
- Use a torque screwdriver if you have one.

Tighten screws as follows:

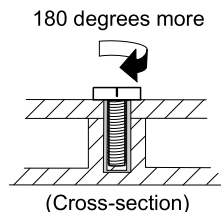
- **Plastic to plastic**

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:



- **Torque driver**

If you have a torque driver, refer to the “Torque” column for each step.

- Make sure that you use the correct screw. If you have a torque screwdriver, tighten all screws firmly to the torque shown in the table. **Never use a screw that you removed. Use a new one. Make sure that all of the screws are tightened firmly.**
- Ensure torque screw drivers are calibrated correctly following country specifications.

---

## Retaining serial numbers

This section includes the following descriptions:

- “Restoring the serial number of the system unit” on page 64
- “Retaining the UUID” on page 64
- “Reading or writing the ECA information” on page 65

## Restoring the serial number of the system unit

When the computer was manufactured, the EEPROM on the system board was loaded with the serial numbers of the system and all major components. These numbers need to remain the same throughout the life of the computer.

If you replace the system board, you must restore the serial number of the system unit to its original value.

Before replacing the system board, save the original serial number by doing the following:

1. Install the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later, and restart the computer.
2. From the main menu, select **1. Set System Identification**.
3. Select **2. Read S/N data from EEPROM**.

The serial number of each device in your computer is displayed; the serial number of the system unit is listed as follows:

- 20: Serial number

Write down that number.

**Note:** The serial number of the system unit is also written on the label attached to the bottom of the computer.

After you have replaced the system board, restore the serial number by doing the following:

1. Install the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later and restart the computer.
2. From the main menu, select **1. Set System Identification**.
3. Select **1. Add S/N data from EEPROM**. Follow the instructions on the screen.

If the MTM and Product ID numbers differ from each other on the rear label, use what is shown for the Product ID field. See example below:

**MTM on rear label:**

TTTT-CTO S/N SSSSSSS

**Product ID on rear label:**

TTTT-MMM (Use this number when setting Serial Number)

In the example, the Serial Number to be input is '1STTTTMMMSSSSSSS'.

## Retaining the UUID

The Universally Unique Identifier (UUID) is a 128-bit number uniquely assigned to your computer at production and stored in the EEPROM of your system board. The algorithm that generates the number is designed to provide unique IDs until the year A.D. 3400. No two computers in the world have the same number.

When you replace the system board, you must set the UUID on the new system board as follows:

1. Install the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later, and restart the computer.
2. From the main menu, select **4. Assign UUID**. A new UUID is created and written. If a valid UUID already exists, it is not overwritten.

## Reading or writing the ECA information

Information on Engineering Change Announcements (ECA) are stored in the EEPROM of the system board. The electronic storage of this information simplifies the procedure to check if the ECA has been previously applied to a machine. The machine does not need to be disassembled to check for the ECA application.

To check what ECAs have been previously applied to the machine, use the ECA Information Read/Write function on the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later.

1. Insert the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later, and restart the computer.
2. From the main menu, select **6. Set ECA Information**.
3. To read ECA information, select **2. Read ECA/rework number from EEPROM** and follow the instruction.
4. To read box build date, select **5. Read box build date from EEPROM**, and follow the instruction on the screen.

After an ECA has been applied to the machine, the EEPROM must be updated to reflect the ECA's application. Use the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later to update the EEPROM.

**Note:** Only the ECA number is stored in the EEPROM. The machine type of the ECA is assumed be the same as the machine type of the machine that had the ECA applied to it.

1. Insert the LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later, and restart the computer.
2. From the main menu, select **6. Set ECA Information**.
3. To write ECA information, select **1. Write ECA/rework number from EEPROM**, and follow the instruction.
4. To write box build date, select **4. Write box build date from EEPROM**, and follow the instruction on the screen.

If the system board is being replaced, try to read the ECA information from the old system board and transfer the information to the new system. If the system board is inoperable, this will not be possible.





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## Chapter 9. Removing and replacing a FRU

This chapter presents directions and drawings for use in removing and replacing a FRU. Be sure to observe the following general rules:

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 the failing FRU. Any such FRUs are listed at the top of the page. Remove them in the order in which they are listed.
4. Follow the correct sequence in the steps for removing the FRU, as given in the drawings by the numbers in square callouts.
5. When turning a screw to replace a FRU, turn it in the direction as given by the arrow in the drawing.
6. When removing the FRU, move it in the direction as given by the arrow in the drawing.
7. To put the new FRU in place, reverse the removal procedure and follow any notes that pertain to replacement. For information about connecting and arranging internal cables, see Chapter 10 “Locations” on page 153.
8. When replacing a FRU, use the correct screw as shown in the procedures.



**Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, 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. Before touching it, establish personal grounding by touching a ground point with one hand or by using an electrostatic discharge (ESD) strap (P/N 6405959).

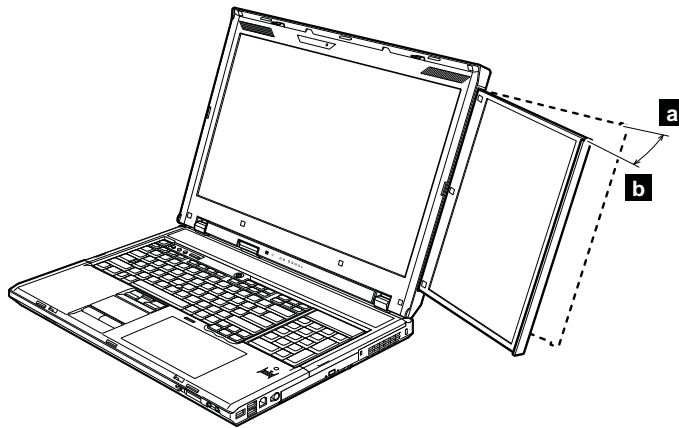
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### Important notice for servicing ThinkPad W700ds and W701ds

The computer display is designed to be opened and used at an angle slightly greater than 90 degrees. Do not open the main display beyond 150 degrees. To do so might damage the computer hinge.

#### Tips on using the dual screen model:

- The second screen is designed to be opened at an angle of 0 (a) to 30 (b) degrees to the main display. Do not open it to an angle of more than 30 degrees. To do so might damage it.



- To store the second screen in its slot, press the screen inside till it stops. Take your hand away and make sure that the screen is firmly locked in the slot. Unless you do this, the second screen might accidentally slide out.

**Note:** Before storing the second screen, place the screen at position of 0 degree.

- When you store the second screen in its slot, beware of letting your fingers or nails be caught in the opening.
- Before moving your computer, be sure to store the second screen in its slot. Do not carry the computer while the second screen is extended. To do so might cause the second screen to move accidentally or to be damaged.
- Do not open or close the computer display or change the opening angle by holding the second screen only. To do so might damage the second screen.
- Do not pick up or move the computer by holding the second screen only. To do so might cause the second screen to move or to be damaged.
- Do not hold the computer with the right side down and apply shock to it. To do so might cause the second screen to slide out accidentally.

#### **Considerations for using the second screen:**

- When the second screen is extended, you cannot use an external monitor. If an external monitor has been attached and is in use, and you extend the second screen, the external monitor will turn off automatically. To use it, slide the second screen back in its slot.
- When the second screen is extended, you cannot switch a display output location by use of Presentation Director. To use this function, slide the second screen back in its slot.
- DirectX applications may not work properly on the second screen.
- DVD playback and Blu-ray playback don't work with WinDVD on the second screen.
- When the second screen is extended, the main display and the second screen work in the Extend desktop mode, but not single mode or clone mode.

---

## **1010 Battery pack**

### **Important notice for replacing a battery pack:**

ThinkVantage Toolbox (in Windows 7) and Lenovo System Toolbox (in Windows Vista and Windows XP) have an automatic battery diagnostic that determines if the battery pack is defective. A battery pack FRU should not be replaced unless this diagnostic shows that the battery is defective.

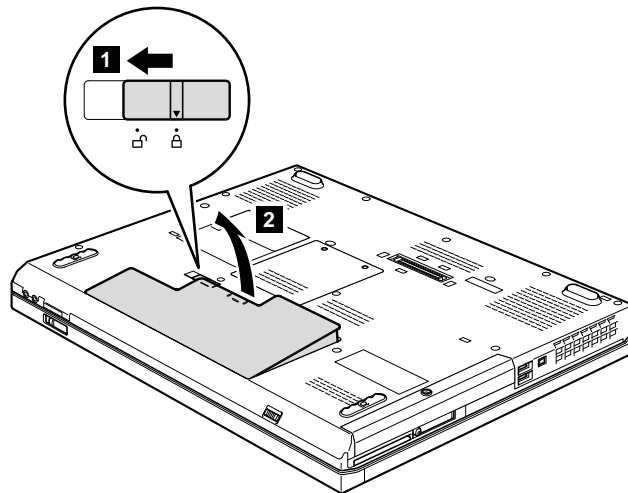
The only exception to this is if the battery pack is physically damaged or a customer is reporting a possible safety issue.

If ThinkVantage Toolbox or Lenovo System Toolbox is not installed in the computer, the customer should download this program before a non-physically damaged battery pack is replaced. Note that a physically damaged battery pack is non-warranty replacement.



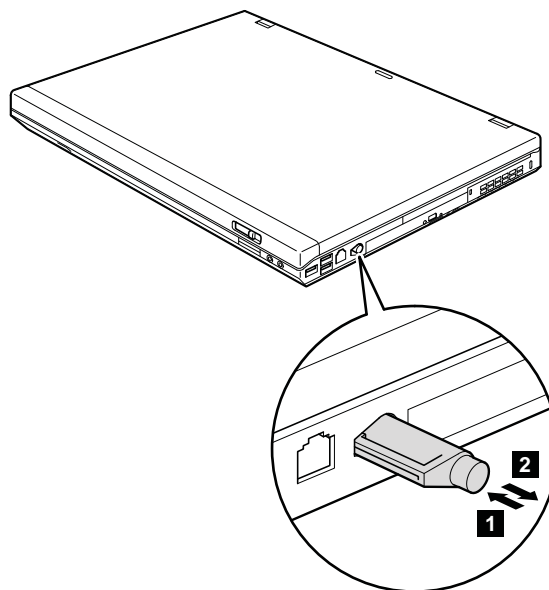
**Use only the battery specified in the parts list for your computer. Any other battery could ignite or explode.**

Table 9. Removal steps of battery pack



## 1020 Digitizer pen

Table 10. Removal steps of digitizer pen



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## 1030 Serial Ultrabay Enhanced device

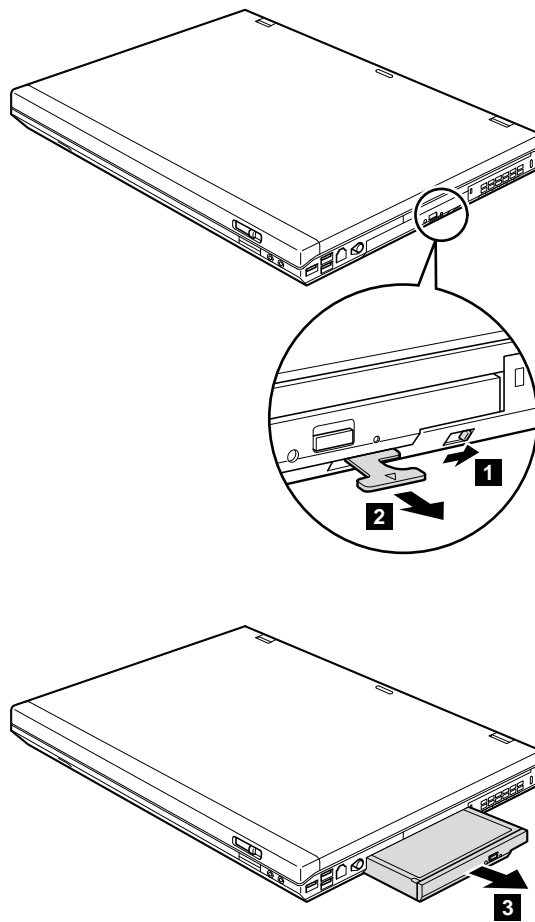
### Notes:

You can install either a Serial Ultrabay Enhanced device or a Serial Ultrabay Slim device in the Serial Ultrabay Enhanced bay. The Serial Ultrabay Enhanced bay does not accept any of the following devices:

- Ultrabay Plus™ devices
- Ultrabay 2000™ devices
- Ultrabay Enhanced devices
- Ultrabay Slim devices
- Ultrabay devices

Table 11. Removal steps of Serial Ultrabay Enhanced device

When you release the switch in step **1**, the lever pops out. In step **2**, pull the lever a little to release the device from the bay.



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## 1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter

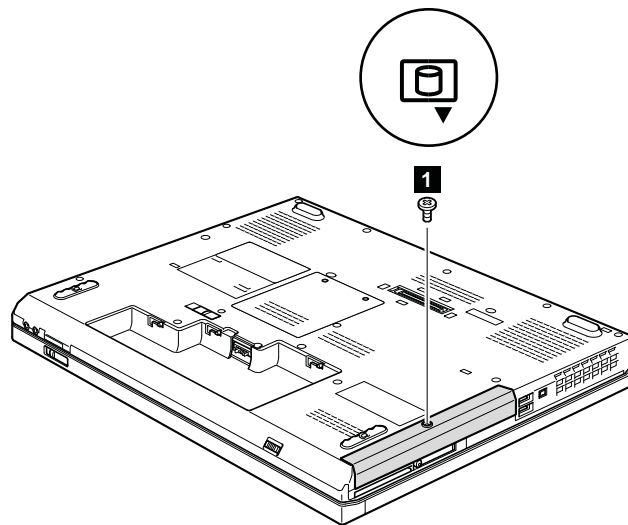
For access, remove this FRU:

- “1010 Battery pack” on page 68

### Important:

- **Do not drop the hard disk drive or apply any physical shock to it.** The hard disk 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 is in suspend mode.
- When replacing a hard disk drive in a RAID configured array, depending on which type of array is used, rebuilding the RAID array might be required. For more information, see Chapter 5 “Installing and configuring RAID” on page 53
- In this product, RAID is not enabled by default.
- When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU no.s both in HDD slot 0 and in slot 1.
- Good or non-failing drives have to be in HDD slot 0 if you have RAID 1.

Table 12. Removal steps of HDD cover, HDD and HDD rubber rails or SSD and storage converter



Step	Screw (quantity)	Color	Torque
<b>1</b>	M3 × 3 mm, wafer-head, nylon-coated (1)	Black	0.392 Nm (4 kgfcm)

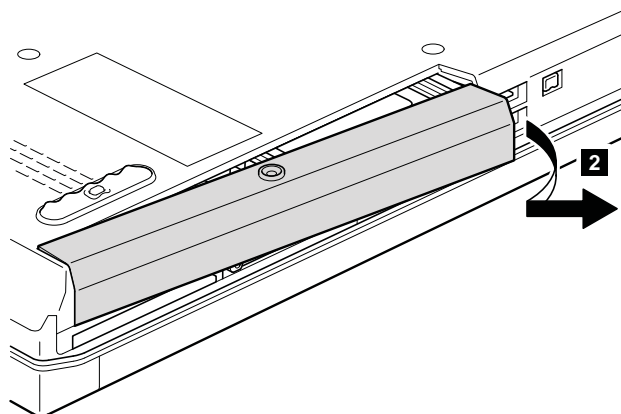
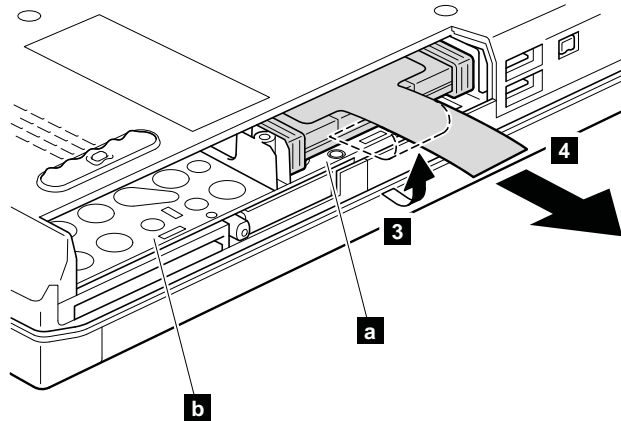


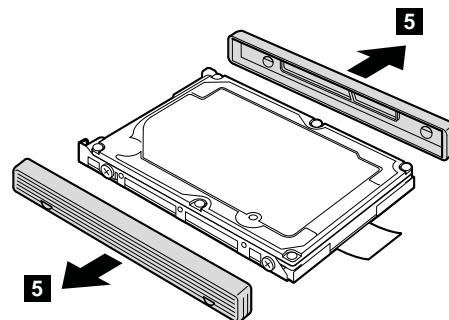
Table 12. Removal steps of HDD cover, HDD and HDD rubber rails or SSD and storage converter (continued)

**Note:** Mounted number of the hard disk drive depends on the models. In models with RAID features, two hard disk drives that have same FRU no. must be used in slot 0 (a) and in slot 1 (b).



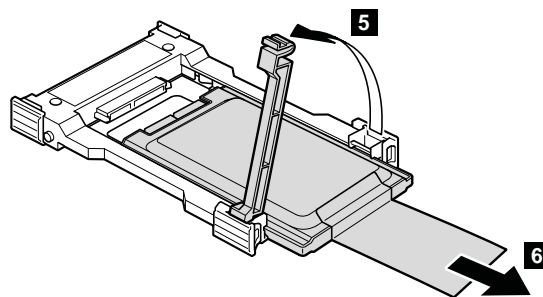
**When installing:** Make sure that the HDD connector or SSD connector is attached firmly.

**HDD and HDD rubber rails:**



**When installing:** The rubber rails on the hard disk drive must be attached to the replacement drive. Otherwise the drive cannot be installed properly.

**SSD and storage converter:**



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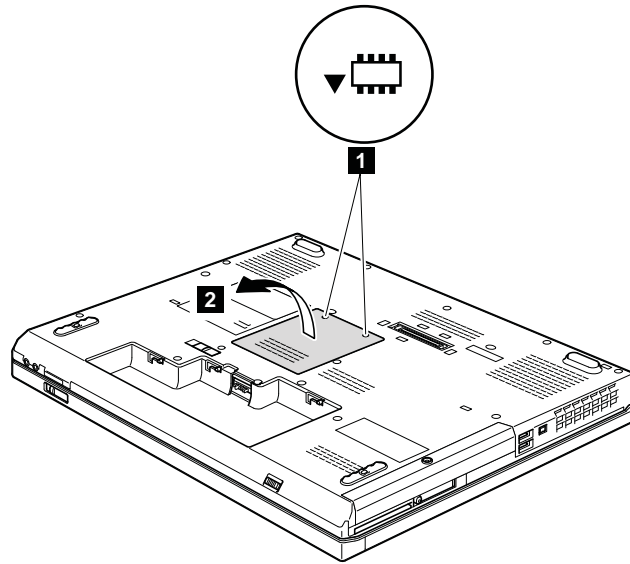
## 1050 DIMM slot cover and DIMM

For access, remove this FRU:

- “1010 Battery pack” on page 68

Table 13. Removal steps of DIMM slot cover and DIMM

**Note:** Loosen the screws **1**, but do not remove them.



For ThinkPad W700 and W700ds:

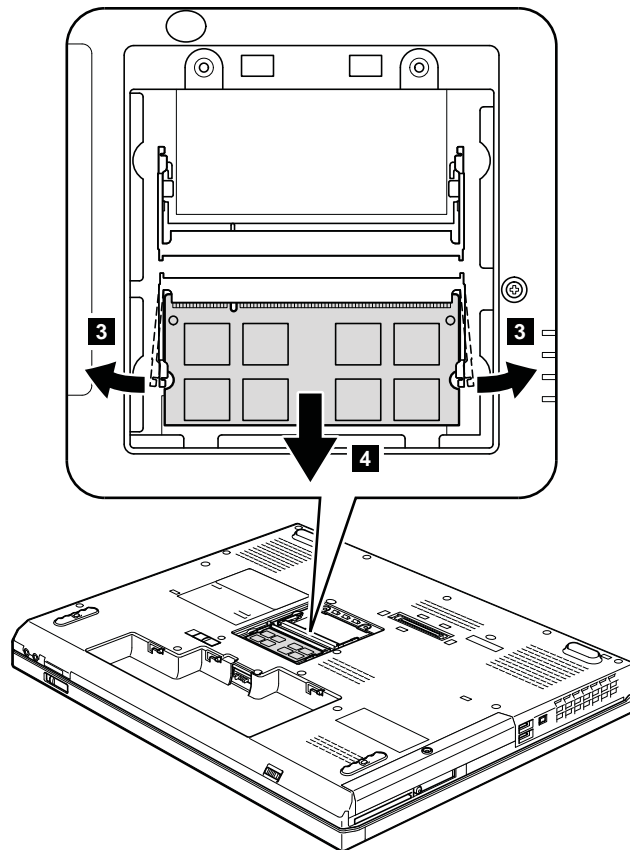
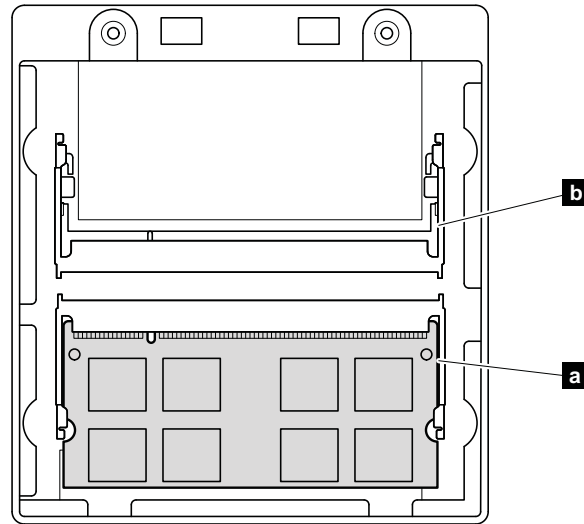


Table 13. Removal steps of DIMM slot cover and DIMM (continued)

**Note:** If only one DIMM is used on the computer you are servicing, the card must be installed in SLOT-0 (a), but not in SLOT-1 (b).



**When installing:** Insert the notched end of the DIMM into the socket. Press the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and does not move easily.

**For ThinkPad W701 and W701ds:**

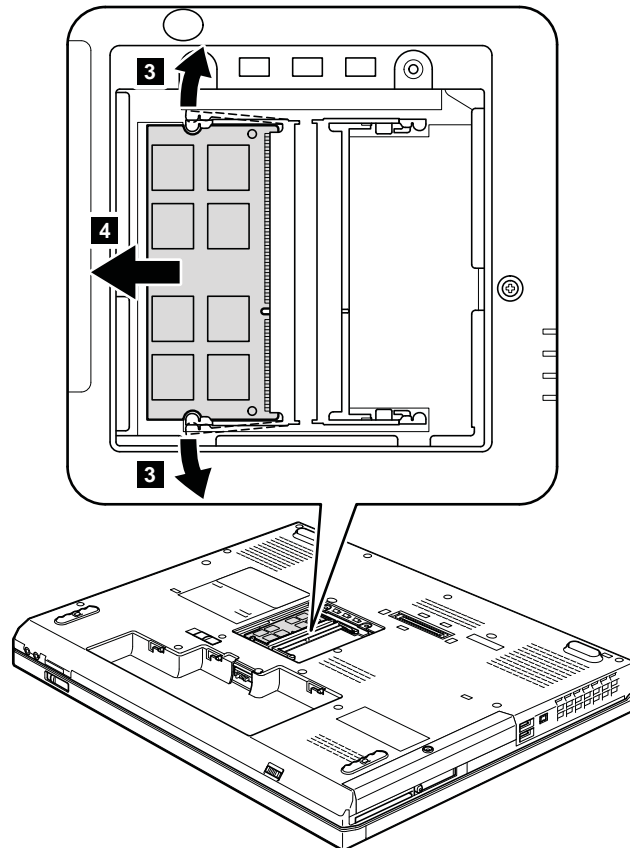




Table 13. Removal steps of DIMM slot cover and DIMM (continued)

**When installing:** Insert the notched end of the DIMM into the socket. Press the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and does not move easily.

**Note:** If only one DIMM is used on the computer you are servicing, the card must be installed in the lower slot of the slots under the keyboard. See “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86.

## 1060 Palm rest or palm rest with fingerprint reader

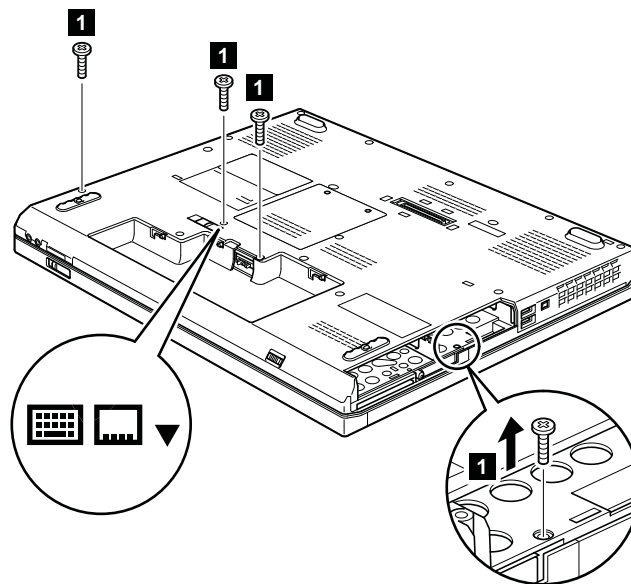
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70

**Note:**

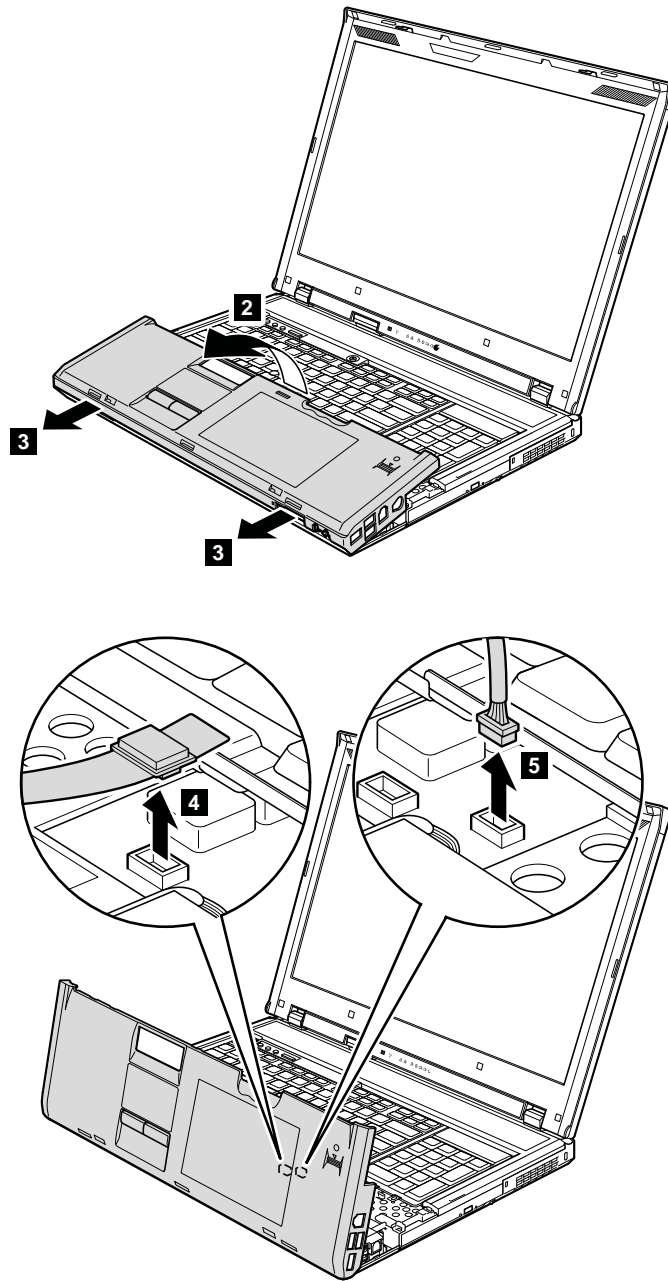
In models with the fingerprint reader, the sensor is attached to the palm rest FRU. If the fingerprint reader has any defects, you can replace it by the procedures given in this section, which are the same for a palm rest with or without a fingerprint reader.

Table 14. Removal steps of palm rest



Step	Icon	Screw (quantity)	Color	Torque
1		M2.5 × 9 mm, wafer-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)

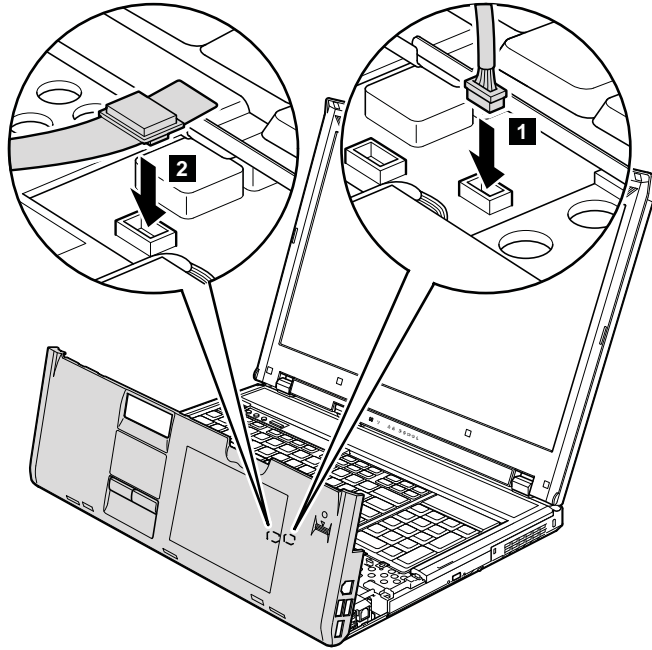
Table 14. Removal steps of palm rest (continued)



**When installing:** When you attach the palm rest, do as follows:

Table 15. Installation of the palm rest

1. Attach the color sensor connector **1** and the fingerprint reader connector **2** firmly to the system board. Some models have only the fingerprint reader connector.



2. Attach the palm rest as shown in this figure.

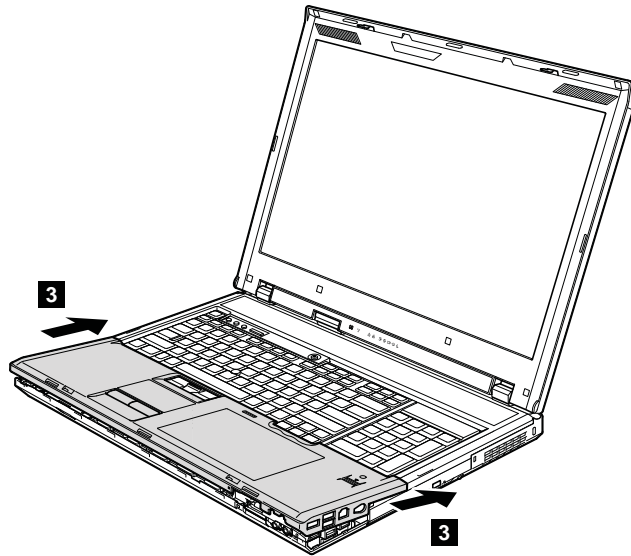
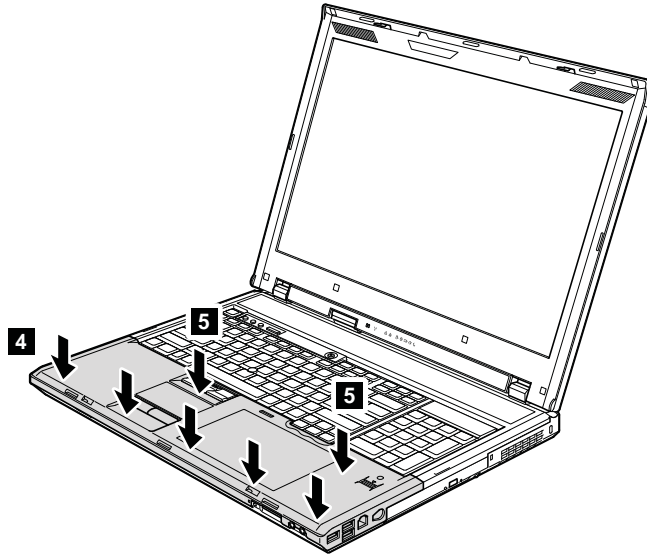


Table 15. Installation of the palm rest (continued)

3. Push the front side of the palm rest **4** and the areas marked **5** until it clicks into place.



4. Close the LCD cover and turn the computer over. Then fasten the four screws to secure the palm rest.

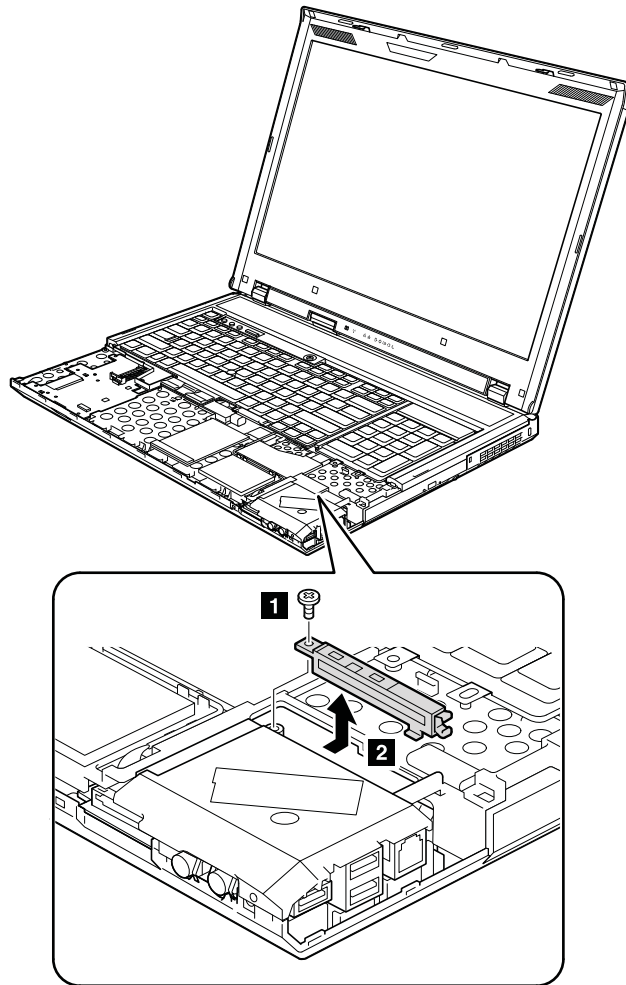
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## 1070 Digitizer pen case assembly

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1020 Digitizer pen” on page 69
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75

Table 16. Removal steps of digitizer pen case assembly



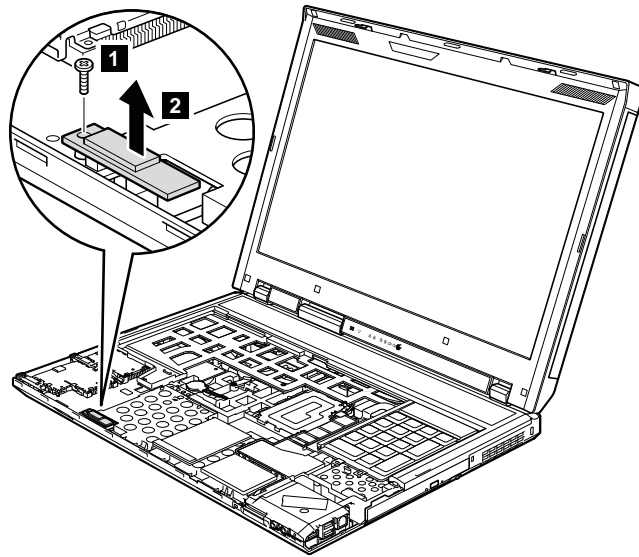
Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

## 1080 *Bluetooth* daughter card (BDC-2.1) for W701 and W701ds

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75

Table 17. Removal steps of BDC-2.1 for W701 and W701ds



Step	Screw (quantity)	Color	Torque
1	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

**When installing:** Make sure that connector is attached firmly.

## 1090 Keyboard

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75

Table 18. Removal steps of keyboard

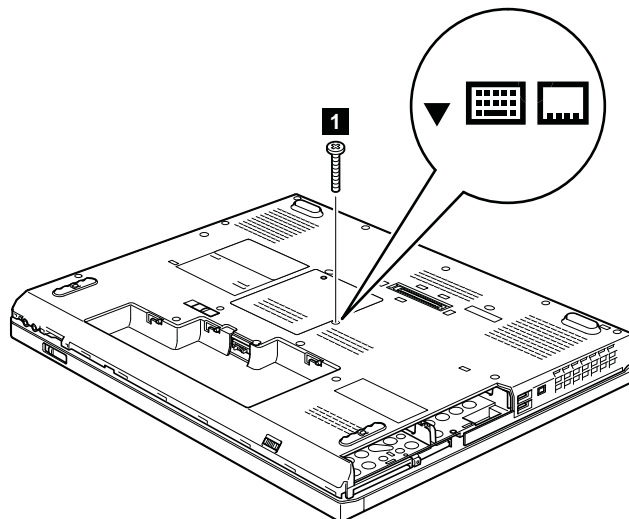

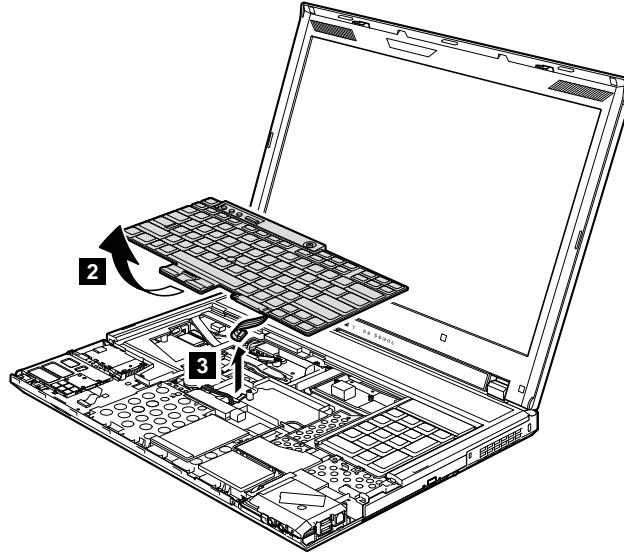


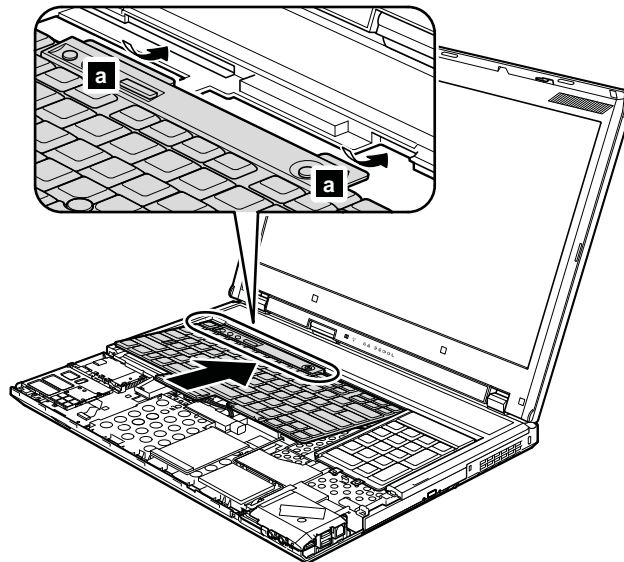
Table 18. Removal steps of keyboard (continued)

Step	Icon	Screw (quantity)	Color	Torque
<b>1</b>		M2 × 17 mm, wafer-head, nylon-coated (1)	Black	0.181 Nm (1.85 kgfcm)

Lift the keyboard a little in the direction shown by arrow **2**, and then detach the connector **3**.



**When installing:** Make sure that the keyboard edges **a** are under the frame as shown in this figure.



## 1100 Backup battery



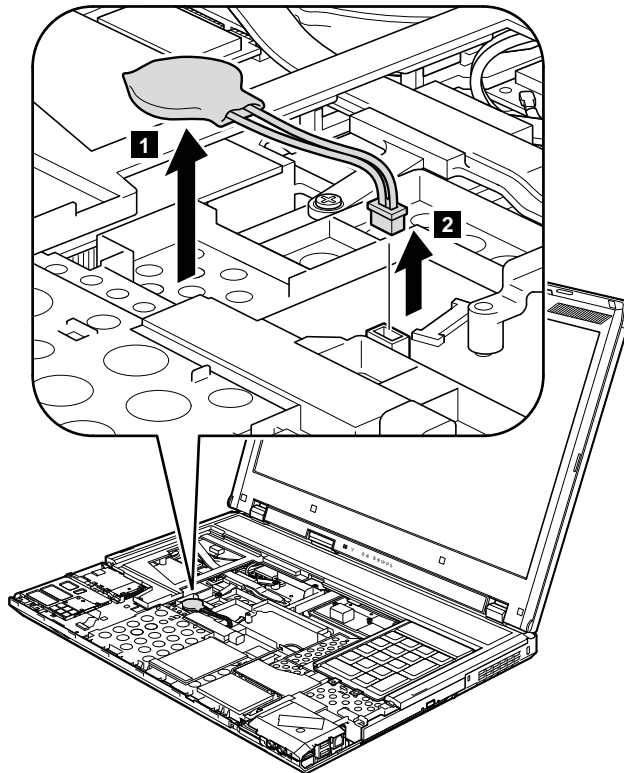
**Use only the battery specified in the parts list for your computer. Any other battery could ignite or explode.**

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80

*Table 19. Removal steps of backup battery*

**For ThinkPad W700 and W700ds:**

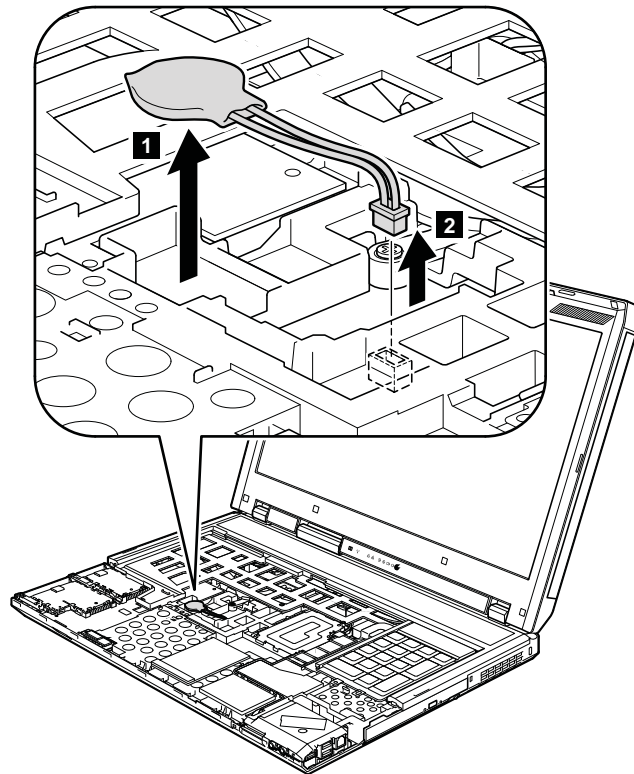


**When installing:** Make sure that the battery connector is attached firmly.



Table 19. Removal steps of backup battery (continued)

For ThinkPad W701 and W701ds:



**When installing:** Make sure that the battery connector is attached firmly.

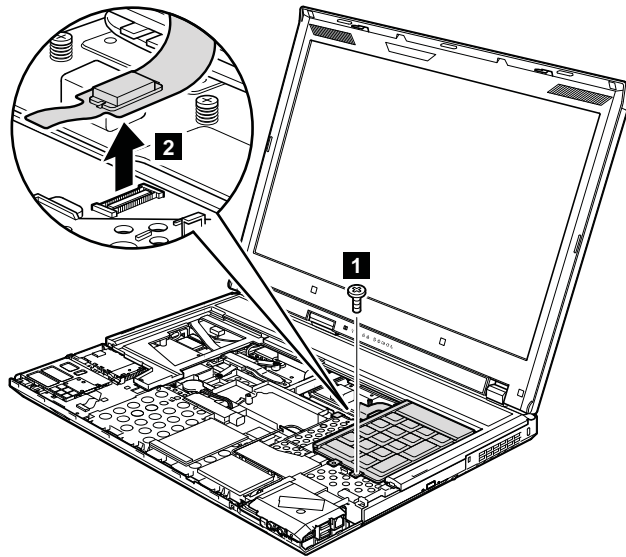
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## 1110 Numeric keypad

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80

Table 20. Removal steps of numeric keypad



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

Slide the keypad a little in the direction shown by arrow **3**.

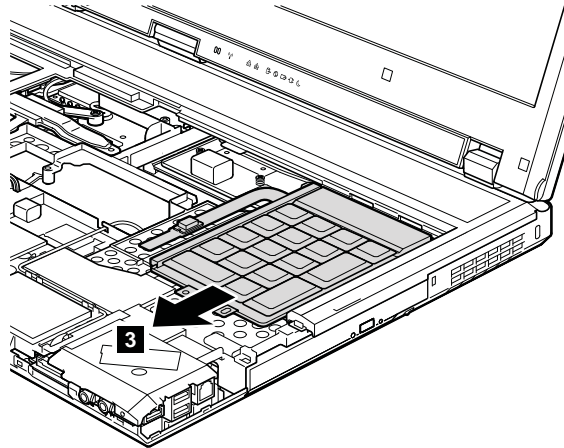
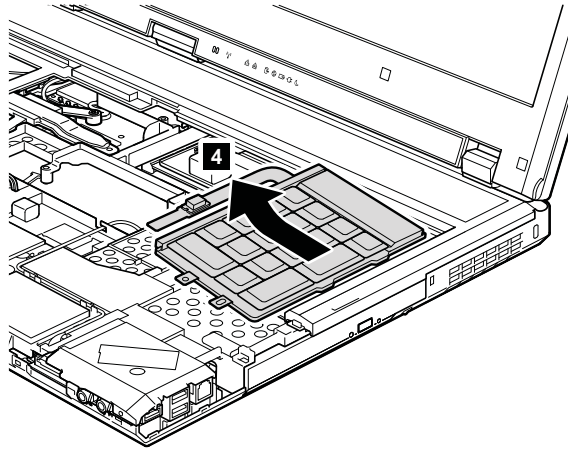


Table 20. Removal steps of numeric keypad (continued)



**When installing:** Make sure that the keypad edges **1** are under the frame as shown in this figure.

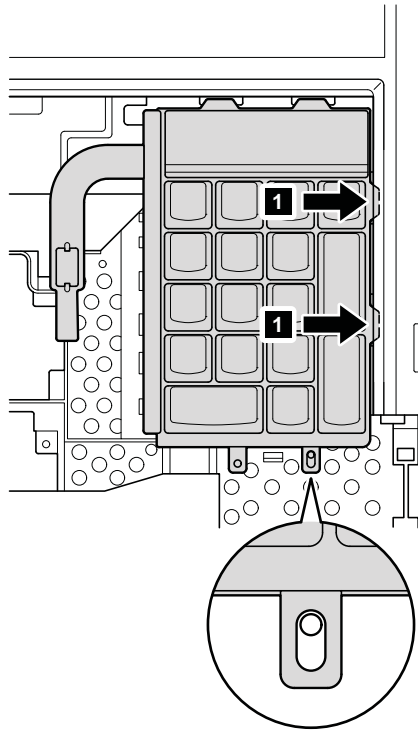
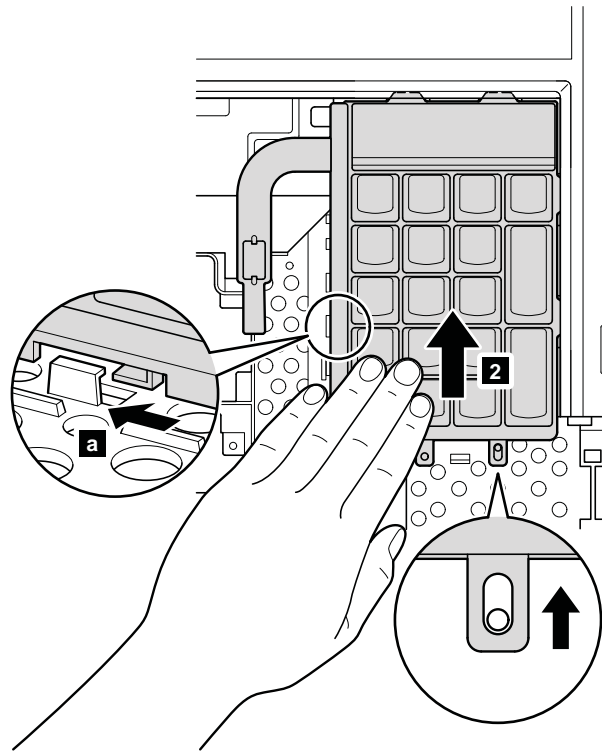
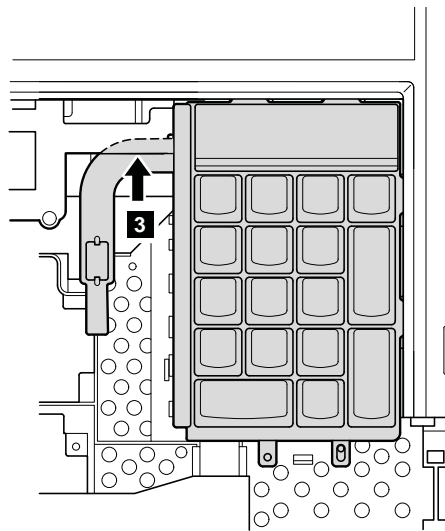


Table 20. Removal steps of numeric keypad (continued)



**Note:** For ThinkPad W701 and W701ds, make sure that the cable **3** is under the frame as shown in this figure.



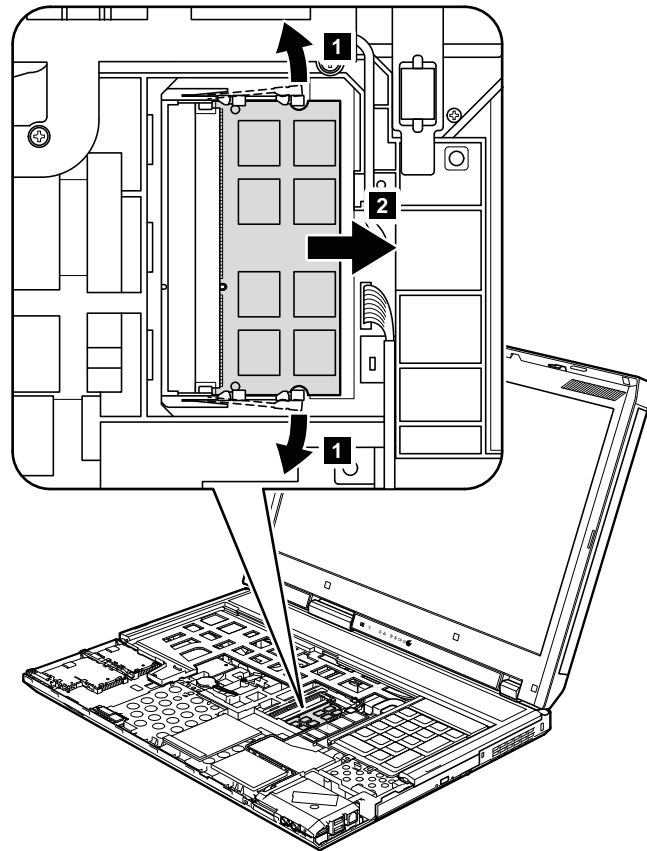
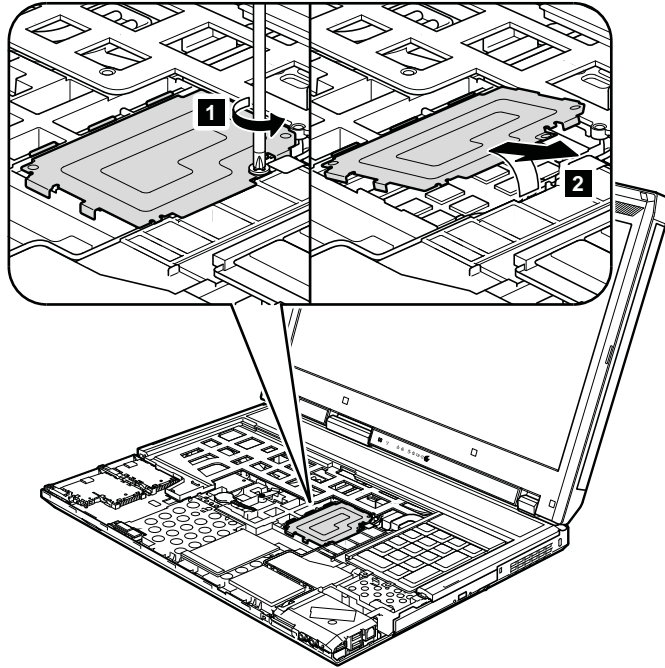
## 1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds

For access, remove this FRU:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80

Table 21. Removal steps of DIMM slot cover and DIMM under keyboard

**Note:** Loosen the screw **1**, but do not remove it.



**Note:**

If only one DIMM is used on the computer you are servicing, the card must be installed in the lower slot.

Table 21. Removal steps of DIMM slot cover and DIMM under keyboard (continued)

**When installing:** Insert the notched end of the DIMM into the socket. Press the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and does not move easily.

## 1130 Keyboard bezel and speaker assembly

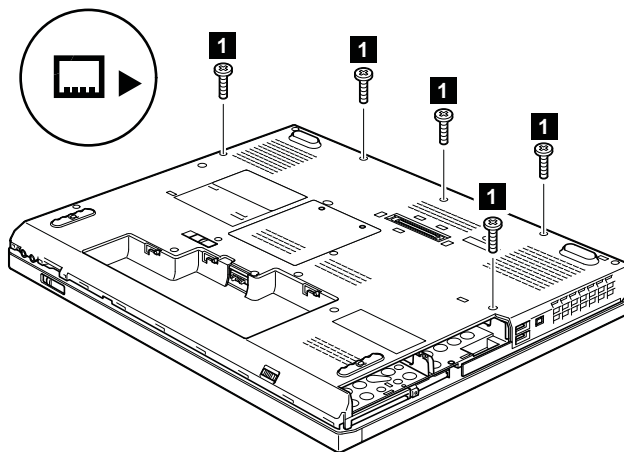
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86

**Note:** Speaker assembly is attached to the keyboard bezel.

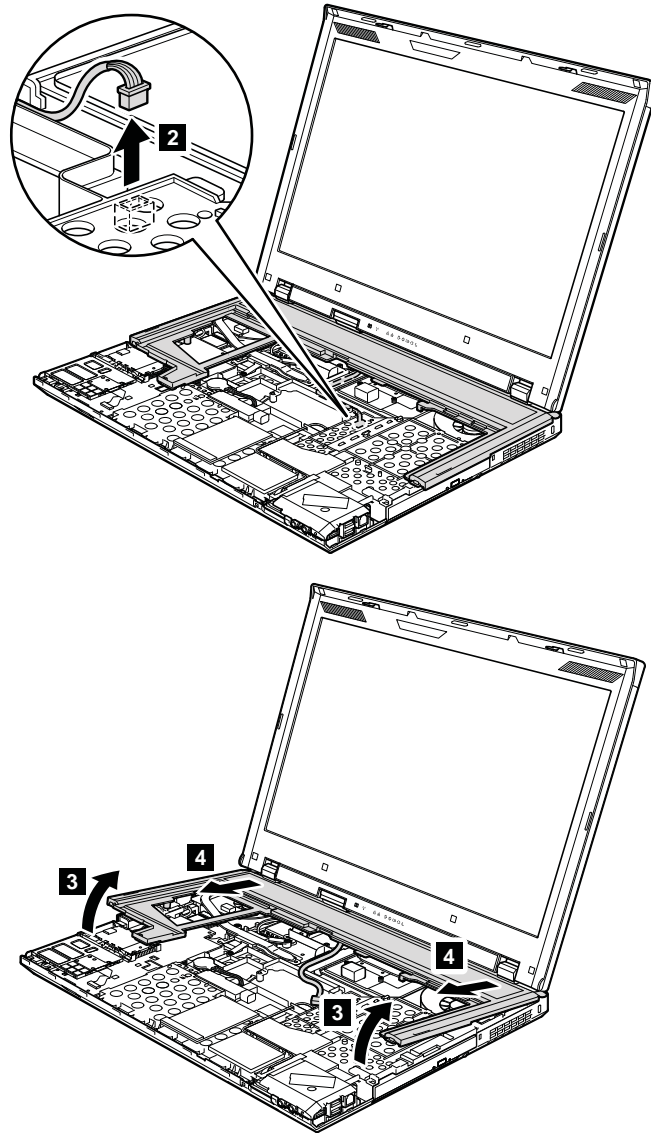
Table 22. Removal steps of keyboard bezel for W700 and W700ds

**For ThinkPad W700 and W700ds:**



Step	Screw (quantity)	Color	Torque
1	M2.5 × 9 mm, wafer-head, nylon-coated (5)	Black	0.392 Nm (4 kgfcm)

Table 22. Removal steps of keyboard bezel for W700 and W700ds (continued)



**When installing:** Make sure that all the claws are attached firmly.

**When installing:** Make sure that the connector cable is routed as shown in this figure.

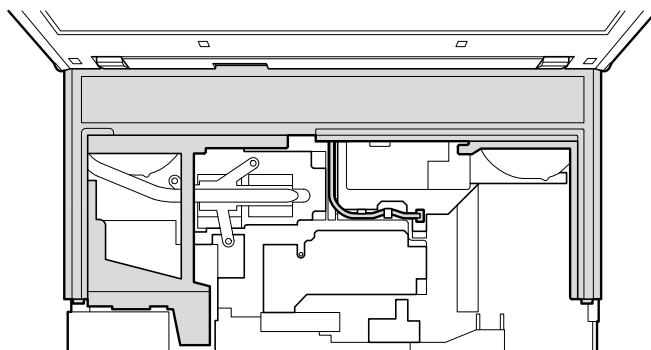
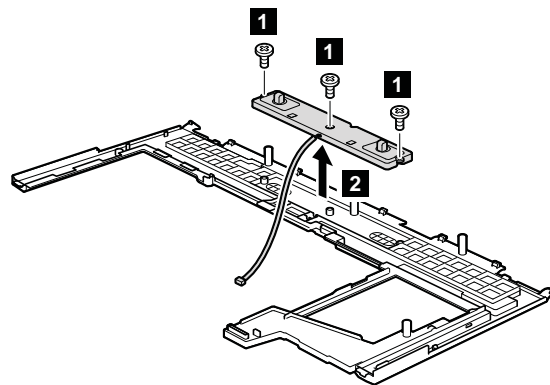


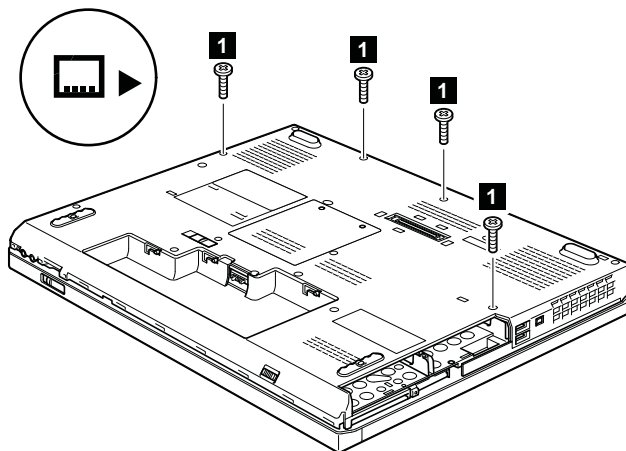
Table 23. Removal steps of speaker assembly for W700 and W700ds



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, small-head, nylon-coated (3)	Silver	0.181 Nm (1.85 kgfcm)

Table 24. Removal steps of keyboard bezel for W701 and W701ds

For ThinkPad W701 and W701ds:



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2.5 × 9 mm, wafer-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)



Table 24. Removal steps of keyboard bezel for W701 and W701ds (continued)

**Note:** Loosen the screws **2**, but do not remove them.

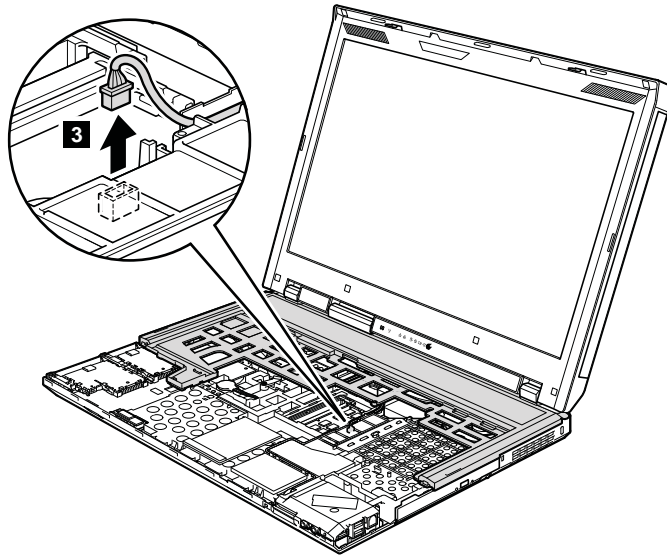
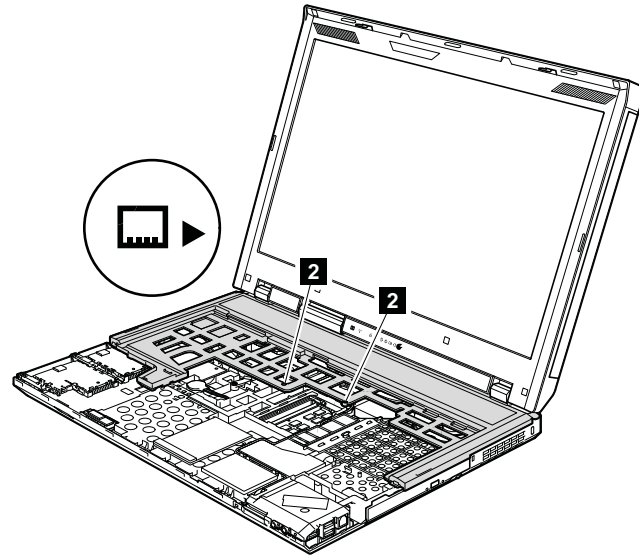
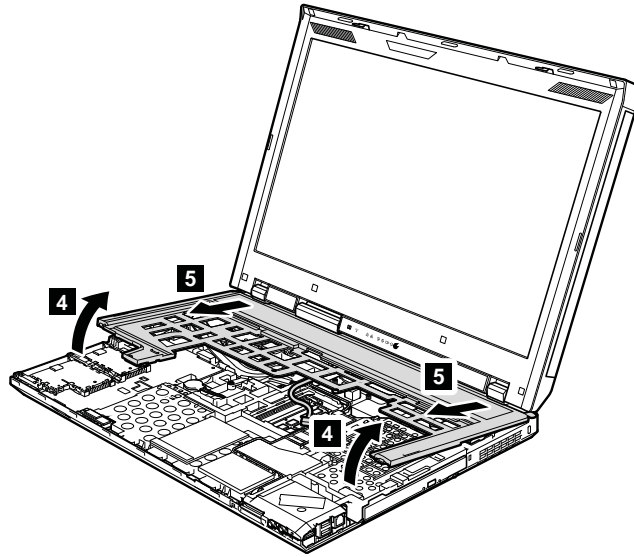


Table 24. Removal steps of keyboard bezel for W701 and W701ds (continued)



**When installing:** Make sure that all the claws are attached firmly.

**When installing:** Make sure that the connector cable is routed as shown in this figure.

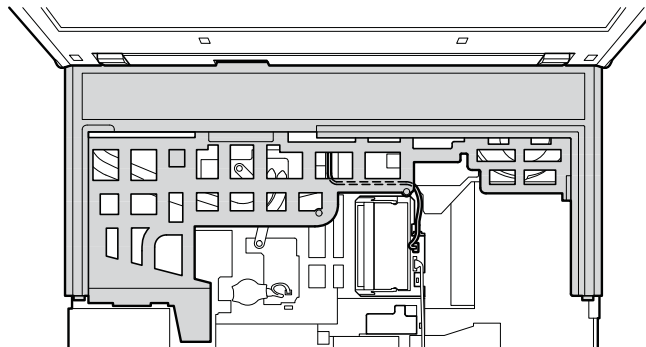
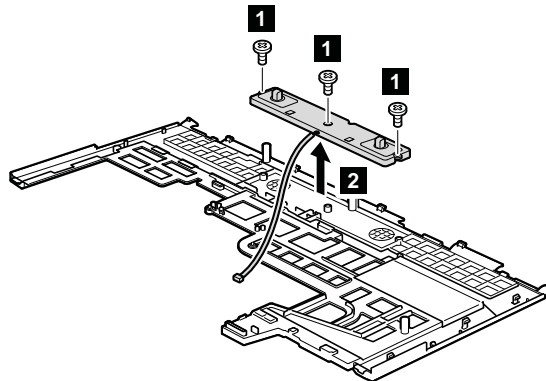


Table 25. Removal steps of speaker assembly for W701 and W701ds



Step	Screw (quantity)	Color	Torque
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Table 25. Removal steps of speaker assembly for W701 and W701ds (continued)

<b>1</b>	M2 × 3.5 mm, small-head, nylon-coated (3)	Silver	0.181 Nm (1.85 kgfcm)
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## 1140 Wireless USB adapter or Intel Turbo Memory Minicard

**Note:** If the Intel Turbo Memory Minicard is installed in the half-size PCI Express Mini Card slot as shown in “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93, go to “1160 Intel Turbo Memory Minicard” on page 97 and install it in the full-size PCI Express Mini Card slot.

In this case, you also need FRUs listed in the following table.

FRU	FRU no.
System miscellaneous parts: <ul style="list-style-type: none"> <li>MiniPCI Express half card extending bracket</li> </ul>	43Y9788
Screw kit	45N6044

For access, remove these FRUs in order:

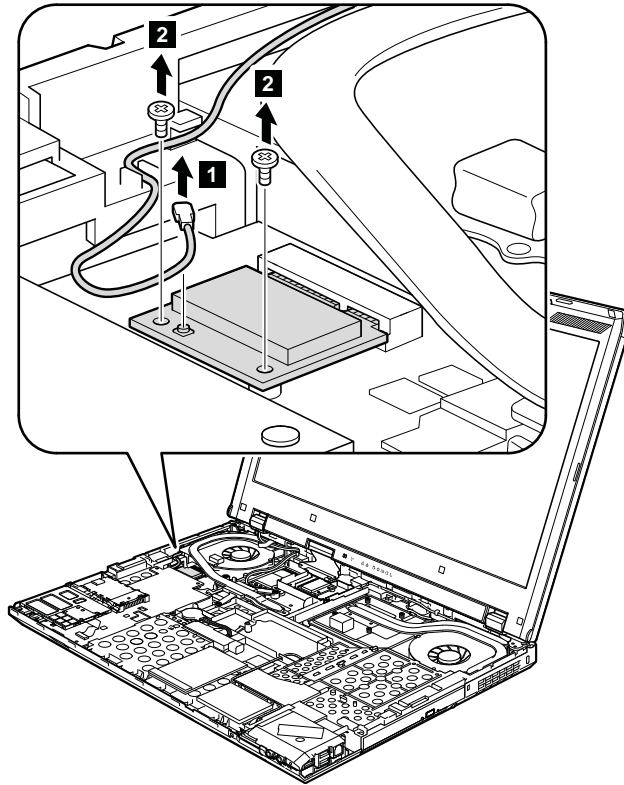
- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88

**Note:** Some models do not have the wireless USB antenna cable.

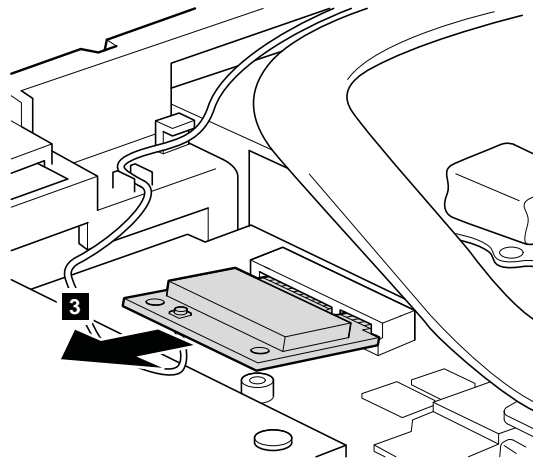
Table 26. Removal steps of Wireless USB adapter or Intel Turbo Memory Minicard

**Note:** Step **1** is only for models with the Wireless USB adapter. For models with the Intel Turbo Memory Minicard, skip step **1**.

Table 26. Removal steps of Wireless USB adapter or Intel Turbo Memory Minicard (continued)



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2 × 3 mm, thin-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)



## 1150 PCI Express Mini Card for wireless LAN/WiMAX

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70

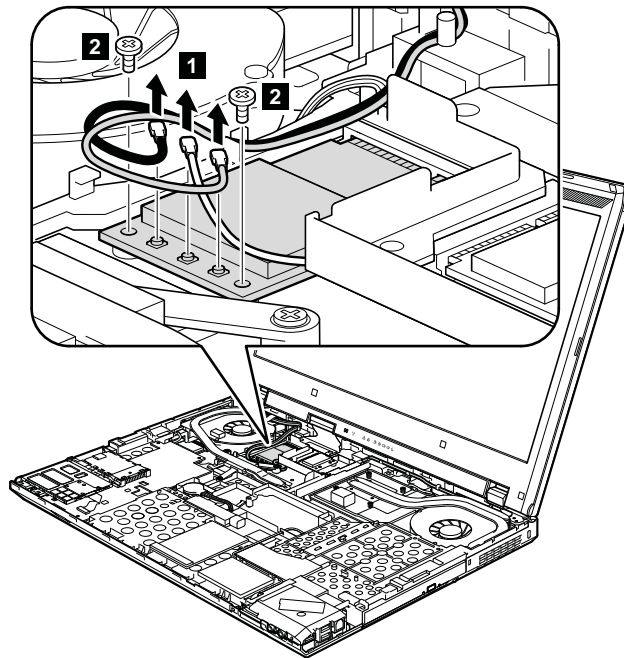
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88

Table 27. Removal steps of PCI Express Mini Card for wireless LAN/WiMAX for W700 and W700ds

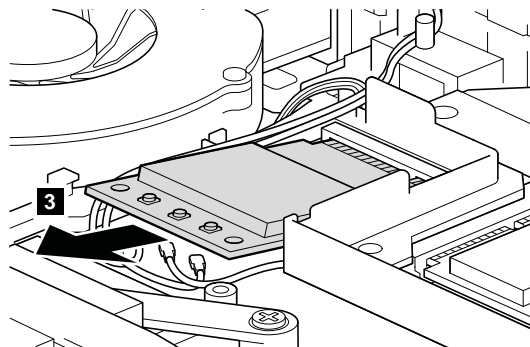
**For ThinkPad W700 and W700ds:**

In step **1**, unplug the jacks by using the removal tool antenna RF connector (P/N: 08K7159) or pick the connectors with your fingers and gently unplug them in direction of the arrow.

**Note:** Some models might have only two antenna cables in step **1**. This slot also accepts a PCI Express Half Mini Card.



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2 × 3 mm, thin-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)



**When installing:**

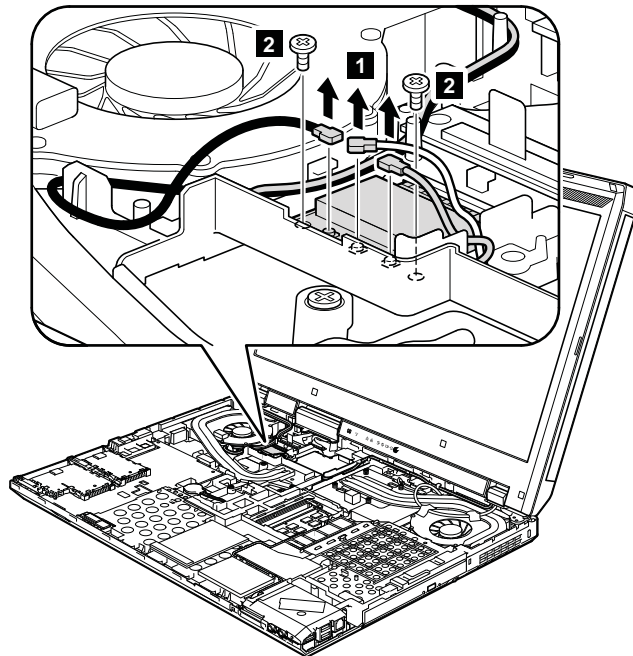
Table 27. Removal steps of PCI Express Mini Card for wireless LAN/WiMAX for W700 and W700ds (continued)

- In models with wireless LAN card that has two antenna connectors, plug the gray cable into the jack labeled **MAIN**, and the black cable into the jack labeled **AUX** on the card. If the computer you are servicing has three cables, put the white cable in the cable holder and place it under the card.
- In models with wireless LAN card that has three antenna connectors, plug the gray cable (MAIN) into the jack labeled **TR1**, the white cable (3rd) into jack labeled **TR3**, and the black cable (AUX) into jack labeled **TR2** on the card.

Table 28. Removal steps of PCI Express Mini Card for wireless LAN/WiMAX for ThinkPad W701 and W701ds

**For ThinkPad W701 and W701ds:**

In step **1**, unplug the jacks by using the removal tool antenna RF connector (P/N: 08K7159) or pick the connectors with your fingers and gently unplug them in direction of the arrow.



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2 × 3 mm, thin-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)

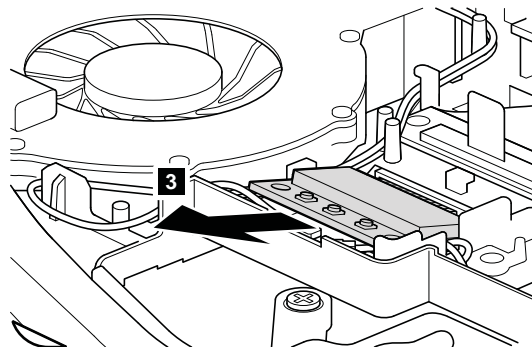
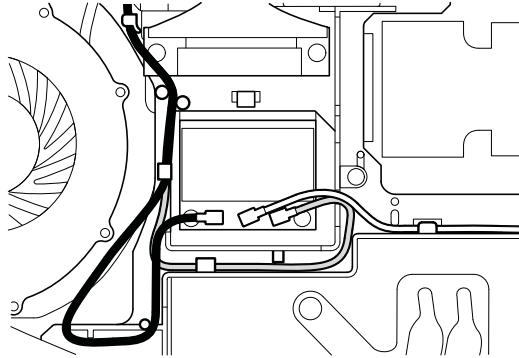


Table 28. Removal steps of PCI Express Mini Card for wireless LAN/WiMAX for ThinkPad W701 and W701ds (continued)

**When installing:**

- In models with wireless LAN card that has two antenna connectors, plug the gray cable into the jack labeled **MAIN**, and the black cable into the jack labeled **AUX** on the card. If the computer you are servicing has three cables, put the white cable in the cable holder and place it under the card.
- In models with wireless LAN card that has three antenna connectors, plug the gray cable (MAIN) into the jack labeled **TR1**, the white cable (3rd) into jack labeled **TR3**, and the black cable (AUX) into jack labeled **TR2** on the card.
- Make sure that the cables are routed as shown in this figure.



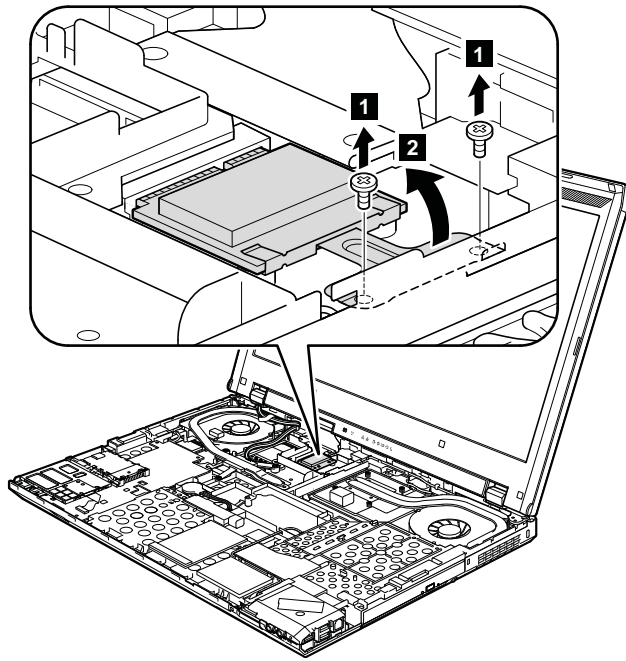
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## 1160 Intel Turbo Memory Minicard

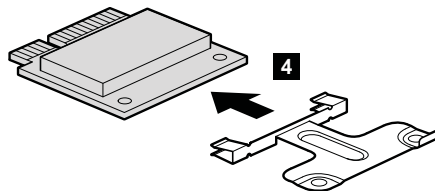
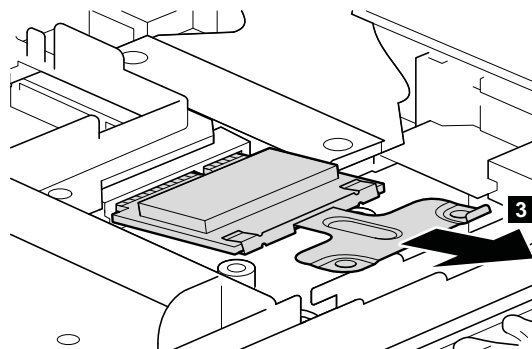
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88

Table 29. Removal steps of Intel Turbo Memory Minicard



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3 mm, thin-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)



## 1170 CPU thermal device/fan

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68

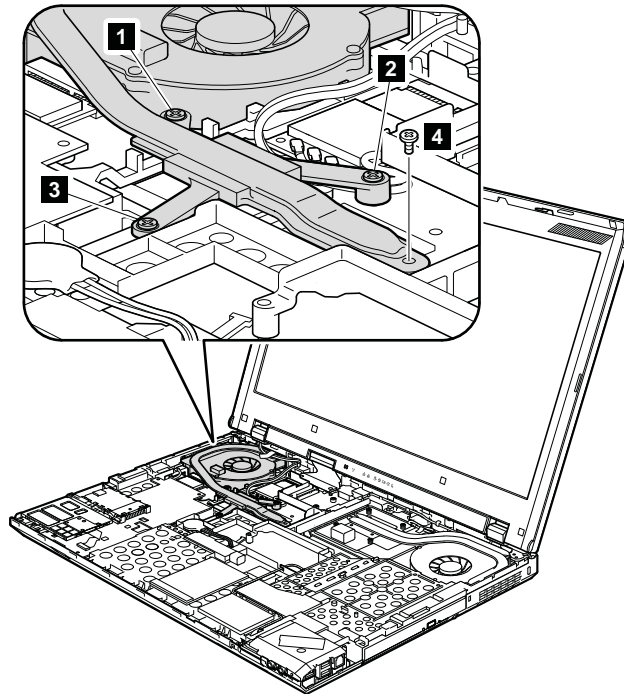


- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88

Table 30. Removal steps of CPU thermal device/fan for W700 and W700ds

**For ThinkPad W700 and W700ds:**

**Note:** Loosen the screws **1**, **2**, and **3**, but do not remove them. When you attach the fan, secure the screws in order as shown in this figure.



Step	Screw (quantity)	Color	Torque
<b>4</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

**Attention:** Do not handle the fan roughly. Improper handling of the fan can cause distortion or deformation and imperfect contact with components.

Table 30. Removal steps of CPU thermal device/fan for W700 and W700ds (continued)

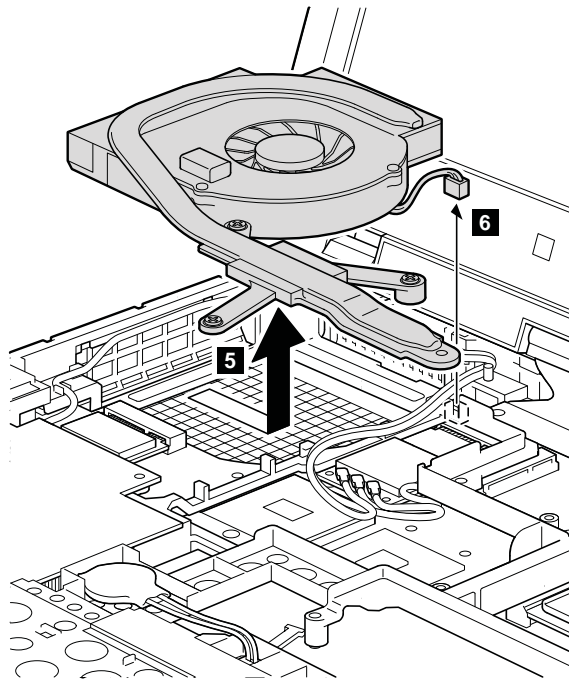
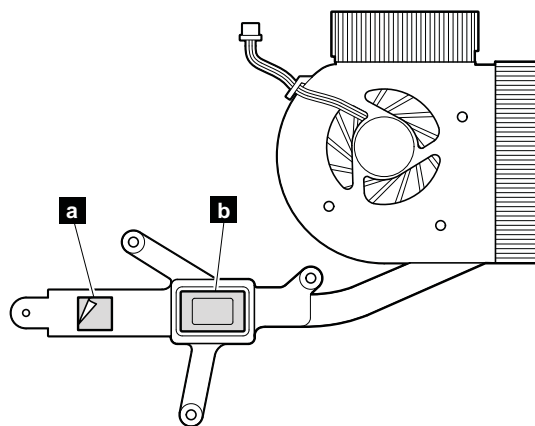


Table 31. Installation of the CPU thermal device/fan for W700 and W700ds

**When installing:**

- Before you attach the fan assembly to the computer, apply thermal grease, at an amount of 0.2 grams, on the part marked **b** as in the following figure. Either too much or too less application of grease can cause a thermal problem due to imperfect contact with a component. For the new CPU thermal device/fan, you need to peel the thin film off from the rubber marked **a**.

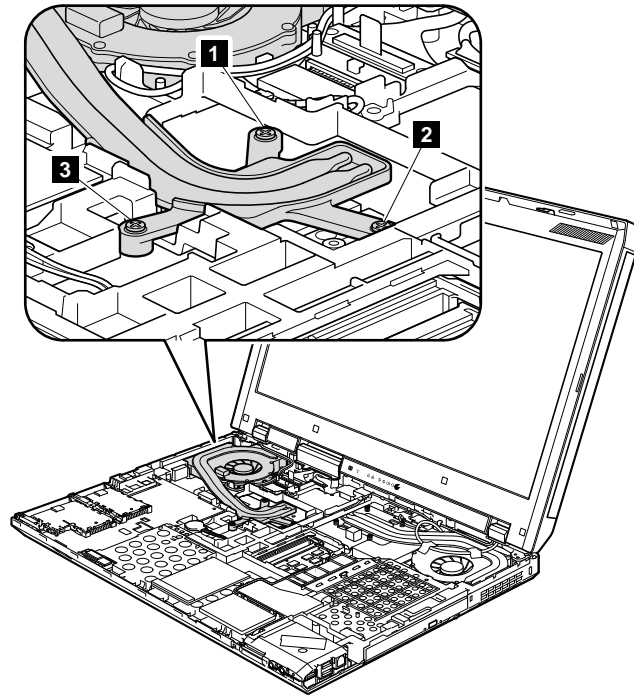


- Make sure that the fan connector is attached firmly.

Table 32. Removal steps of CPU thermal device/fan for W701 and W701ds

**For ThinkPad W701 and W701ds:**

**Note:** Loosen the screws **1**, **2**, and **3**, but do not remove them. When you attach the fan, secure the screws in order as shown in this figure.



**Attention:** Do not handle the fan roughly. Improper handling of the fan can cause distortion or deformation and imperfect contact with components.

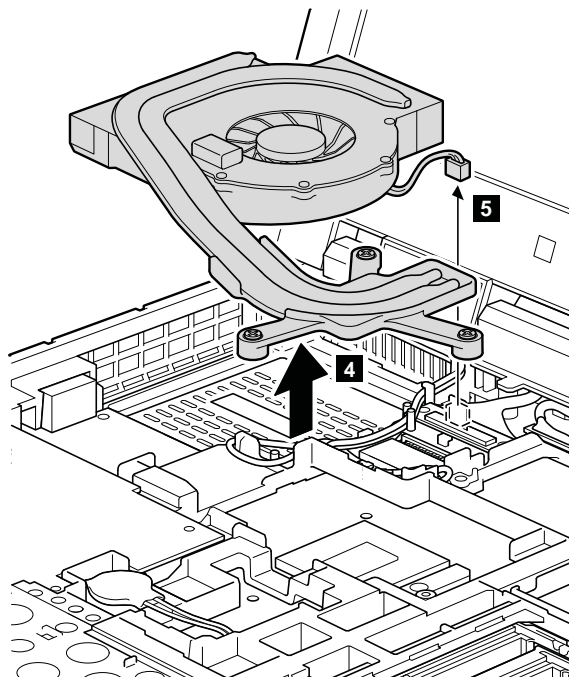
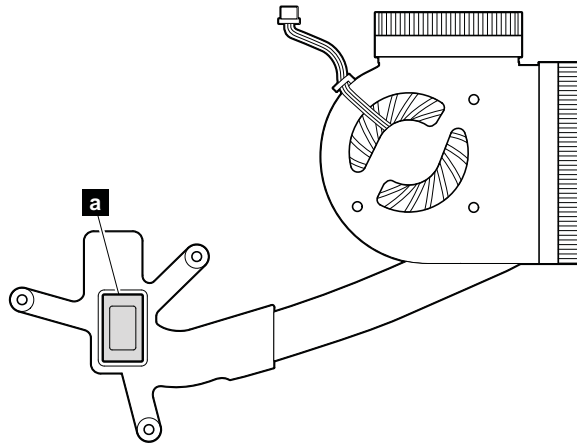


Table 33. Installation of the CPU thermal device/fan for W701 and W701ds

**When installing:**

- Before you attach the fan assembly to the computer, apply thermal grease, at an amount of 0.2 grams, on the part marked **a** as in the following figure. Either too much or too less application of grease can cause a thermal problem due to imperfect contact with a component.



- Make sure that the fan connector is attached firmly.

---

## 1180 VGA thermal device/fan and thermal putty

**Note:** In ThinkPad W701 and W701ds, thermal putty is used between the thermal device/fan and the video card. The thermal putty is included in the video card FRU, but is not included in the thermal device/fan FRU. If once you remove the thermal device/fan, you need to attach new thermal putty on the video card before you reinstall the thermal device/fan. Order the thermal putty FRU when you service the thermal device/fan. ThinkPad W700 and W700ds do not have this thermal putty.

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88

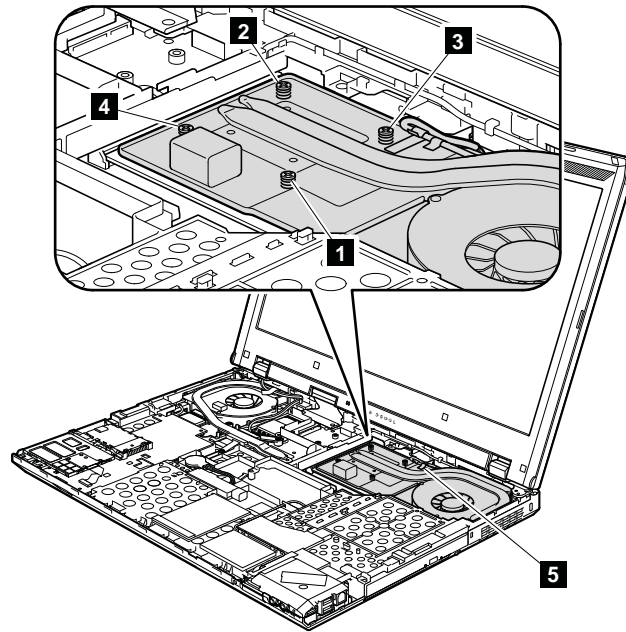
Table 34. Removal steps of VGA thermal device/fan

**Note:** Loosen the screws **1**, **2**, **3**, and **4**, but do not remove them. When you attach the fan, secure the screws in order as shown in this figure.

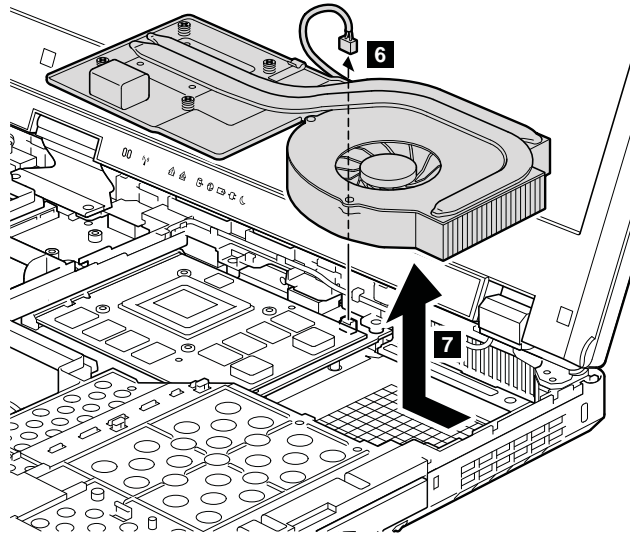
**For ThinkPad W700 and W701:**

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Table 34. Removal steps of VGA thermal device/fan (continued)



For ThinkPad W700ds and W701ds:



**Attention:** Do not handle the fan roughly. Improper handling of the fan can cause distortion or deformation and imperfect contact with components.

Table 34. Removal steps of VGA thermal device/fan (continued)

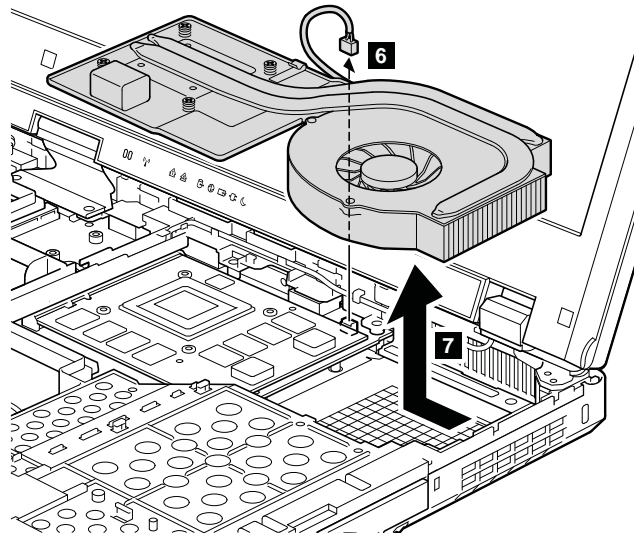
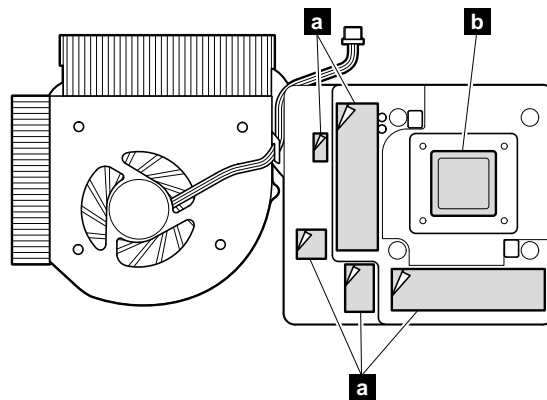


Table 35. Installation of the VGA thermal device/fan in ThinkPad W700 and W700ds

**When installing:**

- Before you attach the fan assembly to the computer, apply thermal grease, at an amount of 0.2 grams, on the part marked **b** as in the following figure. Either too much or too less application of grease can cause a thermal problem due to imperfect contact with a component. For the new VGA thermal device/fan, you need to peel the thin films off from the rubbers marked **a**.

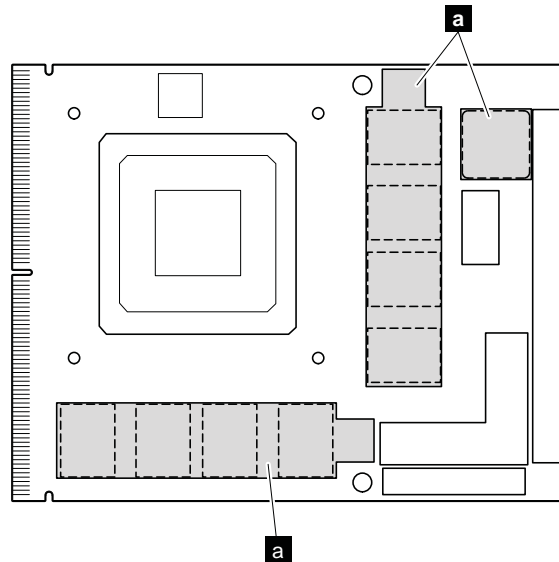


- Make sure that the fan connector is attached firmly.

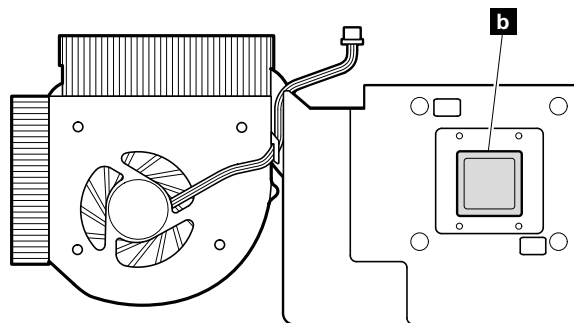
Table 36. Installation of the VGA thermal device/fan and thermal putty in ThinkPad W701 and W701ds

**When installing:**

- Before you attach the fan assembly to the computer, attach new thermal putty on the video card as shown as **a** in this figure.



- Apply thermal grease, at an amount of 0.2 grams, on the part marked **b** as in the following figure. Either too much or too less application of grease can cause a thermal problem due to imperfect contact with a component.



- Make sure that the fan connector is attached firmly.

---

## 1190 CPU

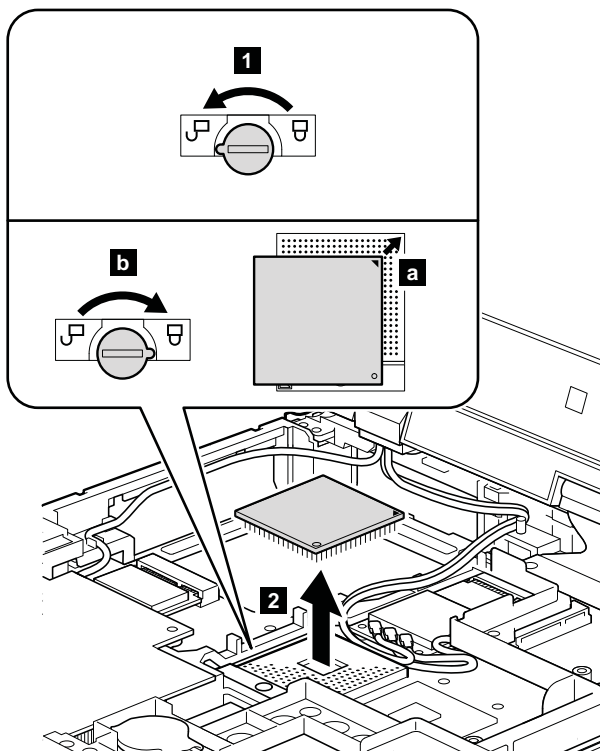
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1170 CPU thermal device/fan” on page 98

**Attention:** CPU is extremely sensitive. When you service the CPU, avoid any kind of rough handling.

Table 37. Removal steps of CPU

Rotate the head of the screw in the direction shown by arrow **1** to release the lock; then remove the CPU **2**.



**When installing:** Place the CPU on the CPU socket **a**, and then rotate the head of the screw in the direction shown by arrow **b** to secure the CPU.

## 1200 Video card

**Note:** When you replace following video cards, you also need to replace FRUs listed in the following table.

### 42W8202

Video card for MXM NB9E GLM2

### 42W8204

Video card for MXM NB9E GLM3

FRUs need to be replaced simultaneously	
FRU	FRU no.
System board	Depends on the model
Base cover assembly	Depends on the model
Structure Frame	45N6098

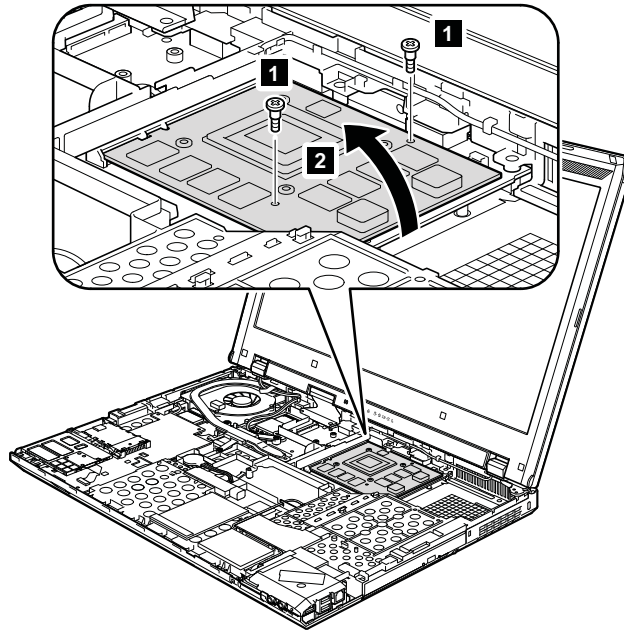
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80

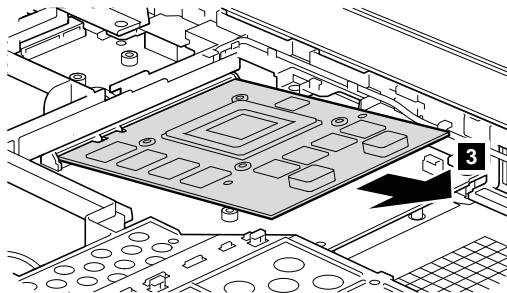


- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88

Table 38. Removal steps of video card

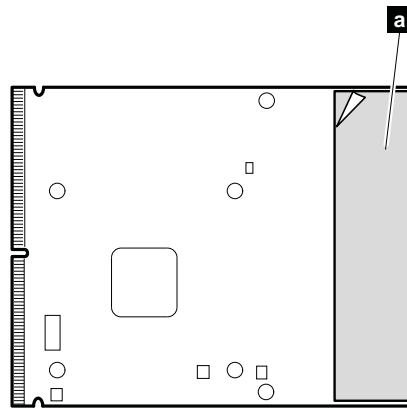


Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, shoulder type, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)



**When installing:** Before you attach the video card to the computer, you need to peel the thin film off from the rubber marked **3**.

Table 38. Removal steps of video card (continued)



## 1210 HDD I/O sub card

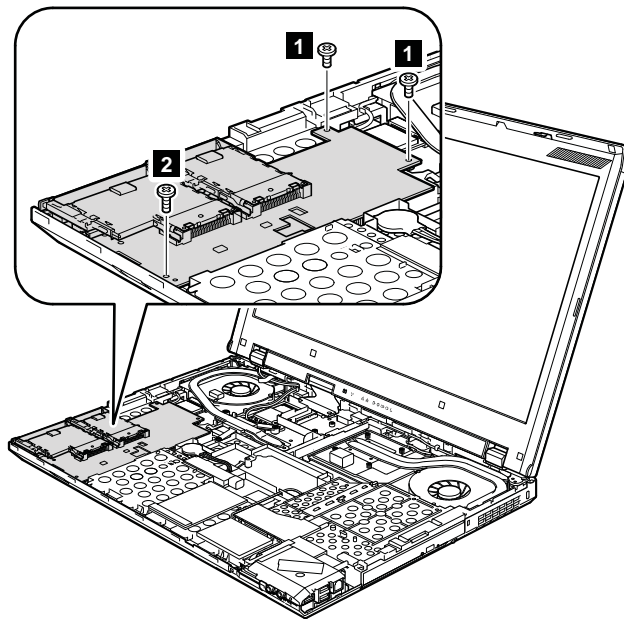
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88

Table 39. Removal steps of HDD I/O sub card for W700 and W700ds

**For ThinkPad W700 and W700ds:**

**For models with 34-mm ExpressCard/54-mm ExpressCard slot:**

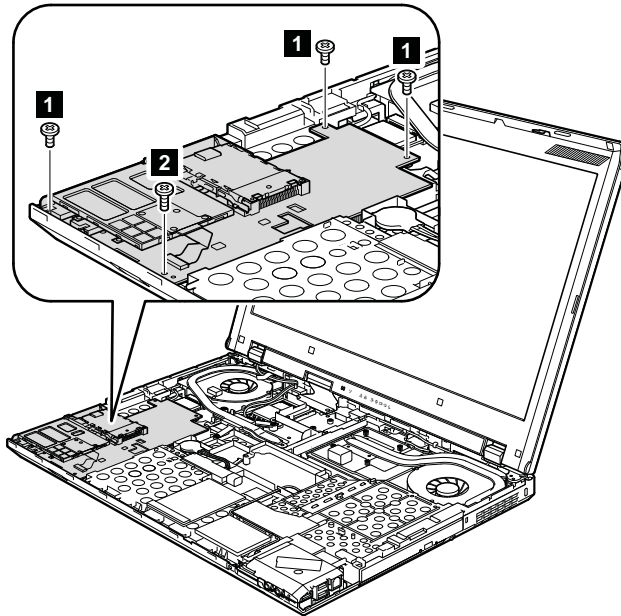


Step	Screw (quantity)	Color	Torque
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Table 39. Removal steps of HDD I/O sub card for W700 and W700ds (continued)

<b>1</b>	M2 × 3.5 mm, small-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

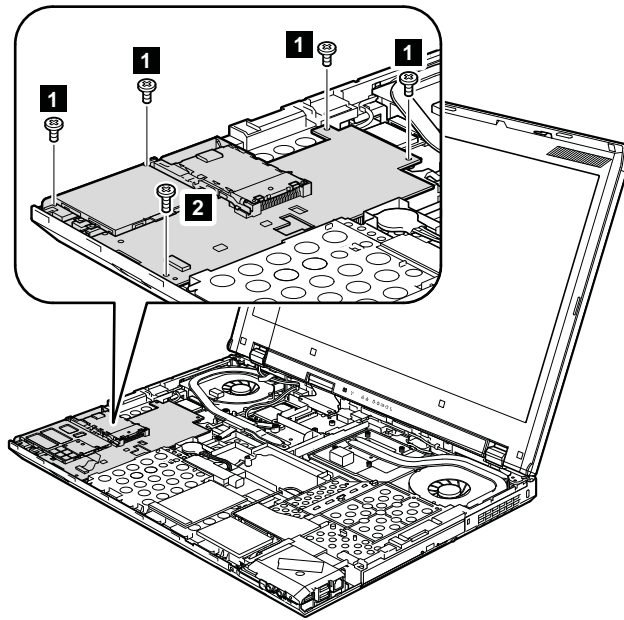
For models with 34-mm ExpressCard/Smart Card slot:



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, small-head, nylon-coated (3)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

For models with 34-mm ExpressCard/CompactFlash Card slot:

Table 39. Removal steps of HDD I/O sub card for W700 and W700ds (continued)



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, small-head, nylon-coated (4)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

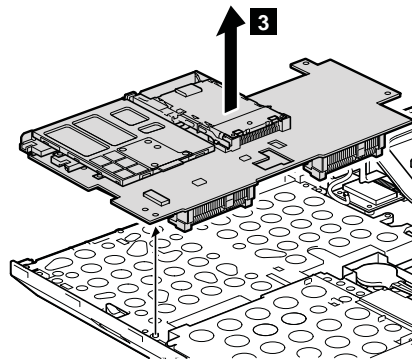
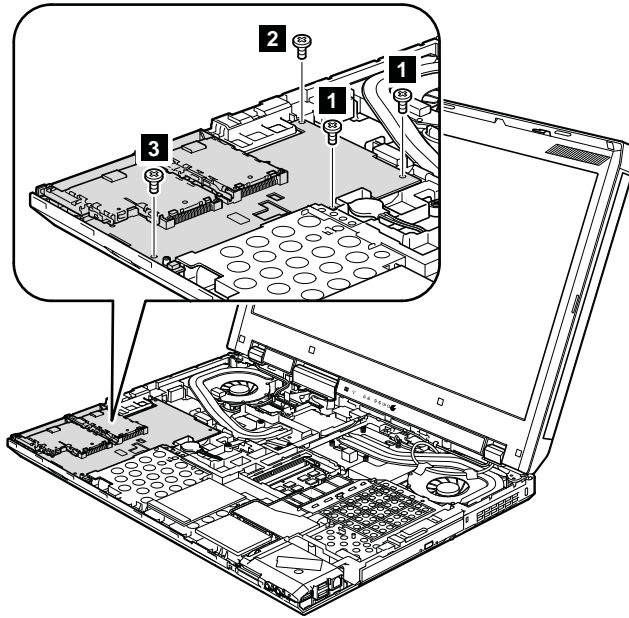


Table 40. Removal steps of HDD I/O sub card for W701 and W701ds

**For ThinkPad W701 and W701ds:**

**For models with 34-mm ExpressCard/54-mm ExpressCard slot:**

Table 40. Removal steps of HDD I/O sub card for W701 and W701ds (continued)



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 14 mm, small-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2 × 3.5 mm, small-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)
<b>3</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

For models with 34-mm ExpressCard/Smart Card slot:

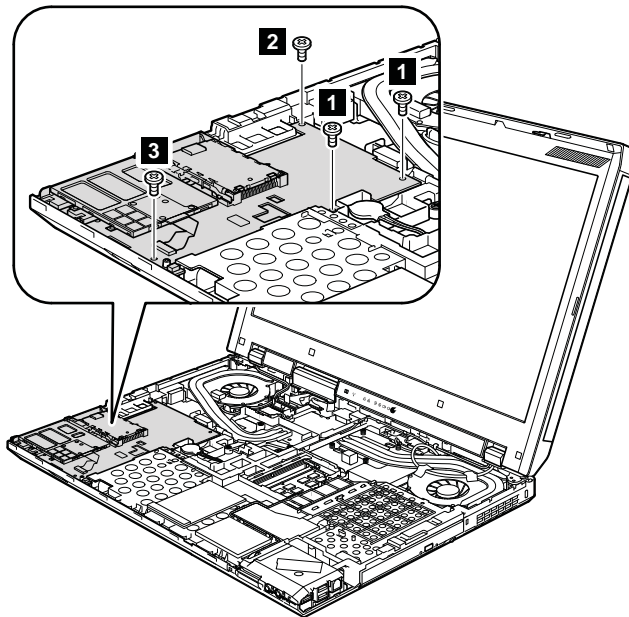
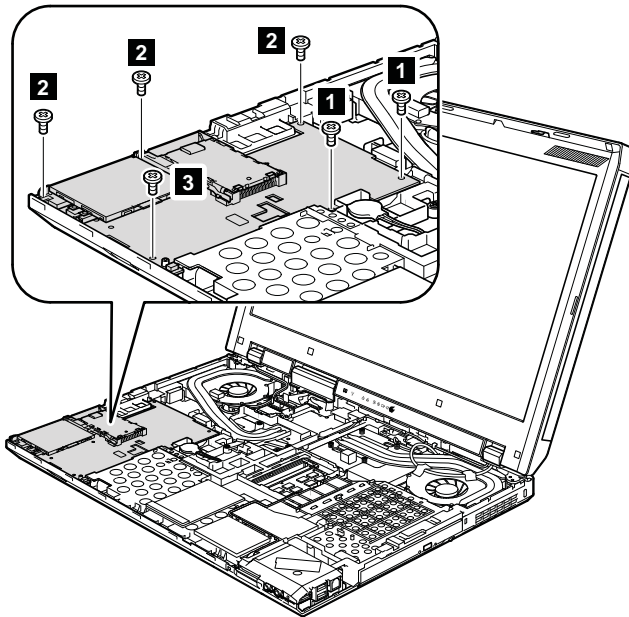


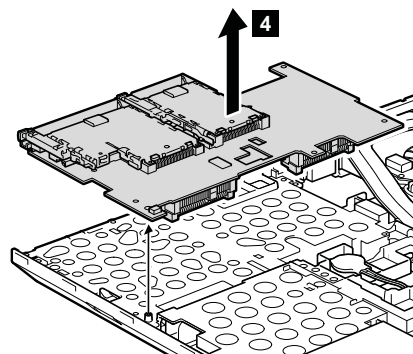
Table 40. Removal steps of HDD I/O sub card for W701 and W701ds (continued)

Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 14 mm, small-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2 × 3.5 mm, small-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)
<b>3</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

For models with 34-mm ExpressCard/CompactFlash Card slot:



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 14 mm, small-head, nylon-coated (2)	Silver	0.181 Nm (1.85 kgfcm)
<b>2</b>	M2 × 3.5 mm, small-head, nylon-coated (3)	Silver	0.181 Nm (1.85 kgfcm)
<b>3</b>	M2.5 × 5 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)



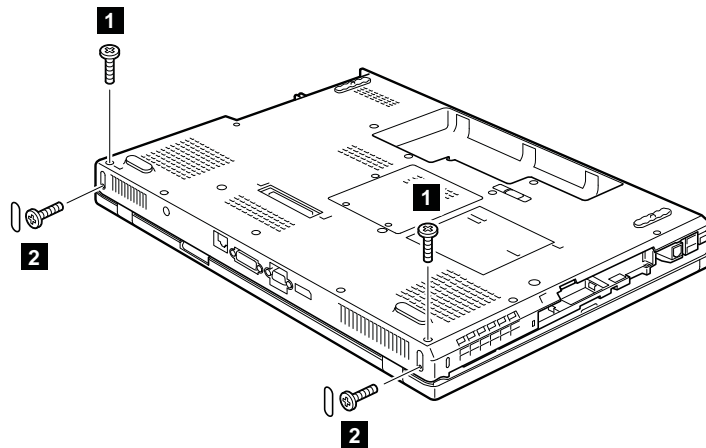
## 1220 LCD unit and LCD cable cap

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1080 **Bluetooth** daughter card (BDC-2.1) for W701 and W701ds” on page 79
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94

Table 41. Removal steps of LCD unit for W700 and W700ds

For ThinkPad W700 and W700ds:




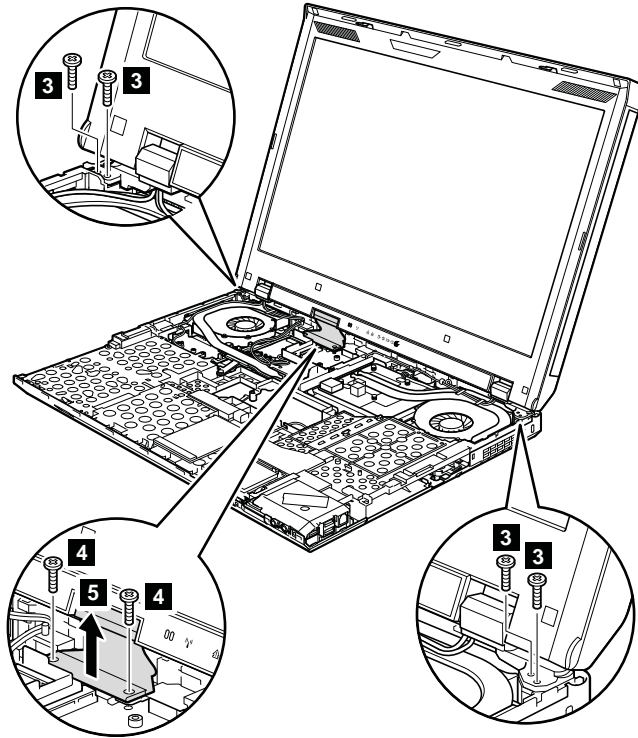
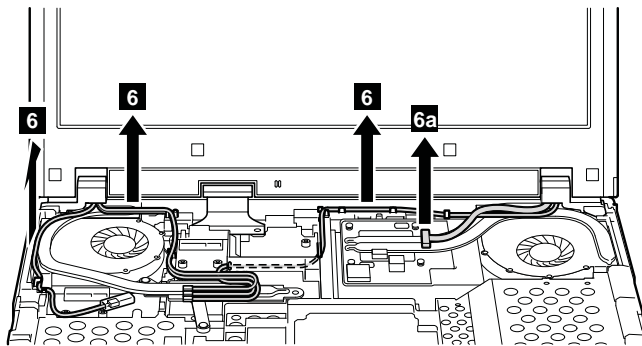
Step	Screw cap	Screw (quantity)	Color	Torque
<b>1</b>	—	M2.5 × 9 mm, wafer-head, nylon-coated (2)	Black	0.392 Nm (4 kgfcm)
<b>2</b>		M2.5 × 9 mm, wafer-head, nylon-coated (2)	Black	0.392 Nm (4 kgfcm)

Table 41. Removal steps of LCD unit for W700 and W700ds (continued)



Step	Screw (quantity)	Color	Torque
<b>3</b>	M2.5 × 9 mm, wafer-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)
<b>4</b>	M2 × 10 mm, wafer-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)

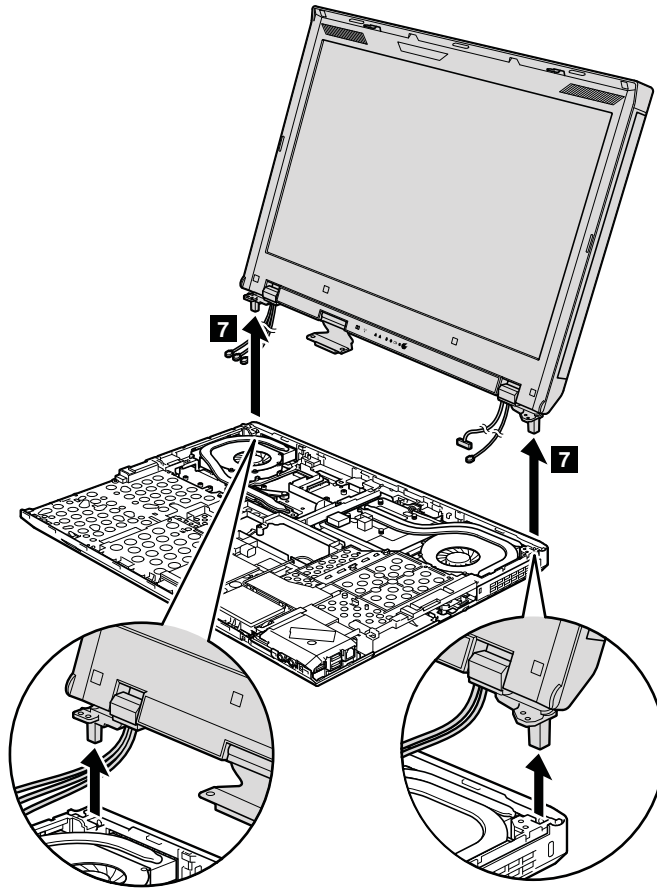
Step **6a** is only for ThinkPad W700ds.



**When installing:** In ThinkPad W700ds, make sure that the cable connector **6a** is attached firmly.



Table 41. Removal steps of LCD unit for W700 and W700ds (continued)



**When installing:**

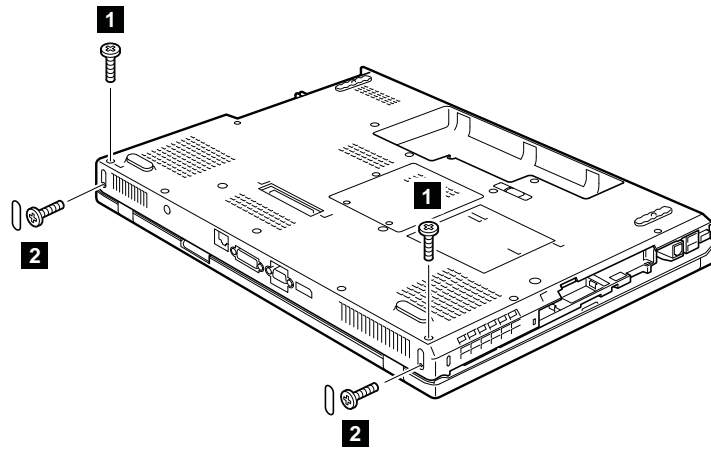
1. Route the antenna cables along the cable guides and secure them with the tapes. As you route the cables, make sure that they are not subjected to any tension. Tension could cause the cables to be damaged by the cable guides, or a wire to be broken.
2. Make sure that the LCD connector is attached firmly.


Table 42. Removal steps of LCD unit for W701 and W701ds

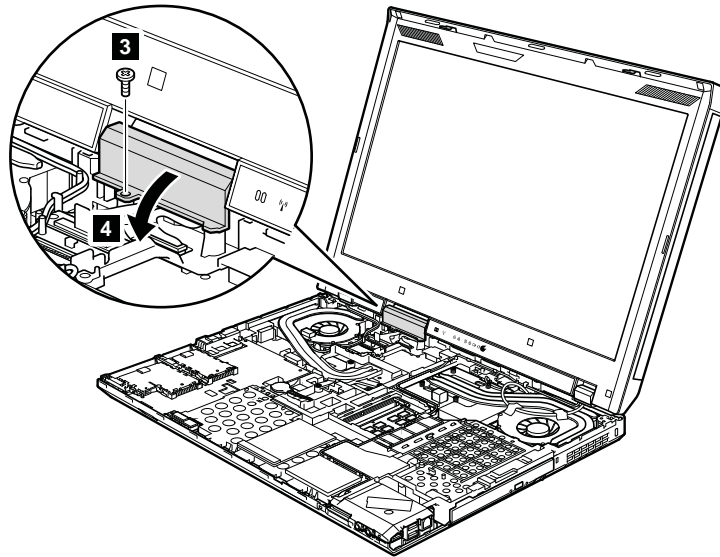
**For ThinkPad W701 and W701ds:**

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Table 42. Removal steps of LCD unit for W701 and W701ds (continued)

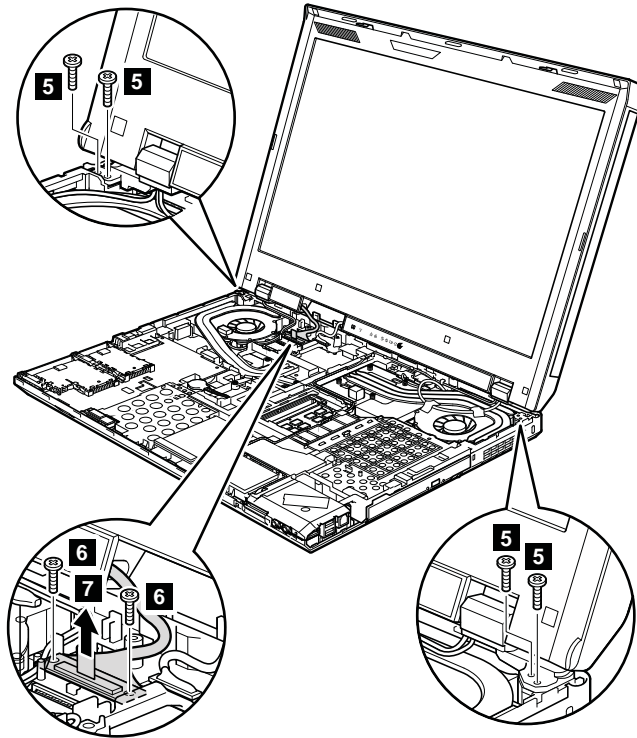


Step	Screw cap	Screw (quantity)	Color	Torque
<b>1</b>	—	M2.5 × 9 mm, wafer-head, nylon-coated (2)	Black	0.392 Nm (4 kgfcm)
<b>2</b>		M2.5 × 9 mm, wafer-head, nylon-coated (2)	Black	0.392 Nm (4 kgfcm)



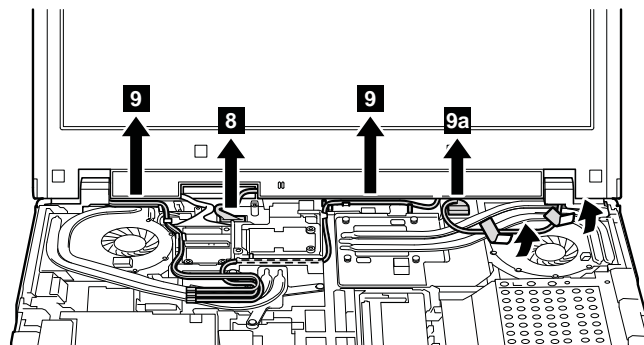
Step	Screw (quantity)	Color	Torque
<b>3</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

Table 42. Removal steps of LCD unit for W701 and W701ds (continued)



Step	Screw (quantity)	Color	Torque
<b>5</b>	M2.5 × 9 mm, wafer-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)
<b>6</b>	M2 × 12 mm, wafer-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)

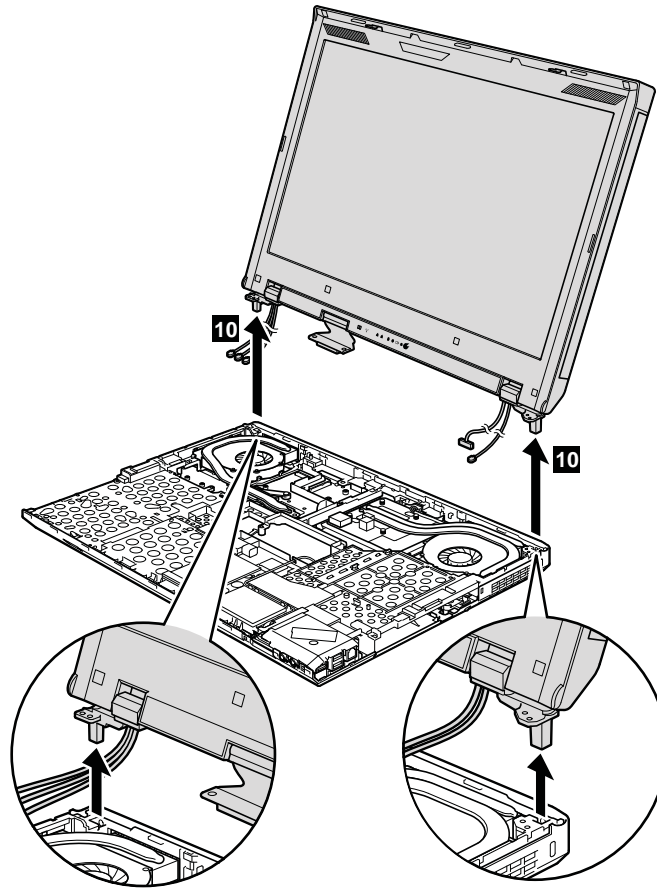
Step **9a** is only for ThinkPad W701ds.



**When installing:**

- Make sure that the cable connector **8** is attached firmly.
- In ThinkPad W701ds, make sure that the cable connector **9a** is attached firmly.

Table 42. Removal steps of LCD unit for W701 and W701ds (continued)



**When installing:**

1. Route the antenna cables along the cable guides and secure them with the tapes. As you route the cables, make sure that they are not subjected to any tension. Tension could cause the cables to be damaged by the cable guides, or a wire to be broken.
2. Make sure that the LCD connector is attached firmly.

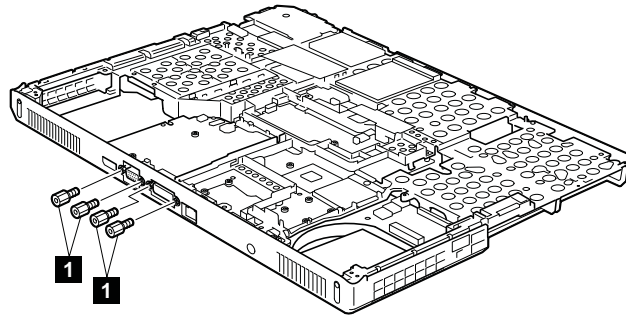
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## 1230 Structure frame

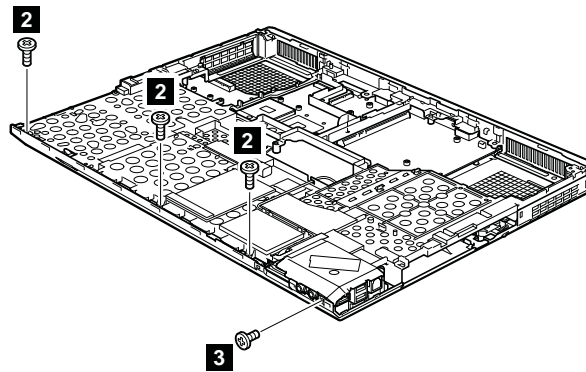
or access, remove these FRUs, in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1080 **Bluetooth** daughter card (BDC-2.1) for W701 and W701ds” on page 79
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113

Table 43. Removal steps of structure frame

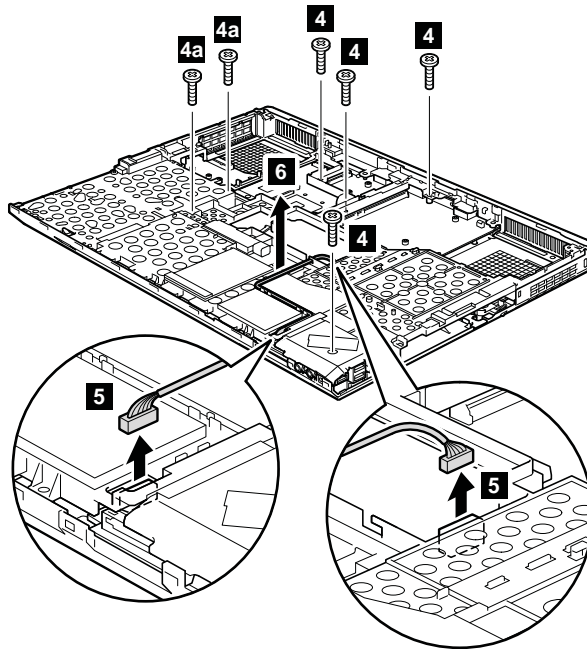


Step	Screw (quantity)	Color	Torque
<b>1</b>	Hex stud, nylon-coated (4)	Silver	0.392 Nm (4 kgfcm)



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2.5 × 5 mm, wafer-head, nylon-coated (3)	Silver	0.392 Nm (4 kgfcm)
<b>3</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

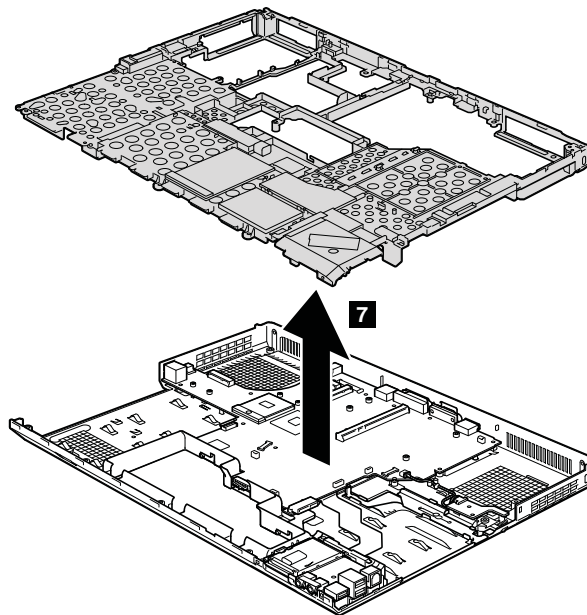
Table 43. Removal steps of structure frame (continued)



**When installing:** Make sure that the connector is attached firmly, and that the cable is routed as in the figure above.

**Note:** Step 4a is only for ThinkPad W700 and W700ds.

Step	Screw (quantity)	Color	Torque
4	M2 × 10 mm, wafer-head, nylon-coated (4)	Black	0.181 Nm (1.85 kgfcm)
4a	M2 × 10 mm, wafer-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)

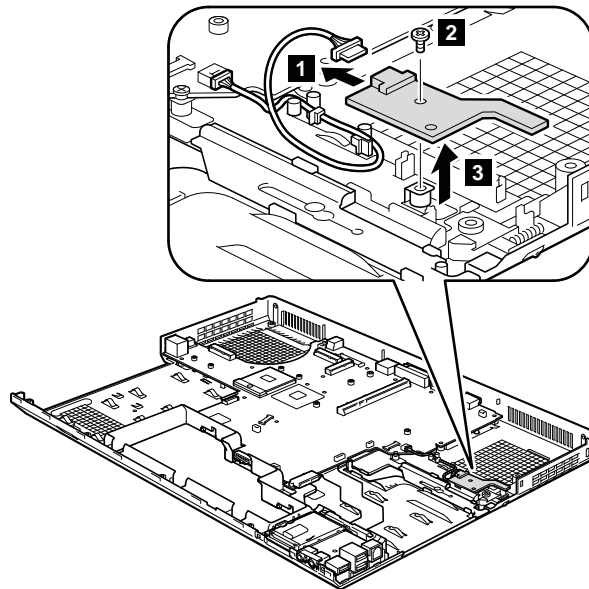


## 1240 ODD switch sub card for W700 and W700ds

For access, remove these FRUs, in order:

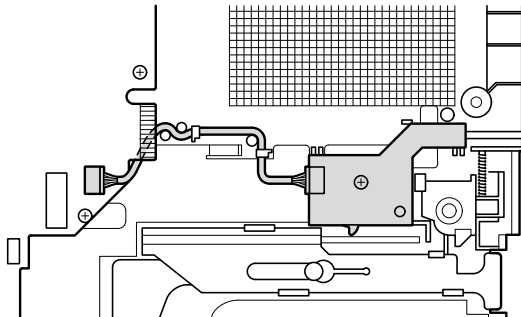
- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “1230 Structure frame” on page 118

Table 44. Removal steps of ODD switch sub card



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)

**Cable routing:** When you install the card, make sure that the cable connecting the system board and the card is routed firmly as shown in this figure.

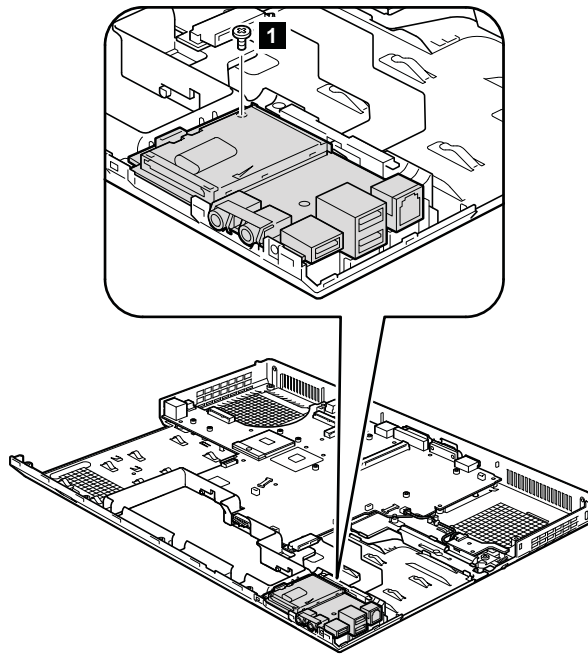


## 1250 Audio and card reader I/O card

For access, remove these FRUs, in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1080 **Bluetooth** daughter card (BDC-2.1) for W701 and W701ds” on page 79
- “1090 Keyboard” on page 80
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “1230 Structure frame” on page 118

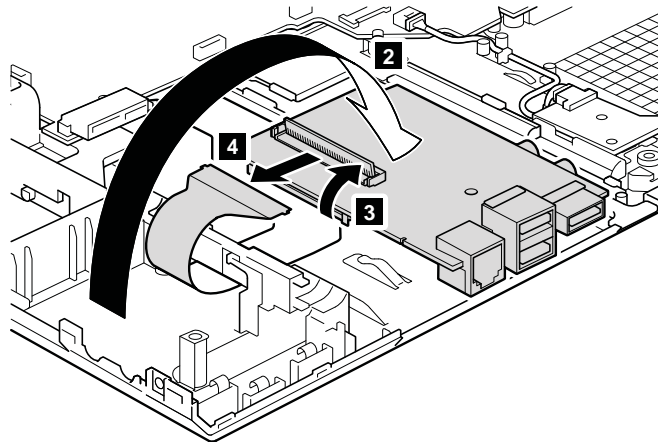
Table 45. Removal steps of audio and card reader I/O card



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Silver	0.181 Nm (1.85 kgfcm)



Table 45. Removal steps of audio and card reader I/O card (continued)



**When installing:** Make sure the connector is attached firmly.

## 1260 System board and base cover

**Note:** When you replace following system boards, you also need to replace FRUs listed in the following table.

### 42W8199

System board for MXM-support, with TPM for W700

### 42W8201

System board for MXM-support, non-TPM for W700

FRUs need to be replaced simultaneously	
FRU	FRU no.
Video card	Depends on the model
Base cover assembly	Depends on the model
Structure Frame	45N6098

### Important notices for handling the system board:

When handling the system board, bear the following in mind.

- The system board has an accelerometer, which can be broken by applying several thousands of G-forces.

**Note:** Dropping a system board from a height of as little as 6 inches so that it falls flat on a hard bench can subject the accelerometer to as much as 6,000 G's of shock.

- Be careful not to drop the system board on a bench top that has a hard surface, such as metal, wood, or composite.
- If a system board is dropped, you must test it, using PC-Doctor for DOS, to make sure that the HDD Active Protection still functions (see below).

**Note:** If the test shows that HDD Active Protection is not functioning, be sure to document the drop in any reject report, and replace the system board.

- 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 conductive corrugated material.

After replacing the system board, run PC-Doctor for DOS to make sure that HDD Active Protection still functions. The procedure is as follows:

1. Place the computer on a horizontal surface.
2. Run **Diagnostics → ThinkPad Devices → HDD Active Protection Test**.

**Attention:** Do not apply physical shock to the computer while the test is running.

**Important notices for RAID setting:**

Before you replace the system board, make sure that you read Chapter 5 “Installing and configuring RAID” on page 53, and have the necessary information.

After you replaced the system board, you need to recover the RAID mode in BIOS Setup Utility menu as follows:

**Config → Serial ATA (SATA) → SATA Controller Mode Option → Compatibility/AHCI/RAID.**

For access, remove these FRUs, in order:

- “1010 Battery pack” on page 68
- “1020 Digitizer pen” on page 69
- “1030 Serial Ultrabay Enhanced device” on page 70
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1050 DIMM slot cover and DIMM” on page 72
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1080 **Bluetooth** daughter card (BDC-2.1) for W701 and W701ds” on page 79
- “1090 Keyboard” on page 80
- “1100 Backup battery” on page 82
- “1110 Numeric keypad” on page 83
- “1120 DIMM slot cover and DIMM under keyboard for W701 and W701ds” on page 86
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1170 CPU thermal device/fan” on page 98
- “1180 VGA thermal device/fan and thermal putty” on page 102
- “1190 CPU” on page 105
- “1200 Video card” on page 106
- “1210 HDD I/O sub card” on page 108
- “1220 LCD unit and LCD cable cap” on page 113
- “1230 Structure frame” on page 118

Following components soldered on the top side of the system board are extremely sensitive. When you service the system board, avoid any kind of rough handling.

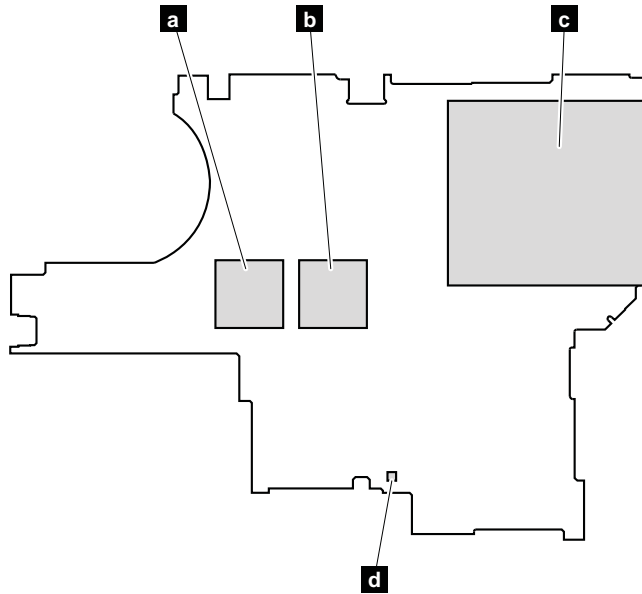
**For ThinkPad W700 and W700ds:**

- a** CPU
  - b** MCH (Memory Controller Hub)
  - c** Video sub card (Mobile PCI Express Module)
-

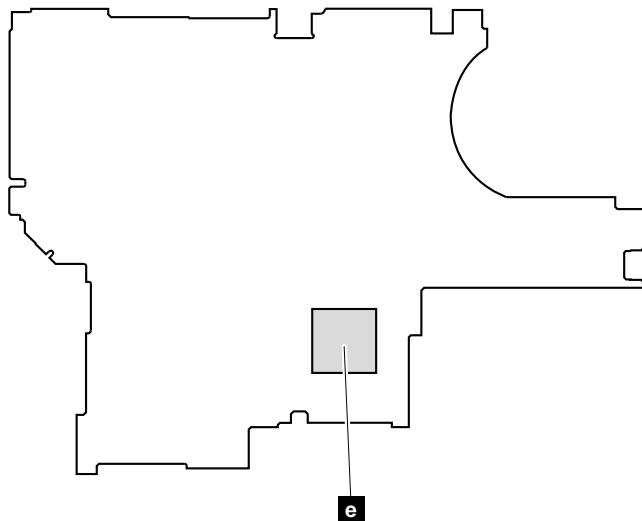
**d** Accelerometer chip for the HDD Active Protection System™

**e** ICH (I/O Controller Hub)

**Upper side of the system board:**



**Bottom side of the system board:**

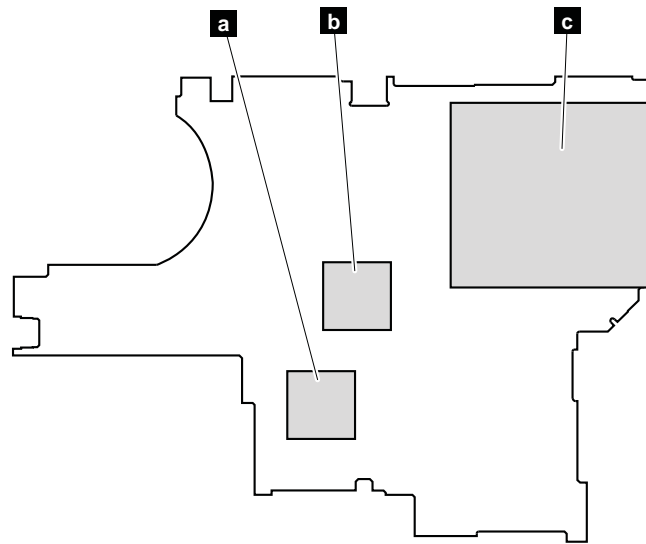


Following components soldered on the top side of the system board are extremely sensitive. When you service the system board, avoid any kind of rough handling.

**For ThinkPad W701 and W701ds:**

- a** PCH (Platform Controller Hub)
- b** CPU
- c** Video sub card (Mobile PCI Express Module)
- d** Accelerometer chip for the HDD Active Protection System

**Upper side of the system board:**



**Bottom side of the system board:**

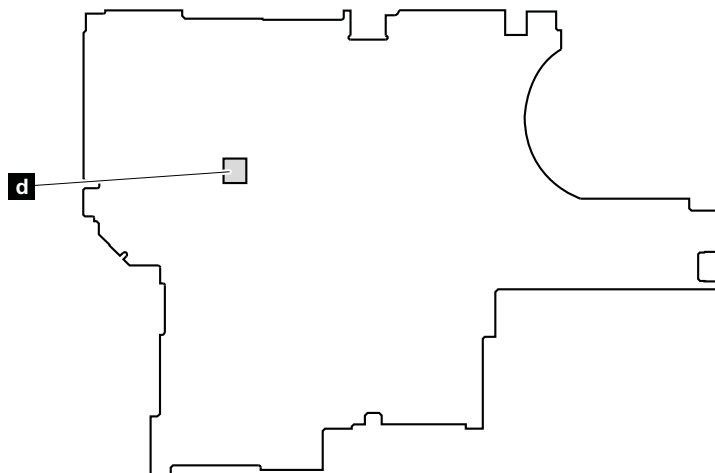
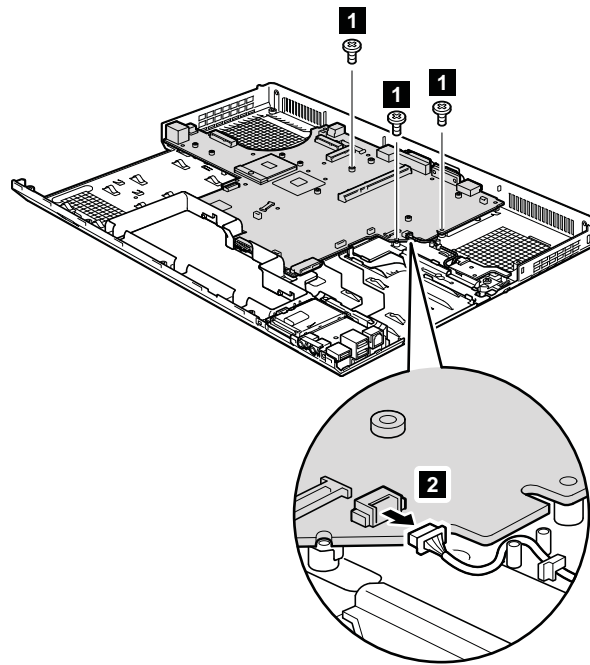


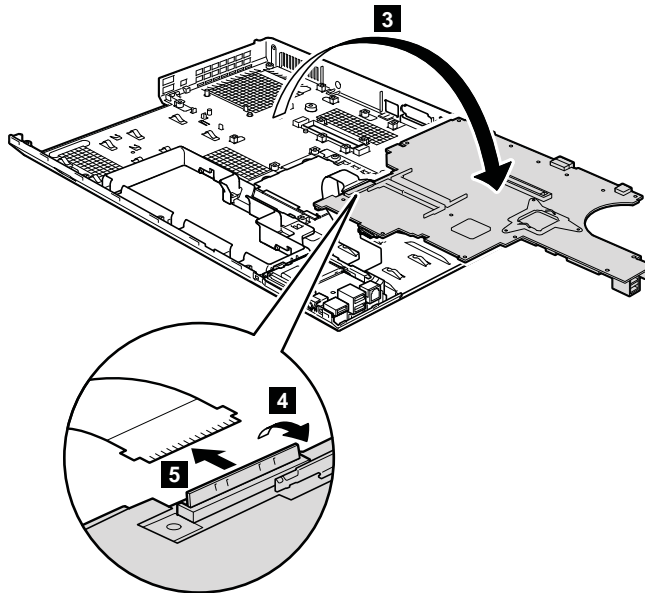
Table 46. Removal steps of system board and base cover



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (3)	Silver	0.181 Nm (1.85 kgfcm)

**Note:** Step **2** is only for W700 and W700ds.

Turn the system board over, and then disconnect the PC Card/ExpressCard slots assembly or PC Card/Smart Card slots assembly **a** from the system board.



**When installing:** Make sure that the connector of the PC Card/Express Card slot assembly or PC Card/Smart Card slots assembly is attached to the system board firmly.

**Note: Applying labels to the base cover**

The new base cover FRU is shipped with a kit containing labels of several kinds. When you replace the base cover, you need to apply the following labels:

- 7** Product label
- 6** Homologation label

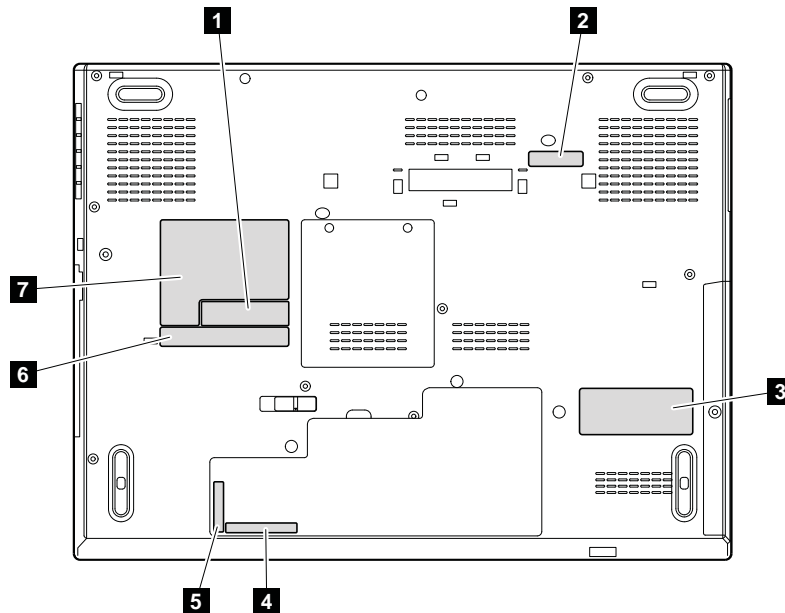
Following labels need to be peeled off from the old base cover, and need to be put on the new base cover.

- 1** Serial number label
- 2** Wireless LAN LMA label
- 3** Windows license label (COA)
- 4** Wireless LAN label
- 5** Ether label

For some models, you also need to apply one or two FCC labels. Check the old base cover; if it has one or two FCC labels, find duplicates of them in the label kit and apply them to the new base cover.

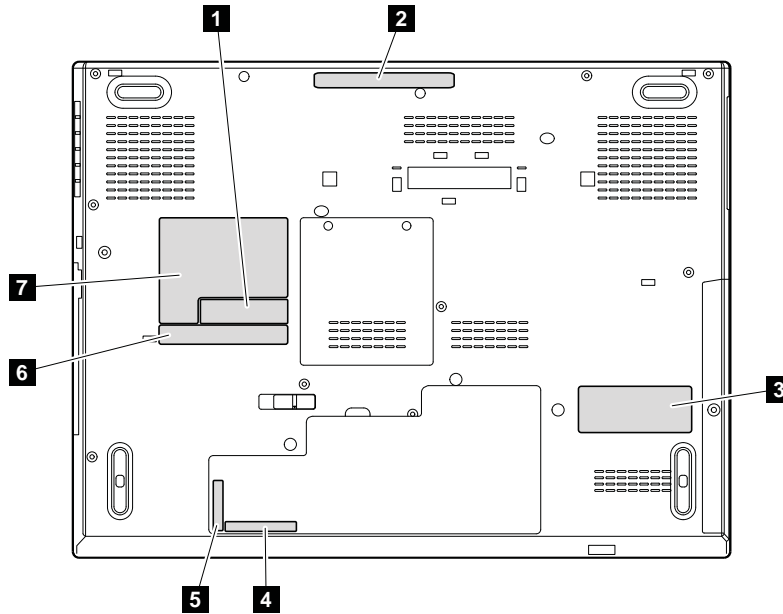
For the location of each label, refer the following figure:

**For ThinkPad W700 and W700ds:**



For the location of each label, refer the following figure:

**For ThinkPad W701 and W701ds:**

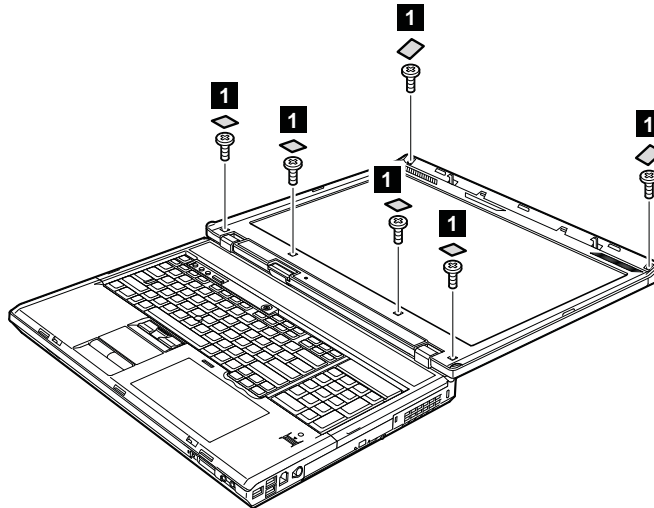


## 2010 LCD front bezel (LCD cover kit)

For access, remove this FRU:

- “1010 Battery pack” on page 68

Table 47. Removal steps of LCD front bezel




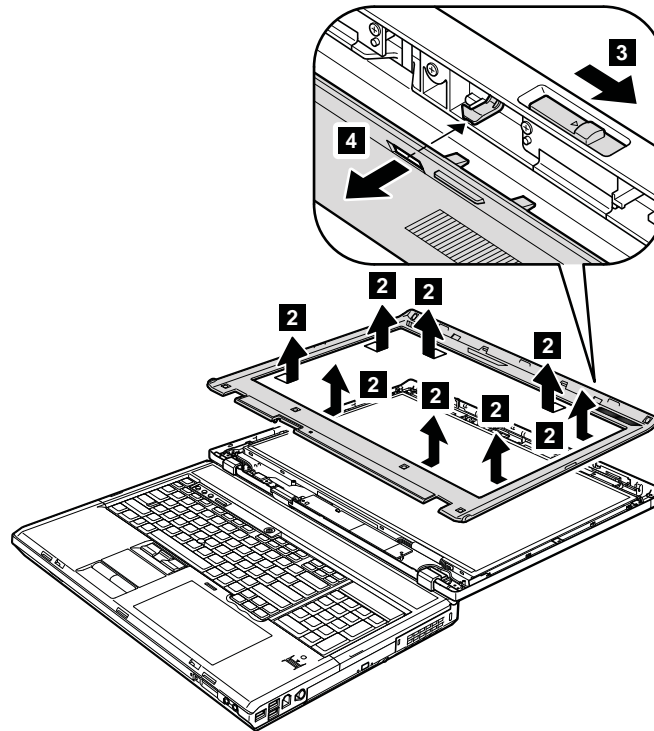
Step	Screw cap	Screw (quantity)	Color	Torque
<b>1</b>		M2.5 × 7 mm, wafer-head, nylon-coated (6)	Black	0.392 Nm (4 kgfcm)

Table 47. Removal steps of LCD front bezel (continued)

Close the LCD cover. Detach the LCD rear cover a little as shown in step **3** of this figure, and detach the rear edge of the LCD rear cover **4**.



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## 2020 Inverter card

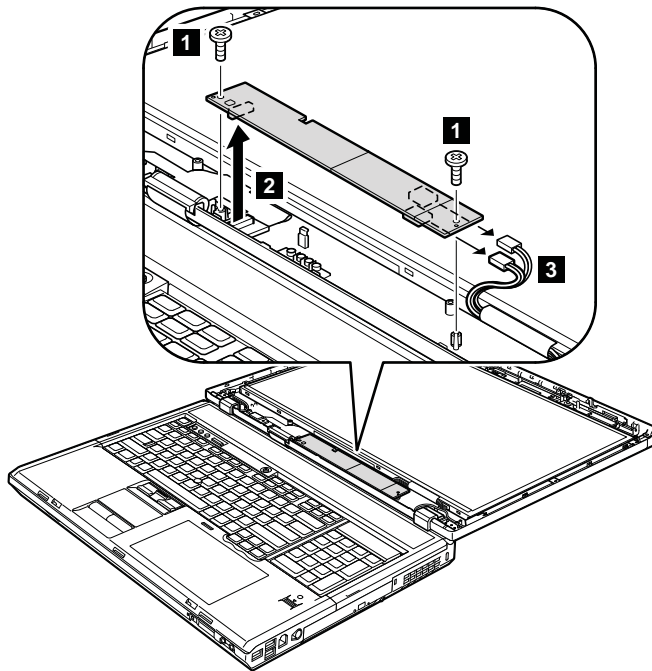
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “2010 LCD front bezel (LCD cover kit)” on page 129

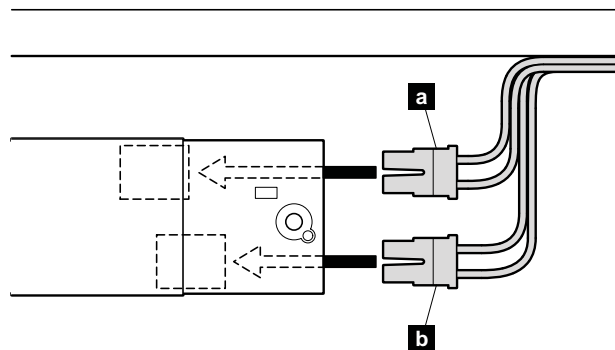


Table 48. Removal steps of inverter card for W700 and W700ds

For ThinkPad W700 and W700ds:



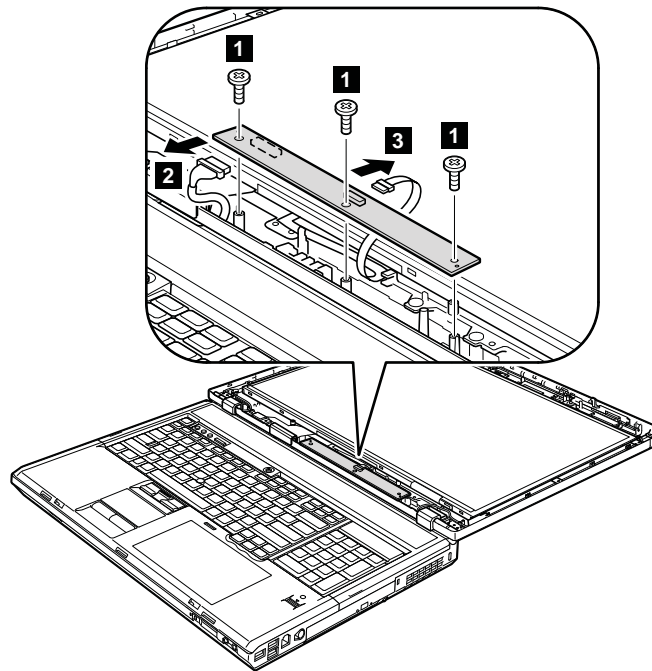
Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)



**When installing:** In some models, Make sure that connector that has pink cable and white cable **a** and the connector that has blue cable and white cable **b** are attached firmly.

Table 49. Removal steps of inverter card for W701 and W701ds

For ThinkPad W701 and W701ds:



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3 mm, wafer-head, nylon-coated (3)	Black	0.181 Nm (1.85 kgfcm)

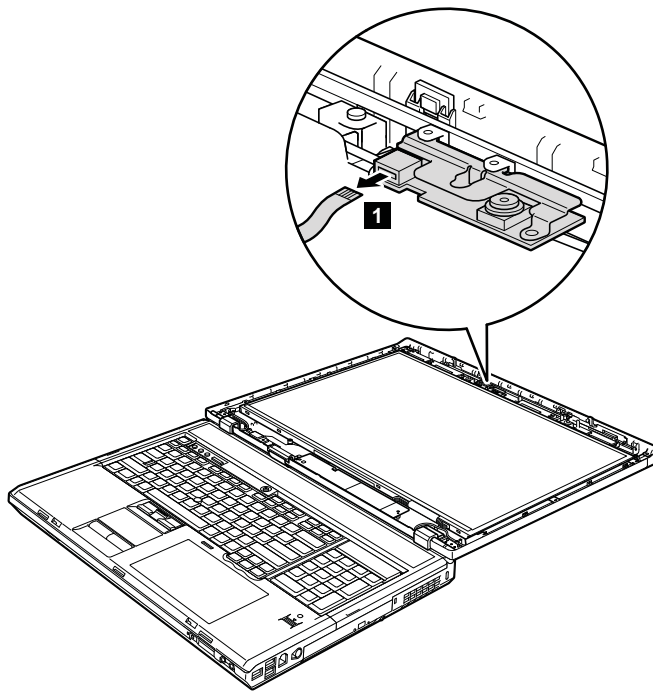
**When installing:** Make sure that the connectors are attached firmly.

## 2030 Integrated camera

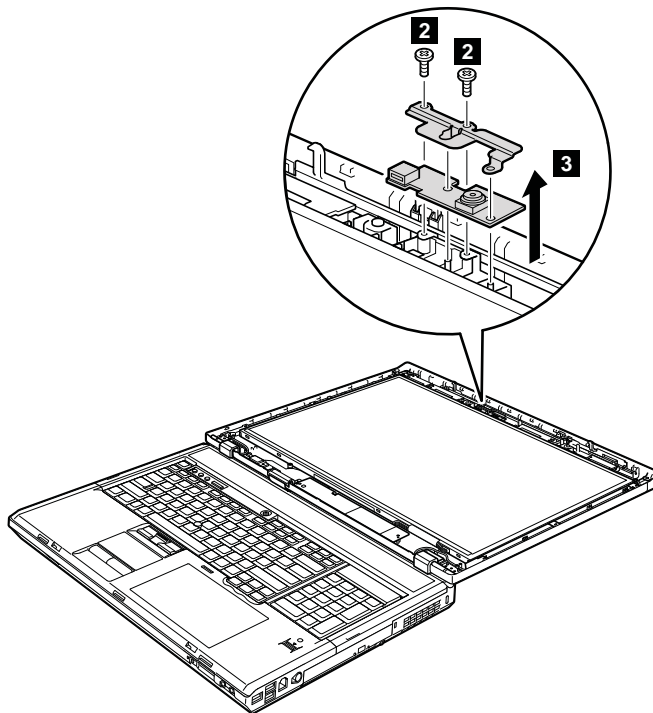
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “2010 LCD front bezel (LCD cover kit)” on page 129

Table 50. Removal steps of integrated camera



**When installing:** Make sure that the connector is attached firmly.



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, thin-head, nylon-coated (2)	Black	0.181 Nm (1.85 kgfcm)

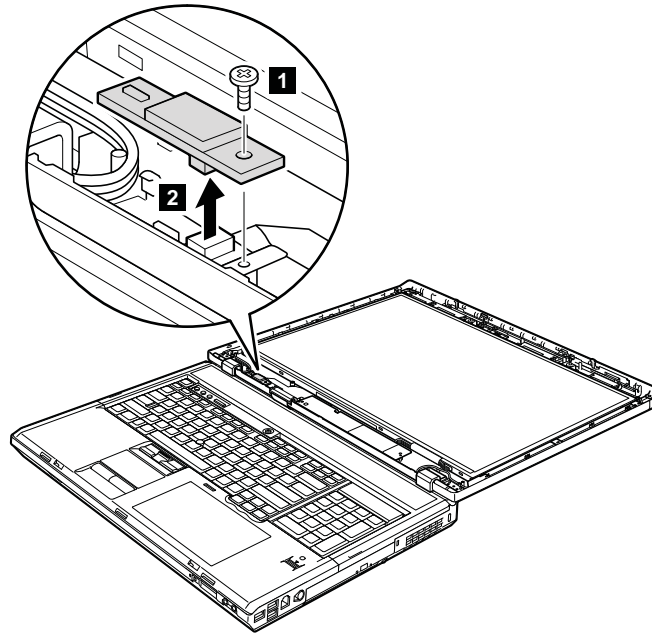
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## 2040 Bluetooth daughter card (BDC-2.1) for W700 and W700ds

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “2010 LCD front bezel (LCD cover kit)” on page 129

Table 51. Removal steps of BDC-2.1



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (1)	Black	0.181 Nm (1.85 kgfcm)

**When installing:** Make sure that connector is attached firmly.

---

## 2050 LCD panel, hinges, and LCD cable

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132

- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134

Table 52. Removal steps of LCD panel, hinges, and LCD cable

Step **1** to **5** is only for ThinkPad W700 and W700ds.

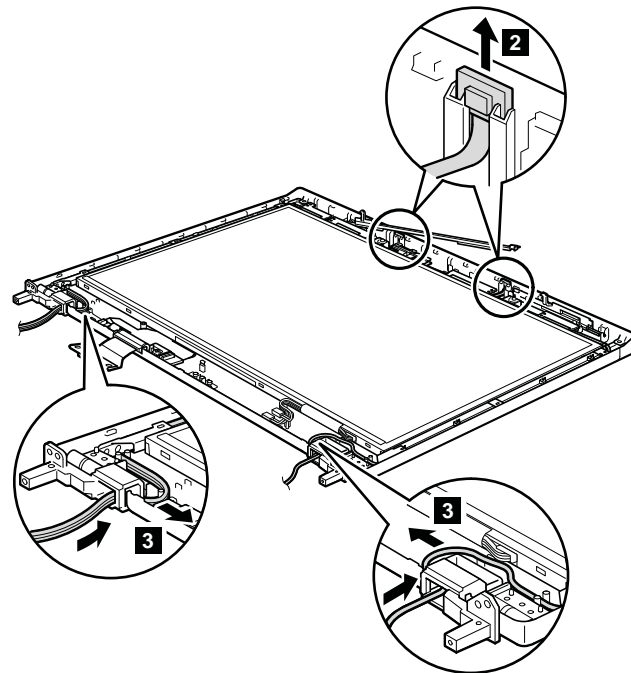
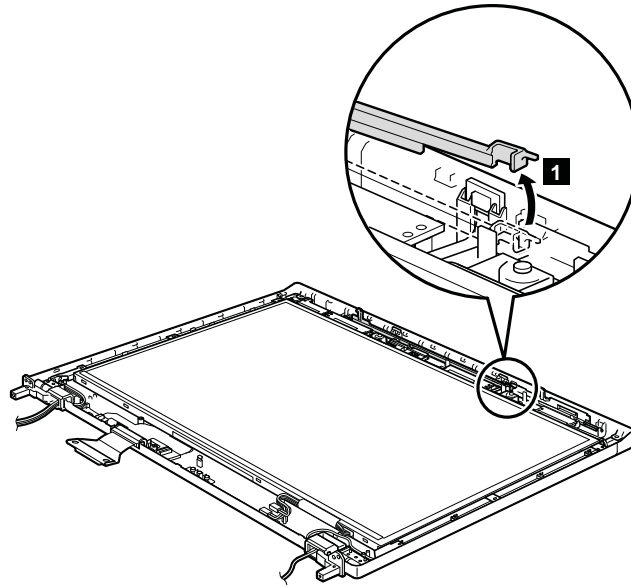
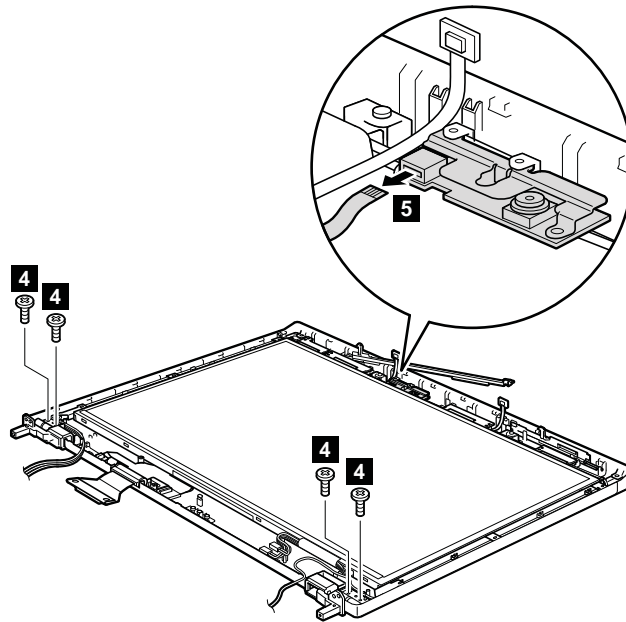


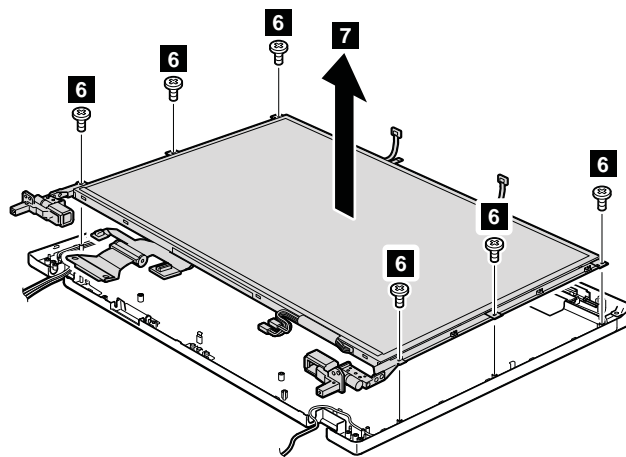
Table 52. Removal steps of LCD panel, hinges, and LCD cable (continued)



Step	Screw (quantity)	Color	Torque
For ThinkPad W700 and W701			
4	M2.5 × 5 mm, wafer-head, nylon-coated (4)	Silver	0.392 Nm (4 kgfcm)
For ThinkPad W700ds and W701ds			
4	M2.5 × 7 mm, wafer-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)

**When installing:** Make sure that the connector is attached firmly.

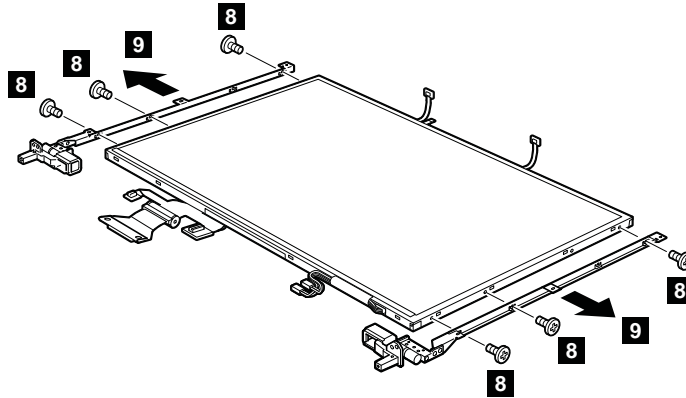
**For ThinkPad W700 and W701:**



Step	Screw (quantity)	Color	Torque
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Table 52. Removal steps of LCD panel, hinges, and LCD cable (continued)

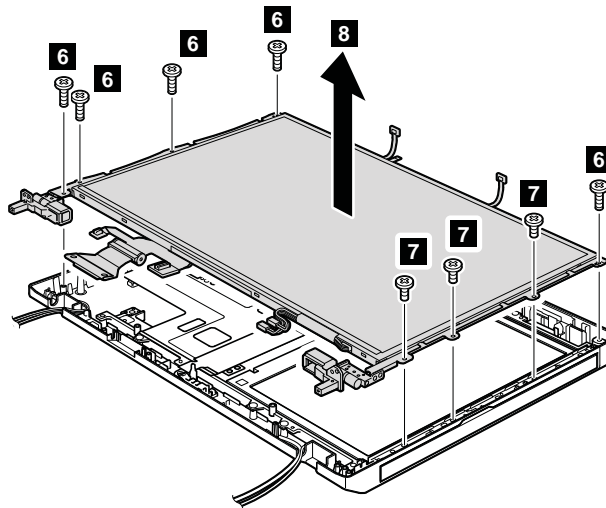
<b>6</b>	M2.5 × 3.5 mm, wafer-head, nylon-coated (6)	Black	0.392 Nm (4 kgfcm)
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Step	Screw (quantity)	Color	Torque
<b>8</b>	M2 × 3 mm, wafer-head, nylon-coated (6)	Black	0.181 Nm (1.85 kgfcm)

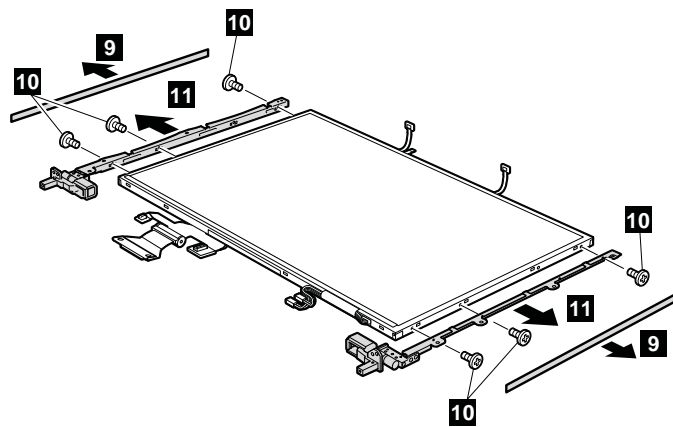
For ThinkPad W700 and W701, skip steps from **10** and **11**.

For ThinkPad W700ds and W701ds:

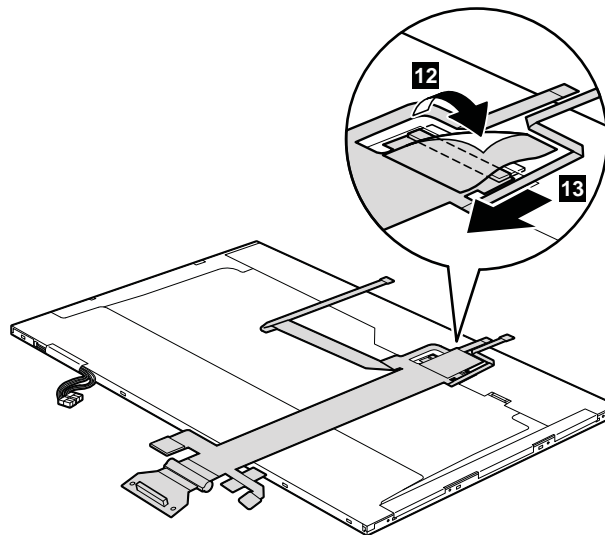


Step	Screw (quantity)	Color	Torque
<b>6</b>	M2.5 × 7 mm, wafer-head, nylon-coated (5)	Black	0.392 Nm (4 kgfcm)
<b>7</b>	M2.5 × 3.5 mm, wafer-head, nylon-coated (3)	Black	0.392 Nm (4 kgfcm)

Table 52. Removal steps of LCD panel, hinges, and LCD cable (continued)



Step	Screw (quantity)	Color	Torque
10	M2 × 3 mm, wafer-head, nylon-coated (6)	Black	0.181 Nm (1.85 kgfcm)



**When installing:** Make sure that the LCD cable is attached firmly.

## 2060 Second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds)

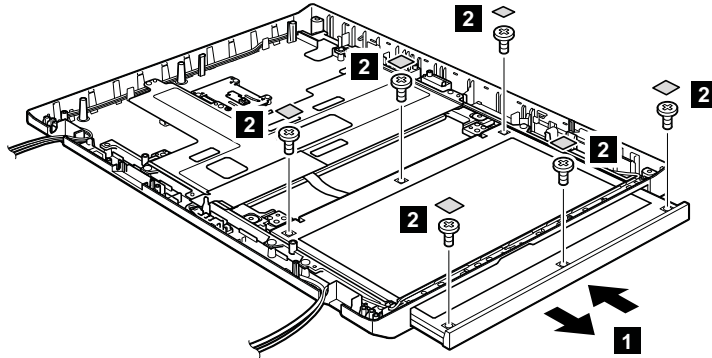
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113



- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132
- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134
- “2050 LCD panel, hinges, and LCD cable” on page 134

Table 53. Removal steps of second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds)



Step	Screw (quantity)	Color	Torque
<b>2</b>	M2.5 × 4.5 mm, wafer-head, nylon-coated (6)	Silver	0.392 Nm (4 kgfcm)

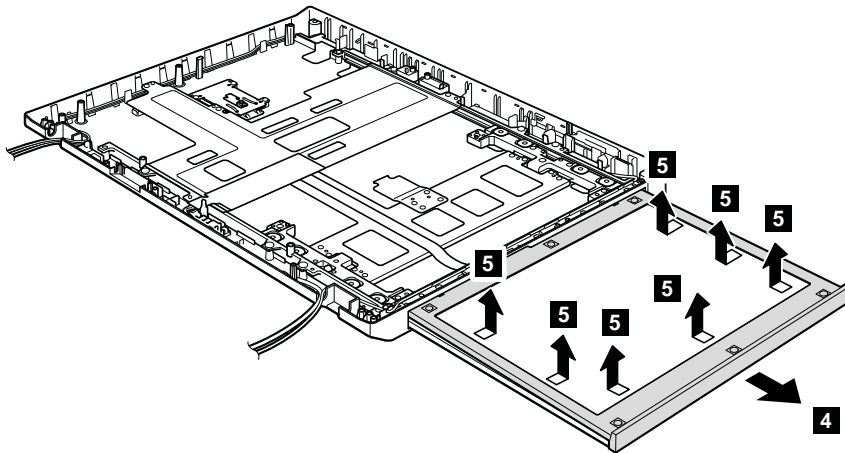
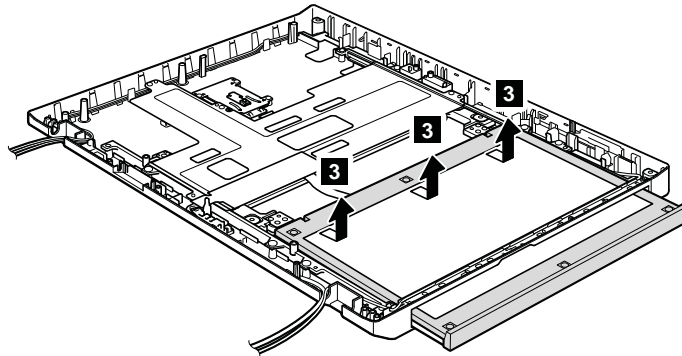
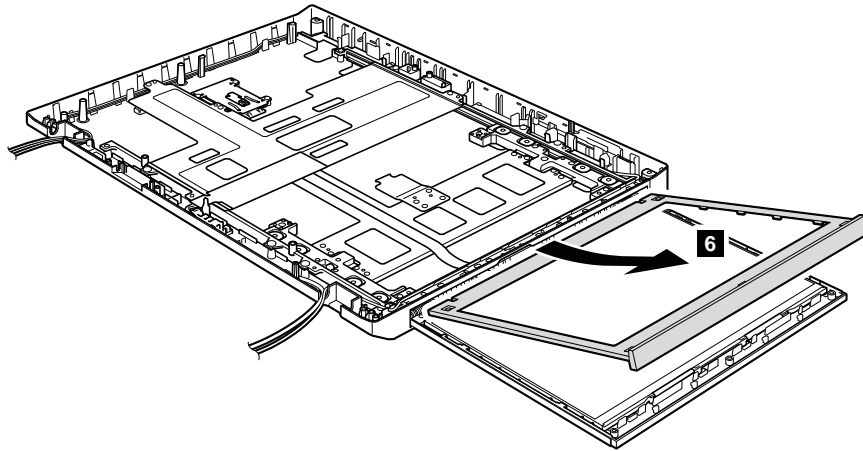


Table 53. Removal steps of second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds) (continued)



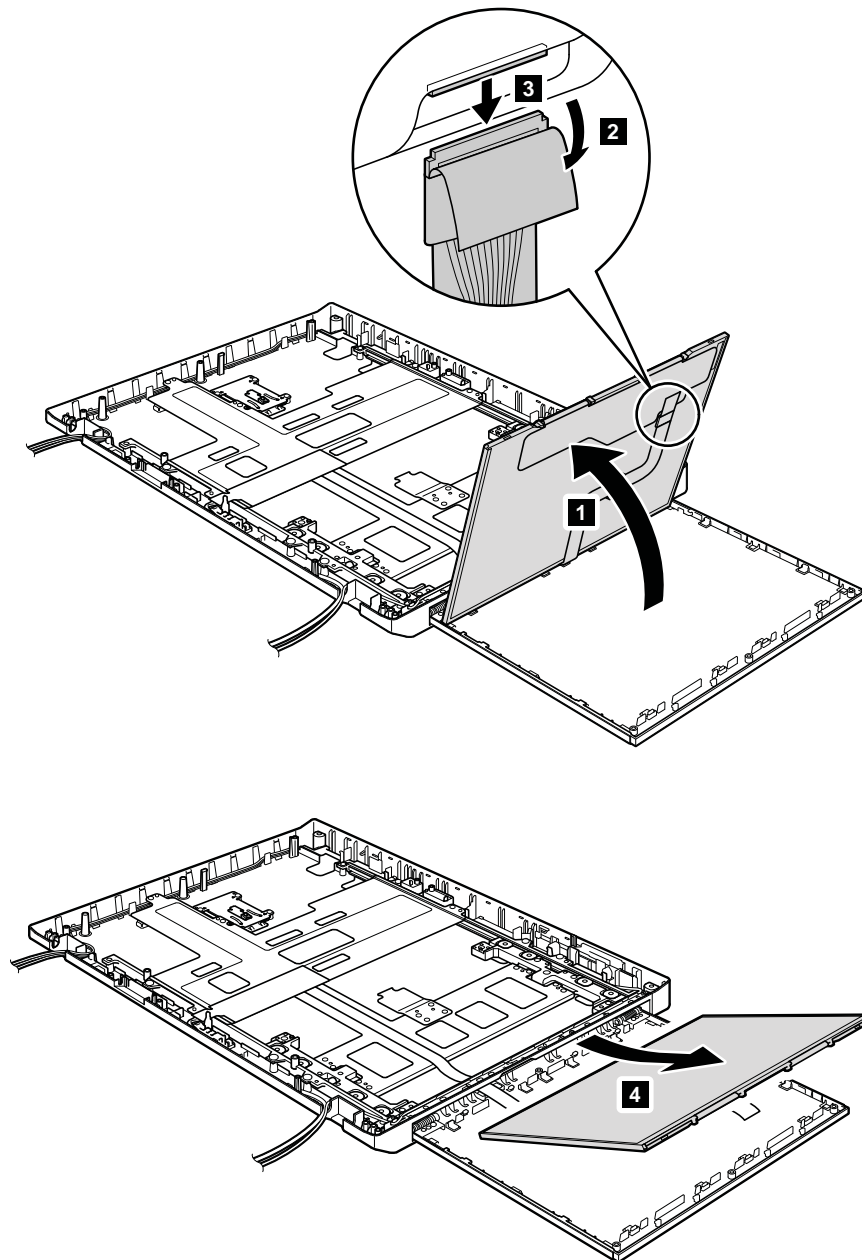
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## 2070 Second LCD panel (for ThinkPad W700ds and W701ds)

For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132
- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134
- “2050 LCD panel, hinges, and LCD cable” on page 134
- “2060 Second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds)” on page 138

Table 54. Removal steps of second LCD panel (for ThinkPad W700ds and W701ds)



## 2080 Second LCD cable assembly (for ThinkPad W700ds and W701ds)

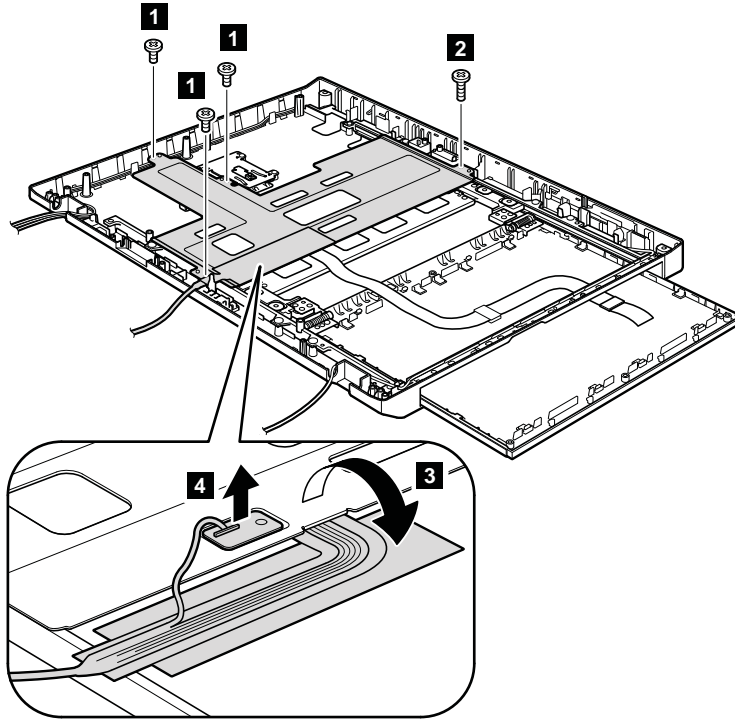
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113

- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132
- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134
- “2050 LCD panel, hinges, and LCD cable” on page 134
- “2060 Second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds)” on page 138
- “2070 Second LCD panel (for ThinkPad W700ds and W701ds)” on page 140

Table 55. Removal steps of second LCD cable assembly (for ThinkPad W700ds)

**For ThinkPad W700ds:**



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2.5 × 4.5 mm, wafer-head, nylon-coated (3)	Silver	0.392 Nm (4 kgfcm)
<b>2</b>	M2.5 × 7 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

Table 55. Removal steps of second LCD cable assembly (for ThinkPad W700ds) (continued)

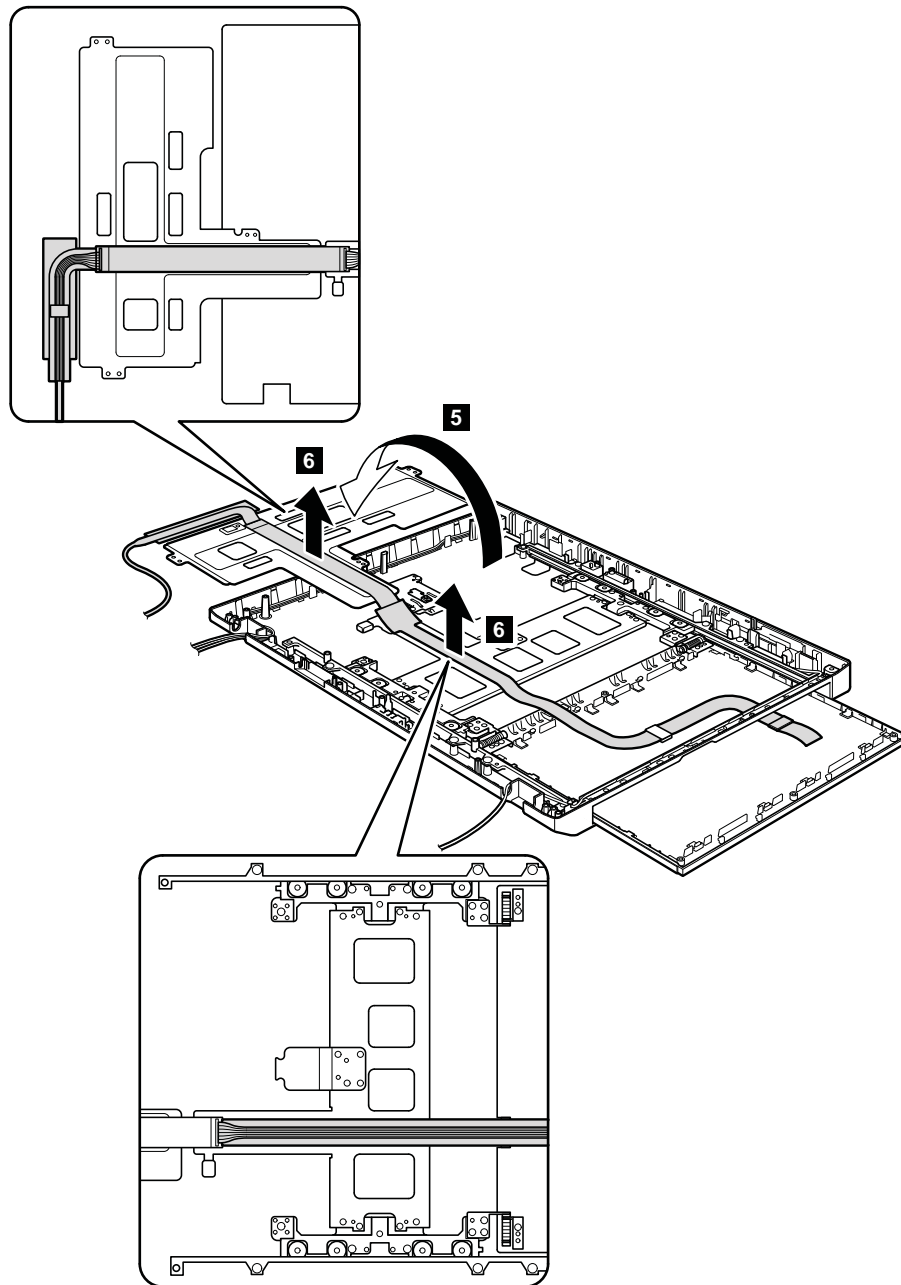


Table 56. Removal steps of second LCD cable assembly (for ThinkPad W701ds)

**For ThinkPad W701ds:**

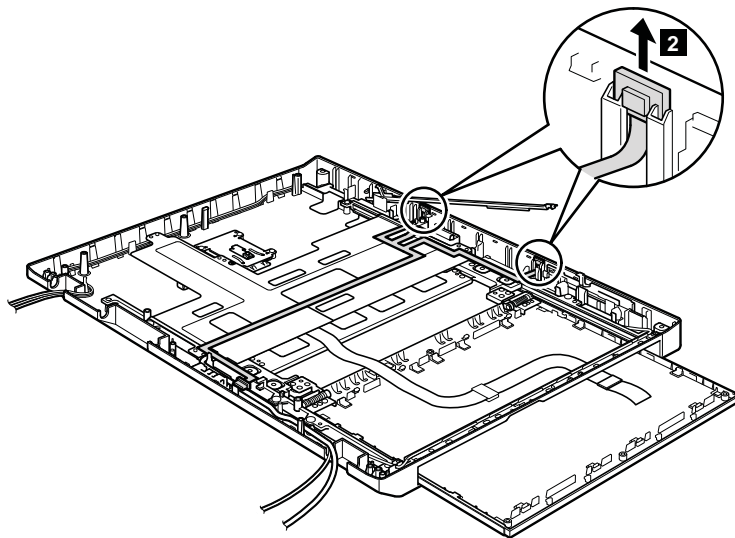
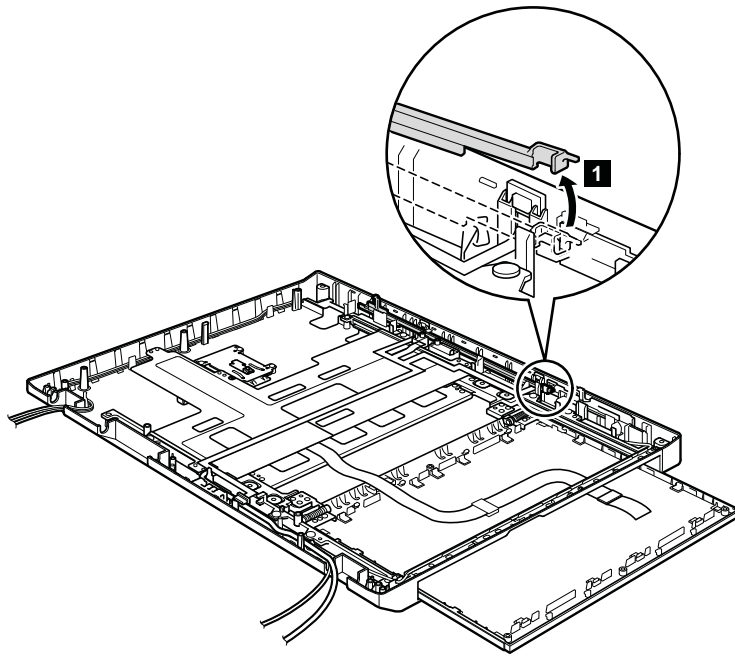
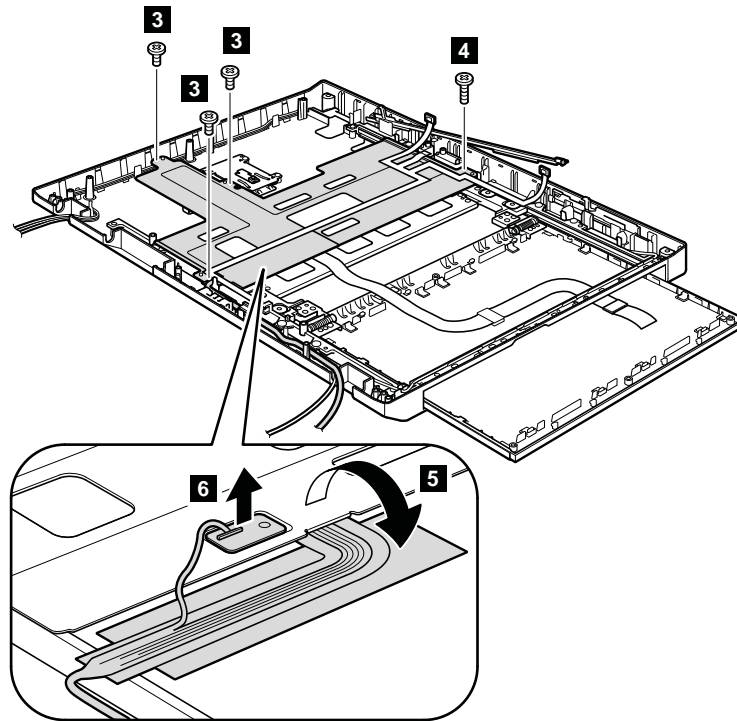
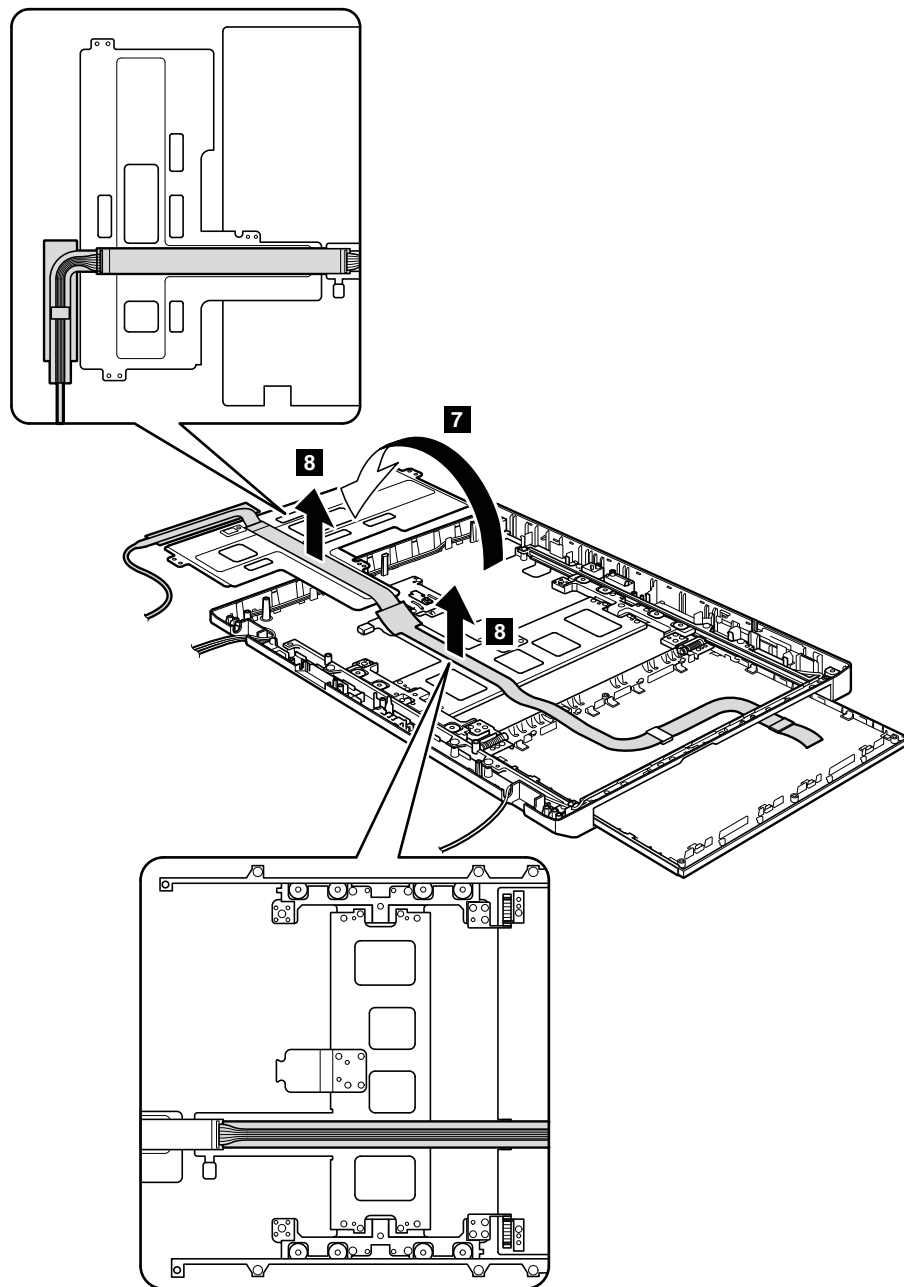


Table 56. Removal steps of second LCD cable assembly (for ThinkPad W701ds) (continued)



Step	Screw (quantity)	Color	Torque
<b>3</b>	M2.5 × 4.5 mm, wafer-head, nylon-coated (3)	Silver	0.392 Nm (4 kgfcm)
<b>4</b>	M2.5 × 7 mm, wafer-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)

Table 56. Removal steps of second LCD cable assembly (for ThinkPad W701ds) (continued)



## 2090 Second LCD hinges and second LCD rear cover (second LCD cover kit) (for ThinkPad W700ds and W701ds)

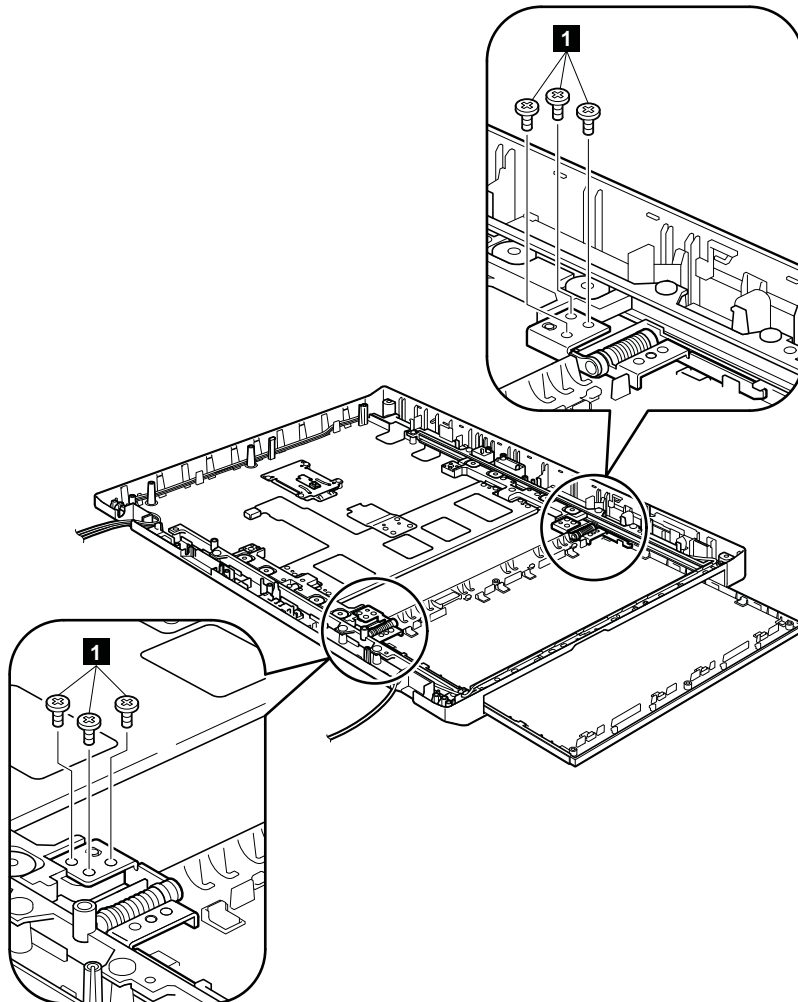
For access, remove these FRUs in order:

- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80



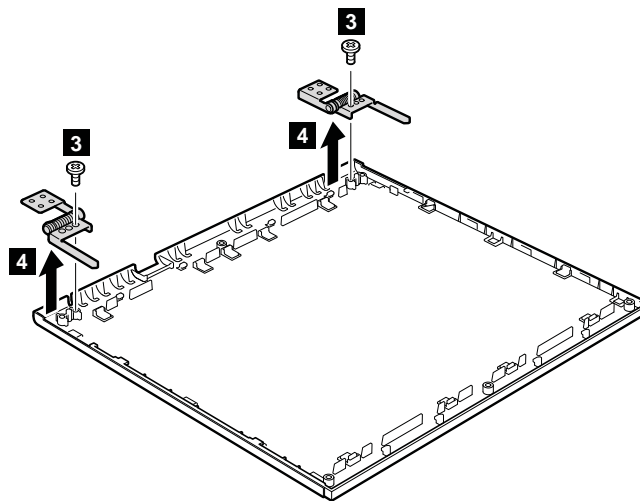
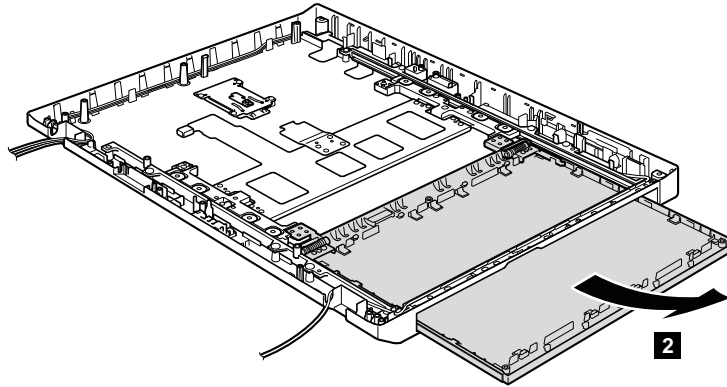
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132
- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134
- “2050 LCD panel, hinges, and LCD cable” on page 134
- “2060 Second LCD bezel (second LCD cover kit) (for ThinkPad W700ds and W701ds)” on page 138
- “2070 Second LCD panel (for ThinkPad W700ds and W701ds)” on page 140

Table 57. Removal steps of second LCD hinges and second LCD rear cover (second LCD cover kit) (for ThinkPad W700ds and W701ds)



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2.5 × 4.5 mm, wafer-head, nylon-coated (6)	Silver	0.392 Nm (4 kgfcm)

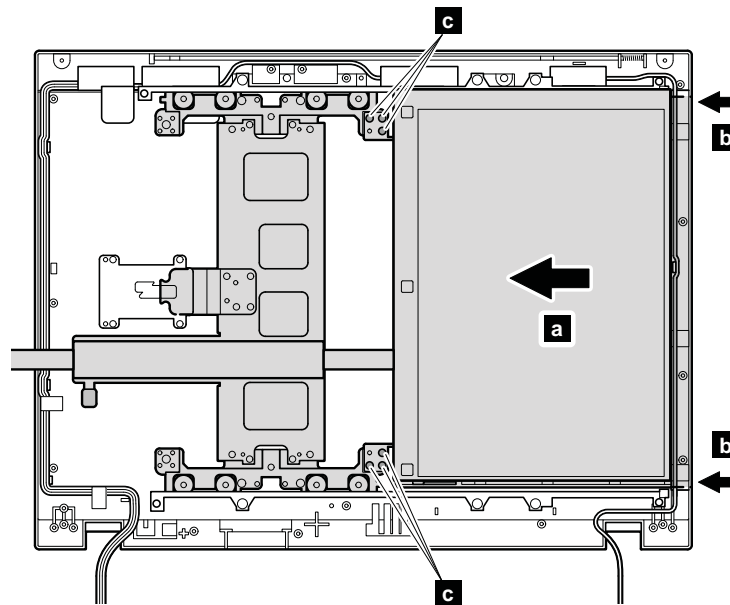
Table 57. Removal steps of second LCD hinges and second LCD rear cover (second LCD cover kit) (for ThinkPad W700ds and W701ds) (continued)



Step	Screw (quantity)	Color	Torque
<b>3</b>	M2.5 × 3.5 mm, wafer-head, nylon-coated (2)	Black	0.392 Nm (4 kgfcm)

**When installing:** After replacing the hinges or the second LCD rear cover and reinstalling the second LCD cable and the second LCD panel, press the second LCD unit into the main LCD rear cover **a**. Then make sure that the right side of the second LCD unit is aligned to the right edge of the main LCD cover as shown in **b** in this figure. To adjust the alignment, adjust the fastening of screws **c**.

Table 57. Removal steps of second LCD hinges and second LCD rear cover (second LCD cover kit) (for ThinkPad W700ds and W701ds) (continued)

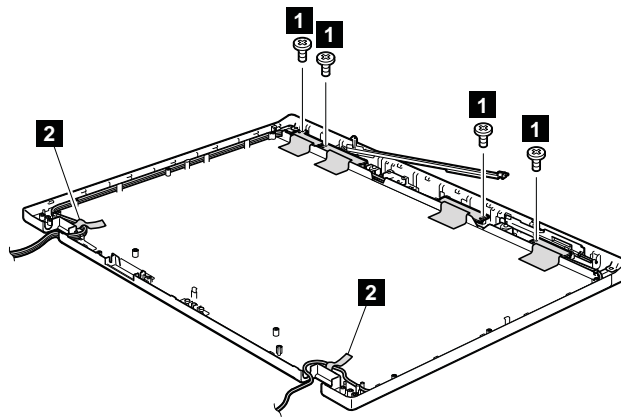


## 2100 Wireless LAN antenna assembly and wireless USB antenna

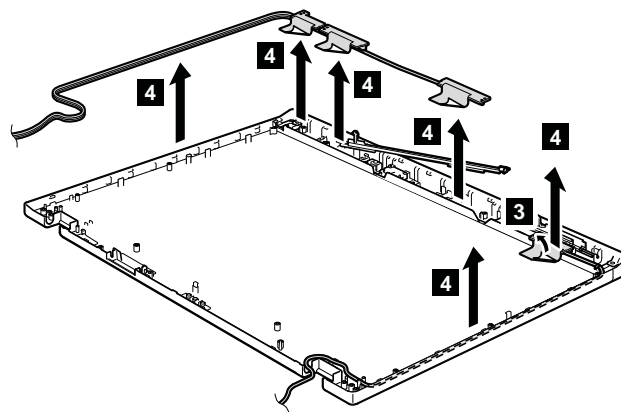
- “1010 Battery pack” on page 68
- “1040 Hard disk drive (HDD) cover, HDD and HDD rubber rails or solid state drive (SSD) and storage converter” on page 70
- “1060 Palm rest or palm rest with fingerprint reader” on page 75
- “1090 Keyboard” on page 80
- “1130 Keyboard bezel and speaker assembly” on page 88
- “1140 Wireless USB adapter or Intel Turbo Memory Minicard” on page 93
- “1150 PCI Express Mini Card for wireless LAN/WiMAX” on page 94
- “1220 LCD unit and LCD cable cap” on page 113
- “2010 LCD front bezel (LCD cover kit)” on page 129
- “2020 Inverter card” on page 130
- “2030 Integrated camera” on page 132
- “2040 **Bluetooth** daughter card (BDC-2.1) for W700 and W700ds” on page 134
- “2050 LCD panel, hinges, and LCD cable” on page 134

**Note:** The red cable is the wireless WAN antenna cable (MAIN). The blank cover of the wireless WAN does not have this cable.

Table 58. Removal steps of wireless LAN antenna assembly and UWB antenna



Step	Screw (quantity)	Color	Torque
<b>1</b>	M2 × 3.5 mm, wafer-head, nylon-coated (4)	Silver	0.181 Nm (1.85 kgfcm)

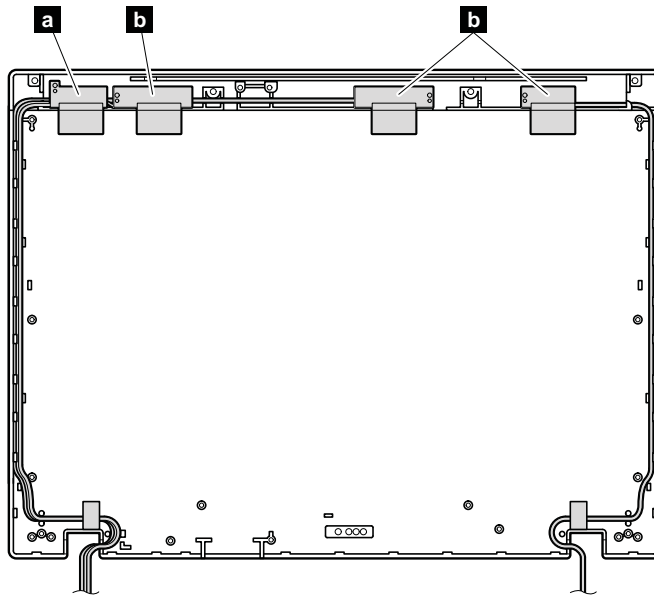


**When installing:** As you route the cables, make sure that they are not subjected to any tension. Tension could cause the cables to be damaged by the cable guides, or a wire to be broken. When attaching the antenna cable, route the cable as shown in this figure:

- a** Wireless USB antenna (only for W700 and W700ds)
- b** Wireless LAN antenna assembly

**Note:** Some models do not have the Wireless USB antenna **a**.

Table 58. Removal steps of wireless LAN antenna assembly and UWB antenna (continued)



- For models with a damaged wireless USB antenna installed, remove the damage antenna and should NOT replace it.
- For models with a non-damaged wireless USB antenna installed, leave it installed in the computer.



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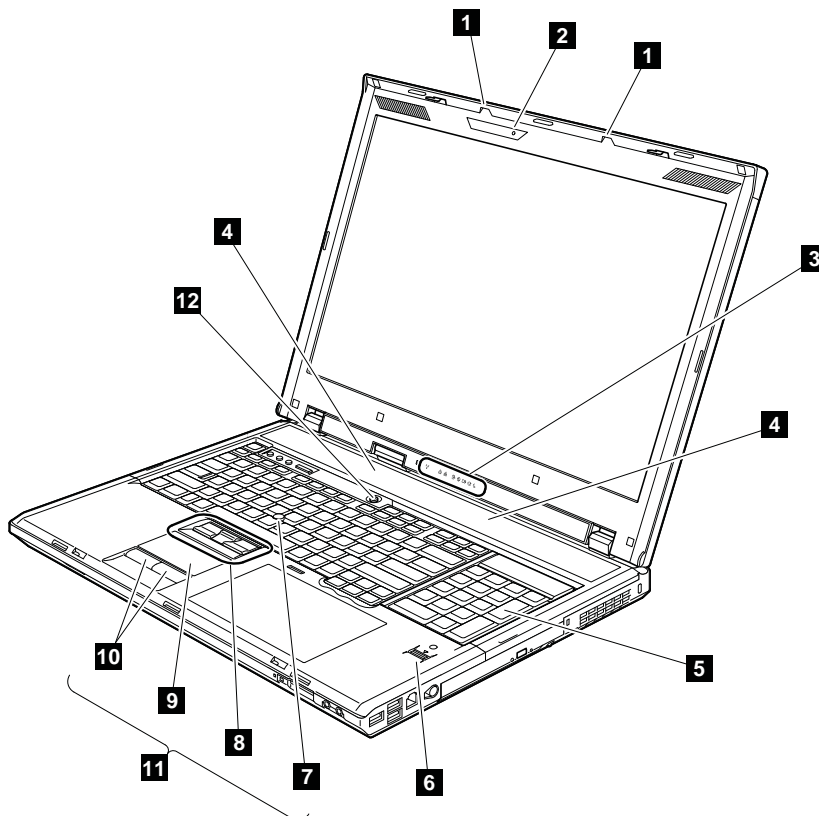
## Chapter 10. Locations

This chapter presents the location of ThinkPad W700, W700ds, W701, and W701ds features and hardware.

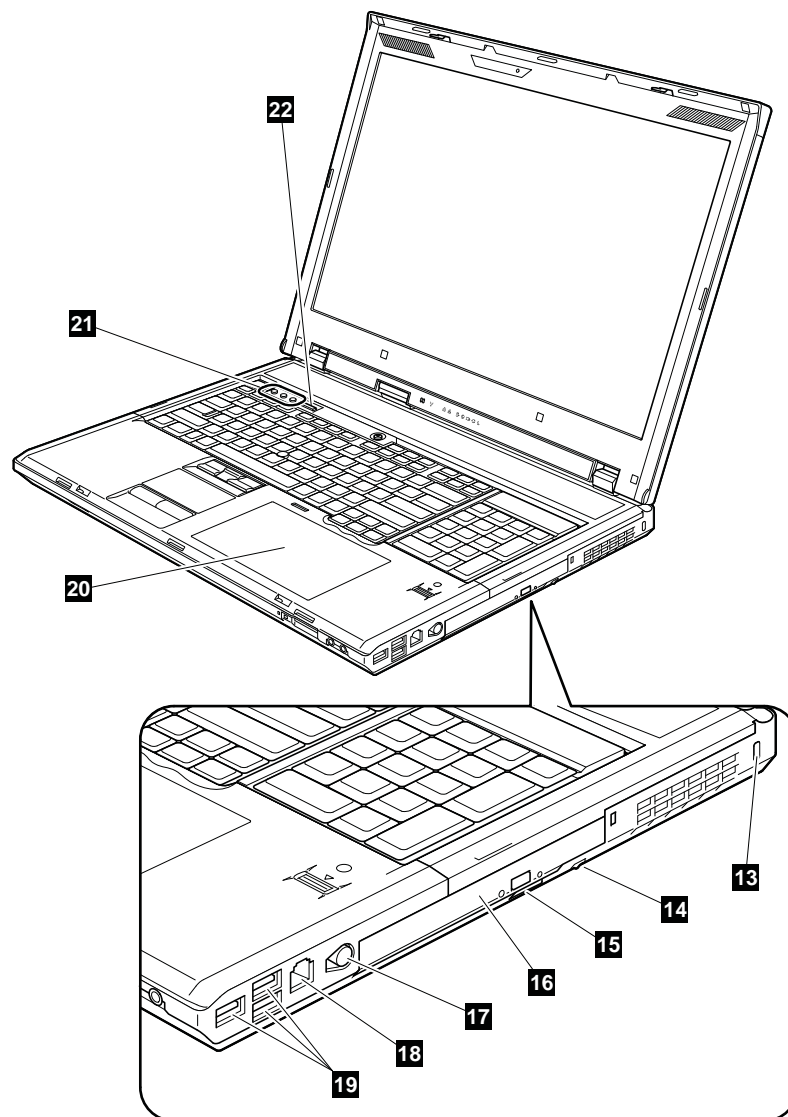
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### Front view (for ThinkPad W700 and W701)

- 1** ThinkLight
- 2** Integrated camera (for some models)
- 3** Status indicators  
**Note:** For the description of each indicator, see Chapter 6 “Status indicators” on page 55.
- 4** Stereo speakers
- 5** Numeric keypad
- 6** Fingerprint reader
- 7** TrackPoint pointing stick
- 8** TrackPoint buttons
- 9** Touch pad
- 10** Touch pad buttons
- 11** UltraNav
- 12** Power switch



- 13** Security keyhole
- 14** Serial Ultrabay Enhanced latch
- 15** Serial Ultrabay Enhanced device eject lever
- 16** Serial Ultrabay Enhanced
- 17** Digitizer pen
- 18** RJ-11 (modem) connector
- 19** USB (Universal serial bus) connectors
- 20** Digitizer pad
- 21** Volume control buttons
- 22** ThinkVantage button

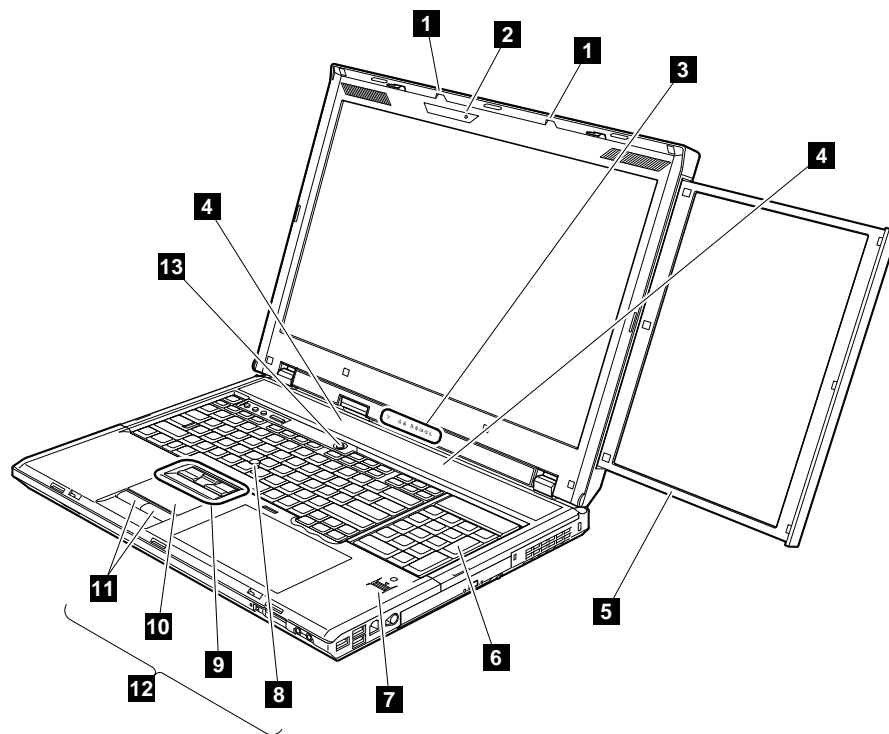




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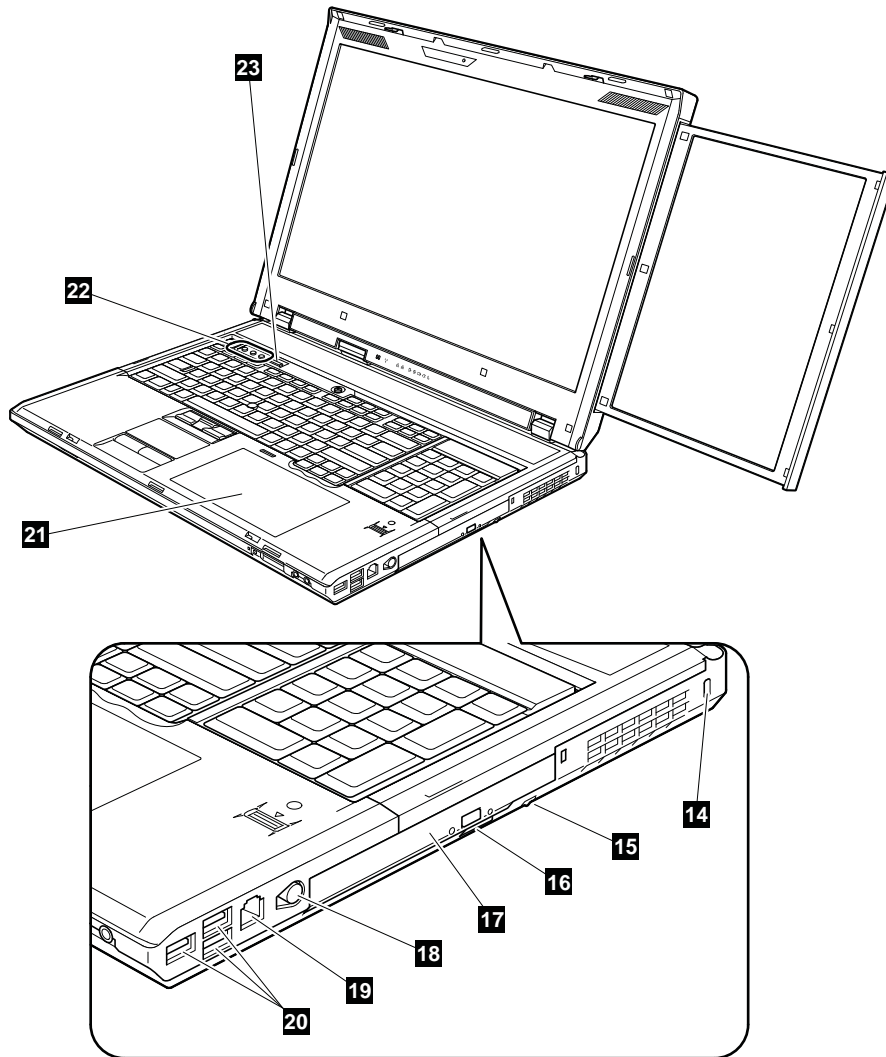
## Front view (for ThinkPad W700ds and W701ds)

- 1** ThinkLight
- 2** Integrated camera (for some models)
- 3** Status indicators  
**Note:** For the description of each indicator, see Chapter 6 “Status indicators” on page 55.
- 4** Stereo speakers
- 5** Second screen
- 6** Numeric keypad
- 7** Fingerprint reader
- 8** TrackPoint pointing stick
- 9** TrackPoint buttons
- 10** Touch pad
- 11** Touch pad buttons
- 12** UltraNav
- 13** Power switch



- 14** Security keyhole
- 15** Serial Ultrabay Enhanced latch
- 16** Serial Ultrabay Enhanced device eject lever
- 17** Serial Ultrabay Enhanced

- 18** Digitizer pen
- 19** RJ-11 (modem) connector
- 20** USB (Universal serial bus) connectors
- 21** Digitizer pad
- 22** Volume control buttons
- 23** ThinkVantage button

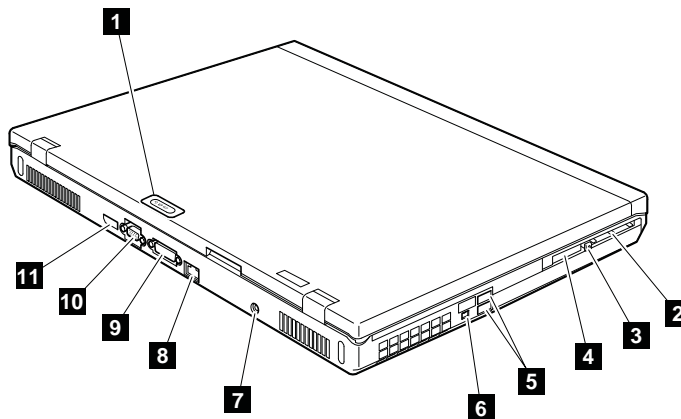



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## Rear view

- 1** Status indicators  
**Note:** For the description of each indicator, see Chapter 6 “Status indicators” on page 55.
- 2** ExpressCard/Smart Card/CompactFlash card slot
- 3** ExpressCard/Smart Card/CompactFlash card eject button
- 4** ExpressCard slot

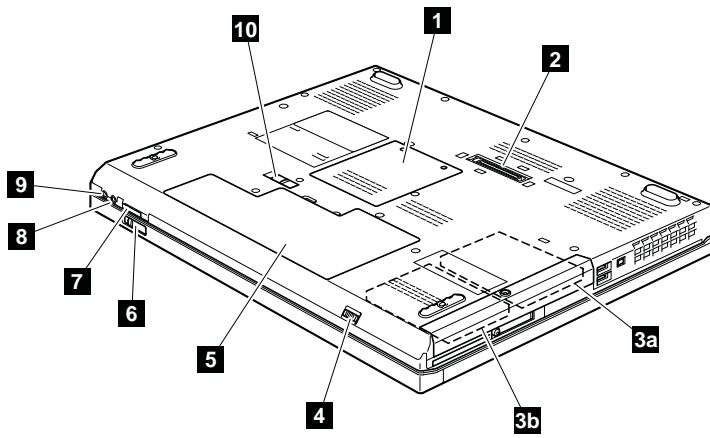
- 5** Universal serial bus (USB) 2.0 connectors (for W700 and W700ds)
- USB 3.0 connector (upper connector) and USB/eSATA combo connector (lower connector) (for W701 and W701ds)
- 6** IEEE 1394 connector
- 7** AC power connector
- 8** RJ-45 (Ethernet) connector
- 9** DVI (Digital Visual Interface) connector
- 10** External monitor connector
- 11** DisplayPort




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## Bottom view

- 1** Memory-upgrade slot
- 2** Docking connector
- 3a** Hard disk drive or solid state drive (slot 0)
- 3b** Hard disk drive or solid state drive (slot 1)
- 4** Wireless radio switch
- 5** Battery pack
- 6** LCD cover latch
- 7** 7-in-1 media card reader (for W700 and W700ds)
- 5-in-1 media card reader (for W701 and W701ds)
- 8** Stereo headphone jack
- 9** Microphone jack
- 10** Battery pack latch



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## Chapter 11. Parts list

This section contains following lists of the service parts.

- “Overall” on page 160
- “LCD FRUs forThinkPad W700” on page 184
- “LCD FRUs for ThinkPad W700ds” on page 188
- “Keyboard” on page 194
- “Miscellaneous parts” on page 195
- “AC adapters” on page 197
- “Power cords” on page 198
- “Recovery discs” on page 200
- “Common service tools” on page 207

### Notes:

- Each FRU is available for all types or models, unless specific types or models are specified.
- FRU with specific models listed and described as xxU (where U is an example of a country designator) should be used for all models ending in U.
- FRU with specific models listed and described as 3Dx (where 3D is an example of a unique configuration) should be used for all of these models, unless specific country or region designator is specified.
- A CRU (customer replaceable unit) is identified by a single asterisk (\*) or two asterisks (\*\*) in the CRU ID column. An N in the CRU ID column means that the part is not a CRU. A single asterisk (\*) means that the part is a Self-service CRU; two asterisks (\*\*) means that the part is an Optional-service CRU. ThinkPad 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 an ac adapter, a power cord, a battery, and a hard disk drive. Other Self-service CRUs depending on product design may include a memory, a wireless card, a keyboard, and a palm rest with finger print reader and touchpad.

#### 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.

- FRUs marked with **OP** are available as options.

# Overall

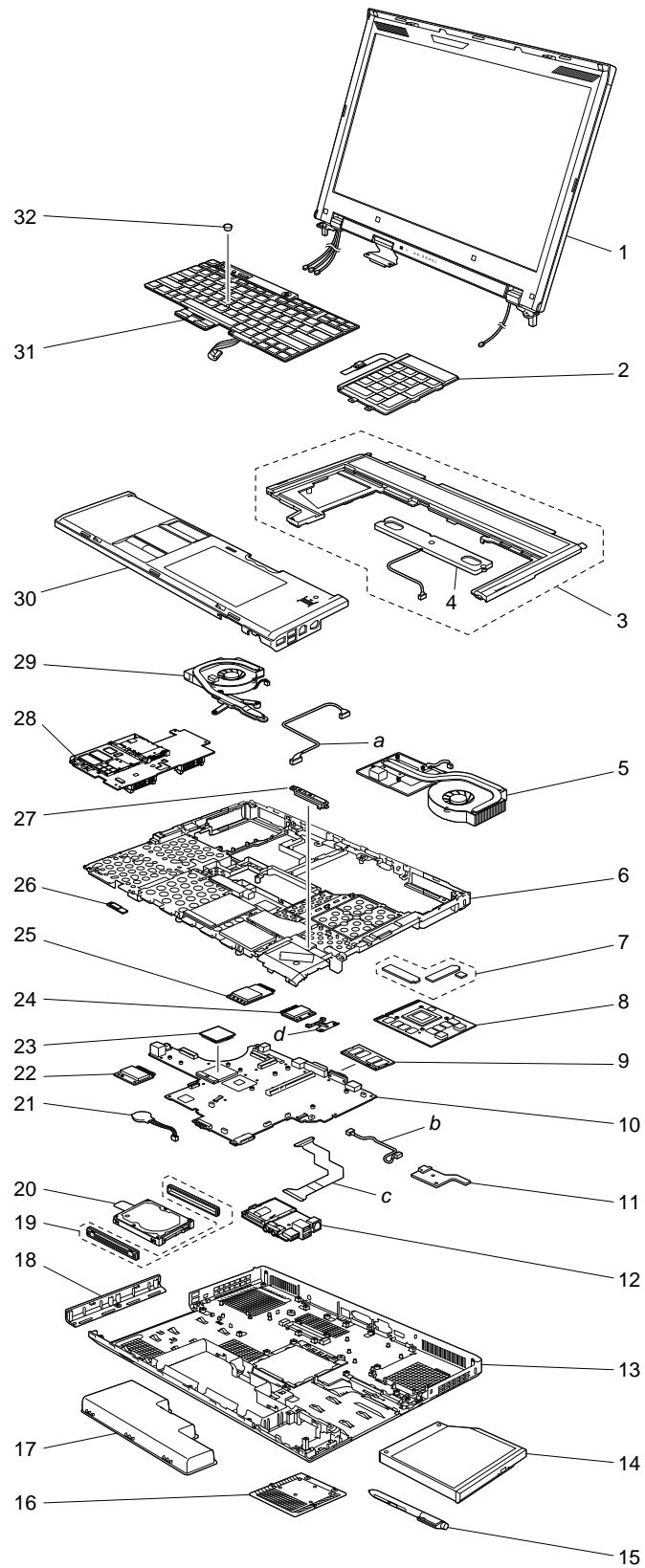


Table 59. Parts list—Overall

No.	FRU	FRU no.	CRU ID
a - d	See "" on page .		
1	LCD unit (see "LCD FRUs for ThinkPad W700" on page 184, "LCD FRUs for ThinkPad W700ds" on page 188, "LCD FRUs for ThinkPad W701" on page 189, or "LCD FRUs for ThinkPad W701ds" on page 193.)		
2	Numeric keypad	42T3903	N
3	Keyboard bezel assembly with speaker for W700 and W700ds	45N6049	N
3	Keyboard bezel assembly with speaker for W701 and W701ds	60Y4933	N
4	Speaker assembly for W700 and W700ds	39T7495	N
4	Speaker assembly for W701 and W701ds	60Y5738	N
5	VGA thermal device and fan for W700 and W700ds	45N6058	N
5	VGA thermal device and fan for W700 and W700ds	45N6060	N
5	VGA thermal device and fan for W701 and W701ds	60Y4947	N
5	VGA thermal device and fan for W701 and W701ds	60Y4949	N
6	Structure frame for W700 and W700ds	45N6098	N
6	Structure frame for W701 and W701ds	60Y4940	N
7	Thermal putty for W701 and W701ds	75Y5867	N
8	Video card for MXM NB9E-GLM2 <ul style="list-style-type: none"> <li>• 2752-CTO, 3Bx, 3Ex, 3Fx, 3Hx, 3Jx, 3Lx, 3Mx, 68x, 69x, 6Ex, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 73x, 78x, 7Bx, E5x, ETx, EWx, F3x, F4x, F6x, F9x, FGx, FKx, FTx, Fx, MBx, MCx, MGx, MNx, MUX, N5x, N6x, N7x</li> <li>• 2753-CTO, 48x, 6Yx, MNx</li> <li>• 2754-CTO, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Sx, 5Tx, 5Ux</li> <li>• 2757-CTO, 22x, 23x, 24x, 25x, 26x, 27x, 4Jx, 4Kx, 4Lx, 4Px, 4Qx, 4Rx, FPx, LXx</li> <li>• 2758-CTO, 4Sx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 55x, 56x, 57x, 5Ax, 74x, E2x, EGx, FFx, LYx, LZx, M5x, MLx, MPx, MQx, MVx, MWx, MXx, MZx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8202	N
8	Video card for MXM NB9E-GLM3 <ul style="list-style-type: none"> <li>• 2752-CTO, 36x, 37x, 38x, 3Ax, 3Cx, 3Dx, 3Kx, 3Nx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 5Zx, 62x, 63x, 64x, 65x, 66x, 67x, 6Ax, 6Bx, 6Cx, 6Dx, 6Nx, 6Px, 6Sx, 6Tx, 6Ux, 6Zx, 72x, 7Cx, 7Dx, E4x, E7x, EPx, EQx, ERx, ESx, EUx, EVx, F2x, F5x, F7x, F8x, FAx, FBx, FCx, FDx, FHx, FJx, FLx, FSx, FUx, FVx, FWx, M9x, MAx, MDx, MEx, MFx, MSx, MTx, N3x, N4x, N8x, N9x</li> <li>• 2753-CTO, 6Sx, 6Tx, 6Ux, 6Vx, 6Wx, 6Xx, 6Zx, 72x, E6x, E7x, MHx, MJx</li> <li>• 2754-CTO, 5Vx, 5Wx, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, 4Mx, 4Nx, E8x, E9x</li> <li>• 2758-CTO, 28x, 29x, 2Bx, 4Tx, 4Ux, 4Vx, 58x, 59x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 75x, 76x, 77x, 79x, 7Ax, E3x, EAx, EBx, ECx, EDx, EEx, EFx, EHx, EJx, EKx, ELx, FEx, FQx, M2x, M3x, M4x, M6x, M7x, MKx, MMx, MRx, MYx, N2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8204	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
8	Video card for MXM3.0 N10E-GLM <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 3Bx, 2Ex, 3Dx, 3Fx, 3Gx, 3Hx, 5Cx, 5Dx, 3Lx, 2Cx, 3Rx, 3Sx, 3Tx, 3Ux</li> <li>• 2541-CTO, 29x, 4Jx, 4Kx, 27x, 2Qx, 32x, 2Rx, 4Nx, 5Jx, 5Kx, 4Sx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 58x, 59x, 5Ax</li> <li>• 2542-CTO, 58x, 59x, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	63Y2057	N
8	Video card for MXM3.0 N10E-GLM3 <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 24x, 2Xx, 3Cx, 2Gx, 2Lx, 2Mx, 3Ex, 3Jx, 3Kx, 5Ex, 5Fx, 3Mx, 3Nx, 5Gx, 5Hx, 2Ax, 2Bx, 3Px, 3Qx, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 4Hx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Px, 4Qx, 26x, 4Rx, 4Tx, 4Ux, 55x, 56x, 57x, 2Nx, 2Px, 5Bx</li> <li>• 2542-CTO, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx</li> </ul>	63Y2058	N
9	1-GB DDR3-1066 SDRAM SO-DIMM (PC3-8500) card <ul style="list-style-type: none"> <li>• 2752-CTO, E5x, MSx</li> <li>• 2753-CTO, E6x</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, MWx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43R1989	**
9	1-GB DDR3-1066 SDRAM SO-DIMM (PC3-8500) card <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	55Y3712	**
9	2-GB DDR3-1066 SDRAM SO-DIMM (PC3-8500) card <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, ETx, EVx, E4x, F6x, F7x, M9x, MFx, MSx, EPx, FCx, FDx, F3x, F5x, F8x, F9x, FAx, FGx, FHx, FJx, MAx, MCx, MDx, MEx, FLx, MNx, MUx, FSx, FTx, FUx, FVx, FWx, FXx, N3x, N4x, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MJx, MHx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, LXx, E9x, FPx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, LYx, LZx, M2x, M4x, MVx, MWx, EEx, EFx, EKx, E2x, E3x, ELx, FEx, M3x, M5x, M6x, FFx, MKx, MLx, MMx, MPx, MQx, MRx, FQx, MXx, MYx, MZx, N2x, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43R1969	**



Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
9	2-GB DDR3-1066 SDRAM SO-DIMM (PC3-8500) card <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	55Y3713	**
9	4-GB DDR3-1066 SDRAM SO-DIMM (PC3-8500) card <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EUx, EWx, FBx, F2x, F4x, FKx, MBx, MGx, MTx</li> <li>• 2753-CTO, E7x</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EHx, EJx, M7x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	51J0494	**
9	1-GB DDR3-1333 SDRAM SO-DIMM (PC3-10600) card <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	55Y3715	**
9	2-GB DDR3-1333 SDRAM SO-DIMM (PC3-10600) card <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	55Y3716	**
9	4-GB DDR3-1333 SDRAM SO-DIMM (PC3-10600) card <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 2Lx, 2Mx, 3Gx, 5Gx, 2Ax, 2Bx, 43x</li> <li>• 2541-CTO, 4Jx, 4Kx, 4Lx, 4Nx, 4Qx, 5Jx</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	55Y3717	**
—	Memory-upgrade slot cover (under keyboard) for W701 and W701ds	60Y4953	*
10	System board assembly, MXM-support, TPM for W700 <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, ETx, EVx, E4x, F5x, F6x, F7x, FAx, FGx, FHx, FJx, FKx, MCx, MDx, MEx, MFx, FLx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FXx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MJx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, FPx, LXx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, M2x, M3x, M4x, M5x, M6x, FFx, MLx, MPx, MQx, MRx, MVx, MWx, MXx, MZx, N2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N4544	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
10	System board assembly, MXM-support, non-TPM for W700 <ul style="list-style-type: none"> <li>• 2752-CTO, F8x, F9x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, LYx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N4545	N
10	System board assembly, MXM-support, TPM for W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EUx, EWx, FBx, FCx, E5x, F3x, F4x, M9x, MAx, MBx, MGx, FVx, FWx, N3x, N4x</li> <li>• 2753-CTO, E7x, E6x, MHx</li> <li>• 2754-CTO</li> <li>• 2757-CTO, E9x</li> <li>• 2758-CTO, EJx, EKx, E2x, E3x, ELx, FEx, M7x, MKx, MMx, FQx, MYx, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N4546	N
10	System board assembly, MXM-support, non-TPM for W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, FDX, F2x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EHx, LXx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N4547	N
10	System board assembly, MXM-support, TPM for W701 <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 3Ax, 3Bx, 2Ex, 2Gx, 2Lx, 2Mx, 3Gx, 3Hx, 5Cx, 5Dx, 3Lx, 3Mx, 5Gx, 2Ax, 2Cx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4Bx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Kx, 27x, 2Qx, 32x, 2Rx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Nx, 5Jx, 4Sx, 4Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 55x, 2Nx, 58x, 59x, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x</li> <li>• 4326-CTO, 4Dx</li> </ul>	60Y5650	N
10	System board assembly, MXM-support, non-TPM for W701 <ul style="list-style-type: none"> <li>• 2500-CTO, 3Dx, 3Fx</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y5652	N
10	System board assembly, MXM-support, TPM for W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 3Cx, 3Jx, 3Kx, 5Ex, 5Fx, 3Nx, 5Hx, 2Bx, 3Px, 3Qx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx</li> <li>• 2541-CTO, 4Jx, 4Px, 4Qx, 5Kx, 26x, 4Rx, 4Ux, 54x, 56x, 57x, 2Px, 5Ax</li> <li>• 2542-CTO, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	60Y5654	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
10	System board assembly, MXM-support, non-TPM for W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ex</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y5656	N
11	ODD switch sub card only for W700 and W700ds	42W8045	N
12	Audio and card reader I/O card for W700 and W700ds	42W8044	N
12	Audio and card reader I/O card for W701 and W701ds	60Y5730	N
13	Base cover assembly for 2752	45N5408	N
13	Base cover assembly for 2753	45N5409	N
13	Base cover assembly for 2754	45N5410	N
13	Base cover assembly for 2757	45N5411	N
13	Base cover assembly for 2758	45N6095	N
13	Base cover assembly for 2762	45N6096	N
13	Base cover assembly for 2763	45N6097	N
13	Base cover assembly for W701 and W701ds	60Y4942	N
14	DVD/CD-RW combo drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO, 48x, 6Yx</li> <li>• 2754-CTO, 5Tx</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2535	**
14	DVD/CD-RW combo drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO, 48x, 6Yx</li> <li>• 2754-CTO, 5Tx</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2563	**
14	DVD-RAM/RW drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ERx, ESx, ETx, EVx, EWx, FBx, FCx, FDx, E4x, F3x, F6x, F7x, FGx, FHx, FJx, FKx, MAx, MBx, MCx, MDx, MEx, MFx, MGx, FLx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FVx, FWx, FXx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, E7x, E6x, MJx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, E9x, LXx, FPx</li> <li>• 2758-CTO, EAx, ECx, EEx, EGx, EHx, EJx, EKx, E2x, E3x, LYx, M2x, M3x, M4x, M5x, M6x, FFx, MLx, MMx, MPx, MQx, MRx, FQx, MVx, MWx, MXx, MYx, MZx, N2x, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2537	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
14	DVD-RAM/RW drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ERx, ESx, ETx, EVx, EWx, FBx, FCx, FDx, E4x, F3x, F6x, F7x, FGx, FHx, FJx, FKx, MAx, MBx, MCx, MDx, MEx, MFx, MGx, FLx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FVx, FWx, FXx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, E7x, E6x, MJx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, E9x, LXx, FPx</li> <li>• 2758-CTO, EAx, ECx, EEx, EGx, EHx, EJx, EKx, E2x, E3x, LYx, M2x, M3x, M4x, M5x, M6x, FFx, MLx, MMx, MPx, MQx, MRx, FQx, MVx, MWx, MXx, MYx, MZx, N2x, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2565	**
14	DVD-RAM/RW drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 3Ax, 3Bx, 3Cx, 2Ex, 2Gx, 2Lx, 2Mx, 3Gx, 3Hx, 3Jx, 3Kx, 5Cx, 5Dx, 5Ex, 5Fx, 3Lx, 3Mx, 3Nx, 5Gx, 5Hx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Wx, 4Ax, 4Bx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Jx, 4Kx, 27x, 2Qx, 32x, 2Tx, 2Ux, 2Wx, 4Mx, 4Nx, 4Px, 4Qx, 5Jx, 5Kx, 26x, 4Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 58x, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 34x, 35x</li> <li>• 4326-CTO</li> </ul>	45N7465	**
14	DVD-RAM/RW drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 3Ax, 3Bx, 3Cx, 2Ex, 2Gx, 2Lx, 2Mx, 3Gx, 3Hx, 3Jx, 3Kx, 5Cx, 5Dx, 5Ex, 5Fx, 3Lx, 3Mx, 3Nx, 5Gx, 5Hx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Wx, 4Ax, 4Bx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Jx, 4Kx, 27x, 2Qx, 32x, 2Tx, 2Ux, 2Wx, 4Mx, 4Nx, 4Px, 4Qx, 5Jx, 5Kx, 26x, 4Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 58x, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 34x, 35x</li> <li>• 4326-CTO</li> </ul>	45N7455	**
14	Blu-ray drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO, EUx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, M9x, N3x, N4x</li> <li>• 2753-CTO, MHx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EBx, EDx, EFx, ELx, FEx, LZx, M7x, MKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2539	**
14	Blu-ray drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2752-CTO, EUx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, M9x, N3x, N4x</li> <li>• 2753-CTO, MHx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EBx, EDx, EFx, ELx, FEx, LZx, M7x, MKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T2525	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
14	Blu-ray combo drive, 12.7 mm <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 3Dx, 3Ex, 3Fx, 2Ax, 2Bx, 3Vx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx</li> <li>• 2541-CTO, 4Rx, 4Sx, 4Ux, 55x, 56x, 57x, 2Nx, 2Px</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx</li> </ul>	45T2617	**
14	Travel cover, 12.7 mm for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, xxE, xxJ</li> <li>• 2753-CTO, xxE, xxJ</li> <li>• 2754-CTO, xxE, xxJ</li> <li>• 2757-CTO, xxE, xxJ</li> <li>• 2758-CTO, xxE, xxJ</li> <li>• 2762-CTO, xxE, xxJ</li> <li>• 2763-CTO, xxE, xxJ</li> </ul>	44C0692	*
14	Travel cover, 12.7 mm for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y5512	*
15	Digitizer pen	45N2631	*
16	Memory-upgrade slot cover	44C9536	*
16	Memory-upgrade slot cover for W701 and W701ds	60Y4951	*
17	Battery pack, Li-ion (9 cell) 37++	42T4655	*
17	Battery pack, Li-ion (9 cell) 37++	42T4558	*
18	Hard disk drive cover assembly	44C9509	*
19	Hard disk drive rubber rails	41V9756	*
20	<b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.		
	SATA hard disk drive, 250 GB, 9.5 mm, 5,400 rpm <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, F3x</li> <li>• 2753-CTO</li> <li>• 2754-CTO, ENx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EHx, E3x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1481	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, F3x</li> <li>• 2753-CTO</li> <li>• 2754-CTO, ENx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EHx, E3x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1471	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, F3x</li> <li>• 2753-CTO</li> <li>• 2754-CTO, ENx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EHx, E3x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1517	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, F3x</li> <li>• 2753-CTO</li> <li>• 2754-CTO, ENx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EHx, E3x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1581	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ESx, EUx, EWx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, FGx, FBx, FCx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FNx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, LYx, M3x, M4x, EJx, EKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1507	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ESx, EUx, EWx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, FGx, FBx, FCx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FNx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, LYx, M3x, M4x, EJx, EKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1535	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ESx, EUx, EWx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, FGx, FBx, FCx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FNx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, LYx, M3x, M4x, EJx, EKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1583	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ESx, EUx, EWx, F2x, E5x, F4x, F5x, F8x, F9x, FAx, FGx, FBx, FCx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FNx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, LYx, M3x, M4x, EJx, EKx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO</li> <li>• 2541-CTO, 29x, 4Kx, 2Qx, 32x, 2Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7209	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO, 29x, 4Kx, 2Qx, 32x, 2Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7219	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 500 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, FTx, FWx, FQx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, FQx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7221	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 500 GB, 9.5 mm, 5,400 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, FTx, FWx, FQx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, FQx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7211	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 160 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ETx, EVx, FCx, E4x, F6x, F7x, FJx, FLx, MNx, MSx, N5x, FHx</li> <li>• 2753-CTO, E6x, E7x, MNx</li> <li>• 2754-CTO, EMx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EKx, E2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1461	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 160 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ETx, EVx, FCx, E4x, F6x, F7x, FJx, FLx, MNx, MSx, N5x, FHx</li> <li>• 2753-CTO, E6x, E7x, MNx</li> <li>• 2754-CTO, EMx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EKx, E2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1439	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 160 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ETx, EVx, FCx, E4x, F6x, F7x, FJx, FLx, MNx, MSx, N5x, FHx</li> <li>• 2753-CTO, E6x, E7x, MNx</li> <li>• 2754-CTO, EMx</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EKx, E2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1465	**



Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 160 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7251	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 160 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7271	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 200 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ERx, FKx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FMx</li> <li>• 2757-CTO, E8x, E9x</li> <li>• 2758-CTO, ECx, EDx, EEx, EFx, ELx, FEx, FFx, MKx, MLx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1463	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 200 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2752-CTO, ERx, FKx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FMx</li> <li>• 2757-CTO, E8x, E9x</li> <li>• 2758-CTO, ECx, EDx, EEx, EFx, ELx, FEx, FFx, MKx, MLx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1561	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 200 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7279	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1563	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1573	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 250 GB, 9.5 mm, 7,200 rpm (FDE)</p> <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7259	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, M9x, MAx, MBx, MCx, MDx, MEx, MFx, MGx, MUx, FSx, FUx, FVx, N3x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MHx. MJx</li> <li>• 2754-CTO, M8x</li> <li>• 2757-CTO, FPx, LXx</li> <li>• 2758-CTO, LZx, M2x, M5x, M6x, M7x, MMx, MQx, MRx, MVx, MWx, MXx, MYx, MZx, N2x, NAx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1559	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, M9x, MAx, MBx, MCx, MDx, MEx, MFx, MGx, MUx, FSx, FUx, FVx, N3x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MHx. MJx</li> <li>• 2754-CTO, M8x</li> <li>• 2757-CTO, FPx, LXx</li> <li>• 2758-CTO, LZx, M2x, M5x, M6x, M7x, MMx, MQx, MRx, MVx, MWx, MXx, MYx, MZx, N2x, NAx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T1571	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 3Ax, 3Bx, 2Ex, 2Gx, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 2Ax, 3Vx, 3Wx, 4Bx, 4Cx, 2Lx, 3Ex, 3Lx, 3Mx, 3Nx, 5Gx, 2Bx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 46x</li> <li>• 2541-CTO, 25x, 4Jx, 2Rx, 2Ux, 2Wx, 4Lx, 4Nx, 4Qx, 5Jx, 26x, 4Rx, 4Sx, 27x, 4Mx, 4Px, 4Tx, 4Ux, 55x, 58x</li> <li>• 2542-CTO, 58x</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x</li> <li>• 4326-CTO, 4Dx</li> </ul>	45N7255	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 320 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2500-CTO, 2Bx, 2Cx, 2Gx, 2Lx, 2Mx, 3Ex, 3Fx, 3Ax, 3Bx, 3Cx, 3Ex, 3Gx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 4Ax, 5Ex, 5Fx</li> <li>• 2541-CTO, 25x, 29x, 2Px, 2Ux, 2Vx, 2Wx, 32x, 4Kx, 4Hx, 4Jx, 4Lx, 4Mx, 4Px, 4Qx, 4Nx, 4Sx, 4Rx, 53x, 58x</li> <li>• 2542-CTO, 58x</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x</li> <li>• 4326-CTO, 4Dx</li> </ul>	45N7275	**
20	<p><b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU No.s both in HDD slot 0 and in slot 1.</p> <p>SATA hard disk drive, 500 GB, 9.5 mm, 7,200 rpm</p> <ul style="list-style-type: none"> <li>• 2752-CTO, N1x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO, 3Cx, 3Dx, 5Cx, 5Dx, 5Ex, 5Fx, 5Hx, 3Xx, 3Zx, 42x, 47x, 48x, 49x, 4Ax, 3Yx, 42x, 43x, 44x, 45x</li> <li>• 2541-CTO, 4Hx, 5Kx, 2Nx, 2Px, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	45N7257	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
20	<b>Note:</b> When you replace the HDD or HDDs used in the models with RAID mode, be sure to install HDDs that have same FRU no.s both in HDD slot 0 and in slot 1.		
	SATA hard disk drive, 500 GB, 9.5 mm, 7,200 rpm <ul style="list-style-type: none"> <li>• 2500-CTO, 3Cx, 3Dx, 5Cx, 5Dx, 5Ex, 5Fx, 5Hx, 3Xx, 3Zx, 42x, 47x, 48x, 49x, 4Ax, 3Yx, 42x, 43x, 44x, 45x</li> <li>• 2541-CTO, 4Hx, 5Kx, 2Nx, 2Px, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	45N7277	**
—	1.8-inch - 2.5-inch storage converter <ul style="list-style-type: none"> <li>• 2752-CTO, 3Nx, 6Ax, 6Bx, 7Dx, EVx, FHx, MDx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, 5Wx</li> <li>• 2757-CTO, 4Nx</li> <li>• 2758-CTO, 58x, 59x, 5Bx, 5Dx, EGx, MMx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO, 2Ax, 2Xx, 44x, 47x, 48x, 49x</li> <li>• 2541-CTO, 26x, 32x, 54x, 56x, 5Bx</li> <li>• 2542-CTO, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 38x, 39x</li> <li>• 4326-CTO, 4Fx, 4Gx</li> </ul>	42W7888	**
—	1.8-inch - 2.5-inch storage converter <ul style="list-style-type: none"> <li>• 2752-CTO, 3Nx, 6Ax, 6Bx, 7Dx, EVx, FHx, MDx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, 5Wx</li> <li>• 2757-CTO, 4Nx</li> <li>• 2758-CTO, 58x, 59x, 5Bx, 5Dx, EGx, MMx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8019	**
—	SATA solid state drive, 64 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO, FBx, FHx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EJx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	41W0520	**
—	SATA solid state drive, 64 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO, FBx, FHx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EJx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N8201	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
—	SATA solid state drive, 80 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO, MTx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, Mpx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	41W0516	**
—	SATA solid state drive, 80 GB, 9 mm <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	41W0524	**
—	SATA solid state drive, 128 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	41W0519	**
—	SATA solid state drive, 128 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO, 24x, 2Xx, 2Mx, 3Yx, 43x, 44x, 45x</li> <li>• 2541-CTO, 28x, 2Vx, 56x, 57x, 5Bx</li> <li>• 2542-CTO, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 38x, 39x</li> <li>• 4326-CTO, 4Fx, 4Gx</li> </ul>	45N8203	**
—	SATA solid state drive, 128 GB, 9 mm <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 2Mx, 3Yx, 43x, 44x, 45x</li> <li>• 2541-CTO, 28x, 2Vx, 56x, 57x, 5Bx</li> <li>• 2542-CTO, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 38x, 39x</li> <li>• 4326-CTO, 4Fx, 4Gx</li> </ul>	45N7953	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
—	SATA solid state drive, 128 GB, 9 mm, Full Disk Encryption (FDE) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N8205	**
—	SATA solid state drive, 160 GB, 9 mm <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	41W0522	**
—	SATA solid state drive, 256 GB, 9 mm (FDE) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N8207	**
—	SATA solid state drive, 256 GB, 9 mm (FDE) <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N7959	**
21	Backup battery	02K7078	**
22	Intel Turbo Memory Minicard, 2GB (half size) <ul style="list-style-type: none"> <li>• 2752-CTO, ERx, F2x, F5x, F6x, F8x, F9x, FAx, FBx, FCx, FDx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, EMx, ENx</li> <li>• 2757-CTO, LXx</li> <li>• 2758-CTO, E2x, EAx, EDx, EFx, EJx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6523	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
22	Intel Turbo Memory Minicard, 4GB (half size) <ul style="list-style-type: none"> <li>• 2752-CTO, ESx, ETx, EUx, EVx, EWx, F4x, F7x, FLx, N3x, N4x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EHx, M5x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6525	**
23	CPU assembly, Intel Core™ 2 Duo mobile processor P8700 (2.53 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, MWx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8194	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9400 (2.53 GHz), C-0 <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, E5x, F3x, F5x, F8x, F9x, FAx, FLx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, FFx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W7987	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9400 (2.53 GHz), E-0 <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8289	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9550 (2.66 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO, MCx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, LYx, M3x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8195	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9600 (2.8 GHz), C-0 <ul style="list-style-type: none"> <li>• 2752-CTO, FCx, F2x, F4x, MNx, N3x, N4x, N5x</li> <li>• 2753-CTO, MNx</li> <li>• 2754-CTO</li> <li>• 2757-CTO, FPx</li> <li>• 2758-CTO, EKx, MLx, MQx, MVx, MZx, NAx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W7988	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
23	CPU assembly, Intel Core 2 Duo mobile processor T 9600 (2.8 GHz), E-0 <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8290	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9800 (2.93 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO, LXx</li> <li>• 2758-CTO, LZx, M5x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8196	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9900 (3.06 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO, FTx, FUx, FVx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, MXx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8197	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9000 (2.0 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8239	N
23	CPU assembly, Intel Core 2 Duo mobile processor T 9100 (2.26 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8117	N
23	CPU assembly, Intel Core 2 Extreme mobile processor X 9100 (3.06 GHz), C-0 <ul style="list-style-type: none"> <li>• 2752-CTO, F6x, F7x, N8x</li> <li>• 2753-CTO, E6x, MJx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, M2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8043	N



Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
23	CPU assembly, Intel Core 2 Extreme mobile processor X 9100 (3.06 GHz), E-0 <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8291	N
23	CPU assembly, Intel Core 2 Extreme mobile processor QX 9300 (2.53 GHz) <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EUx, EWx, FBx, FJx, FKx, MBx, MEx, MGx</li> <li>• 2753-CTO, E7x, MHx</li> <li>• 2754-CTO, FMx, M8x</li> <li>• 2757-CTO, E9x</li> <li>• 2758-CTO, EHx, EJx, E3x, ELx, M6x, M7x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8116	N
23	CPU assembly, Intel Quad Core i7-720MQ Clarksfield (1.6 GHz) <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 2Ex, 3Dx, 3Gx, 5Cx, 3Lx, 3Rx, 3Sx, 3Vx, 3Wx, 46x, 4Bx, 4Cx</li> <li>• 2541-CTO, 27x, 2Qx, 32x, 4Mx, 4Px, 4Tx, 4Ux, 4Yx, 52x, 53x, 55x, 2Nx, 58x</li> <li>• 2542-CTO, 58x</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x</li> <li>• 4326-CTO, 4Dx</li> </ul>	63Y2000	N
23	CPU assembly, Intel Quad Core i7-820MQ Clarksfield (1.73 GHz) <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 2Xx, 3Bx, 3Cx, 2Gx, 3Fx, 3Hx, 3Jx, 5Dx, 5Ex, 3Mx, 5Gx, 5Hx, 2Ax, 2Bx, 2Cx, 3Tx, 3Ux, 3Xx, 42x, 43x, 44x, 47x</li> <li>• 2541-CTO, 4Hx, 4Kx, 2Rx, 4Nx, 4Qx, 5Jx, 5Kx, 4Zx, 56x, 2Px, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 37x, 38x</li> <li>• 4326-CTO, 4Ex, 4Fx</li> </ul>	63Y2001	N
23	CPU assembly, Intel Quad Core XE i7-920XM Clarksfield (2.0 GHz) <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Lx, 2Mx, 3Ex, 3Kx, 5Fx, 3Nx, 3Px, 3Qx, 3Yx, 3Zx, 45x, 48x, 49x, 4Ax</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Jx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 26x, 4Rx, 4Sx, 4Vx, 4Wx, 4Xx, 54x, 57x</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 39x</li> <li>• 4326-CTO, 4Gx</li> </ul>	63Y2002	N
24	Intel Turbo Memory Minicard, 2GB (half size) <ul style="list-style-type: none"> <li>• 2752-CTO, 3Kx, 3Lx, 3Mx, 68x, 69x, 6Lx, 6Mx, 78x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO, 4Px, 4Qx</li> <li>• 2758-CTO, 29x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6523	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
24	Intel Turbo Memory Minicard, 4GB (half size) <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6525	**
25	ThinkPad 11b/g Wireless LAN Mini PCI Express Adapter III <ul style="list-style-type: none"> <li>• 2752-CTO, FDx, F2x, F8x, F9x</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EHx, LYx, LZx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6511	**
25	Intel WiFi Link 5300 <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EQx, ERx, ESx, ETx, EUx, EVx, EWx, FBx, FCx, E4x, E5x, F3x, F4x, F5x, F6x, F7x, FAx, FGx, FHx, FJx, FKx, M9x, MAx, MBx, MCx, MDx, MEx, MFx, MGx, FLx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FVx, FWx, FXx, N3x, N4x, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, E7x, E6x, MHx, MJx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, E9x, LXx, FPx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, EJx, EKx, E2x, E3x, ELx, FEx, M2x, M3x, M4x, M5x, M6x, M7x, FFx, MKx, MLx, MMx, MPx, MQx, MRx, FQx, MVx, MWx, MXx, MYx, MZx, N2x, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6495	**
25	Intel WiMAX/WiFi Link 5350 <ul style="list-style-type: none"> <li>• 2752-CTO</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y6533	**
25	ThinkPad 11b/g/n Wireless LAN Mini-PCI Express Adapter II <ul style="list-style-type: none"> <li>• 2500-CTO, 3Dx, 3Ex, 3Fx, 3Qx, 3Rx</li> <li>• 2541-CTO, 2Px, 2Qx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	43Y6553	**
25	ThinkPad 11b/g/n Wireless LAN Mini-PCI Express Adapter II <ul style="list-style-type: none"> <li>• 2500-CTO, 3Dx, 3Ex, 3Fx, 3Qx, 3Rx</li> <li>• 2541-CTO, 2Px, 2Qx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y3177	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
25	Intel Centrino Ultimate-N 6300 <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 3Ax, 3Bx, 3Cx, 2Ex, 2Gx, 2Lx, 2Mx, 3Gx, 3Hx, 3Jx, 3Kx, 5Cx, 5Dx, 5Ex, 5Fx, 3Lx, 3Mx, 3Nx, 5Gx, 5Hx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Jx, 4Kx, 32x, 2Rx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Nx, 4Px, 4Qx, 5Jx, 5Kx, 26x, 4Rx, 4Sx, 4Tx, 4Ux, 55x, 56x, 57x, 2Nx, 2Px, 58x, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx</li> </ul>	60Y3193	**
25	Intel Centrino Advanced-N + WiMAX 6250 <ul style="list-style-type: none"> <li>• 2500-CTO</li> <li>• 2541-CTO</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y3195	**
26	Bluetooth daughter card (BDC-2.1) for W701 and W701ds	60Y3199	N
26	Bluetooth daughter card (BDC-2.1) for W701 and W701ds	60Y3213	N
27	Digitizer pen case assembly	45N3146	N
28	34-mm ExpressCard/54-mm ExpressCard slot for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, ETx, EVx, FBx, FCx, E4x, F6x, F7x, FGx, FHx, FJx, FKx, MAx, MBx, MNx, MSx, MTx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, E7x, E6x, MJx, MNx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EJx, EKx, E2x, FEx, LYx, LZx, M2x, FFx, MKx, MLx, MMx, MPx, MQx, MRx, MVx, MWx, Mx, MYx, MZx, N2x, NAX, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y9797	N
28	34-mm ExpressCard/54-mm ExpressCard slot for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 2Lx, 2Mx, 3Gx, 3Hx, 3Jx, 3Kx, 5Cx, 5Dx, 5Ex, 5Fx, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 46x</li> <li>• 2541-CTO, 4Jx, 32x, 2Rx, 2Ux, 2Vx, 2Wx, 55x, 58x, 59x, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x</li> <li>• 4326-CTO, 4Dx</li> </ul>	60Y4927	N
28	34-mm ExpressCard/Smart Card slot for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, MCx, MFx, FLx, MUx, FUx, FVx, FWx, FXx</li> <li>• 2753-CTO</li> <li>• 2754-CTO, FNx</li> <li>• 2757-CTO, FPx</li> <li>• 2758-CTO</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	43Y9798	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
28	34-mm ExpressCard/Smart Card slot for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 3Bx, 2Gx, 5Gx, 5Hx</li> <li>• 2541-CTO, 4Hx, 4Kx, 2Qx, 2Tx, 4Lx, 4Mx, 4Px, 5Jx, 5Kx, 5Ax</li> <li>• 2542-CTO, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	60Y4929	N
28	34-mm ExpressCard/CompactFlash Card slot for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, EUx, EWx, FDx, F2x, E5x, F3x, F4x, F5x, F8x, F9x, FAx, M9x, MDx, MEx, MGx, FSx, FTx, N3x, N4x</li> <li>• 2753-CTO, MHx</li> <li>• 2754-CTO, EMx, ENx, FMx, M8x</li> <li>• 2757-CTO, E8x, E9x, LXx</li> <li>• 2758-CTO, EEx, EFx, EGx, EHx, E3x, ELx, M3x, M4x, M5x, M6x, M7x, FQx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	45N6056	N
28	34-mm ExpressCard/CompactFlash Card slot for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 24x, 2Xx, 3Cx, 2Ex, 3Dx, 3Ex, 3Fx, 3Lx, 3Mx, 3Nx, 2Ax, 2Bx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 29x, 27x, 4Nx, 4Qx, 26x, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 56x, 57x, 2Nx, 2Px</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	60Y4931	N
29	CPU thermal device and fan for W700 and W700ds	44C9532	N
29	CPU thermal device and fan for W700 and W700ds	45N4946	N
29	CPU thermal device and fan for W701 and W701ds	60Y4943	N
29	CPU thermal device and fan for W701 and W701ds	60Y4945	N
30	Palm rest assembly with fingerprint reader for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, ERx, ESx, ETx, EUx, EVx, EWx, FBx, FCx, FDx, F2x, E4x, E5x, F3x, F4x, F5x, F6x, F7x, F8x, F9x, FAx, FGx, FHx, FJx, FKx, M9x, MAx, MBx, MCx, MEx, MGx, FLx, MNx, MUx, FSx, FWx, FXx, N3x, N4x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, E7x, E6x, MHx, MJx, MNx</li> <li>• 2754-CTO, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, E9x, FPx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, EGx, EHx, EJx, EKx, E2x, E3x, ELx, FEx, LYx, LZx, M2x, M3x, M4x, M5x, M6x, M7x, FFx, MKx, MLx, MMx, MQx, MRx, FQx, MYx, MZx, N2x, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	44C9504	**
30	Palm rest assembly with fingerprint reader and color sensor for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, EPx, E4x, FGx, FKx, MAx, MCx, FLx, MNx, N6x, N7x, N8x</li> <li>• 2753-CTO, E6x, MNx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, E2x, LYx, FFx, MLx, MQx, MZx, NAx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	44C9505	**

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
30	Palm rest assembly with fingerprint reader, color sensor, and digitizer for W700 and W700ds <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, ERx, ESx, ETx, EUx, EVx, EWx, FBx, FCx, FDx, F2x, E5x, F3x, F4x, F5x, F6x, F7x, F8x, F9x, FAX, FHx, FJx, M9x, MBx, MEx, MGx, MUx, FSx, FWx, FXx, N3x, N4x, N9x</li> <li>• 2753-CTO, E7x, MHx, MJx</li> <li>• 2754-CTO, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, E9x, FPx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, EGx, EHx, EJx, EKx, E3x, ELx, FEx, LZx, M2x, M3x, M4x, M5x, M6x, M7x, MKx, MMx, MRx, FQx, MYx, N2x, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	44C9506	**
30	Palm rest assembly with fingerprint reader for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 24x, 2Xx, 3Ax, 3Bx, 3Cx, 2Ex, 2Gx, 2Lx, 2Mx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 5Cx, 5Dx, 5Ex, 5Fx, 3Lx, 3Mx, 3Nx, 5Gx, 5Hx, 2Ax, 2Bx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Jx, 4Kx, 27x, 2Qx, 32x, 2Rx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Nx, 4Px, 4Qx, 5Jx, 5Kx, 26x, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 55x, 56x, 57x, 2Nx, 2Px, 58x, 59x, 5Ax, 5Bx</li> <li>• 2542-CTO, 58x, 59x, 5Ax, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx</li> </ul>	60Y4934	**
30	Palm rest assembly with fingerprint reader, color sensor, and digitizer for W701 and W701ds <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 24x, 2Xx, 3Bx, 3Cx, 2Gx, 2Lx, 2Mx, 3Ex, 3Fx, 3Hx, 3Jx, 3Kx, 5Dx, 5Ex, 5Fx, 3Mx, 3Nx, 2Ax, 2Bx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Jx, 4Kx, 32x, 2Rx, 2Ux, 2Vx, 2Wx, 4Nx, 4Qx, 26x, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Xx, 52x, 53x, 54x, 55x, 56x, 57x, 2Nx, 2Px, 5Ax</li> <li>• 2542-CTO, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx</li> </ul>	60Y4938	**
31	Keyboard (see “Keyboard” on page 194.)		
32	TrackPoint stick caps	91P9642	*
—	CompactFlash Card slot cover <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, EUx, EWx, FDx, F2x, E5x, F3x, F4x, F5x, F8x, F9x, FAX, M9x, MDx, MEx, MGx, FSx, FTx, N3x, N4x</li> <li>• 2753-CTO, MHx</li> <li>• 2754-CTO, EMx, ENx, FMx, M8x</li> <li>• 2757-CTO, E8x, E9x, LXx</li> <li>• 2758-CTO, EEx, EFx, EGx, EHx, E3x, ELx, M3x, M4x, M5x, M6x, M7x, FQx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> <li>• 2500-CTO, 22x, 24x, 2Xx, 3Cx, 2Ex, 3Dx, 3Ex, 3Fx, 3Lx, 3Mx, 3Nx, 2Ax, 2Bx, 2Cx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx</li> <li>• 2541-CTO, 25x, 28x, 29x, 27x, 4Nx, 4Qx, 26x, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 56x, 57x, 2Nx, 2Px</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	44C9538	N

Table 59. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID
—	Telephone cable, RoHS	91P6967	*
—	Thermal grease	91P8835	N
—	ThinkPad W700 Mini Dock 2.0	60Y4105	*
—	AC adapter (see “AC adapters” on page 197.)		

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## LCD FRUs for ThinkPad W700

In ThinkPad W700, there are following types of LCDs.

- 17.0-in. WXGA+ TFT LCD (Table 60 “Parts list—17.0-in. WXGA+ TFT” on page 185)
- 17.0-in. WUXGA TFT LCD (Table 61 “Parts list—17.0-in. WUXGA TFT” on page 186)

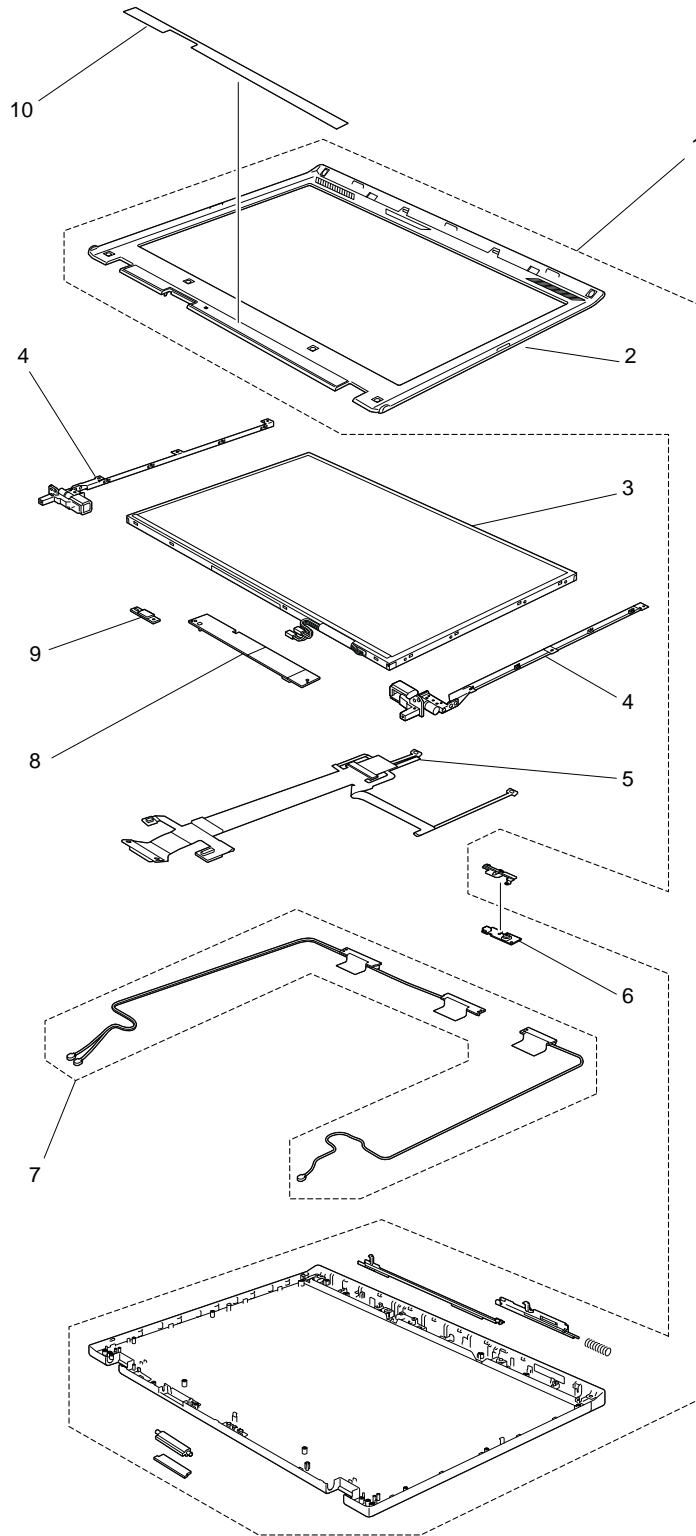


Table 60. Parts list—17.0-in. WXGA+ TFT

No.	FRU	FRU no.	CRU ID
1	LCD cover kit W700	43Y9790	N
2	LCD bezel	45N6048	N

Table 60. Parts list—17.0-in. WXGA+ TFT (continued)

No.	FRU	FRU no.	CRU ID
3	LCD panel, 17.0-in. WXGA+ <ul style="list-style-type: none"> <li>• 2752-CTO, F6x, F7x, MCx, FLx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO, FPx</li> <li>• 2758-CTO, LYx, MWx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T0540	N
3	LCD panel, 17.0-in. WXGA+ <ul style="list-style-type: none"> <li>• 2752-CTO, F6x, F7x, MCx, FLx</li> <li>• 2753-CTO</li> <li>• 2754-CTO</li> <li>• 2757-CTO, FPx</li> <li>• 2758-CTO, LYx, MWx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T0514	N
4	Hinges W700	43Y9791	N
5	LCD cable assembly W700	44C5388	N
6	Integrated camera <ul style="list-style-type: none"> <li>• 2752-CTO, F6x, F7x, MCx, FLx</li> <li>• 2753-CTO, E7x, E6x, MHx, MJx, MNx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, LYx, MWx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8015	N
7	Wireless LAN antenna kit W700	44C5389	N
8	Inverter card (X1 CCFL)	42W8028	N
9	Bluetooth daughter card (BDC-2.1)	42T0969	N
10	Clear plate kit	45N6046	N

Table 61. Parts list—17.0-in. WUXGA TFT

No.	FRU	FRU no.	CRU ID
1	LCD cover kit for W700	43Y9790	N
2	LCD bezel	60Y4917	N
3	LCD panel, 17.0-in. WUXGA <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, ETx, EVx, E4x, F5x, F8x, F9x, FAx, FGx, FHx, FJx, FKx, MDx, MEx, MFx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FXx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MJx, MNx</li> <li>• 2754-CTO, EMx, ENx, FMx, FNx, M8x</li> <li>• 2757-CTO, E8x, LXx</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, M2x, M3x, M4x, M5x, M6x, FFx, MLx, MPx, MQx, MRx, MVx, MXx, MZx, N2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T0542	N
4	Hinges for W700	43Y9791	N
5	LCD cable assembly for W700	44C5388	N



Table 61. Parts list— 17.0-in. WUXGA TFT (continued)

No.	FRU	FRU no.	CRU ID
6	Integrated camera <ul style="list-style-type: none"> <li>• 2752-CTO, EQx, ERx, ESx, ETx, EVx, E4x, F5x, F8x, F9x, FAx, FGx, FHx, FJx, FKx, MDx, MEx, MFx, MNx, MSx, MTx, MUx, FSx, FTx, FUx, FXx, N5x, N6x, N7x, N8x, N9x</li> <li>• 2753-CTO, MJx, MNx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EAx, EBx, ECx, EDx, EEx, EFx, M2x, M3x, M4x, M5x, M6x, FFx, MLx, MPx, MQx, MRx, MVx, MXx, MZx, N2x</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8015	N
7	Wireless LAN antenna kit	44C5389	N
8	Inverter card (X2 CCFL)	45N4460	N
9	Bluetooth daughter card (BDC-2.1)	42T0969	N
10	Clear plate kit	45N6046	N

# LCD FRUs for ThinkPad W700ds

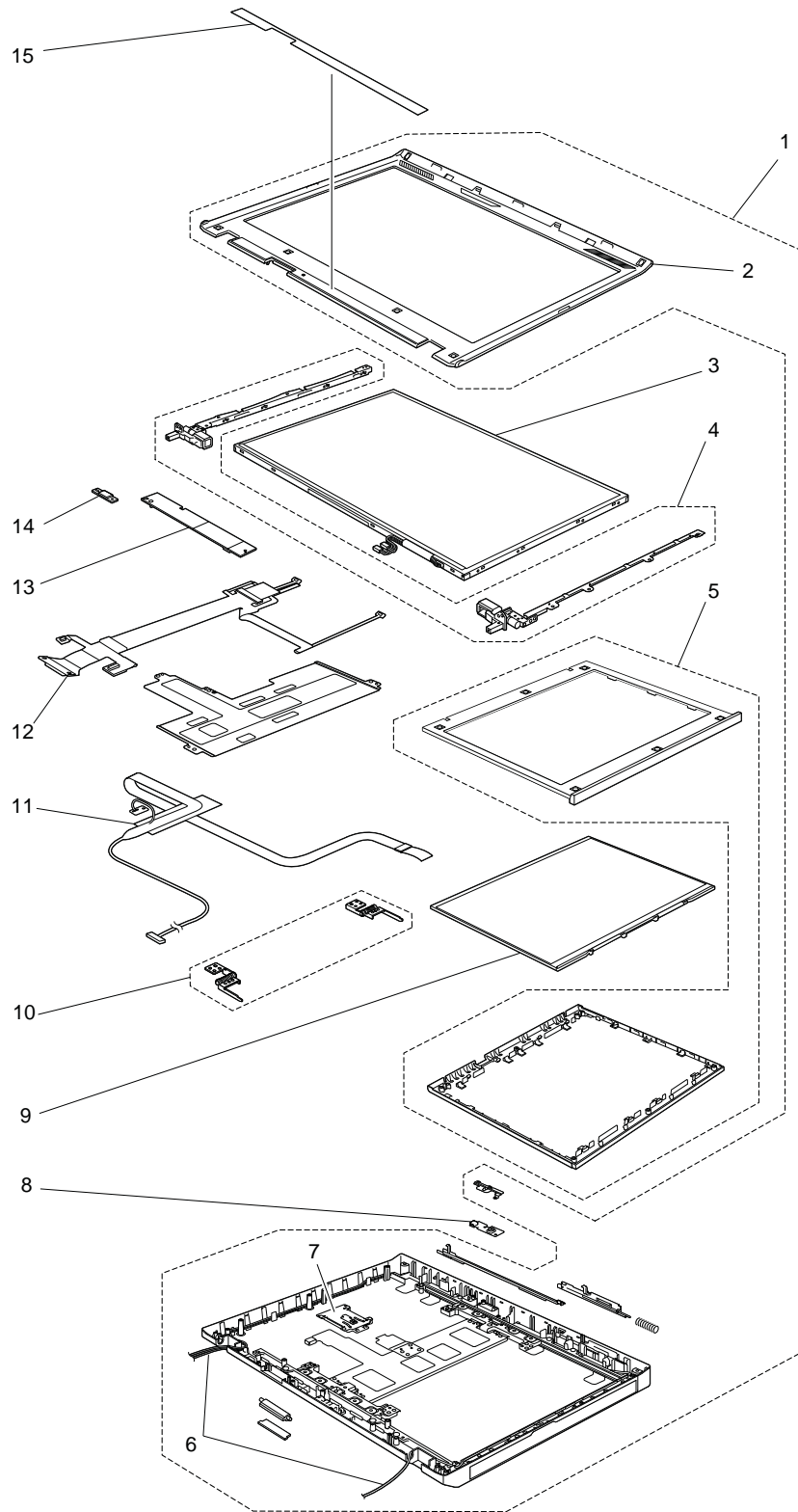


Table 62. Parts list—17.0-in. WUXGA TFT and 10.6-in. WXGA TFT second screen

No.	FRU	FRU no.	CRU ID
1	LCD cover kit for W700ds	45N3888	N
2	LCD front bezel	45N6048	N
3	LCD panel, 17.0-in. WUXGA <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EUx, EWx, FBx, FCx, FDx, F2x, E5x, F3x, F4x, M9x, MAx, MBx, MGx, FVx, FWx, N3x, N4x</li> <li>• 2753-CTO, E7x, E6x, MHx</li> <li>• 2754-CTO</li> <li>• 2757-CTO, E9x</li> <li>• 2758-CTO, EGx, EHx, EJx, EKx, E2x, E3x, ELx, FEx, LZx, M7x, MKx, MMx, FQx, MYx, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42T0542	N
4	Hinges for W700ds	45N3890	N
5	Second LCD cover kit for W700ds	45N3889	N
6	Wireless LAN antenna kit for W700ds	44C9906	N
7	Push mech assembly, 10.6 for W700ds	45N6045	N
8	Integrated camera <ul style="list-style-type: none"> <li>• 2752-CTO, E7x, EPx, EUx, EWx, FBx, FCx, FDx, F2x, E5x, F3x, F4x, M9x, MAx, MBx, MGx, FVx, FWx, N3x, N4x</li> <li>• 2753-CTO, E7x, E6x, MHx</li> <li>• 2754-CTO</li> <li>• 2757-CTO</li> <li>• 2758-CTO, EGx, EHx, EJx, EKx, E2x, E3x, ELx, FEx, LZx, M7x, MKx, MMx, FQx, MYx, NAx, NBx</li> <li>• 2762-CTO</li> <li>• 2763-CTO</li> </ul>	42W8015	N
9	Second LCD panel, 10.6-in. WXGA	42T0585	N
10	Second LCD hinges	45N3891	N
11	Second LCD cable assembly	44C9905	N
12	LCD cable assembly for W700ds	44C9935	N
13	Inverter card (X2 CCFL)	42W8030	N
14	Bluetooth daughter card (BDC-2.1)	42T0969	N
15	Clear plate kit	45N6046	N

## LCD FRUs for ThinkPad W701

In ThinkPad W701, there are following types of LCDs.

- 17.0-in. WXGAx, TFT LCD (Table 63 “Parts list—17.0-in. WXGA+ TFT” on page 190)
- 17.0-in. WUXGA TFT LCD (Table 64 “Parts list—17.0-in. WUXGA TFT” on page 191)

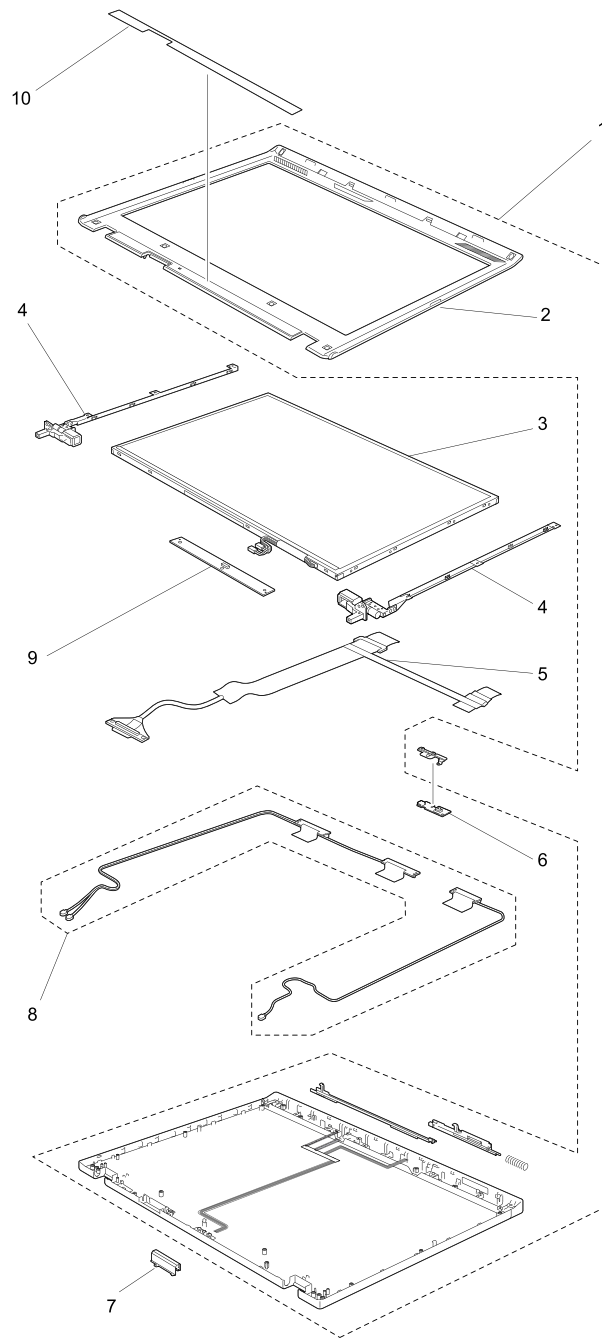


Table 63. Parts list—17.0-in. WXGA+ TFT

No.	FRU	FRU no.	CRU ID
1	LCD cover kit for W701	60Y4915	N
2	LCD bezel	60Y4917	N

Table 63. Parts list—17.0-in. WXGA+ TFT (continued)

No.	FRU	FRU no.	CRU ID
3	LCD panel, 17.0-in. WXGA+ <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 3Gx, 5Cx</li> <li>• 2541-CTO, 2Qx, 5Jx, 58x</li> <li>• 2542-CTO, 58x</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	42T0785	N
3	LCD panel, 17.0-in. WXGA+ <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 3Gx, 5Cx</li> <li>• 2541-CTO, 2Qx, 5Jx, 58x</li> <li>• 2542-CTO, 58x</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	42T0789	N
4	Hinges for W701	43Y9791	N
5	LCD cable assembly for W701	45M2874	N
6	Integrated camera <ul style="list-style-type: none"> <li>• 2500-CTO, 3Ax, 3Gx, 5Cx</li> <li>• 2541-CTO, 2Qx, 5Jx</li> <li>• 2542-CTO</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO</li> <li>• 4326-CTO</li> </ul>	45N2795	N
7	LCD cable cap	60Y5002	N
8	Wireless LAN antenna kit for W701	45M2877	N
9	LED controller board	60Y5728	N
10	Clear plate kit	60Y4918	N

Table 64. Parts list—17.0-in. WUXGA TFT

No.	FRU	FRU no.	CRU ID
1	LCD cover kit for W701	60Y4915	N
2	LCD bezel	60Y4917	N
3	LCD panel, 17.0-in. WUXGA <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 3Bx, 2Ex, 2Gx, 2Lx, 2Mx, 3Dx, 3Fx, 3Hx, 5Dx, 3Lx, 3Mx, 5Gx, 2Ax, 2Cx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4Bx</li> <li>• 2541-CTO, 25x, 28x, 29x, 4Hx, 4Kx, 27x, 32x, 2Rx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Nx, 4Sx, 4Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 55x, 2Nx, 59x, 5Bx</li> <li>• 2542-CTO, 59x, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x</li> <li>• 4326-CTO, 4Dx</li> </ul>	42T0787	N
4	Hinges for W701	43Y9791	N
5	LCD cable assembly for W701	45M2875	N

Table 64. Parts list—17.0-in. WUXGA TFT (continued)

No.	FRU	FRU no.	CRU ID
6	Integrated camera <ul style="list-style-type: none"> <li>• 2500-CTO, 22x, 3Bx, 2Ex, 2Gx, 2Lx, 2Mx, 3Dx, 3Fx, 3Hx, 5Dx, 3Lx, 3Mx, 5Gx, 2Ax, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4Bx</li> <li>• 2541-CTO, 28x, 4Hx, 4Kx, 27x, 32x, 2Rx, 2Tx, 2Ux, 2Vx, 2Wx, 4Lx, 4Mx, 4Nx, 4Sx, 4Tx, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 55x, 2Nx, 59x, 5Bx</li> <li>• 2542-CTO, 59x, 5Bx</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 33x, 34x</li> <li>• 4326-CTO, 4Dx</li> </ul>	45N2795	N
7	LCD cable cap	60Y5002	N
8	Wireless LAN antenna kit for W701	45M2877	N
9	LED controller board	60Y5728	N
10	Clear plate kit	60Y4918	N

## LCD FRUs for ThinkPad W701ds

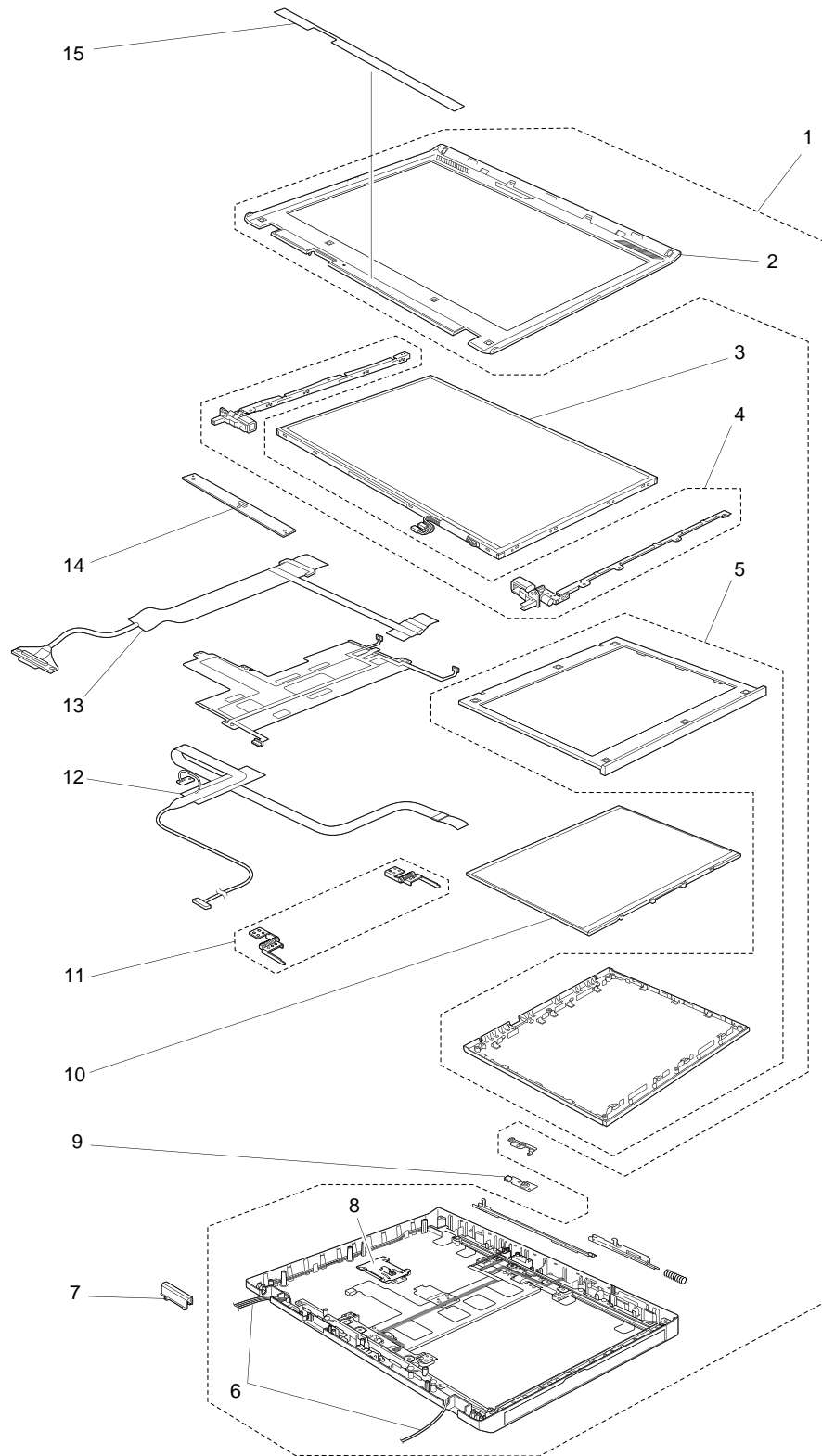


Table 65. Parts list—17.0-in. WUXGA TFT and 10.6-in. WXGA TFT second screen

No.	FRU	FRU no.	CRU ID
1	LCD cover kit for W701ds	60Y4916	N
2	LCD front bezel for W701ds	60Y4917	N
3	LCD panel, 17.0-in. WUXGA <ul style="list-style-type: none"> <li>• 2500-CTO, 24x, 2Xx, 3Cx, 3Ex, 3Jx, 3Kx, 5Ex, 5Fx, 3Nx, 5Hx, 2Bx, 3Px, 3Qx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx</li> <li>• 2541-CTO, 4Jx, 4Px, 4Qx, 5Kx, 26x, 4Rx, 4Ux, 54x, 56x, 57x, 2Px, 5Ax</li> <li>• 2542-CTO, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	42T0787	N
4	Hinges for W701ds	45N3890	N
5	Second LCD cover kit for W701ds	45N3889	N
6	Wireless LAN antenna kit for W701ds	45M2878	N
7	LCD cable cap	60Y5002	N
8	Push mech assembly, 10.6 for W701ds	45N6045	N
9	Integrated camera <ul style="list-style-type: none"> <li>• 2500-CTO, 3Cx, 3Ex, 3Jx, 3Kx, 5Ex, 5Fx, 3Nx, 5Hx, 2Bx, 3Px, 3Qx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx</li> <li>• 2541-CTO, 4Jx, 4Px, 5Kx, 4Rx, 54x, 56x, 57x, 2Px, 5Ax</li> <li>• 2542-CTO, 5Ax</li> <li>• 2543-CTO</li> <li>• 2544-CTO</li> <li>• 4323-CTO, 35x, 36x, 37x, 38x, 39x</li> <li>• 4326-CTO, 4Ex, 4Fx, 4Gx</li> </ul>	45N2795	N
10	Second LCD panel, 10.6-in. WXGA for W701ds	42T0585	N
11	Second LCD hinges for W701ds	45N3891	N
12	Second LCD cable assembly for W701ds	44C9905	N
13	LCD cable assembly for W701ds	45M2876	N
14	LED controller board	60Y5728	N
15	Clear plate kit	60Y4918	N

## Keyboard

Table 66. Parts list—Keyboard

Language	P/N			CRU ID
Arabic	42T3212	42T3276	42T3146	**
Belgian	42T3213	42T3277	42T3147	
Brazilian Portuguese	42T3240	42T3304	42T3174	
Bulgarian	42T4145	42T4142	42T4138	
Canadian French (058)	42T3211	42T3275	42T3145	
Canadian French (Acnor)	—	42T3274	42T3144	
Czech	42T3214	42T3278	42T3148	



Table 66. Parts list—Keyboard (continued)

Language	P/N			CRU ID
Danish	42T3215	42T3279	42T3149	
Dutch	42T3223	42T3287	42T3157	
Finnish, Swedish	42T3230	42T3294	42T3164	
French	42T3217	42T3281	42T3151	
German	42T3218	42T3282	42T3152	
Greek (U.S. English and Greek layout)	42T3219	42T3283	42T3153	
Hebrew	42T3221	42T3285	42T3155	
Hungarian	42T3220	42T3284	42T3154	
Icelandic	—	—	42T3175	
Italian	42T3222	42T3286	42T3156	
Japanese	42T3235	42T3299	42T3169	
Kazakh	42T4137	42T4134	42T4131	
Korean	42T3239	42T3303	42T3173	
Latin American Spanish	42T3238	42T3302	42T3172	
Norwegian	42T3224	42T3288	42T3158	
Polish	42T3225	42T3289	42T3159	
Portuguese	42T3226	42T3290	42T3160	
Russian	42T3227	42T3291	42T3161	
Slovak	42T3228	42T3292	42T3162	
Slovenian	42T3229	42T3293	42T3163	
Spanish	42T3216	42T3280	42T3150	
Swiss	42T3231	42T3295	42T3165	
Thai	42T3237	42T3301	42T3171	
Traditional Chinese	42T3236	42T3300	42T3170	
Turkish	42T3232	42T3296	42T3166	
U.K. English	42T3233	42T3297	42T3167	
U.S. English	42T3209	42T3273	42T3143	
U.S. English (International, with a Euro symbol)	42T3234	42T3298	42T3168	

## Miscellaneous parts

Table 67. Parts list—Miscellaneous parts

FRU	P/N	CRU ID
Screw kit (including nylon-coated screws) for W700 and W700ds: <ul style="list-style-type: none"> <li>• M2 × 2 mm (black), wafer head (8)</li> <li>• M2 × 3 mm (black), wafer head (15)</li> <li>• M2 × 3.5 mm (black), wafer head (40)</li> <li>• M2 × 10 mm (black), wafer head (10)</li> <li>• M2 × 16 mm (black), wafer head (2)</li> <li>• M2.5 × 5 mm (black), wafer head (15)</li> </ul>	45N6044	N

Table 67. Parts list—Miscellaneous parts (continued)

FRU	P/N	CRU ID
<ul style="list-style-type: none"> <li>• M2.5 × 7 mm (black), wafer head (8)</li> <li>• M2.5 × 9 mm (black), wafer head (20)</li> <li>• M3 × 3 mm (black), wafer head (5)</li> <li>• Hex stud (5)</li> </ul>		
<p>Screw kit (including nylon-coated screws) for W701 and W701ds:</p> <ul style="list-style-type: none"> <li>• M2 × 2 mm (black), wafer head (8)</li> <li>• M2 × 3 mm (black), wafer head (15)</li> <li>• M2 × 3.5 mm (black), wafer head (40)</li> <li>• M2 × 3.5 mm step (2)</li> <li>• M2 × 12 mm (black), wafer head (10)</li> <li>• M2 × 14 mm (black), wafer head (2)</li> <li>• M2 × 17 mm (black), wafer head (1)</li> <li>• M2.5 × 3.5 mm (black), wafer head (5)</li> <li>• M2.5 × 5 mm (black), wafer head (15)</li> <li>• M2.5 × 7 mm (black), wafer head (8)</li> <li>• M2.5 × 9 mm (black), wafer head (20)</li> <li>• M3 × 3 mm (black), wafer head (5)</li> <li>• Hex stud (5)</li> </ul>	60Y4914	N
<p>Base miscellaneous parts for W700 and W700ds:</p> <ul style="list-style-type: none"> <li>• Foot rubber (front)</li> <li>• Foot rubber (rear)</li> <li>• Insulation sheet (system board)</li> <li>• Slide lock eject</li> <li>• Bracket (puller eject)</li> <li>• Pull lever eject</li> <li>• Coil spring (pull lever)</li> <li>• Coil spring (slide lever)</li> <li>• Wireless switch knob</li> <li>• Digitizer pen button</li> <li>• Lens (LED optical drive)</li> <li>• Lens (LED multimedia)</li> <li>• Dust filter (large) fan</li> <li>• Dust filter (medium)</li> <li>• Dust filter (small)</li> <li>• Screw caps (oval)</li> <li>• Battery latch</li> <li>• Battery latch knob</li> <li>• Battery latch spring</li> <li>• Wireless LAN knob sheet</li> </ul>	45N6047	N
<p>Base miscellaneous parts for W701 and W701ds:</p> <ul style="list-style-type: none"> <li>• Foot rubber (front)</li> <li>• Foot rubber (rear)</li> <li>• Insulation sheet (system board)</li> <li>• Slide lock eject</li> <li>• Bracket (puller eject)</li> <li>• Pull lever eject</li> <li>• Coil spring (pull lever)</li> <li>• Coil spring (slide lever)</li> <li>• Wireless switch knob</li> <li>• Digitizer pen button</li> <li>• Lens (LED optical drive)</li> <li>• Lens (LED multimedia)</li> <li>• Dust filter (medium)</li> <li>• Dust filter (small)</li> <li>• Screw caps (oval)</li> <li>• Battery latch</li> </ul>	60Y4909	N

Table 67. Parts list—Miscellaneous parts (continued)

FRU	P/N	CRU ID
<ul style="list-style-type: none"> <li>• Battery latch knob</li> <li>• Battery latch spring</li> <li>• Wireless LAN knob sheet</li> </ul>		
System miscellaneous parts for W700 and W700ds: <ul style="list-style-type: none"> <li>• (a) Cable assembly, HDD daughter FFC</li> <li>• (b) Cable assembly, ODD switch (discrete)</li> <li>• (c) Cable assembly, AMOM audio USB (discrete)</li> <li>• (c) Cable assembly, AMOM audio USB FPC</li> <li>• (d) MiniPCI Express half card extending bracket</li> <li>• CPU support bracket assembly</li> <li>• Video card support bracket assembly</li> <li>• Spacer, palm rest digitizer LH</li> <li>• Spacer, palm rest digitizer RH</li> </ul> <b>Note:</b> Italicized letters in parentheses are references to the exploded view in “Overall” on page 160.	43Y9788	N
System miscellaneous parts for W701 and W701ds: <ul style="list-style-type: none"> <li>• (c) Cable assembly, AMOM audio USB (discrete)</li> <li>• (c) Cable assembly, AMOM audio USB FPC</li> <li>• CPU support bracket assembly</li> <li>• Video card support bracket assembly</li> <li>• Spacer, palm rest digitizer LH</li> <li>• Spacer, palm rest digitizer RH</li> </ul> <b>Note:</b> Italicized letters in parentheses are references to the exploded view in “Overall” on page 160.	60Y4910	N
System board miscellaneous parts for W700 and W700ds: <ul style="list-style-type: none"> <li>• Shield sheet (DC)</li> <li>• Insulation sheet (bottom louver)</li> <li>• Insulation sheet (video)</li> <li>• Sheet (system board bottom)</li> <li>• Sheet (memory bottom)</li> <li>• Sheet (MiniPCI Express card)</li> <li>• Sheet (UWB)</li> <li>• Bracket, CPU support bracket</li> </ul>	43Y9786	N
System board miscellaneous parts for W701 and W701ds: <ul style="list-style-type: none"> <li>• Sheet (system board bottom)</li> <li>• Sheet (memory bottom)</li> <li>• Sheet (wireless LAN card)</li> <li>• Sheet (MXM3 memory)</li> <li>• Bracket, CPU support bracket</li> </ul>	60Y4908	N

## AC adapters

Table 68. Parts list—2-pin ac adapters

FRU	P/N	CRU ID
2-pin (170 W, 20 V) adapter (models CTO, xxE, xxF, xxJ, xxL, xxP, xxS, xxY, xxU)	42T5287	*
2-pin (170 W, 20 V) adapter (models CTO, xxE, xxF, xxJ, xxL, xxP, xxS, xxY, xxU)	42T5291	

Table 69. Parts list—3-pin ac adapters

FRU	P/N	CRU ID
3-pin (170 W, 20 V) adapter (models CTO, xxA, xxB, xxC, xxG, xxH, xxK, xxM, xxT, xxV)	42T5285	*
3-pin (170 W, 20 V) adapter (models CTO, xxA, xxB, xxC, xxG, xxH, xxK, xxM, xxT, xxV)	42T5289	
3-pin (230 W, 20 V) adapter (models CTO, xxA, xxB, xxC, xxE, xxF, xxG, xxH, xxJ, xxK, xxL, xxM, xxP, xxS, xxT, xxU, xxV, xxY)	45N0061	
3-pin (230 W, 20 V) adapter (models CTO, xxA, xxB, xxC, xxE, xxF, xxG, xxH, xxJ, xxK, xxL, xxM, xxP, xxS, xxT, xxU, xxV, xxY)	45N0065	

## Power cords

A ThinkPad power cord for a specific country or region is usually available only in that country or region:

Table 70. Parts list—2-pin power cords (1.0 m)

Region	P/N		CRU ID
Argentina • models -CTO, xxY	42T5020	42T5105	*
Brazil • models -CTO, xxP	42T5180	42T5183	
Canada, U.S. • models -CTO, xxF, xxL, xxS, xxU	42T5008	42T5093	
Japan • models -CTO, xxE, xxJ	42T5014	42T5099	

Table 71. Parts list—3-pin power cords (1.0 m)

Region	P/N		CRU ID
Australia, New Zealand • models -CTO, xxG, xxM	42T5050	42T5135	*
Bangladesh, Sri Lanka, South Africa • models -CTO, xxG	42T5056	42T5141	
Canada, U.S. • models -CTO, xxF, xxL, xxS, xxU	42T5004	42T5089	
China (P.R.C.) (other than Hong Kong S.A.R.) • models -CTO, xxC	42T5065	42T5150	
Denmark • models -CTO, xxG	42T5041	42T5126	
European countries • models -CTO, xxG	42T5029	42T5114	
India • models -CTO, xxG	42T5083	42T5168	
Israel • models -CTO, xxG	42T5062	42T5147	
Italy • models -CTO, xxG	42T5047	42T5132	
Korea • models -CTO, xxK	42T5077	42T5162	

Table 71. Parts list—3-pin power cords (1.0 m) (continued)

Region	P/N		CRU ID
Switzerland • models -CTO, xxG	42T5044	42T5129	
Taiwan • models -CTO, xxV	42T5071	42T5156	
U.K., China (Hong Kong S.A.R.) • models -CTO, xxB, xxG, xxH	42T5035	42T5120	

Table 72. Parts list—3-pin power cords (1.8 m)

Region	P/N		CRU ID
Argentina • models -CTO, xxY	41R3176	41R3177	*
Australia, New Zealand • models -CTO, xxG, xxM	42T5050	42T5135	
Bangladesh, Sri Lanka, South Africa • models -CTO, xxG	42T5056	42T5141	
Brazil • models -CTO, xxP	45J9595	41R3271	
Canada, U.S. • models -CTO, xxF, xxL, xxS, xxU	41R3184	41R3185	
China (P.R.C.) (other than Hong Kong S.A.R.) • models -CTO, xxC	42T5065	42T5150	
Denmark • models -CTO, xxG	42T5041	42T5126	
European countries • models -CTO, xxG	42T5029	42T5114	
India • models -CTO, xxG	42T5083	42T5168	
Israel • models -CTO, xxG	42T5062	42T5147	
Italy • models -CTO, xxG	42T5047	42T5132	
Korea • models -CTO, xxK	42T5077	42T5162	
Switzerland • models -CTO, xxG	42T5044	42T5129	
Taiwan • models -CTO, xxV	42T5071	42T5156	
U.K., China (Hong Kong S.A.R.) • models -CTO, xxB, xxG, xxH	42T5035	42T5120	

## Recovery discs

### Windows XP Professional (32 bit) DVDs

Windows XP Professional (32 bit) DVDs are available as the operating system in the following models, however, Windows XP Professional is not preloaded in the computer:

- 2752-CTO, 6Nx, 6Px, 6Sx, 6Tx, 6Ux, 6Zx, 72x, 73x, F6x, N5x, N7x
- 2753-CTO, 6Zx, 72x, E7x
- 2754-CTO
- 2757-CTO, 4Lx, 4Qx
- 2758-CTO, 52x, 54x, 55x, 57x, M2x, MWx
- 2762-CTO
- 2763-CTO

Table 73. Parts list—Windows XP Professional (32 bit) recovery DVDs

Language	P/N	CRU ID
Arabic	58Y0087	*
Brazilian Portuguese	58Y0088	
Czech	58Y0090	
Danish	58Y0091	
Dutch	58Y0102	
English	58Y0113	
English (modem-disabled)	58Y0112	
French	58Y0093	
Finnish	58Y0092	
German	58Y0095	
Greek	58Y0094	
Hebrew	58Y0096	
Hungarian	58Y0098	
Italian	58Y0099	
Japanese	58Y0924	
Korean	58Y0101	
Norwegian	58Y0103	
Polish	58Y0104	
Russian	58Y0106	
Russian (English-enabled)	58Y0105	
Simplified Chinese	58Y0089	
Slovenian	58Y0107	
Spanish	58Y0108	
Swedish	58Y0109	
Traditional Chinese	58Y0111	
Traditional Chinese (Hong Kong S.A.R.)	58Y0097	

Table 73. Parts list—Windows XP Professional (32 bit) recovery DVDs (continued)

Language	P/N	CRU ID
Turkish	58Y0110	

## Windows XP Professional (64 bit) DVDs

Windows XP Professional (64 bit) DVDs are available as the operating system in the following models, however, Windows XP Professional is not preloaded in the computer:

- 2752-CTO
- 2753-CTO
- 2754-CTO
- 2762-CTO
- 2763-CTO

Table 74. Parts list—Windows XP Professional (64 bit) recovery DVDs

Language	P/N	CRU ID
English	58Y3851	*
French	58Y3848	
German	58Y3849	
Japanese	58Y3850	
Simplified Chinese	58Y3847	

## Windows Vista Business (32 bit) DVDs

Windows Vista Business (32 bit) is preinstalled as the operating system in the following models:

- 2752-CTO, 3Ex, 3Lx, 43x, 46x, 5Zx, 66x, 68x, 69x, 6Ax, 6Cx, 6Dx, 6Ex, 6Hx, 6Jx, 6Kx, EUx, F4x, F5x, F7x, F8x, F9x, FAX, FBx, FCx, FDx, FLx, MBx, MCx, MGx, MTx, MUX
- 2753-CTO, 48x, 6Vx, 6Wx, 6Yx, MNx
- 2754-CTO, 5Mx, 5Nx, 5Qx, 5Rx, 5Tx, 5Ux, 5Vx, 5Wx
- 2757-CTO, 23x, 24x, 26x, 27x, 4Jx, 4Kx, 4Mx, 4Nx, 4Px, 4Rx, LXx
- 2758-CTO, 4Wx, 4Yx, 53x, 56x, 58x, 5Ax, 5Bx, 5Cx
- 2762-CTO
- 2763-CTO

Table 75. Parts list—Windows Vista Business (32 bit) DVDs

Language	P/N	CRU ID
Brazilian Portuguese	58Y0016	*
Czech	58Y0018	
Danish	58Y0019	
English	58Y0042	
English (modem-disabled)	58Y0041	
English, Finnish, and Swedish (in Sweden)	58Y0250	
English, French, German, and Dutch (in Belgium and Luxemburg)	58Y0249	
English, French, German, and Italian (in Switzerland)	58Y0248	
French	58Y0020	

Table 75. Parts list—Windows Vista Business (32 bit) DVDs (continued)

Language	P/N	CRU ID
German	58Y0022	
Greek	58Y0021	
Hebrew	58Y0023	
Hungarian	58Y0025	
Italian	58Y0026	
Japanese	58Y0921	
Korean	58Y0028	
Norwegian	58Y0029	
Polish	58Y0030	
Portuguese	58Y0031	
Romanian	58Y0033	
Russian	58Y0034	
Russian (English-enabled)	58Y0032	
Serbian-Latin	58Y0038	
Simplified Chinese	58Y0017	
Slovak	58Y0035	
Slovenian	58Y0036	
Spanish	58Y0037	
Traditional Chinese	58Y0040	
Traditional Chinese (Hong Kong S.A.R.)	58Y0024	
Turkish	58Y0039	

## Windows Vista Business (64 bit) DVDs

Windows Vista Business (64 bit) is preinstalled as the operating system in the following models:

- 2752-CTO, 36x, 37x, 38x, 3Ax, 3Bx, 3Dx, 3Fx, 3Hx, 3Jx, 3Kx, 3Mx, 3Nx, 3Xx, 3Yx, 3Zx, 42x, 44x, 67x, 6Bx, 6Fx, 6Gx, 6Lx, 6Mx, 78x, 7Bx, 7Cx, 7Dx, E5x, E7x, EPx, EQx, ERx, EWx, F2x, F3x, FGx, FHx, FJx, FKx, FSx, FTx, FUx, FVx, FWx, FXx, M9x, MAX, MDx, MEx, MFx, MNx, MSx, N3x, N4x, N6x, N8x, N9x
- 2753-CTO, 6Sx, 6Tx, 6Ux, E6x, MJx
- 2754-CTO, EMx
- 2757-CTO
- 2758-CTO, 28x, 29x, 2Bx, 4Sx, 4Tx, 4Ux, 4Vx, 4Xx, 4Zx, 59x, 5Dx, 5Fx, 5Gx, 5Kx, 5Lx, 74x, 75x, 76x, 77x, 79x, 7Ax, E3x, EAx, EBx, ECx, EDx, EEx, EFx, EGx, EHx, EJx, EKx, ELx, FEx, FFx, FQx, LYx, LZx, M3x, M4x, M6x, M7x, MKx, MLx, MMx, MPx, MQx, MRx, MVx, MXx, MYx, MZx, N2x
- 2762-CTO
- 2763-CTO



Table 76. Parts list—Windows Vista Business (64 bit) DVDs

Language	P/N	CRU ID
Czech	58Y0044	*
Danish	58Y0045	
English	58Y0066	
English (modem-disabled)	58Y0065	
English, Finnish, and Swedish (in Sweden)	58Y0910	
English, French, German, and Dutch (in Belgium and Luxemburg)	58Y0909	
English, French, German, and Italian (in Switzerland)	58Y0908	
French	58Y0046	
German	58Y0048	
Greek	58Y0047	
Hebrew	58Y0049	
Hungarian	58Y0051	
Italian	58Y0052	
Japanese	58Y0922	
Korean	58Y0054	
Norwegian	58Y0055	
Polish	58Y0056	
Romanian	58Y0057	
Russian	58Y0058	
Serbian-Latin	58Y0062	
Simplified Chinese	58Y0043	
Slovak	58Y0059	
Slovenian	58Y0060	
Spanish	58Y0061	
Traditional Chinese	58Y0064	
Traditional Chinese (Hong Kong S.A.R.)	58Y0050	
Turkish	58Y0063	

- 2500-CTO
- 2541-CTO, 52x
- 2542-CTO
- 2543-CTO
- 2544-CTO
- 4323-CTO
- 4326-CTO

Table 77. Parts list—Windows Vista Business (64 bit) DVDs

Language	P/N	CRU ID
English	76Y1993	*
English (for India)	76Y1992	

## Windows Vista Ultimate (64 bit) DVDs

Windows Vista Ultimate (64 bit) is preinstalled as the operating system in the following models:

- 2752-CTO, 3Cx, 63x, 64x, ESx, ETx, EVx
- 2753-CTO, 6Xx, MHx
- 2754-CTO
- 2757-CTO
- 2758-CTO, 5Ex, 5Hx, 5Jx, M5x
- 2762-CTO
- 2763-CTO

Table 78. Parts list—Windows Vista Ultimate (64 bit) DVDs

Language	P/N	CRU ID
Danish	58Y0254	*
English	58Y0086	
English (modem-disabled)	58Y0085	
English, Finnish, and Swedish (in Sweden)	58Y0913	
English, French, German, and Dutch (in Belgium and Luxembourg)	58Y0912	
English, French, German, and Italian (in Switzerland)	58Y0911	
French	58Y0255	
German	58Y0078	
Italian	58Y0256	
Japanese	58Y0923	
Norwegian	58Y0081	
Russian	58Y0083	
Russian (English-enabled)	58Y0082	
Simplified Chinese	58Y0077	
Traditional Chinese	58Y0084	
Traditional Chinese (Hong Kong S.A.R.)	58Y0079	

## Windows 7 Professional (64 bit) DVDs

Windows 7 Professional (64 bit) is preinstalled as the operating system in the following models:

- 2752-CTO
- 2753-CTO
- 2754-CTO
- 2762-CTO
- 2763-CTO

Table 79. Parts list—Windows 7 Professional (64 bit) recovery DVDs

Language	P/N	CRU ID
Brazilian Portuguese	58Y3753	*
Czech	58Y3756	
Danish	58Y3757	
Dutch	58Y3768	
English	58Y3781	
English (for India)	58Y3758	
English (modem-disabled)	58Y3780	
English, Finnish, and Swedish (in Sweden)	58Y3783	
English, French, German, and Dutch (in Belgium and Luxemburg)	58Y3782	
English, French, German, and Italian (in Switzerland)	58Y3784	
French	58Y3759	
German	58Y3761	
Greek	58Y3760	
Hebrew	58Y3762	
Hungarian	58Y3764	
Italian	58Y3765	
Japanese	58Y3766	
Korean	58Y3767	
Norwegian	58Y3769	
Polish	58Y3770	
Portuguese	58Y3771	
Romanian	58Y3773	
Russian	58Y3774	
Russian (English-enabled)	58Y3772	
Serbian-Latin	58Y3778	
Simplified Chinese	58Y3754	
Slovak	58Y3775	
Slovenian	58Y3776	
Spanish	58Y3777	
Traditional Chinese	58Y3755	
Traditional Chinese (Hong Kong S.A.R.)	58Y3763	
Turkish	58Y3779	

- 2500-CTO, 2Ax, 2Bx, 2Cx, 2Ex, 2Gx, 2Lx, 2Mx, 2Xx, 3Dx, 3Ex, 3Fx, 3Ax, 3Bx, 3Cx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx, 5Cx, 5Dx, 5Ex, 5Fx
- 2541-CTO, 25x, 26x, 27x, 28x, 29x, 2Nx, 2Px, 2Qx, 2Rx, 2Ux, 2Tx, 2Vx, 32x, 2Wx, 4Kx, 4Hx, 4Jx, 4Lx, 4Mx, 4Px, 4Qx, 4Nx, 4Sx, 4Rx, 4Ux, 4Zx, 53x, 54x, 56x, 55x, 57x, 58x, 59x, 5Ax, 5Bx
- 2542-CTO, 58x, 59x, 5Ax, 5Bx
- 2543-CTO

- 2544-CTO
- 4323-CTO, 33x, 34x, 35x, 36x, 37x, 38x, 39x
- 4326-CTO, 4Dx, 4Ex, 4Fx, 4Gx

Table 80. Parts list—Windows 7 Professional (64 bit) recovery DVDs

Language	P/N	CRU ID
Brazilian Portuguese	58Y4990	*
Czech	58Y4993	
Danish	58Y4994	
English	76Y1018	
English (for India)	58Y4995	
English (modem-disabled)	76Y1017	
English, Finnish, and Swedish (in Sweden)	76Y1020	
English, French, German, and Dutch (in Belgium and Luxemburg)	76Y1019	
English, French, German, and Italian (in Switzerland)	76Y1021	
French	58Y4996	
German	58Y4998	
Greek	58Y4997	
Hebrew	58Y4999	
Hungarian	76Y1001	
Italian	76Y1002	
Japanese	76Y1003	
Korean	76Y1004	
Norwegian	76Y1006	
Polish	76Y1007	
Portuguese	76Y1008	
Romanian	76Y1010	
Russian	76Y1011	
Russian (English-enabled)	76Y1009	
Serbian-Latin	76Y1015	
Simplified Chinese	58Y4991	
Slovak	76Y1012	
Slovenian	76Y1013	
Spanish	76Y1014	
Traditional Chinese	58Y4992	
Traditional Chinese (Hong Kong S.A.R.)	76Y1000	
Turkish	76Y1016	

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## Common service tools

Table 81. Parts list—Common service tools

Tool	P/N
Screwdriver kit	95F3598
1/4" drive spinner handle	1650840
1/4" Sq. to 1/4" hex torx adapter	93F2838
TR7-TR-10 tamper resistant torx bits	00P6967
Removal tool antenna RF connector	08K7159
USB 2.0 CD-RW/DVD-ROM combo drive II	40Y8687
USB cable	40Y8704
USB floppy diskette drive for maintenance diskette	05K9283
USB floppy diskette drive tool kit	27L3452
Test card for integrated Smart Card	42W7820
LENOVO ThinkPad Hardware Maintenance Diskette Version 1.76 or later <b>Note:</b> Download the file from the following Web site: <a href="http://www.lenovo.com/spm">http://www.lenovo.com/spm</a>	—



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