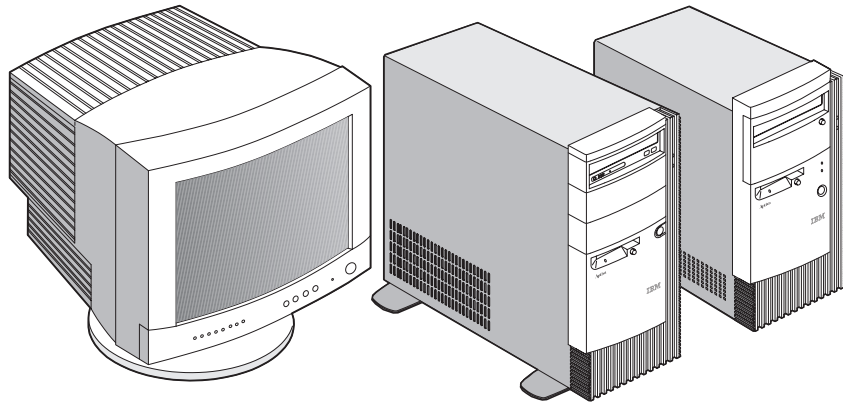




Hardware Maintenance Service for Service Level A

Machine Type 2153, 2139
IBM Monitors Type 2124, 2126 and 2127



2124
2126/2127

2139/2153

Aptiva

First Edition (June 1998)

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Voltage Supply Switch Settings

Your IBM Aptiva Personal Computer *might* have voltage switches, which must be set correctly for your voltage supply. If your monitor or system unit has a voltage switch, complete these steps to make sure each switch is set correctly:

1. Determine the correct voltage switch setting for your area:

<u>Voltage Supply Range</u>	<u>Voltage Switch Setting</u>
100-125 V	110 V
200-240 V	220 V

2. Locate the voltage switch on the back of your monitor or system unit. If the setting shown on the switch is:
 - Correct: start setting up your IBM Aptiva computer.
 - Incorrect: change the voltage switch setting.

Safety Information



DANGER

To avoid a shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

To avoid shock hazard:

- **The power cord must be connected to a properly wired and earthed receptacle.**
- **Any equipment to which this product will be attached must also be connected to properly wired receptacles.**

When possible, use one hand to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

Electrical current from power, telephone, and communications cables is hazardous. To avoid shock hazard, connect and disconnect cables as described following when installing, moving, or opening covers of this product or attached devices.

To Connect	To Disconnect
1. Turn Everything OFF.	1. Turn Everything OFF.
2. First, attach all cables to devices.	2. First, remove power cord(s) from outlet
3. Attach signal cables to receptacles.	3. Remove signal cables from receptacles.
4. Attach power cord(s) to outlet.	4. Remove all cables from devices.
5. Turn device ON	

NOTE: In the UK, by law, the telephone cable must be connected after the power cord.	NOTE: In the UK, the power cord must be disconnected after the telephone cable.
--	---



Caution:

When replacing the battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.



Caution:

When a CD-ROM drive is installed, note the following.

Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

Removing the covers of the CD-ROM drive could result in exposure to hazardous laser radiation. There are no serviceable parts inside the CD-ROM drive. Do not remove the CD-ROM drive covers.

DANGER

Some CD-ROM drives 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.



≥ 32 Kg	≥ 55 Kg
(70.5	(121.2
lbs)	lbs)

Caution:

Use safe lifting practices when lifting your machine.



Caution:

Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect the attached power cords, telecommunications systems, networks, and modems before you open the server covers, unless instructed otherwise in the installation and configuration procedures.



PERIGO

Para evitar choques elétricos, não conecte ou desconecte nenhum cabo, nem efetue instalação, manutenção ou reconfiguração deste produto durante uma tempestade com raios.

Para evitar choques elétricos:

- O cabo de alimentação deve ser conectado a um receptáculo corretamente instalado e aterrado.
- Todos os equipamentos aos quais este produto será conectado devem também ser conectados a receptáculos corretamente instalados.

Quando possível, utilize uma das mãos para conectar ou desconectar cabos de sinal, para evitar um possível choque ao tocar duas superfícies com potenciais elétricos diferentes.

A corrente elétrica proveniente de cabos de alimentação, de telefone e de comunicação é perigosa. Para evitar choques elétricos, conecte e desconecte os cabos conforme descrito a seguir, ao instalar, movimentar ou abrir tampas deste produto ou de dispositivos conectados.

Para Conectar	Para Desconectar
1. DESLIGUE tudo.	1. DESLIGUE tudo.
2. Conecte primeiro todos os cabos nos dispositivos.	2. Remova primeiro o(s) cabo(s) de alimentação das tomadas.
3. Conecte os cabos de sinal nos receptáculos.	3. Remova os cabos de sinal dos receptáculos.
4. Conecte o(s) cabo(s) de alimentação nas tomadas.	4. Remova todos os cabos dos dispositivos.
5. LIGUE o dispositivo.	



cuidado:

Ao substituir a bateria, utilize apenas o Número de Peça IBM 33F8354 ou um tipo de bateria equivalente recomendado pelo fabricante. Se seu sistema possuir um módulo com uma bateria de lítio, substitua-o apenas pelo mesmo tipo de módulo, produzido pelo mesmo fabricante. A bateria contém lítio e pode explodir se não for utilizada, manuseada e descartada de forma adequada.

Não:

- **Jogue ou coloque na água**

Aqueça a mais de 100°C (212°F)

- **Conserte nem desmonte.**

Descarte a bateria conforme requerido pelas disposições e regulamentações locais.



cuidado:

Quando uma unidade de CD-ROM estiver instalada, observe o seguinte.

A utilização de controles ou ajustes ou a execução de procedimentos diferentes daqueles especificados nesta publicação pode resultar em exposição perigosa à radiação.

A remoção das tampas da unidade de CD-ROM pode resultar em exposição a radiação perigosa de laser. Não existem peças que possam ser consertadas no interior da unidade de CD-ROM. Não remova as tampas da unidade de CD-ROM.

PERIGO

Algumas unidades de CD-ROM contém um diodo de laser da Classe 3A ou da Classe 3B. Observe o seguinte.

Radiação de laser quando aberto. Não olhe diretamente para o feixe de laser, não olhe diretamente com instrumentos óticos, e evite exposição direta ao raio.



≥32 Kg
(70,5
lbs)

≥55Kg
(121,2
lbs)

cuidado:

Utilize práticas seguras para levantamento de peso ao levantar sua máquina.



cuidado:

A corrente elétrica proveniente de cabos de alimentação, de telefone e de comunicação é perigosa. Para evitar ferimentos pessoais ou danos aos equipamentos, desconecte os cabos de alimentação, sistemas de telecomunicação, redes e modems antes de abrir as tampas do servidor, a menos que receba outras instruções nos procedimentos de instalação e configuração.

声明 1



危险！

为避免电击危险，请不要在暴风雨期间连接或断开任何电缆，或是进行此产品的安装、维护或重新配置操作。

为避免电击危险：

- 电源线必须连接到适当的电线及接地插座。
- 此产品将要连接的所有设备也必须连接到正确接线的插座上。

如果可能，请使用一只手连接或断开连接信号电缆，以避免在接触两个具有不同电势的表面时遭到电击。

电源线、电话线以及通信电缆中的电流非常危险。为避免电击，请在安装、移动或打开本产品或连接设备的外盖时，按照下述步骤连接或断开电缆。

要连接电缆

1. 关闭所有设备。
2. 首先将所有电缆与设备连接。
3. 将信号线连接到插座。
4. 将电源线连接到电源插座。
5. 打开设备。

要断开电缆

1. 关闭所有设备。
2. 首先从电源插座拔下电源线。
3. 从插座拔下信号电缆。
4. 从设备上拔下所有电缆。

声明 2



注意！

当更换电池时，仅可使用 IBM 部件号为 33F8354 的产品或由制造商推荐的同等电池。如果系统中有包含锂电池的模块，则只能使用由相同制造商制造的相同类型模块更换。该电池含有锂，如果使用、操作或处理不当会发生爆炸。

不要：

- 将其投入或浸于水中
- 加热超过100°C (212°F)
- 修理或拆卸

应按照当地法规和条例对此电池进行处理。

声明 3



注意！

在已安装 CD-ROM 驱动器的情况下，请注意下面的内容。

不遵循此处指定的控制、调整、或操作过程的操作将可能导致危险的辐射泄漏。

取下 CD-ROM 驱动器的外盖会导致危险的激光辐射泄漏。CD-ROM 驱动器内没有可以使用的部件。请不要取下 CD-ROM 驱动器的外盖。

声明 4

危险！

一些 CD-ROM 驱动器中包含内置的 3A 类或 3B 类激光二极管。
请注意下述内容。

打开驱动器会产生激光辐射。请不要凝视激光束，请不要使用光学仪器直接观看激光束，同时也要避免人体直接暴露在激光束下。

声明 5



32 kg (70.5 磅)



55 kg (121.2 磅)

注意！

搬运机器时，请进行安全搬运操作。

声明 10



注意！

电源线、电话线以及通信电缆中的电流非常危险。为避免人身伤害或设备损坏，除非在安装和配置过程中特别指明，请在打开服务器外盖前断开已连接的全部电源线、电信系统、网络及调制解调器。

• 聲明 1



危險

為了避免雷擊，在閃電期間，請勿連接或拔掉本裝置上的任何電纜線，或請勿安裝、維修或重新架構本產品。

為了避免雷擊：

- 電源線必須連接到接線及接地正確的插座。
- 本產品所連接的設備也必須連接到接線正確的插座。

儘可能使用單手來連接或拔掉信號電纜，以避免因接觸兩不同電位的平面，而受到電擊。

電源、電話及通信電纜上均有電流通過。為了避免電擊，在安裝、移動本產品，或開啓本產品的蓋子或與本產品連接之裝置的蓋子時，請依照下列「連接」及「拔掉」電纜線的步驟操作。

連接

1. 關掉所有開關。
2. 首先，將所有電纜線連接到裝置。
3. 將信號電纜連接到信號插座。
4. 將電源線連接到電源插座。
5. 開啓裝置電源。

拔掉

1. 關掉所有開關。
2. 首先，自電源插座拔掉電源線。
3. 拔掉信號插座上的所有信號電纜。
4. 拔掉裝置上的所有電纜線。

• 聲明 2



注意：

更換電池時，只可使用 IBM 零件編號 33F8354 的電池，或廠商建議的相當類型的電池。如您系統中的模組含有鋰電池，更換時，請使用相同廠商製造的相同模組類型。如未正常使用、處理或捨棄含有鋰的電池時，可能會造成爆炸。

嚴禁：

- 丟入或浸入水中
- 加熱超過攝氏100度（華氏212度）
- 修補或拆解

處理廢棄電池時，請遵照當地法令規章處理。

• 聲明 3



注意：
安裝光碟機時，請注意下列事項：

不依此處所指示的控制、調整或處理步驟，恐有遭致輻射之虞。

移開光碟機蓋子，恐有遭致雷射輻射之虞。光碟機中沒有需要維修的部分。請勿移開光碟機的蓋子。

• 聲明 4



危險

光碟機含有內嵌式 Class 3A 或 Class 3B 雷射二極體時，請注意下列事項：

開啓時會產生雷射輻射。請勿凝視光束，不要使用光學儀器直接觀察，且應避免直接暴露在光束下。

• 聲明 5



≥ 32 公斤 (70.5 磅)



≥ 55 公斤 (121.2 磅)

注意：
提昇機器時，請使用安全提昇措施。

• 聲明 10



注意：
電源、電話及通信電纜上均有電流通過。在安裝及架構之時，若非專家指導，為了避免人員受傷、設備受損，在開啓伺服器蓋子之前，請切斷電源線、電信系統、網路及數據機。



PERIGO

Pour éviter tout risque de choc électrique, ne manipulez aucun câble et n'effectuez aucune opération d'installation, d'entretien ou de reconfiguration de ce produit au cours d'un orage.

Pour éviter tout risque de choc électrique :

- **Les cordons d'alimentation du présent produit et de tous les appareils qui lui sont connectés doivent être branchés sur des socles de prise de courant correctement câblés et mis à la terre.**

Afin d'éviter tout risque de choc électrique provenant d'une différence de potentiel de terre, n'utilisez qu'une main, lorsque cela est possible, pour connecter ou déconnecter les cordons d'interface.

Le courant électrique passant dans les câbles de communication, ou les cordons téléphoniques et d'alimentation peut être dangereux. Pour éviter tout risque de choc électrique, lorsque vous installez ou que vous déplacez le présent produit ou des périphériques qui lui sont raccordés, reportez-vous aux instructions ci-dessous pour connecter et déconnecter les différents cordons.

Connexion	Déconnexion
1. Mettez les unités hors tension.	1. Mettez les unités hors tension.
2. Commencez par brancher tous les cordons sur les unités.	2. Commencez par débrancher les cordons alimentation des socles de prise de courant.
3. Branchez les câbles d'interface sur les prises.	3. Débranchez les câbles d'interface des prises.
4. Branchez les cordons d'alimentation sur un socle de prise de courant.	4. Débranchez tous les câbles des unités.
5. Mettez les unités sous tension.	



attention:

Remplacez la pile usagée par une pile de référence identique exclusivement - voir la référence IBM - ou par une pile équivalente recommandée par le fabricant. Si votre système est doté d'un module contenant une pile au lithium, vous devez le remplacer uniquement par un module identique, produit par le même fabricant. La pile contient du lithium et présente donc un risque d'explosion en cas de mauvaise manipulation ou utilisation.

- **Ne la jetez pas à l'eau.**
- **Ne l'exposez pas à une température supérieure à 100°C.**
- **Ne cherchez pas à la réparer ou à la démonter.**

Pour la mise au rebut, reportez-vous à la réglementation en vigueur.



attention:

Si une unité de CD-ROM est installée, prenez connaissance des informations suivantes :

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 document.

Pour éviter une exposition directe au rayon laser, n'ouvrez pas l'unité de CD-ROM. Vous ne pouvez effectuer aucune opération de maintenance à l'intérieur.

PERIGO

Certains unités de CD-ROM contiennent une diode laser de classe 3A ou 3B. Prenez connaissance des informations suivantes :

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



≥32 Kg



≥55Kg

attention:

Ce produit pèse un poids considérable. Faites-vous aider pour le soulever.



attention:

Le courant électrique circulant dans les câbles de communication et les cordons téléphoniques et d'alimentation peut être dangereux. Pour votre sécurité et celle de l'équipement, avant de retirer les carters du serveur, mettez celui-ci hors tension et déconnectez ses cordons d'alimentation, ainsi que les câbles qui le relie aux réseaux, aux systèmes de télécommunication et aux modems (sauf instruction contraire mentionnée dans les procédures d'installation et de configuration).



VORSICHT

Aus Sicherheitsgründen bei Gewitter an diesem Gerät keine Kabel anschließen oder lösen. Ferner keine Installations-, Wartungs- oder Rekonfigurationsarbeiten durchführen.

Aus Sicherheitsgründen:

- **Gerät nur an eine Schutzkontaktsteckdose mit ordnungsgemäß geerdetem Schutzkontakt anschließen.**
- **Alle angeschlossenen Geräte ebenfalls an Schutzkontaktsteckdosen mit ordnungsgemäß geerdetem Schutzkontakt anschließen.**

Signalkabel möglichst einhändig anschließen oder lösen, um einen Stromschlag durch Berühren von Oberflächen mit unterschiedlichem elektrischem Potential zu vermeiden.

Elektrische Spannungen von Netz-, Telefon- und Datenübertragungsleitungen sind gefährlich. Um einen Stromschlag zu vermeiden, nur nach den Anweisungen arbeiten, die für Installation, Transport oder Öffnen von Gehäusen dieses Produkts oder angeschlossenen Einheiten gelten.

Kabel anschließen	Kabel lösen
1. Alle Geräte ausschalten und Netzstecker ziehen.	1. Alle Geräte ausschalten.
2. Zuerst alle Kabel an Einheiten anschließen.	2. Zuerst Netzstecker von Steckdose lösen.
3. Signalkabel an Anschlußbuchsen anschließen.	3. Signalkabel von Anschlußbuchsen lösen.
4. Netzstecker an Steckdose anschließen.	4. Alle Kabel von Einheiten lösen.
5. Gerät einschalten.	



achtung:

Eine verbrauchte Batterie nur durch eine Batterie mit der IBM Teilenummer 33F8354 oder durch eine vom Hersteller empfohlene Batterie ersetzen. Wenn Ihr System ein Modul mit einer Lithium-Batterie enthält, ersetzen Sie es immer mit dem selben Modultyp vom selben Hersteller. Die Batterie enthält Lithium und kann bei unsachgemäßer Verwendung, Handhabung oder Entsorgung explodieren.

Die Batterie nicht

- mit Wasser in Berührung bringen.
- über 100 C erhitzen.
- reparieren oder zerlegen.

Die örtlichen Bestimmungen für die Entsorgung von Sondermüll beachten.



achtung:

Wenn ein CD-ROM-Laufwerk installiert ist, beachten Sie folgendes. Steuer- und Einstellelemente sowie Verfahren nur entsprechend den Anweisungen im vorliegenden Handbuch einsetzen. Andernfalls kann gefährliche Laserstrahlung auftreten.

Das Entfernen der Abdeckungen des CD-ROM-Laufwerks kann zu gefährlicher Laserstrahlung führen. Es befinden sich keine Teile innerhalb des CD-ROM-Laufwerks, die vom Benutzer gewartet werden müssen. Die Verkleidung des CD-ROM-Laufwerks nicht öffnen.

VORSICHT

Manche CD-ROM-Laufwerke enthalten eine eingebaute Laserdiode der Klasse 3A oder 3B. Die nachfolgend aufgeführten Punkte beachten.

Laserstrahlung bei geöffneter Tür. Niemals direkt in den Laserstrahl sehen, nicht direkt mit optischen Instrumenten betrachten und den Strahlungsbereich meiden.



≥32 Kg

≥55Kg

achtung:

Beim Anheben der Maschine die vorgeschriebenen Sicherheitsbestimmungen beachten.



achtung:

An Netz-, Telefon- und Datenleitungen können gefährliche elektrische Spannungen anliegen. Um eine Gefährdung des Benutzers oder Beschädigung des Geräts zu vermeiden, ist der Server auszuschalten. Die Verbindung zu den angeschlossenen Netzkabeln, Telekommunikationssystemen, Netzwerken und Modems ist vor dem Öffnen des Servergehäuses zu unterbrechen (sofern in Installations- und Konfigurationsanweisungen nicht anders angegeben).



PERICOLO

Per evitare il pericolo di scosse elettriche durante i temporali, non collegare o scollegare cavi, non effettuare l'installazione, la manutenzione o la riconfigurazione di questo prodotto.

Per evitare il pericolo di scosse elettriche:

- **collegare il cavo di alimentazione ad una presa elettrica correttamente cablata e munita di terra di sicurezza;**
- **collegare qualsiasi apparecchiatura collegata a questo prodotto ad una presa elettrica correttamente cablata e munita di terra di sicurezza.**

Quando possibile, collegare o scollegare i cavi di segnale con una sola mano per evitare il rischio di scosse derivanti dal contatto con due superfici a diverso potenziale elettrico.

La corrente elettrica circolante nei cavi di alimentazione, del telefono e di segnale è pericolosa. Per evitare scosse elettriche, collegare e scollegare i cavi come descritto quando si effettuano l'installazione, la rimozione o l'apertura dei coperchi di questo prodotto o durante il collegamento delle unità.

Per collegare	Per scollegare
1. SPEGNERE tutti i dispositivi.	1. SPEGNERE tutti i dispositivi.
2. Collegare prima tutti i cavi alle unità.	2. Rimuovere prima il(i) cavo(i) di alimentazione dalla presa elettrica.
3. Collegare i cavi di segnale alle prese.	3. Rimuovere i cavi di segnale dalle prese.
4. Collegare il(i) cavo(i) di alimentazione alla presa elettrica.	4. Rimuovere tutti i cavi dalle unità.
5. ACCENDERE le unità.	



ATTENZIONE:

Quando si sostituisce la batteria, utilizzare solo una batteria IBM o batterie dello stesso tipo o di tipo equivalente consigliate dal produttore. Se il sistema di cui si dispone è provvisto di un modulo contenente una batteria al litio, sostituire tale batteria solo con un tipo di modulo uguale a quello fornito dal produttore. La batteria contiene litio e può esplodere se utilizzata, maneggiata o smaltita impropriamente.

Evitare di:

- Gettarla o immergerla in acqua
- Riscaldarla ad una temperatura superiore ai 100°C
- Cercare di ripararla o smaltirla

Smaltire secondo la normativa in vigore (D.Lgs 22 del 5/2/97) e successive disposizioni nazionali e locali.



ATTENZIONE:

Quando è installata un'unità CD-ROM, notare quanto segue:

L'utilizzo di controlli, regolazioni o l'esecuzione di procedure non descritti nel presente manuale possono provocare l'esposizione a radiazioni pericolose.

L'apertura di un'unità CD-ROM può determinare l'esposizione a radiazioni laser pericolose. All'interno dell'unità CD-ROM non vi sono parti su cui effettuare l'assistenza tecnica. Non rimuovere i coperchi dell'unità CD-ROM.

PERICOLO

Alcune unità CD-ROM contengono all'interno un diodo laser di Classe 3A o Classe 3B. Prestare attenzione a quanto segue:

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici ed evitare l'esposizione diretta al fascio.



≥32 Kg

≥55Kg

ATTENZIONE:

Durante il sollevamento della macchina seguire delle norme di di sicurezza.



ATTENZIONE:

La corrente circolante nei cavi di alimentazione, del telefono e di segnale è pericolosa. Per evitare situazioni pericolose per le persone o danneggiamenti all'apparecchiatura, scollegare i cavi di alimentazione, i sistemi di telecomunicazioni, le reti e ed i modem prima di aprire i coperchi del server se non diversamente indicato nelle procedure di installazione e configurazione.



위험

전기 충격을 피하려면 날씨가 나쁠 때(예: 눈 또는 비가 오거나 천둥 번개가 칠 때)는 케이블을 연결하거나 끊지 않도록 하고 이 제품의 설치, 유지보수 또는 재구성 등의 작업을 수행하지 않도록 하십시오.

전기 충격을 피하려면 다음과 같아야 합니다.

- 고압선은 적절한 배선 및 접지 상태의 콘센트로 연결되어야 합니다.
- 이 제품이 접속될 모든 장비도 적절한 배서 상태의 콘센트로 연결되어야 합니다.

다른 전위를 가진 두 표면을 만졌을 때 발생할 수 있는 전기 충격을 피하려면 한 손으로 신호선을 연결하거나 끊으십시오.

전원, 전화 및 통신 케이블로부터 흘러 나오는 전류는 위험합니다. 전기 충격을 피하려면 이 제품이나 접속 장치를 설치, 이동 및 덮개를 열 때 다음 설명에 따라 케이블을 연결하고 끊도록 하십시오.

연결하려면

1. 모든 스위치를 켜다.
2. 먼저 모든 케이블을 장치에 연결한다.
3. 신호선을 콘센트에 연결한다.
4. 전원을 콘센트에 연결한다.
5. 장치 스위치를 켜다.

연결해제하려면

1. 모든 스위치를 끈다.
2. 먼저 모든 케이블을 장치에 제거한다.
3. 신호선을 콘센트에서 제거한다.
4. 장치에서 모든 케이블을 제거한다.

경고문 2



주의:

배터리를 교체할 때는 IBM 부품 번호 &PN. 또는 제조업체에서 추천하는 동등한 유형의 배터리를 사용하십시오. 시스템에 리튬 배터리를 포함하는 모듈이 있으면 이것은 동일한 제조업체에서 생산된 동일한 모듈 유형으로만 교체하십시오. 배터리에 리튬이 포함되어 있으므로 제대로 사용, 처리 또는 처분하지 않으면 폭발할 수 있습니다.

다음을 주의하십시오.

- 던지거나 물에 담그지 않도록 하십시오.
- 100°C(212°F) 이상으로 가열하지 않도록 하십시오.
- 수리하거나 분해하지 않도록 하십시오.

지역 법령이나 규정의 요구에 따라 배터리를 처분하십시오.

경고문 3



주의:

CD-ROM 드라이브가 설치되어 있으면 다음 사항을 명심하십시오.

여기에서 지정하지 않은 방식으로 CD-ROM 드라이브를 제어 또는 조절하거나 다른 절차로 사용하면 위험한 방사능 노출이 발생할 수 있습니다.

CD-ROM 드라이브의 덮개를 제거하면 위험한 레이저 방사능이 노출될 수 있습니다.

CD-ROM 드라이브 내에는 정비할 수 있는 부품이 없습니다. CD-ROM 드라이브 덮개를 제거하지 않도록 하십시오.

경고문 4

위험

일부 CD-ROM 드라이브에는 클래스 3A 또는 3B 레이저 2급 진공관(다이오드)이 들어 있습니다. 다음 사항을 명심하십시오.

열면 레이저 방사능이 노출됩니다. 광선을 주시하거나 광학 기계를 직접 쳐다보지 않도록 하고 광선에 노출되지 않도록 하십시오.

경고문 5



32kg(70.5 파운드)



55kg(121.2 파운드)

주의:

기계를 들 때는 안전하게 들어 올리십시오.

경고문 10



주의:

전원, 전화 및 통신 케이블로부터 흘러 나오는 전류는 위험합니다. 설치 및 구성 절차에 다른 지시가 없으면, 다치거나 장비 손상이 생기지 않게 하기 위해 서버 덮개를 열기 전에 접속된 전선, 원격 통신 시스템, 네트워크 및 모뎀의 연결을 끊으십시오.



PELIGRO

Para evitar una posible descarga eléctrica, no conecte ni desconecte los cables ni lleve a cabo ninguna operación de instalación, de mantenimiento o de reconfiguración de este producto durante una tormenta eléctrica.

Para evitar una posible descarga:

- El cable de alimentación debe conectarse a un receptáculo con una instalación eléctrica correcta y con toma de tierra.
- Los aparatos a los que se conecte este producto también deben estar conectados a receptáculos con la debida instalación eléctrica.

Cuando sea posible, utilice una sola mano para conectar o desconectar los cables de señal a fin de evitar una posible descarga al tocar dos superficies con distinto potencial eléctrico.

La corriente eléctrica de los cables de comunicaciones, teléfono y alimentación puede resultar peligrosa. Para evitar una posible descarga, siga las indicaciones de conexión y desconexión de los cables siempre que tenga que instalar, mover o abrir las cubiertas de este producto o de los dispositivos acoplados.

Instrucciones de conexión	Instrucciones de desconexión
1. Apague todos los componentes (OFF).	1. Encienda todos los componentes (ON).
2. En primer lugar, conecte todos los cables a los dispositivos.	2. En primer lugar, retire los cables de alimentación de las tomas.
3. Conecte los cables de señal a los receptáculos.	3. Retire los cables de señal de los receptáculos.
4. Conecte los cables de alimentación a las tomas.	4. Retire todos los cables de los dispositivos.
5. Encienda el dispositivo (ON).	



caution:

Al cambiar la batería, utilice únicamente la batería IBM Número de pieza 33F8354 o un tipo de batería equivalente recomendado por el fabricante. Si el sistema tiene un módulo que contiene una batería de litio, sustitúyalo únicamente por el mismo tipo de módulo del mismo fabricante. La batería contiene litio y puede explotar si no se utiliza, manipula o desecha correctamente.

Lo que no debe hacer

- Tirar o sumergir el producto en agua.
- Exponer el producto a una temperatura superior a 100°C.
- Reparar o desmontar el producto.

Cuando quiera desechar la batería, siga las disposiciones y reglamentaciones locales.



caution:

Cuando instale una unidad de CD-ROM, tenga en cuenta la siguiente información.

Si se llevan a cabo controles o ajustes o se utilizan métodos que no se atengan a lo aquí especificado, se puede producir una exposición peligrosa a las radiaciones.

Si se retiran las cubiertas de la unidad de CD-ROM, se puede producir una peligrosa exposición a radiaciones de láser. Dentro de la unidad de CD-ROM no existen piezas reparables. No retire las cubiertas de la unidad de CD-ROM.

PELIGRO

Algunas unidades de CD-ROM tienen incorporado un diodo de láser de Clase 3A o de Clase 3B. Tenga en cuenta la siguiente información.

Cuando la unidad está abierta se generan emisiones de rayos láser. No dirija la mirada al haz, no lo observe directamente con instrumentos ópticos y evite la exposición directa.



≥32 Kg

≥55Kg

caution:

Alce la máquina con cuidado; el sobrepeso podría causar alguna lesión.



caution:

La corriente eléctrica de los cables de comunicaciones, de teléfono y de alimentación puede resultar peligrosa. Para evitar posibles lesiones o daños del aparato, desconecte los cables de alimentación, los sistemas de telecomunicaciones, las redes y los módems antes de abrir las cubiertas del servidor, salvo que se indique lo contrario en las instrucciones de las operaciones de instalación y configuración.

Laser Compliance Statement

The CD/DVD-ROM drive in the computer is a laser product. The CD/DVD-ROM drive's classification label (sample shown below) is located on the drive.



The CD/DVD-ROM drive is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. In other countries, the drive is certified to conform to the requirements of EN60825.

Class 1 laser products are not considered to be hazardous. The CD/DVD-ROM drive has an internal Class 1, 0.5-milliwatt, aluminum gallium-arsenide laser that operates at a wavelength of 760 to 810 nanometers.

The design of the laser system and the CD/DVD-ROM drive ensures that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing conditions.

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HelpCenter	PS/1
IBM	PS/2
Operating System/2	

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Preface

This manual contains service information for the **2153/2139 Service Level A (SL-A)** model of the IBM Aptiva Personal Computer, worldwide.

This manual is intended to be used as a stand-alone document to service Aptiva machine type 2153/2139 products. It is divided into the following chapters:

Notices contains important safety information and notices required to service this computer.

General Information contains a brief description of this manual.

Check Procedures provides step-by-step instructions that aid in locating the failing Field Replaceable Unit (FRU).

Diagnostic Aids explains how to use the diagnostics tools for isolating failures.

Repairing Information contains illustrations and descriptions to disassemble and reassemble the computer.

Parts/Test Point Locations contains illustrations and descriptions of the locations of the major parts, jumpers, and connectors.

Safety Inspection Guide contains information about inspecting a machine for safety problems before putting the machine under a Maintenance Agreement.

Parts Catalog contains descriptions, illustrations, and part numbers for individual FRUs.

Appendix A, FRU Number Index contains part numbers listed in numerical order.

Appendix B, Online Support Information contains online support information.

Appendix C, Model/Monitor Configurations and FRU Part Numbers contains models and FRUs listed by part number for all countries.

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Introduction

This chapter gives a general overview of the Aptiva Machine Type 2153/2139, describes the standard and optional features, and details functional and environmental specifications.

Product Overview

Machine Type 2153/K6 contains one ISA slot and one shared PCI/ISA slot, and the system board supports the AMD processor. Machine Type 2153/Celeron contains two ISA slot, two PCI slot and one shared PCI/ISA slot, and the system board supports the Celeron processor. Machine Type 2139 contains one ISA slot, two PCI slots and one shared PCI/ISA slot, and the system board supports the Pentium II processor. Both support Accelerated Graphics Port (AGP), which allows all installed system memory to be used as texture memory, yielding a huge texture footprint to enhance 3D graphical display performance.

Listed below are 2153 and 2139 system features:

Processors (Machine Type 2153/K6)

- Processor with the capabilities of MMX™ technology
- Socket-7 Zero Insertion Force (ZIF) connector. You must remove the old processor to install an upgrade processor.
- Detachable CPU heat sink with fan.
- One of the following processors can be installed:
 - AMD K6-2 266 processor; 66 MHz external, 266 MHz internal
 - AMD K6-2 300 processor; 100 MHz external, 300 MHz internal
 - AMD K6-2 333 processor; 95 MHz external, 333 MHz internal
 - AMD K6-2 350 processor; 100 MHz external, 350 MHz internal

Processors (Machine Type 2139, 2153/Celeron)

- Processor with the capabilities of MMX™ technology
- Processor in Single Edge Contact (S.E.C.) cartridge packaging technology
- Dual Independent Bus architecture separates dedicated external system bus and dedicated internal high-speed cache bus socketability
- One of the following processors can be installed:

- Intel Pentium II –350, 400, 450 MHz internal, 100 MHz external (2139)
- Intel Celeron –300, 333 MHz internal, 66 MHz external (2153/Celeron)

Memory

- 512-KB Pipeline Burst Static RAM (PBSRAM). Fixed onboard for 2153/K6, built-in Pentium II processor for 2139, 128-KB PBSRAM built-in Celeron processor for 2153/Celeron.
- Onboard fixed video Synchronize Graphics RAM (SGRAM), 2- or 4-MB for Machine Type 2153, 4-MB for 2139.
- 168-pin synchronous dynamic random access memory (SDRAM), dual inline memory module (DIMM) sockets.
 - 2 memory sockets for Machine Type 2153, 3 sockets for 2139.
 - 16-MB, 32-MB, 64-MB or 128-MB DIMM.
 - PC-100(64-bit, non ECC, 100MHz, 3.3volt) DIMMs with gold contacts.(PC-66 for 2153/Celeron)
 - For 2153, maximum memory is 256MB, for 2139 maximum memory is 384MB.

External Ports

- Video port (15-pin D-sub connector)
- Parallel port (25-pin D-sub connector)
- Serial port (9-pin D-sub connector)
- Game/MIDI port (15-pin D-sub connector)
- Keyboard port (6-pin PS/2 mini-din connector)
- Mouse port (6-pin PS/2 mini-din connector)
- Two USB ports
- Microphone-in jack
- Speaker-out jack
- Line-in jack

Diskette Drive

- AT-type

- 3.5-in. 1.44 MB slimline diskette drive.

Hard Disk Drive

- 3.5-in., 1-in. height or 5.25-in., 1-in. height IDE AT drive.
- 128 KB "look-ahead" cache memory in hard disk drive.
- Average and minimum 12 ms seek time, access time varies for the hard disk drive and the hard disk drive manufacturer.

CD/DVD-ROM Drive

- 5.25-in. high-performance, 32X CD-ROM IDE/AT drive(for 2153), 32X CD-ROM IDE/AT drive and 2X DVD(both for 2139).
- Read data and play audio from standard and mini CD-ROM and audio compact discs (audio CDs). DVD media supported on DVD models.

Multimedia

- One pair of external speakers with power adapter (some may come with an additional sub-woofer and power adapter)
- Noise canceling microphone. (available on certain models)

Power Management

- Compliant to ACPI and supports display power management signaling (DPMS) monitor.
- Software shutdown by Windows 98.
- System enters standby mode if any of following conditions are met:
 - Execute standby from Windows 98 Start menu
 - Press system power button if it sets to act as standby function. See "Power Management Mode" on page 1-17.
 - Standby timer set in the Windows 98 power utility timer elapses without system activity.
- Monitor enters standby mode if Windows 98 power utility timer elapses system sleep timer set in the BIOS elapses.
- Support modem ring wake up from standby. See "Modem Wake-Up on Ring" on page 1-18.

Power Supply

- 95 W or 145 W switchable high/low voltage power supply(145 W for 2139 only)
- Standard ATX power supply with +5V standby power

Internal Cabling

- Two 40-pin ribbon cables for hard disk drive and CD/DVD-ROM drive.
- One 34-pin ribbon cable for AT diskette drive.
- One 4-pin (2-wire) cable for hard disk drive light-emitting diode (LED).
- One 3-pin (3-wire) cable for power light-emitting diode (LED).
- One 2-pin (2-wire) cable for power switch.
- One 4-pin modem voice-in/speaker-out cable.

Modem

- 56.6 Kbps ISA plug and play modem adapter card with data/fax/voice or voice-less features.
- Telephone line-out (RJ-11) connector.
- Telephone line-in (RJ-11) connector.

Monitor

- Super video graphics array (SVGA) monitor.
- Compliant to VESA power saving mode.
- Connector for a detachable grounded 3-wire power cord.
- 1.8-m (5.8-ft) attached signal cable.
- Auto-sensing power input for 100 Vac to 240 Vac.
- 15" (13.6" viewable image size) monitor
 - 0.28-mm dot pitch
 - Automatic scanning horizontal frequencies from 30KHz to 54KHz and all vertical frequencies between 50Hz and 120Hz.
 - DDC2A/B support
- 15" (13.7" viewable image size) monitor
 - 0.28-mm dot pitch

- Automatic scanning horizontal frequencies from 30KHz to 69KHz and all vertical frequencies between 50Hz and 120Hz.
 - DDC1/2B+ support and OSD (on-screen display) menu
- 17" (15.7" viewable image size) monitor
 - 0.27-mm dot pitch
 - Automatic scanning horizontal frequencies from 30KHz to 72KHz and all vertical frequencies between 50Hz and 120Hz.
 - DDC1/2B+ support and OSD (on-screen display) menu

Keyboard

- 104-key, 105-key or 109-key rubber dome Rapid Access keyboard with 1.8-m (5.8-ft) cable.
- PC Next keyboard

Mouse

- 2 button Sleek PS/2 mouse with 1.8-m (5.8-ft) cable for 2153
- 2 button ScrollPoint PS/2 mouse for 2139

Hardware Interfaces

The following peripheral interfaces for adapters, options, and drives are supported in the system unit.

Table 1- 1 System Board Hardware Interfaces	
Item	Interface
Expansion slot for I/O adapter cards	<p>Machine Type 2153: One PCI (peripheral component interconnect) v2.1 compatible expansion slots that operates at 33 MHz bus speed for K6 and two PCI for Celeron Two IBM AT-ISA Plug and Play compatible expansion slots that operates at 8 MHz bus speed. Note: 1 PCI/1ISA slot share and 1 ISA independent slot</p> <p>Machine Type 2139: Three PCI v2.1 compatible expansion slots that operates at 33 MHz bus speed Two IBM AT-ISA Plug and Play compatible expansion slots that operates at 8 MHz bus speed. 1 PCI/ISA share.</p>
Hard disk drives	Two PCI local bus Enhanced IDE v1.0 compatible hard disk drive interfaces that support PIO mode up to mode 5 , DMA 32-bit access up to mode 2 and Ultra 33 Synchronous DMA up to mode 2 (33M bytes/sec).
CD/DVD-ROM drive	<p>5.25-in. high-performance, twenty four-speed (24X) and thirty two-speed (32X) C D-ROM IDE/AT drive (only for 2153)</p> <p>Support Bootable CD-ROM Format specification version 1.0.</p> <p>Compliant to Audio-CD, Video-CD, CD-ROM/XA, Karaoke-CD, and Photo-CD (both single and multi-session) format.</p> <p>DVD 2X (for both 2139 and 2153)</p>
Diskette drive	AT diskette interface

Table 1- 1 System Board Hardware Interfaces	
Item	Interface
Video	Physical interface is compatible with the IBM Personal System/2 (PS/2) VGA interface. Machine Type 2153: ATI Rage Pro Turbo AGP 2X or 1X VGA on board. Machine Type 2139: ATI Rage Pro Turbo AGP 2X to enhance 3D graphical display performance.
Modem	One 56.6 Kbps IBM AT-ISA plug and play modem adapter card with data/fax/voice features.
Audio	CS4235KQ is compatible with Sound Blaster (Creative Labs, Inc.).
Pointing device	IBM PS/2-compatible mouse
Keyboard device	IBM PS/2-compatible keyboard
Serial port	9-pin connector with RS232D electrical interface
Parallel port	Supports SPP (IBM PC/XT, PC/AT, PS/2) compatible, EPP (IEEE 1284 compliance), ECP (IEEE 1284 compliance) interface.
Game port	Game port interface for joystick. It also supports MIDI.
USB	M5237 USB controller integrated in the M1543 south bridge.

CMOS Reset

This system does not deny access to BIOS Setup Utility. Execute "Load BIOS Default Settings" in BIOS Setup to clear the corrupted CMOS data. See "Loading the Default Settings" on page 1-13.

Power-On Password

A power-on password denies access to the system by an unauthorized user when the system is powered on. When a power-on password is active, the password prompt appears on the screen each time the system is powered on. The system starts after the proper password is entered.

In some cases, you might be required to service a system with an active and unknown power-on password. To clear a password from the system, first identify the system, password jumper/switch by referring to "Machine Type 2153/K6 System Board " on page 5-3 or "Machine Type 2153/Celeron System Board Layout" on page 5-8, then follow these steps.

1. Turn off system unit.
2. Unplug power cable from the electrical outlet.

WARNING: Do not attempt these steps with the power cord plugged into the electrical outlet. The power supply maintains +5 Vdc of standby power when the power cord is plugged. System damage might result if the power cord is not unplugged during testing.

Machine Type 2153: Set switch 2 of SW3 to Off position to bypass password check process. See "Machine Type 2153/K6 System Board " on page 5-3.

Machine Type 2139: Set switch 2 of S1 to On position to bypass password check process. See "Machine Type 2153/Celeron System Board Layout" on page 5-8.

4. Plug power cable, turn on the system, and depress F1 during POST to enter BIOS Setup menu.
5. Select "Advanced Options", then enter "Security Options" and set "Power-On Password" setting to "None" to clear password.
6. Save and exit from BIOS Setup.
7. Turn off the system, unplug power cable from electrical outlet.

Machine Type 2153: Set switch 2 of SW3 to On (enable password check) position to enable password check process. See "Machine Type 2153/K6 System Board on page 5-3.

Machine Type 2139: Set switch 2 of SW1 to On (bypass password check) position to bypass password check process. See "Machine Type 2153/Celeron System Board Layout" on page 5-8.

IMPORTANT: To reinstall the password, the user must enter a password in the Setup Utility.

Flash (BIOS) Update Procedure

NOTE: The flash update procedure does not change the model number and serial number information in BIOS.

1. Prepare a bootable DOS diskette disk with AFLASH.EXE, MSG.DAT, VXXYYZZ.RN and VXXYYZZ.BIN files

NOTE: The AFLASH.EXE and MSG.DAT are flash utility programs. The VXXYYZZ.RN file has the BIOS checksum information. The VXXYYZZ.BIN is BIOS source code binary file.

2. Insert the diskette and boot from drive A.

WARNING: Do not boot with any memory related driver such as HIMEM.SYS, EMS.SYS

3. At the DOS prompt, type `A:> AFLASH VXXYYZZ.BIN` then press Enter.

4. The program updates the BIOS automatically.

IMPORTANT: Verify the BIOS checksum value shown on screen is the same as the one in VXXYYZZ.RN file.

5. Wait for the update to complete (indicated by the beeps).

WARNING: Do not turn off the system power while the BIOS is programming, or the flash ROM will be destroyed.

7. Power off system after the BIOS is completely updated.

BIOS-contained Model Number and Serial Number

The model number and serial number information is stored in BIOS ROM and displayed in the "Model Information" of BIOS Setup main menu. If a service repair is completed by replacing a new system board or a new BIOS ROM, then you are required to input the original system's model number and serial number into the new BIOS ROM.

Follow these steps to input the model number and serial number to BIOS:

1. Prepare a bootable DOS diskette with CHGDMI.EXE and MODEL.DMI files.
2. Insert the diskette and boot from drive A.

WARNING: Do not boot with any memory related driver such as HIMEM.SYS, EMS.SYS

4. At the DOS prompt, type `A:>CHGDMI/W` then press Enter. When the screen shows:

System Product Name:

Enter the model number and press Enter to continue. You can type a maximum of 16 characters (without spaces).

5. When the screen shows:

System Serial Number:

Enter the serial number and press Enter to continue. You can type a maximum of 16 characters (without spaces).

6. Type `A:>CHGDMI/D` and press Enter to display and verify your input model number and serial number information.

BIOS Setup Utility

The Setup Utility lets you review and change important information about the computer and its hardware.

Working with the Setup Menus

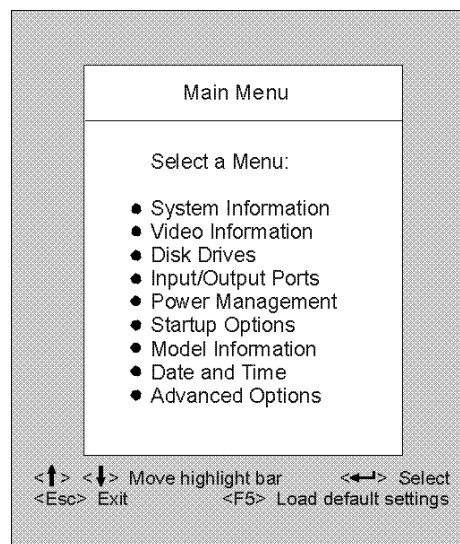
Starting the Setup Utility

Follow these steps to enter Setup when the computer is off:

1. Turn on your monitor.
2. Turn on the system unit.
3. When you see the IBM Aptiva logo, press F1 to enter Setup and display the Main Menu.

If you have previously set a power-on password, you are prompted to type in the password after you press the F1 key. See the section "Power-On Password" on page 1-9 for information on setting, changing, or removing the password.

Refer to the Setup Utility Main Menu below.



The following table lists specific keys on the keyboard that will help you move through the Setup menus:

Keys	Function
Down- or up- arrow key	Use these arrow keys to highlight an option on the menu. (Press the Enter key to choose the option.)
Left- or right- arrow key	Use these arrow keys to make a selection and change an option's setting. On some menus, you can use these keys to move from one field to another.
PgUp	Press this key to move from a menu to the menu immediately preceding it. This key works only in options with multiple menus.
PgDn	Press this key to move from a menu to the menu immediately following it. This key works only in options with multiple menus.
F1	Press this key if you want help for a selected menu option.
Esc	After viewing or making changes to the settings on a menu, press this key to exit the menu.
Enter	Press this key to choose a highlighted option from a menu.

Changing Parameter Settings

In the Setup menus, the configuration information that you can change is enclosed in brackets like these: []. You cannot change any information that is not enclosed in brackets. Use the up- or down-arrow keys to highlight options then press Enter to display a menu. When changing the setting of a particular parameter, highlight the setting then use the left- or right-arrow key to change the setting.

Loading the Default Settings

When you purchase an Aptiva computer, it is already configured for use. The original configuration settings, also called factory or default settings, are stored in the CMOS. Setup includes an option Load Default Settings that lets you reload the original configuration at any time.

If you have made changes in Setup but would like to restore the default settings, follow these steps:

1. Press F5 to load default settings. A dialog box appears confirming if you want to load the default settings.

2. Use the left-arrow key to select Yes, then press Enter.
3. Press Esc to exit Setup.
A dialog box appears confirming if you want to save the CMOS settings (in this case, the default settings that you reloaded).
4. Use the left-arrow key to select Yes, then press Enter to save the changes in CMOS.

You must load the Setup default settings in the following instances:

- When you replace the system battery
- When you customize your system configuration settings and some resource assignments conflict causing the computer to hang

Exiting Setup

When you complete your changes or finish viewing information, return to the main menu. From this location, you can exit Setup and save your changes or exit without saving your changes.

Follow these steps to exit Setup:

1. From the main menu, press the Esc key.
2. The Exit Setup dialog box appears. If you have made changes in the parameter settings, it will contain an option for saving your changes.
 - If you would like to save your changes, press the left-arrow key to select the option Yes then press Enter to save your changes and exit Setup.
 - If you do not want to save your changes, press the right-arrow key to select the option No then press Enter, to exit Setup without saving.

Viewing System Information, Video Information and Model Information

To view general hardware information about your computer, select the System Information option from the Setup main menu. The items displayed in the System Information menu are not configurable.

Setup automatically updates this menu when you do either of the following:

- Add or change hardware on your computer
- Make changes to other menus in Setup and save those changes

To view the video information such as the video controller, and video memory, select the video information option from the setup menu.

Select primary display adapter to initialize onboard VGA as the boot display device. Select Auto to initialize PCI add-on VGA card as the boot display device if a PCI add-on card is found; otherwise, onboard VGA will be initialized.

To view the computer information such as the model number, serial number, and BIOS version and date, select the Model Information option from the Setup main menu. Like in the System Information menu, the items displayed are not configurable.

Disk Drives

If you install a new diskette, hard disk, or CD/DVD-ROM drive, BIOS auto-detects the presence of these devices. Enter Setup to identify or verify the type of drive installed in the computer.

If you want to change any drive setting, select Disk Drives from the main menu. The Disk Drives menu appears showing the diskette drive and IDE drive parameters.

Diskette Drive (A or B)

These options display the size and storage capacity of the currently installed diskette drive or drives. Empty drive bays are indicated with a "None" setting. Your Aptiva computer comes with a diskette drive A. If you add an additional diskette drive, it will be designated as diskette drive B.

IDE Hard Disk and CD/DVD-ROM Drives

The Disk Drives menu includes four IDE drive items that allow you to configure the hard disk drives and the CD/DVD-ROM drive. Selecting any one of these items displays a submenu with details on a particular IDE drive.

The IDE drive items are identified as follows:

- *IDE Primary Channel Master* is attached to IDE connector 1 on the system board and set as the master device. This is the hard disk that comes preinstalled with your computer.
- *IDE Primary Channel Slave* (if installed) is attached to IDE connector 1 on the system board and set as the slave device.
- *IDE Secondary Channel Master* (if installed) is attached to IDE connector 2 on the system board and set as the master device.
- *IDE Secondary Channel Slave* (if installed) is attached to IDE connector 2 on the system board and set as the slave device. Normally, a preinstalled CD/DVD-ROM drive is connected here.

NOTE: The CD/DVD-ROM drive information does not appear among these options. Click on the System Information option in the Setup main menu to verify the presence of a CD/DVD-ROM drive.

Proceed to the following for details on the parameters under each IDE drive submenu.

Type

This item specifies the number of cylinders, heads, and sectors, and the size of a particular IDE drive. If no information appears opposite the parameters, there is no drive installed in that channel.

Hard Disk Block Mode

This function enhances disk performance depending on the hard disk in use. BIOS automatically detects if your hard disk supports this feature. Setting to Auto allows data transfer in blocks (multiple sectors) to increase the data transfer rate. If your system does not boot after setting this parameter to Auto, change the setting to Disabled. The default setting for this parameter is Auto.

Advanced PIO Mode

The advanced PIO mode feature improves system performance by allowing the use of faster hard disk drives. If your hard disk supports this feature, you may set this parameter to Auto (default), Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4 depending on the hard disk requirements. See the documentation that came with the hard disk. If your hard disk does not support this function, set this parameter to Disabled.

Hard Disk Size > 528MB

This enhanced IDE feature works only under DOS and Windows environments. If set to Auto, which is the default, BIOS allows you to use a hard disk with a capacity of more than 528MB. This is made possible through the Logical block address (LBA) mode translation. You may be required to set this parameter to Disabled if you use other operating systems. To prevent data loss, set this parameter to Auto if you are using a hard disk with more than 528MB capacity that was previously configured through the LBA mode. If you use a hard disk configured through the user-specific cylinder-head-sector (CHS) mode, set this parameter to Disabled.

Hard Disk 32-bit Access

Setting this parameter to Enabled improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature only works under DOS, Windows 3.x, Windows 98, and Novell NetWare. If your software does not support this function, set this parameter to Disabled. The default setting is Enabled.

Input/Output Ports

From the Setup main menu, select the Input/Output Ports option to view or change port configuration settings. The Input/Output Ports menu appears.

This menu lets you configure serial and parallel ports.

Also included in this menu are items for enabling or disabling the onboard controller chipsets.

Onboard Communication Ports

Serial Port

Your computer comes with a 9-pin serial port. This parameter displays the current address for serial port. The default setting Base Address is 2F8. The default IRQ is 3.

Parallel Port

Your computer comes with one parallel port. This parameter shows the default Enabled to activate the parallel port. The default base address is 378h. The default IRQ is 7.

The default mode is ECP. The default DMA is 3.

Onboard PS/2 Mouse (IRQ12)

This parameter enables or disables the onboard PS/2 mouse. When set to Enabled, it allows you to use the onboard PS/2 mouse. When set to Disabled, it deactivates the mouse and frees IRQ 12 for the use of other devices (for 2139).

Onboard USB

This parameter allows you to enable or disable the universal serial bus (USB) controller. The default setting is Enabled.

USB /Keyboard Mode This parameter enables or disables the use of a USB keyboard outside of Windows. The default is Disabled.

Onboard Audio Chip

This parameter enables or disables the onboard audio controller chipset. This item does not appear in the menu if there is no physical audio chipset on the system board. The default setting is Enabled.

Power Management

The system power management features allow you to reduce power consumption.

NOTE: These Power Management settings do not work in Windows 98. Use the Control Panel Power utility for Win98 Power Management settings.

Power Management Mode

When the Power Management Mode parameter is set to Enabled, you can configure the different power saving timers to your desired settings. Setting this parameter to Disabled deactivates the power management feature and all the timers. The default setting is Enabled.

Power Switch < 4 sec.

When set to Suspend, this parameter adds the suspend function to the system power button on the front panel. The suspend function allows you to put the system into suspend mode by pressing the power button for less than four seconds while the system is on. When this parameter is set to Power off, the power button simply turns the system power on or off. This parameter is set to Power off by default.

Modem Wake-Up on Ring

This parameter allows you to enable or disable the Modem Wake-Up on Ring feature. When enabled and if the computer is in suspend, an incoming call automatically resumes normal power on mode. When disabled, the system does not return to the “normal on” state even if there is an incoming modem access. The default setting is Enabled.

Startup Options

From the Setup main menu, select Startup Options to view or change start-up configuration settings. The Startup Options menu appears. This menu identifies the start-up devices.

Date and Time

From the Setup main menu, select the Date and Time option to view or change the system clock from the Date and Time menu.

Advanced Options

From the Setup main menu, select the Advanced Options option to view or change a variety of configuration settings. The Advanced Options menu appears, with the following options:

- Security Options

- Memory/Cache Options
- PnP/PCI Options
- Onboard Floppy Disk Controller
- Onboard IDE Primary Channel
- Onboard IDE Secondary Channel

Each of these options opens an additional menu.

Security Options

The Security Options menu lets you change the settings of the following parameters:

- Power-on Password
- Disk Drive Control

Power-on Password

Select this parameter and press the left- or right-arrow key to display the Power-on Password window. In this window, you can set up a password to restrict the use of your computer. You can also change or remove the password.

If you set up a power-on password, you must type this password each time you turn on your computer. If you do not key in the correct password, you cannot use your computer. You must also type this password if you want to enter Setup.

- *Setting a Power-On*

Onboard Floppy Disk Controller

This parameter allows you to enable or disable the onboard floppy disk controller chipset. When set to Enabled, the controller enables the diskette drive on your computer. When set to Disabled, the controller deactivates the drive but simultaneously frees IRQ 6 which is normally assigned to the diskette drive. You may then assign IRQ 6 to another device.

Onboard IDE Primary Channel

This parameter allows you to enable or disable the onboard IDE primary channel controller. Setting this parameter to Enabled lets you use the primary IDE connector (IDE 1) to connect up to two IDE drives. Setting to Disabled

deactivates IDE 1 but frees IRQ 14 for the use of other devices. The default setting is Enabled.

Onboard IDE Secondary Channel

This parameter allows you to enable or disable the onboard IDE secondary channel controller. Setting this parameter to Enabled lets you use the secondary IDE connector (IDE 2) to connect up to two IDE drives. Setting to Disabled deactivates IDE 2 but frees IRQ 15 for the use of other devices. The default setting is Enabled.

Memory/Cache Options

The Memory/Cache Options menu allows you to configure the Level 1 and Level 2 caches. Enabling the cache parameters optimize system performance.

Some older applications, however, may not run properly with the caches enabled. Set the parameters to Disabled when you run these applications. Disabling the caches will degrade system performance.

PnP/PCI Options

The parameters in the PnP/PCI Options menu allow you to set the IRQ assignments for your PCI devices.

PCI IRQ Setting

This parameter allows for automatic or manual configuration of PCI devices. If you use Plug and Play devices, you can keep the default setting Auto. The system then automatically configures the Plug and Play devices. If you install non-Plug and Play adapter cards, set this parameter to Manual. This allows you to assign resources to non-Plug and Play cards first.

PCI IRQ Sharing

When set to Yes, this parameter allows you to assign the same IRQ to more than one PCI device installed in the system. When set to No, you must assign different IRQs to the PCI devices. The default setting is Yes.

VGA Palette Snoop

The VGA palette snoop function allows the system to refresh all ISA and PCI graphic adapters installed in the system. This is needed if you install an additional graphics overlay card such as an MPEG or an advanced 3D graphics adapter. If the image on your monitor has problems after installing such an adapter, set this parameter to Enabled. Otherwise, leave it to the default Disabled to achieve better performance.

Plug and Play OS

When this parameter is set to Yes, BIOS initializes only Plug and Play boot devices, then the Plug and Play operating system takes care of the other devices. When set to No, BIOS initializes all Plug and Play boot and non-boot devices.

Set this parameter to Yes if you are using the Windows 98 operating system. Set to No if you run any other operating system. The default setting is Yes.

Reset Resource Assignments

Set this parameter to Yes to avoid IRQ conflict when installing non-Plug and Play cards.

Before you install non-Plug and Play cards, set this parameter to Yes, exit Setup and turn off the computer. This clears all resource assignments and allows BIOS to reassign resources to all installed Plug and Play devices the next time the system boots. After clearing the resource data, the parameter resets to the default setting No.

Specifications

Dimension (width x depth x height):

- System unit:
 - 195 mm (7.68 in.) x 455 mm (17.9 in.) x 428 mm (16.85 in.)(for 2139)
 - 190 mm (7.48 in.) x 370 mm (14.57 in.) x 384 mm (15.12 in.)(for 2153)
- 15" Monitor /13.6" viewable image size:
 - 370 mm x 396 mm x 382 mm
- 15" Monitor / 13.7" viewable image size:
 - 370 mm x 396 mm x 382 mm
- 17" Monitor / 15.7" viewable image size:
 - 413 mm x 445 mm x 434 mm

Weight:

- System unit:
 - 12.7 kg (28 lb) for 2139
 - 10 kg (22 lb) for 2153
- 15" Monitor /13.6" viewable image size:
 - 13.0 kg (28.6 lb)
- 15" Monitor /13.7" viewable image size:
 - 13.0 kg (28.6 lb)
- 17" Monitor /15.7" viewable image size:
 - 18.5 kg (40.8 lb)

Environment:

- Temperature for system unit:
 - Power on: 10° to 35°C (50° to 95°F)
 - Power off: -10° to 60°C (14° to 140°F)(for 2139)
 - Power off: -20° to 60°C (-4° to 140°F)(for 2153)
- Temperature for 15" (13.1"/13.6" viewable image size) monitor types:
 - Power on: 10° to 35°C

- Power off: -20° to 60°C
- Temperature for 15"/17" (13.7"/15.7" viewable image size) monitor types:
 - Power on: 5° to 40°C (15"), 10° to 35°C (17")
 - Power off: -20° to 60°C (15"), -20° to 60°C (17")
- Humidity for system unit:
 - Power on: 20% to 80%
 - Power off: 20% to 80%
- Humidity for monitor :
 - Power on: 20% to 80% (15"), 8% to 80% (17")
 - Power off: 20% to 90% (15"), 20% to 90% (17")

Power consumption:

- System unit:
 - Maximum: 95 Watts(for 2153) and 145 Watts(for 2139)
- 15" (13.1"/13.6" viewable image size) monitor types:
 - Maximum: 90 Watts
- 15"/17" (13.7"/15.7" viewable image size) monitor types:
 - Maximum: 80 Watts (15"), 130 Watts (17")

Electrical input:

- Input voltage for system unit (Sine-wave input is required) :
 - Low Range: 90 Vac to 132 Vac
 - High Range: 180 Vac to 264 Vac
- Input voltage for monitor (Sine-wave input is required) :
 - 88 Vac to 264 Vac (15")
 - 90 Vac to 264 Vac (17")

Operating Requirements

All machines require two power inputs: one on the system unit and one on the monitor display.

The system units come with a voltage selector switch, allowing selection of voltage of either 110 Vac or 220 Vac. This switch must be in the 220 Vac position when the machine is plugged into a 220 Vac electrical outlet.

The required power input for the monitor shipped with the system unit is auto-sensing type and does not require any voltage switch adjustment.

Special Tools

The following special tool is required to service this system when running diagnostics program (PC-Doctor):

- Wrap plugs, P/N 72X8546

Check Procedures

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Introduction

This chapter contains the check procedures used to diagnose the causes of product failures. The diagnostic information consists of:

Start: This is the starting point for any diagnostic action. Based on high-level symptoms, the check procedure directs you to more detailed procedures to help resolve machine failures.

Index of Symptoms, Messages, Error Codes, or Beeps: The tables for BIOS Error Messages, Codes, Beeps, and Error Symptoms list symptoms along with their probable causes, and direct you to the applicable check procedures to help resolve machine failures. These tables also list the field replaceable units (FRUs) most likely to cause a particular problem.

Check Procedures: When the Start check procedure or the Index of Symptoms, Messages, Error Codes, or Beeps tables point you to a specific check procedure, proceed to that section. If there are any notes or instructions at the top of the page, read them before you begin with the procedure. Carefully read each step of the check procedure and perform the steps as instructed. If you do not remember the location of a specific part or test point, or an adjustment or removal procedure, see the chapter that contains that information. Always return to the check procedure after you do this. In some cases, you are referred to other check procedures to detect the cause of the failure.

Start

This is the entry point for all check procedures. The check procedures use failure symptoms, Power-On Self Test (POST) error codes, or beeps to help determine the defective field replaceable unit (FRU). Follow the suggested check procedures or use the diagnostics diskette to determine the problem FRU.

IMPORTANT: Replace FRUs ONLY when it is determined that the error is not a result of software, loose contacts, or dirty component surfaces. Any FRU change should be verified by running a complete test ("Diagnostics - All Tests" in PC-Doctor diagnostics program).

This book comes with a diagnostic program diskette. This diskette should be used ONLY with **2153/2139 Service Level A (SL-A)** IBM Aptiva Personal Computers. Do not use this diskette on other models.

POST error codes and error messages are displayed on the screen after the IBM logo. A beep will precede each error code or message. Please refer to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8 for additional help.

All voltages in the check procedures are positive unless otherwise indicated. Use frame ground for all voltage checks unless otherwise specified.

IMPORTANT: There is a Power Override switch located at the back of the machine, just above the connector for the power cable. If the system does not power on after pressing the power button, situated on the front of the machine, please check the power cable and the Power Override switch. If the Power Override switch is switched on, no power is supplied to the system.

NOTE: If the check procedures instruct you to replace a FRU and the error message persists, an option adapter card might be causing the failure. Remove all option adapter cards, one at a time, until the error changes or the problem is no longer apparent. Replace the last option adapter card removed.

The hard disk drive contains pre-loaded software. Refer to "Software Recovery Procedure" on page 4-51 to reinstall the original software. Be sure to reload the software on the primary hard disk drive (Drive C) when replacing it.

IMPORTANT: The drives in the system you are servicing may have been rearranged, or the drive startup sequence has changed. Be extremely careful during write operations, such as copying, saving, or formatting. Data or programs can be overwritten if you select an incorrect drive. **Ask the customer to back up any additional software from the hard disk drive before you reload the software.**

How to Diagnose Combined FRUs: If an adapter or device consists of more than one FRU, any of the FRUs might cause an error code. Before replacing the device or adapter, remove the FRUs one by one to see if the symptoms change.

If a newly replaced FRU does not correct the problem: If you have reached this point of the check procedures and were instructed to replace a FRU but doing so did not correct the problem, reinstall the original FRU and go through "Start" again.

If you want to print a copy of a BIOS Setup Utility screen to an attached printer, press **Print Screen** key while the following screen is displayed.

PLEASE READ THE FOLLOWING:

Human Error is a cause for concern when applied to check procedures. It exists in every first time set of analysis procedures. It is therefore essential for effective and time-efficient servicing that each stage of every procedure be verified. (For example: When a symptom is found, or when a symptom appears to have been cured; the preceding steps should be repeated for accuracy of analysis.)

001 - START

To begin, note the following:

- Disable the setting of "Fast POST Mode" from BIOS Setup.
- To disable or reset the power-on password, see "Power-On Password" on page 1-9.
- Disconnect all external cables and devices including speakers and microphone from the system unit, except for the keyboard, mouse, and monitor.
- Power off the system unit before moving it or when replacing FRUs.
- Remove all adapter cards, except for the factory-installed modem adapter card and any other IBM Aptiva factory-installed adapter cards.
- Disconnect all drives except:

- 3.5-in. diskette drive
- Hard disk drive
- IBM Aptiva factory-installed devices (such as a CD-ROM drive)
- Ensure that all power cords and cables are connected properly.
- Ensure that the monitor brightness and contrast controls are not turned down.
- Power on the system unit.

NOTE: Some monitors have a detachable system I/O signal cable between the monitor and the system unit. In this case, check this signal cable before replacing the unit. See "Monitor Port Signals" on page 5-30 for pin identification.

- Ensure correct monitor refresh rate.
- Note any symptoms, messages, error codes, or beeps.
- Make sure that there are no diskette or CD in the drives.

002 - DOES AN IBM LOGO SCREEN APPEAR? (YES, READ AHEAD. NO, GO TO STEP 004.)

- Insert diagnostics diskette in the diskette drive.

003 - DOES SYSTEM LOAD THE DIAGNOSTICS PROGRAM FROM THE DISKETTE DRIVE? (YES, READ AHEAD. NO, GO TO STEP 004.)

- Follow the instructions on the screen and select **Utility** from the diagnostics program menu.
- Select **Tech Support Form** from the menu, press F5 to execute, then generate a system configuration report.
- Compare the system configuration list with the actual devices installed in system.

NOTE: If necessary, remove the machine cover and visually compare the devices installed in system to those shown in the system configuration report.

- Go to step 006.

004 - DO ANY MESSAGES, ERROR CODES, OR SYMPTOMS APPEAR? (YES, READ AHEAD. NO, GO TO STEP 005)

- Go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
- End.

005 -

- If the keyboard responds incorrectly, go to "Keyboard" on page 2-34.
- If monitor problems appear, such as jittering, shifting, or being out of focus, go to "Monitor" on page 2-40.

006 - DOES THE SYSTEM CONFIGURATION REPORT CORRECTLY IDENTIFY THE DEVICES INSTALLED IN SYSTEM? (YES, READ AHEAD. NO, GO TO STEP 007.)

- Select **Diagnostics** from the diagnostics program menu.
- Select and execute **All Tests**.
- Go to step 008.

007 -

- The system configuration report shows only those devices supported by the diagnostics diskette.
- If a device is missing from the list and is not factory installed, refer to the service manual provided for that device. (Refer to the Appendix C, "Model/Monitor Configurations and FRU Part Numbers" to determine the factory-installed devices in the model you are servicing.)

008 - DOES THE DIAGNOSTICS FINISH WITHOUT ANY ERRORS? (YES, READ AHEAD. NO, GO TO STEP 009.)

- If the **Diagnostics \ All Tests** did not detect a failure but the system still indicates a failure:
 - Check all adapter card jumper settings.
 - Check all adapter card switch settings.
 - Check all adapter card cables and connectors. Make sure that all of the above are set correctly and show the correct voltages and continuity. Replace any defective cables or adapter cards. See "Power Supply Cable Connector Specifications" on page 5-15 and "Machine Type 2153/K6 System Board " on page 5-3 or "Machine Type 2153/Celeron System Board Layout" on page 5-8.
 - Run the **Diagnostics \ All Tests** again.
 - If an error or other symptom is displayed, go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
 - If no error can be detected or the symptom is intermittent, go to "Undetermined Problems" on page 2-42.
- End

009 -

- If the last test stops and you cannot continue, first make sure all switches, power connectors, cables, and jumpers are set correctly and show the correct voltages and continuity.
- Take note of any messages, error codes, beeps, or new symptoms. Go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
- If there is no error symptom or the error symptom is intermittent, go to "Undetermined Problems" on page 2-42.

Index of Symptoms, Messages, Error Codes, or Beeps

How to Use Error Messages: Use the messages, error codes, and beeps combinations that occur to diagnose failures. If more than one failure occurs, begin the diagnosis from the first failure that appeared. The cause of the first failure can result in false messages, error codes, or beeps. If you did not receive any messages, error codes, or beeps, see if the symptom is listed in Table 2-2, "Error Symptoms List" on page 2-14.

ATTENTION: When you have deemed it necessary to replace a FRU, and did so, you must run a total system check to ensure that no other activity has been affected by the change. This system check can be done through the diagnostics program (Select **Diagnostics**, then select and execute **All Tests** from PC-Doctor).

POST: Some diagnostic aids are resident in the machine, such as the Power-On Self Test (POST). The machine performs the POST each time it is powered on. Use this information throughout the diagnostic procedures. The POST is a series of system checks and initializations that verify the correct operation of the base system.

After a successful POST, the system attempts to load operating system. The system can be customized for different startup (boot) methods by the BIOS Setup Utility. See "Startup Options" on page 1-18.

The system's default startup sequence automatically looks for the operating system files in the hard disk if these files are not found in the diskette.

NOTE: Remember that POST does not test all areas, but only those that allow the system to operate well enough to run the diagnostics program.

Table 2-1 lists BIOS error codes, messages, and beeps to their possible causes, table 2-2 lists error symptoms and their possible causes. The most likely cause is listed first. Make sure you complete all items in the cause or "Action/FRU" column. When servicing a system, always begin with "Start" on page 2-3.

If you are unable to correct the problem using these two index tables, go to "Undetermined Problems" on page 2-42.

NOTES:

1. If an error message and incorrect audio response occur, diagnose the error message first.

2. If you cannot run the diagnostics program tests but did receive a POST error code, diagnose the POST error message.
3. If you did not receive any error message, look for a description of your error symptoms in "Error Symptoms List" in table 2-2.

Check all power supply voltages, switch, and jumper settings before you replace the system board. Also check the power supply voltages if you have a "system no-power" condition. (See "Power Supply Cable Connector Specifications" on page 5-15, "Machine Type 2153/K6 System Board " on page 5-3 and "Machine Type 2153/Celeron System Board Layout" on page 5-8.)

4. If you are unable to correct the problem by using the "BIOS Error Codes, Messages, And Beeps List" table and "Error Symptoms List" table, go to "Undetermined Problems" on page 2-42.

Table 2- 1 BIOS Error Codes, Messages, and Beeps List	
BIOS Error Codes, Messages, beeps	Action/FRU
NOTE: To diagnose a problem, first find the BIOS error messages, codes, or beeps in left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
POST Error Codes and Messages	
0111 I/O Parity Error	ISA adapter card System board
0127 CPU Speed Error	Check CPU speed DIP switches System board
0161 Bad CMOS Battery	Load default settings in setup. CMOS battery. System board.
0162 Equipment Configuration Error	Ensure the equipment (diskette drive, hard disk drive, keyboard, mouse, etc.) are connected properly and are set correctly in BIOS Setup. Load default settings in setup. CMOS battery should be replaced. System board.

Table 2- 1 BIOS Error Codes, Messages, and Beeps List	
BIOS Error Codes, Messages, beeps	Action/FRU
NOTE: To diagnose a problem, first find the BIOS error messages, codes, or beeps in left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
0201 Memory Error at MMMM:SSSS:OOOOh (R:xxxxh, W:xxxxh)	Insert the memory modules in the DIMM sockets properly, then reboot the system. Memory module. See the “Step 005” of “Memory” on page 2-33 to replace memory module. System board.
0662 Onboard Floppy Drive Conflict(s)	Enter BIOS Setup and load the default settings. Remove all adapter cards that are NOT factory-installed, then reboot the system
0962 Onboard Parallel Port Conflict(s)	Enter BIOS Setup and load the default settings. Remove all adapter cards that are NOT factory-installed, then reboot the system.
1162 Onboard Serial Port Conflict(s)	Enter BIOS Setup and load the default settings. Remove all adapter cards that are NOT factory-installed, then reboot the system.
1755 Hard Disk Drive(s) Write Protected	Ensure that the hard disk drive is not set to [Write Protected] in the Security Options in BIOS Setup. Load default settings in Setup. Hard disk drive cable/connection. Hard disk drive.
1762 Onboard IDE Channel Conflict(s)	Enter BIOS Setup and load the default settings. Remove all adapter cards that are NOT factory-installed, then reboot the system.

Table 2- 1 BIOS Error Codes, Messages, and Beeps List	
BIOS Error Codes, Messages, beeps	Action/FRU
NOTE: To diagnose a problem, first find the BIOS error messages, codes, or beeps in left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
1780 IDE Primary Channel Master Drive Error	A warning message to indicate there has been change of IDE Primary (Secondary) Channel Master (Slave) device.
1781 IDE Primary Channel Slave Drive Error	Load default settings in Setup. Check IDE drive jumper. See "3.5-In. Hard Disk Drive Jumper Locations" on page 5-18 or "5.25-In Hard Disk Drive Jumper Location" on page 5-23. IDE drive power. IDE drive cable/connection. IDE drive.
1782 IDE Secondary Channel Master Drive Error	A warning message to indicate there has been change of IDE Primary (Secondary) Channel Master (Slave) device.
1783 IDE Secondary Channel Slave Drive Error	Load default settings in Setup. Check IDE drive jumper. See "3.5-In. Hard Disk Drive Jumper Locations" on page 5-18 or "5.25-In Hard Disk Drive Jumper Location" on page 5-23. IDE drive power. IDE drive cable/connection. IDE drive.
1800 PnP ISA Card(s) Disabled	Enter BIOS Setup and set the Reset Resource Assignments parameter to Yes, then reboot the system. Remove all adapter cards that are NOT factory-installed, then reboot the system

Table 2- 1 BIOS Error Codes, Messages, and Beeps List	
BIOS Error Codes, Messages, beeps	Action/FRU
NOTE: To diagnose a problem, first find the BIOS error messages, codes, or beeps in left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
180X Resource Conflict(s)	Enter BIOS Setup and set the Reset Resource Assignments parameter to Yes, then reboot the system. Load default settings in Setup. Remove all non factory-installed cards.
1962 Insert system diskette and press <Enter> to reboot	Ensure that the System Boot Drive parameter in the Startup Options of BIOS Setup is not set to [Drive A only]. Load default settings in Setup. Insert a system diskette into diskette drive and reboot system. Ensure the diskette drive configuration setting in BIOS Setup is correct. Hard disk drive power. Diskette drive. System board.
8602 Onboard Pointing Device Conflict(s)	Enter BIOS Setup and load the default settings. Remove all adapter cards that are NOT factory-installed, then reboot the system.

Table 2- 2 BIOS Error Codes, Messages, and Beeps List	
BIOS Error Codes, Messages, beeps	Action/FRU
<p>NOTE: To diagnose a problem, first find the BIOS error messages, codes, or beeps in left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.</p>	
Beeps	
(2: long, 1: short)	
2-1-2-2	DMA internal register test fail
2-1-1-1	KBC (keyboard controller) self test fail or not installed
2-1-2-1	System DRAM refresh cycle out of spec.
2-1-1-2	Shutdown byte in RTC/CMOS r/w test failure
2-2-2-1	The first 128KB of base memory r/w test failure
2-2-1-2	The BIOS code in flash ROM is corrupted
2-1-1	Video buffer error
1-1	Console does not exist and message displayed to terminal
2-2-1-1-1	No DIMM installed
For 2153/K6 and 2139	
2-2-1-1	No SPD or revision is not correct (Rev must be 1.2 or later)
2-2-2-1	Registered & Unregistered DIMMs are mixed
2-2-2-1-1	EDO DIMM & SDRAM DIMM are mixed
2-2-2-1-1-1	66MHz DIMM running on 100MHz

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
<p>NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.</p>	
<p>Processor / Processor Fan</p>	
<p>NOTE: Normally, the processor fan should be operative, and the processor clock setting should be exactly set to match its speed requirement before diagnosing any processor problems.</p>	
Processor fan does not run but power supply fan runs.	<p>Ensure that the system is not in power saving mode. See "Power Management" on page 1-17.</p> <p>With the system power on, measure the voltage of processor fan connector FN1 (see "Machine Type 2153/K6 System Board " on page 5-3 or see "Machine Type 2153/Celeron System Board Layout" on page 5-8). Its reading should be +12Vdc.</p> <p>Processor fan.</p> <p>System board.</p>
Processor test failed.	<p>Processor.</p> <p>System board.</p>
<p>System Board and Memory</p>	
<p>NOTE: Ensure that the memory modules are installed properly and the contact leads are clean before diagnosing any system problems.</p>	
Memory test failed.	<p>"Memory" on page 2-33.</p> <p>System board</p>
Incorrect memory size shown or repeated during POST.	<p>"Insert the memory modules in the DIMM sockets properly, then reboot the system.</p> <p>Memory module. See the "Step 005" of "Memory" on page 2-33 to replace memory module.</p> <p>System board.</p>

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
System works but fails to enter power saving mode when the Power Saving Mode is set to [Enabled], and power saving timer set in BIOS has elapsed.	Load default settings. In Win98, check settings in Control Panel Power utility. Reload software from Recovery CD.
System hangs before system boot.	"Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8. "Undetermined Problems" on page 2-42.
System hangs after system boot.	Execute a system test ("Diagnostics/All Tests" in PC-Doctor diagnostics program) and set it to stop at "Halt on Error" to see the potential cause of the problem. "Undetermined Problems" on page 2-42.
Blinking cursor only; system does not work.	"Start" on page 2-3. Diskette/IDE drive connection/cables Diskette/IDE disk drives "Undetermined Problems" on page 2-42. System board
Diskette Drive	
NOTE: Ensure that the diskette drive is configured correctly in BIOS Setup and its read/write head is clean before diagnosing any diskette drive problems.	
Media and drive are mismatched.	Ensure that the diskette drive is configured correctly in the Disk Drives of BIOS Setup. Ensure that the diskette drive is correctly formatted. Diskette drive connection/cable Diskette drive System board

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
Diskette drive does not work.	Ensure that the diskette drive is not set to [None] in the Disk Drives of BIOS Setup. Diskette drive power Diskette drive connection/cable Diskette drive System board
Diskette drive read/write error.	Diskette. Ensure that the diskette drive is not set to [Write protect] in the Security Options of BIOS Setup. Diskette drive cable. Diskette drive. System board.
Diskette drive LED comes on for more than 2 minutes when reading data.	Diskette Diskette drive connection/cable Diskette drive System board
Diskette drive LED fails to light, and the drive is unable to access for more than 2 minutes.	Diskette Diskette drive power Diskette drive connection/cable Diskette drive System board
Diskette drive test failed.	Diskette Diskette drive Diskette drive cable System board

Table 2- 2 Error Symptoms List													
Error Symptoms	Action/FRU												
<p>NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.</p>													
<p>Hard Disk Drive</p>													
<p>NOTE: Ensure hard disk drive is configured correctly in BIOS Setup, cable/jumper are set correctly before diagnosing any hard disk drive problems.</p>													
Hard disk drive test failed.	Load default settings. Hard disk drive cable. Hard disk drive. System board.												
Hard disk drive format error.	Load default settings. Hard disk drive cable. Hard disk drive. System board.												
Hard disk drive write error.	Load default settings. Hard disk drive.												
Hard disk drive LED fails to light, but system operates normally.	With the system power on, measure the voltage of hard disk LED connector CN2(see "Machine Type 2153/K6 System Board " on page 5-3) or CN6 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8. Its reading should be: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">CN2(for 2153)</td> <td>HDD Idle/Active</td> </tr> <tr> <td>CN6(for 2139)</td> <td>HDD Idle/Active</td> </tr> <tr> <td>pin-1</td> <td>+5 Vdc / +5 Vdc</td> </tr> <tr> <td>pin-2</td> <td>+5 Vdc / 0 Vdc</td> </tr> <tr> <td>pin-3</td> <td>+5 Vdc / 0 Vdc</td> </tr> <tr> <td>pin-4</td> <td>+5 Vdc / +5 Vdc</td> </tr> </table> Hard drive LED cable.	CN2(for 2153)	HDD Idle/Active	CN6(for 2139)	HDD Idle/Active	pin-1	+5 Vdc / +5 Vdc	pin-2	+5 Vdc / 0 Vdc	pin-3	+5 Vdc / 0 Vdc	pin-4	+5 Vdc / +5 Vdc
CN2(for 2153)	HDD Idle/Active												
CN6(for 2139)	HDD Idle/Active												
pin-1	+5 Vdc / +5 Vdc												
pin-2	+5 Vdc / 0 Vdc												
pin-3	+5 Vdc / 0 Vdc												
pin-4	+5 Vdc / +5 Vdc												

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
<p>NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.</p>	
<p>CD/DVD-ROM Drive</p>	
<p>NOTE: Ensure CD/DVD-ROM drive is configured correctly in BIOS Setup, cable/jumper are set correctly and its laser beam is clean before diagnosing any CD/DVD-ROM drive problems.</p>	
<p>CD/DVD-ROM drive LED flashes for more than 30 seconds before LED shutting off.</p> <p>Software asks to reinstall disc.</p> <p>Software displays a reading CD/DVD error.</p>	<p>CD/DVD may have dirt or foreign material on it. Check with a known good disc.</p> <p>CD/DVD is not inserted properly.</p> <p>CD/DVD is damaged.</p>
<p>CD/DVD-ROM drive LED doesn't come on but works normally.</p>	<p>CD/DVD-ROM drive</p>
<p>CD/DVD-ROM drive cannot load or eject when the system is turned on and its eject button is pressed and held.</p>	<p>"CD-ROM Emergency-exit <option 1>" on page 5-25 or CD-ROM Emergency-exit Option <2> page 5-26.</p> <p>CD/DVD-ROM drive power.</p> <p>"CD/DVD-ROM Drive" on page 2-32.</p> <p>CD/DVD-ROM drive</p>
<p>CD/DVD-ROM drive does not read and there are no error codes or messages are displayed.</p>	<p>CD may have dirt or foreign material on it. Check with a known good disc.</p> <p>Ensure that the CD/DVD-ROM driver is installed properly.</p> <p>CD/DVD-ROM drive.</p>

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
CD/DVD-ROM drive can play audio CD but no sound output.	Ensure that the headphone jack of the CD/DVD-ROM has an output, then check if the audio cable from CD/DVD-ROM drive to system board CN15 (see "Machine Type 2153/K6 System Board "on page 5-3) or CN9 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8) is connected properly. Turn up the sound volume. Speaker power/connection/cable. CD/DVD-ROM drive.
Real-Time Clock	
Real-time clock is inaccurate.	Ensure that the information in the Date and Time of BIOS Setup is set correctly. Load default settings. CMOS battery. System board
Audio	
Audio software program invokes but no sound comes from speakers.	Speaker power/connection/cable.
Modem	
Data/fax modem software program invokes but cannot receive/send data/fax	"Factory-Installed Modem Card" on page 2-28.

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
<p>NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.</p>	
<p>Fax/voice modem software program invokes but has no sound output. (Data files are received normally; voice from modem cannot be produced, but system sound feature works normally.)</p>	<p>Ensure that the modem voice-in/speak-out cable from modem adapter card to system board CN14 (see "Machine Type 2153/K6 System Board "on page 5-3) or CN8 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8) is connected properly. "Factory-Installed Modem Card" on page 2-28.</p>
<p>Modem ring cannot wake up system from suspend mode.</p>	<p>If not using Win98, then ensure that the "Modem Wake-Up on Ring" in BIOS Setup is set to [Enabled].</p> <p>Ensure that the modem ring-in cable from the modem adapter card to system board CN9 (see "Machine Type 2153/K6 System Board "on page 5-3) or CN10 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8) is connected properly.</p> <p>In Win 98 ensure that telephone application is configured correctly for your modem and set to receive messages and/or faxes.</p>
Video and Monitor	
<p>Video memory test failed. Video adapter failed.</p>	<p>Remove all non factory cards. Load default settings (if screen is readable). System board</p>
<p>Display problem: - Incorrect colors - No high intensity - Missing, broken, or incorrect characters - Blank monitor(dark) - Blank monitor(bright) - Distorted image - Unreadable monitor - Other monitor problems</p>	<p>Monitor signal connection/cable. Monitor System board</p>

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
Display changing colors.	Monitor signal connection/cable Monitor System board
Display problem not listed above (including blank or illegible monitor).	"Monitor" on page 2-40. Load default settings(if screen is readable). System board
Parallel/Serial Ports	
NOTE: Execute "Load BIOS Default Settings" in BIOS Setup to confirm ports' presence before diagnosing any parallel/serial ports problems.	
Serial or parallel port loop-back test failed.	Make sure that the LPT# or COM# you test is the same as is set in BIOS Setup. Loop-back. System board.
Printing failed.	Ensure that the printer driver is properly installed. Refer to the service manual for the printer. Printer. Printer cable. System board.
Printer problems.	Refer to the service manual for the printer.

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
Joystick	
Game port does not respond or does not work.	Connect a joystick to the game port, then execute "Interactive Test/Joystick" test in PC-Doctor diagnostics program. System board.
Diagnostic Program	
Diagnostics programs cannot be executed.	Reboot the system from the diagnostics diskette. Load default settings. Diagnostics diskette. Memory module. System board.
Missing diagnostics files(s).	Diagnostics diskette.
Keyboard	
Some or all keys on keyboard do not work.	"Keyboard "on page 2-34.
Power Supply	
Pressing power switch cannot turn off system.. (Only unplug power cord from electrical outlet can turn off system.)	See "Power Switch< 4 sec." on page 1-18. Power switch cable assembly "Power Supply" on page 2-37. System board
Pressing power switch cannot turn on system..	Check the "kill" switch on the power supply if it is off. Power switch cable assembly.

Table 2- 2 Error Symptoms List	
Error Symptoms	Action/FRU
NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.	
Executing software shutdown from Windows98 Start menu cannot turn off system. (Only pressing power switch can force system to turn off).	Load default settings. Reload software from Recovery CD.
No system power, or power supply fan is not running.	"Power Supply" on page 2-37. System board. On 2139 make sure JPX2 is installed. (near CN1)
Other Problems	
Any other problems.	"Undetermined Problems" on page 2-42.

Troubleshooting

Failing Parts or Assemblies: The check procedures generally help you trace a problem to one part or assembly. The last step of the specific check procedure you are using indicates that a part or assembly is failing. You should inspect the part or assembly before you decide to replace it. It might be loose, dirty, or in need of a small repair. The check procedures might lead you to two, or even three, possible failing parts or assemblies. The parts that might be failing are listed in order of the most probable failure. Also, the FRU parts are defined as replaced units and are not repaired in the field.

Measuring Voltages: Some check procedure steps instruct you to measure voltages on cable plugs and electronic board connectors. If you are asked to measure voltage at several places on a plug or connector, a chart next to or near the instruction indicates the number of the plug or connector, the pin numbers you should measure, the signal name, and the correct voltage for the condition you are measuring. Measure the voltage only at the pins listed in the chart. Remember to set the meter on the correct scale and to put the meter leads in the correct position for the voltage you are asked to measure.

NOTE: Use frame ground as the ground reference. Attach the black (ground) lead of meter to frame ground, except where specified otherwise.

Factory-Installed Storage Devices

Use this check procedure to test any factory-installed drives.

ATTENTION: The customer may have customized settings in the Setup Utility (other than default settings) on the computer you are servicing. Running the Setup Utility might alter those settings. Take note of the current settings and verify that the customer settings are in place when service is complete.

NOTE: If you cannot access the hard disk drive or load a diskette from Drive A or load a CD from the CD-ROM drive, make sure that the BIOS Setup Utility has the startup sequence set with diskette, CD-ROM, and hard disk drives.

001 - START

- Insert the diagnostics diskette into the diskette drive.
- Power-off then power-on the system unit.

002 - DO ANY POST MESSAGES, ERROR CODES, BEEPS, OR SYMPTOMS OCCUR? (YES, READ AHEAD. NO, GO TO STEP 003)

- Go to “Index of Symptoms, Messages, Error Codes, or Beeps” on page 2-8.
- End.

003 -

- Select **Utility** from the menu.
- Select and execute **Tech Support Form** from the menu to generate a system configuration report.
- Compare the system configuration list with the actual devices installed in system.

NOTE: If necessary, remove the cover and visually compare the devices installed in the system unit to those shown in the Tech Support Form.

004 - IF THE NUMBER OF DISKETTE, HARD DISK, OR CD-ROM DRIVE IS NOT CORRECT, READ AHEAD; OR GO TO STEP 005.

- Check the cable installation of all disk drives.
- Diskette drive should be connected to the system board connector CN12 (see “Machine Type 2153/K6 System Board ”on page 5-3) or

CN11 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8).

- IDE Primary Channel Master and Slave Drives in BIOS Setup should be connected to the system board connector CN11(see "Machine Type 2153/K6 System Board "on page 5-3) or CN12 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8).
- IDE Secondary Channel Master and Slave Drives in BIOS Setup should be connected to the system board connector CN10(see "Machine Type 2153/K6 System Board "on page 5-3) or CN13 (see "Machine Type 2153/Celeron System Board Layout" on page 5-8).

NOTE: The CD-ROM drive that comes with system unit should be configured as IDE Secondary Channel Master device.

- Check the hard disk and CD-ROM drives jumper settings. See "3.5-In. Hard Disk Drive Jumper Locations" on page 5-18 or "5.25-In Hard Disk Drive Jumper Location" on page 5-23 and "CD/DVD-ROM Drive" on page 2-32.
- Check the voltages of all disk drive power connectors. See "Power Supply Cable Connector Specifications" on page 5-15.
- Correct the parameter settings under Disk Drives in the BIOS Setup. See "Disk Drives" on page 1-15.
- In the BIOS Setup, check that the correct drive size is set for the flagged drive shown in the Installed Devices list.
- Load default settings.
- If the problem remains, check the continuity on the drive and the cable and replace it if necessary. If that does not fix the problem, replace the system board.
- End.

005 –

- Select **Diagnostics** from the PC-Doctor diagnostics program main menu. Select and execute **Floppy Disk Test** if you want to test diskette drive. Select and execute **Hard Disk Test** if you want to test hard disk drive.
- Select **Interactive Tests** from the PC-Doctor diagnostics program main menu, then select and execute **CD-ROM/DVD Test** if you want to test CD-ROM drive.
- If the diagnostics program did not detect a failure, but the system still displays a failure:
 - If an error or other symptom appears, go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.

- If no error can be detected or the symptom is intermittent, go to “Undetermined Problems” on page 2-42.
- End.

Factory-Installed Modem Card

NOTE: The factory-installed modem is a 56.6 Kbps modem with a cable of microphone-in and speaker-out from system board.

001 - START

- Power off the system unit.
- In Windows 98 Device Manager, ensure that the modem is not configured with a conflicting COM port and IRQ setting.
- Ensure that the communication software is configured with the correct COM and IRQ settings (same COM port and IRQ as the modem).
- Ensure that all communication parameters (baud rate, data, stop and parity bits) are properly configured and are identical on both sides.
- Connect the phone line to the LINE port of the modem card.

NOTE: Check the outside phone line by connecting a working telephone to the telephone wall jack. Listen for a dial tone to ensure that the phone line is good.

002 -

- Insert the diagnostics diskette into the diskette drive.
- Power on the system unit.
- Select **Diagnostics** menu,
- Select **All Tests**, then execute **Modem** test.

003 - DOES THE MODEM PASS THE TEST? (YES, READ AHEAD. NO, GO TO STEP 004.)

- Power off the system unit.
- Remove all adapter cards.
- Connect a hard disk drive with pre-loaded Windows 98.
- Power on the system unit.
- Perform the following steps under Windows 98.

NOTE: If an operating system other than Microsoft Windows 98 is installed, the program screens and icons may differ from these instructions.

1. Start Microsoft Windows 98.

2. Select the **Start** icon.
3. Select **Program**, then select **Accessories, Hyper Terminal**.
4. Select an on-line service station, dial and connect to it.

004 - CAN THE MODEM DIAL OUT AND CONNECT TO ANY BBS SUCCESSFULLY? (YES, READ AHEAD. NO, GO TO STEP 005.)

- The modem adapter functions normally.
- End.

005 -

- Ensure that Windows 98 is properly installed, then power off the system unit.
- Plug the modem adapter card into a different ISA expansion slot.
- Go to step 002.
- If the error symptom still remains, replace the modem adapter card.
- End.

Audio (Not Supported by Diagnostics Program)

NOTE: Audio tests for the sound card cannot be carried out in the PC Doctor DOS diagnostics program. It is, however, possible to carry out a dial tone test for the modem.

While performing this check, you may need to enter and exit Microsoft Windows 98 several times. When instructed to select an icon or button, double-click on the item with the mouse.

For more information about using Microsoft Windows 98, see the user's guide that came with the computer.

If an operating system other than Microsoft Windows 98 is installed, the program screens and icons may differ from these instructions.

001 - START

- Power off the system unit.
- Remove all adapter cards.
- Connect a hard disk drive with pre-loaded Windows 98.
- Power on the system unit.
- Load default settings in setup (audio may be disabled).

002 - DO ANY POST MESSAGES, ERROR CODES, BEEPS, OR SYMPTOMS APPEAR? (YES, READ AHEAD. NO, GO TO STEP 003)

- Go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
- End.

003 - DO ANY MESSAGES OR ERROR CODES DISPLAY AFTER POST COMPLETES BUT BEFORE MICROSOFT WINDOWS 98 STARTS? (YES, READ AHEAD. NO, GO TO STEP 004)

NOTE: If POST does not complete, answer this question "No."

- Ensure that Windows 98 is properly installed.
- End.

004 -

- Perform the following under Windows 98.

NOTE: If an operating system other than Microsoft Windows 98 is installed, the program screens and icons may differ from these instructions.

1. Start Microsoft Windows 98.
2. Select the **Start** icon.
3. Select **Settings**, then select **Control Panel**.
4. Select the **Sound** icon.
5. In the Sound window, select chimes from the **Names** field. (To test other adapter card software, select an action from a menu in that software.)

005 - IS THE PREVIEW BUTTON, OR ACTION IN OTHER SOFTWARE, SELECTABLE ON THE SCREEN (SHOWN IN BLACK AND NOT GRAY)? (YES, GO TO STEP 006. NO, READ AHEAD.)

- Ensure that Windows 98 is properly installed.
- Go to step 001.

006 -

- Select the **Preview** button from the Sound window.

007 - DO YOU HEAR ANY SOUND FROM THE SPEAKER? (YES, READ AHEAD. NO, GO TO STEP 008.)

- The audio feature is functioning normally. Click Cancel to close the dialog box. Exit Microsoft Windows 98.
- If the symptom remains or has changed, go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
- End.

008 -

- Make sure that the volume control is not turned low.
- Make sure that the speaker and its adapter are not damaged.
- Make sure that the speaker is plugged in speak-out jack. See "Machine Type 2153/K6 System Board "on page 5-3 or "Machine Type 2153/Celeron System Board Layout" on page 5-8.
- If the error cannot be resolved, replace the system board.
- End.

CD/DVD-ROM Drive

001 - START

- Insert the diagnostics diskette into the diskette drive and ensure that there is no CD/DVD in the CD/DVD-ROM drive.
- Select **Interactive Tests** menu, then select and execute **CD/DVD-ROM Test**.

002 - DO YOU SEE A MESSAGE “NO CD/DVD-ROM DRIVE OR MSCDEX DEVICE DRIVER INSTALLED.”? (YES, READ AHEAD. NO, GO TO 003.)

- Exit the diagnostics program and power off the system.
- Check and ensure that the CD/DVD-ROM drive power cable and audio and data cables are not damaged and are connected properly.
- Check and ensure that the CD/DVD-ROM drive driver is loaded correctly.
- Load default settings.

003 - DO THE TESTS OF OPEN/CLOSE TRAY BY DIAGNOSTICS PROGRAM AND BY DEPRESSING CD/DVD-ROM DRIVE BUTTON WORK? (YES, READ AHEAD. NO, GO TO STEP 006.)

- Load a known good data CD/DVD into the CD/DVD-ROM drive and try to read its content by typing DIR at DOS prompt.

004 - CAN A CD/DVD BE READ FROM THE CD/DVD-ROM DRIVE? (YES, THEN THE CD/DVD-ROM DRIVE FUNCTIONS NORMALLY. NO, READ AHEAD.)

- Try reading the CD/DVD with a known good CD/DVD-ROM drive.

005 - IS THE CD/DVD STILL NOT READABLE? (YES, READ AHEAD. NO, GO TO STEP 006.)

- Replace system board.
- End.

006 -

- Replace CD/DVD-ROM drive.
- End.

Memory

001 - START

- Power off the system unit.
- Insert the diagnostics diskette into the diskette drive.
- Ensure that all DIMMs are installed correctly.
- Power on the system unit.
- Take note of any messages, error codes, or symptoms.

002 - DO YOU RECEIVE POST MEMORY ERROR MESSAGE? (YES, READ AHEAD. NO, GO TO STEP 003)

- Enter BIOS Setup Utility then reboot the system. Take note of any messages, error codes, or symptoms. If the error message remains, go to step 005.

003 -

- Follow the screen instructions to run the **Memory** test.

004 - DOES THE MEMORY TEST COMPLETE WITHOUT AN ERROR? (YES, READ AHEAD. NO, GO TO STEP 005.)

- The system memory is now functioning correctly. If you suspect an intermittent problem, run the **Memory** test again.
- End.

005 -

- Replace each DIMM, one at a time, with a known working DIMM of the same size and type.
- If the problem does not appear, it means that the last DIMM replaced is defective. If all DIMMs on the system board, have been replaced and the problem remains, replace system board.
- Go to step 001.

NOTE: If on startup, there is no memory inserted on system board, you will hear 2-2-1-1-1 for 2153, and 2-2-1-1-1 for 2139. (2: long beep, 1: short beep)

Keyboard

001 - START

- Power off system unit and ensure the keyboard plug is connected properly.

002 -

- Insert the diagnostics diskette into the diskette drive and power on the system unit.
- Select **Interactive Tests** menu, then execute **Keyboard** test.

003 - DOES THE KEYBOARD FUNCTION CORRECTLY? (YES, READ AHEAD. NO, GO TO STEP 004.)

- Keyboard is functioning normally.
- End.

004 - ARE THERE ANY STUCK KEYS OR ANY GRIME IN THE GAP OF KEYCAPS? (YES, READ AHEAD. NO, GO TO STEP 005.)

- Power off the system unit. Carefully remove the grime and solve the stuck keys problem.
- Go to step 001.

005 - ARE THERE ANY BROKEN PINS IN THE KEYBOARD PLUG? (YES, GO TO STEP 007. NO, READ AHEAD.)

- Try with a known good keyboard.

006 - DOES THE ERROR SYMPTOM STILL REMAIN? (YES, READ AHEAD. NO, GO TO STEP 007.)

- Replace the system board.
- End.

007 -

- Replace the keyboard.
- End.

Mouse

NOTE: A sticking key button can cause the mouse to operate incorrectly. If you suspect this, go to "Keyboard" on page 2-33.

001 - START

- Make sure that the mouse ball turns freely.
- Make sure that the mouse plug connects properly.

002 -

- Power off the system unit.
- Insert the diagnostics diskette into the diskette drive.
- Power on the system unit.
- Select **Interactive Tests** menu, then execute **Mouse** test.

003 - DO YOU SEE THE MOUSE CURSOR IN THE DIAGNOSTICS PROGRAM? (YES, READ AHEAD. NO, GO TO STEP 011)

- Test right (left) button and check if right (left) button works.

004 - DOES THE MOUSE BUTTON WORK? (YES, READ AHEAD. NO, GO TO STEP 007)

- Test mouse cursor movement.

005 - DOES THE MOUSE MOVE SMOOTHLY AND KEEP X AND Y COORDINATES CHANGED? (YES, READ AHEAD. NO, GO TO STEP 006)

- Mouse is functioned normally.
- End.

006 -

- Power off the system unit.
- Open mouse bottom cover and clean track ball.
- Go to step 002.

007

- Power off the system unit.
- Check the mouse plug.

008 - ARE THERE ANY BROKEN PINS IN THE MOUSE PLUG? (YES, GO TO STEP 010. NO, READ AHEAD.)

- Try with a known good mouse.

009 - DO THE ERROR SYMPTOMS STILL REMAIN? (YES, READ AHEAD. NO, GO TO STEP 010.)

- Replace the system board.
- End

010 -

- Replace the mouse.
- End.

011 -

- Exit diagnostics program.
- Ensure that the mouse driver is properly installed.
- Go to step 002.

Power Supply

001 - START

- Check the Power Override switch, situated at the back of the machine, just above the connector for the power cable. If this switch is activated (switched to on), no power will be supplied to the system.
- Power off the system unit.
- Check the power cord for continuity. Replace if necessary.
- Check for the correct line voltage from the power outlet, and verify that the voltage selector switch (if present) is set to the correct voltage.
- Power on the system unit.

002 - DOES THE POWER SUPPLY FAN RUN? (YES, GO TO STEP 003. NO, GO TO STEP 004)

003 - DOES THE SYSTEM FAIL TO SHUT OFF WHEN THE ON/OFF SWITCH IS PRESSED? (YES, READ AHEAD. NO, GO TO STEP 005)

- You might have a damaged on/off switch cable assembly.
- Disconnect the on/off switch cable assembly connector from the power supply connector and take an ohm reading.
- Go to step 007.

004 -

- Disconnect the power cord from the back of the system unit.
- Disconnect all power and switch cable connectors from the system board and the power supply except the ATX power connector and on/off switch connector.
- Disconnect the power connectors to all drives.
- Connect any one of the power connector to system board or drive as power load for driving up power supply.
- Reconnect the power cord.

005 - DOES THE POWER SUPPLY FAN RUN? (YES, READ AHEAD. NO, GO TO STEP 009)

- With the system powered on and the power supply fan running, check the voltages of the power supply connectors for the system board and all drive connectors, as shown in the following figures.

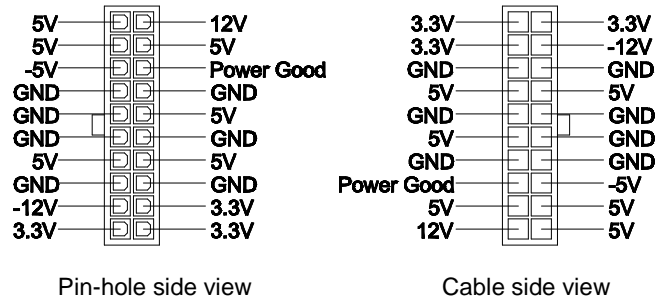


Figure 2- 1 Power Supply Connector

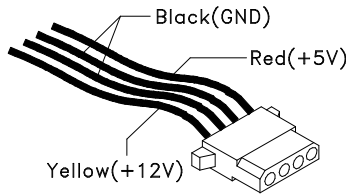


Figure 2- 2 Hard Drive or CD-ROM End of Power Cable

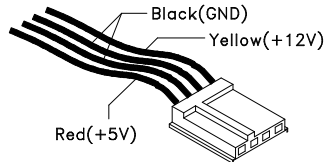


Figure 2- 3 3.5-In. Diskette Drive End of Power Cable

006 - ARE THE VOLTAGES CORRECT AND DOES THE FAN RUN? (YES, READ AHEAD. NO, GO TO STEP 009)

- The power supply is working normally.
- If you suspect the on/off switch cable assembly, see Step 003.
- If the fan continues to run when all connectors are plugged back in, go to “Undetermined Problems” on page 2-42.

- If the fan stops running when a drive connector is plugged back in, go to "Start" on page 2-3.

007 - DO YOU HAVE AN OHM READING WHEN THE SWITCH IS PRESSED AND AN OPEN READING WHEN THE SWITCH IS RELEASED? (YES, READ AHEAD. NO, GO TO STEP 008)

- Replace the on/off switch cable assembly.

008 -

- Replace the system board.
- End.

009 -

- Replace the power supply.
- End.

Monitor

First, set the system to VGA mode. To do this in Windows 98, depress the **F8** function key during startup. Safe mode (VGA) will be set for Windows 98. Use the operating system's video setup to change the monitor resolution.

The monitors that come with the system are DDC2A/B or DDC1/2B+ (Display Data Channel) compliant. While starting Windows 98, the DDC2 monitor passes resolution and frequency information to the system. The system interprets the data and sets up the proper refresh rate.

If the monitor type is set to the power saving mode, the screen remains black and the LED lights or flashes in amber color. When the monitor is turned on alone, or is turned on and connected to a powered-off system unit, the monitor LED blinks in amber color. Under the normal operating conditions, the LED lights in green color.

NOTE: Some monitors have a detachable system I/O signal cable between the monitor and the system unit. Check the line voltage, power cord, and continuity for the system I/O signal cable before replacing the monitor. See "Monitor Port Signals" on page 5-30 for pin identification.

001 - START

- Power off the system unit and monitor.
- Remove all adapter cards.
- Make sure that the monitor I/O signal cable is properly connected to the system unit and monitor.
- Make sure that the power cords are properly connected to the system unit and monitor, and that the line voltage is correct.
- Make sure that the monitor contrast and brightness controls are not turned too low.
- Make sure that the diagnostics diskette is in the diskette drive.
- Power on the monitor, and wait 20 seconds.
- Power on the system unit.

NOTE: If the monitor was not sold together with the system unit, you may need to refer to the service information provided with the monitor.

002 - IS THE SCREEN READABLE? (YES, READ AHEAD. NO, GO TO STEP 004)

NOTE: If the screen shows a blinking cursor with no memory count running, answer this question "No."

- Select **Interactive Tests** from the Main Menu.
- Select and execute **Video** test from the menu.
- Follow the prompts and perform the video test.
- Go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.

NOTE: You might have to adjust the monitor controls to obtain the best image.

003 - DOES THE MONITOR SUCCESSFULLY PASS ALL TESTS? (YES, READ AHEAD. NO, GO TO STEP 004)

- You have successfully completed the video diagnostics tests. If the problem remains, go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8.
- End.

004 -

- Power off the system unit.
- Remove the hard disk drive system cable.
- Power on the system unit.

005 - IS THE SCREEN READABLE?

- Replace the monitor. If the symptom remains, replace the system board.
- End.

Undetermined Problems

If an error code is present, go to "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8. If no error code is present, continue with this check. Check the power supply voltages (see "Power Supply Cable Connector Specifications" on page 5-15). If the voltages are correct, return here and continue with the following steps:

1. Power off the system unit.
2. Perform the following checks, one by one, until you have isolated the problem FRU (refer to "Parts/Test Point Locations" on page 5-1 for locations):
 - Load default settings in setup.
 - Check all system board jumper positions and switch settings.
 - Check all adapter card jumper positions.
 - Check all device jumper positions.
 - Check all cables and connectors for proper installation.

If the jumpers, switch, and voltage settings are correct, return here and continue:

3. Remove or disconnect the following, one at a time:
 - Non-IBM devices
 - External devices
 - Any adapters
 - Modem card, if installed
 - CD-ROM drive
 - Diskette drive
 - Hard disk drive
 - DIMM
 - Processor
 - System board
4. Power on the system unit.
5. Repeat steps 1 through 4 until you find the failing device or adapter.
6. If software related, reload software from Recovery CD.

If the symptom changes, go to “Index of Symptoms, Messages, Error Codes, or Beeps” on page 2-8 or to the check procedure for the last item tested. Replace the last item tested if the system operates normally after removing the last item.

Diagnostic Aids

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Introduction

This section explains the diagnostic aids, power-on self test (POST) and diagnostics program (PC-Doctor), that are available for troubleshooting problems on the system.

Power-On Self Test

Each time you power-on the system, the power-on self test (POST) is initiated. Several items are tested during POST, but is for the most part transparent to the user.

POST checks the following:

- System Board
- Memory
- SVGA Controller
- Hard Disk Drive(s)
- Floppy Diskette Drive(s)
- Keyboard
- Mouse
- Parallel Port(s)
- Serial Port(s)
- CD/DVD-ROM Drive(s)
- Sound Controller

To start POST, turn on the monitor and then the system unit. The following will happen:

1. The IBM Aptiva logo will appear on center of the screen.
2. At this time one of two hot-keys may be used. The F1 key, as described on screen(for 2153/K6 and 2139), will cause the system Setup Utility menu to appear. The F9 key will switch the graphical IBM logo screen to the traditional text-based system startup screen, which displays BIOS version and system memory tested. For Aptiva, the F9 key will only work after exiting BIOS Setup.
3. If an error is detected during POST, the IBM logo screen will automatically switch to the text-based screen and display the error message or code with a beep. Depending on the criticality of the POST error, the system may halt and/or display the message "Press <F1> to enter to the Setup or <Enter> to continue..."

If this message appears, pressing the Enter key will allow the system to attempt to proceed despite the reported error; pressing F1 will cause the system Setup Utility menu to appear.

4. If no keyboard keys are pressed, and if POST is completed without errors, the system will then proceed with the loading of DOS or other operating system from diskette drive A or a hard disk drive or CD-ROM drive, depending on the options selected in the Setup Utility.

If any errors are detected by POST, there will be an error message accompanied with an error code shown on display screen and a beep. See "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8 to find the most likely cause and countermeasure.

Diagnostic Diskette

WARNING: This manual is intended to test the IBM Aptiva 2153 and 2139 machine type only. Testing devices which are not included with the original product package, including other IBM products, prototype cards, or modifying hardware settings may give false errors and invalid system responses. The diagnostics not specifically made for this model may also report incorrect errors and information.

The diagnostics program comes on a diskette along with this book. This version of PC-Doctor diagnostics program, developed by Watergate for IBM, is the primary method of testing the computer. You can use it to test the IBM components of the system and some external devices. The amount of time required to test components depends on the number of components installed and selected. The more devices you have attached to your system and selected in PC-Doctor, the longer the testing will take.

NOTE: The diagnostics program for Aptiva 2153 and 2139 are the same.

Using the Diagnostic Diskette

1. Power-off the system unit.
2. Insert diagnostic diskette in drive A.
3. Power-on the system unit.

NOTE: Do not press F1 during POST. If any POST errors appear after POST, make a note of the errors and see "Index of Symptoms, Messages, Error Codes, or Beeps" on page 2-8 to diagnose.
4. DOS should load. During boot, verify that each driver loads successfully. For drivers that do not load successfully, verify that the device driver is associated with it and is installed properly.
5. Diagnostics program (PC-Doctor) will load, then follow the screen instructions to operate.

Using Diagnostic Program from Recovery CD

1. Insert the Aptiva recovery CD into the CD-ROM drive then restart computer.
2. Depress F1 while POST to enter BIOS Setup menu. Select and enter "Startup Options", set "Boot from CD-ROM" to "Enabled". Save and exit from BIOS Setup.
3. When screen prompts you to install original software, type N to exit the installation program. Then type PCDR and press Enter to start the diagnostics program. Follow the instructions on the screen to operate the diagnostics program.

Diagnostics Program Features

Diagnostics program (PC-Doctor) includes the following features:

Main Menu Selections	Submenu Selections
Diagnostics	<ul style="list-style-type: none">• System Test• Memory Test• Hard Disk Test• Floppy Disk Test• All Tests
Interactive Tests	<ul style="list-style-type: none">• Keyboard• Video• Internal Speaker• Mouse• Joystick Test• Diskette• Printer Test• SCSI Test• CD-ROM/DVD Test• Stereo Speaker

Table 3- 1 Diagnostic Program Main Menu Selections	
Hardware Info	<ul style="list-style-type: none"> • System Configuration • Memory Contents • IRQ and DMA Use • Device Drivers • COM and LPT Ports • Physical Disk Drives • Logical Disk Drives • VGA Information • Software Interrupts • SCSI Devices • I/O Use • IDE Drive Info • Network Information • PCMCIA Information • PCI Information • SMP Information • PNPISA Information • DMIBIOS Information
Utility	<ul style="list-style-type: none"> • Run External Tests • File Editor • Surface Scan Hard Disk • DOS Shell • Terminal • Tech Support Form • Battery Rundown • Select Language
Quit	<ul style="list-style-type: none"> • Exit Diags • Park HD • Reboot • Upgrade Now

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Removals and Replacements (Machine Type 2153)

See Safety Notice following Translation on page VII

BEFORE REMOVING ANY FRU, POWER-OFF THE COMPUTER, UNPLUG ALL POWER CORDS FROM ELECTRICAL OUTLETS, THEN DISCONNECT ANY INTERCONNECTING CABLES.

ATTENTION: The system board, processors, adapter cards, DIMMs, and upgrade processors can be damaged by electrostatic discharge. Use an electrostatic discharge (ESD) strap to establish personal grounding. If you don't have an ESD strap, establish personal grounding by touching a ground point with one hand before touching the static-sensitive FRUs.

The arrows in the removals and replacements procedures show the direction of movement to remove a field-replaceable unit (FRU), to turn a screw, or the direction to press a tab to release the FRU.

Begin all removals by removing the cover (and rear cover, if applicable). When other FRUs must be removed prior to removing the failing FRU, they are listed at the top of the page. Go to the removal procedure for each FRU listed, remove the FRU, and then continue with the removal of the failing FRU.

To replace a FRU, reverse the removal procedure and follow any notes that pertain to replacement.

Before disconnecting any cables, note their location and orientation. Reinstall any new FRUs with cabling in their original location.

Identifying the Parts of the System Unit

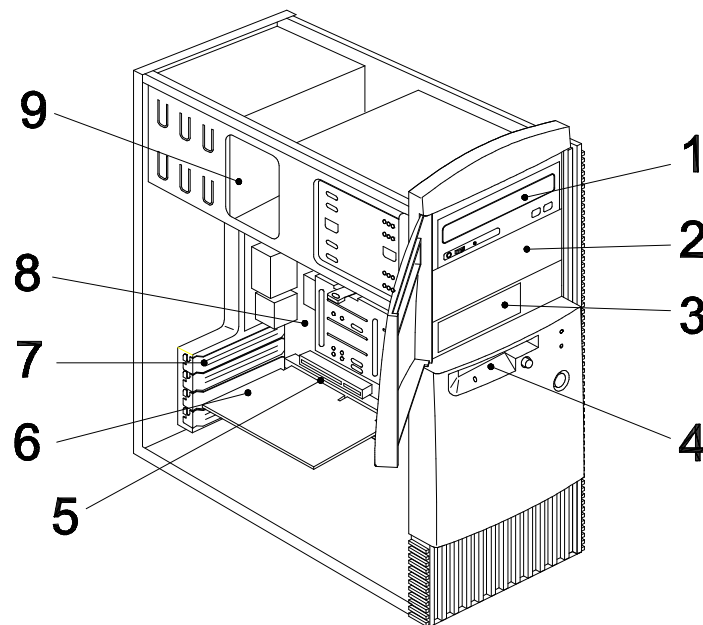


Figure 4- 1 The parts of the system unit

This computer system has four bays that can hold up to two 5.25-inch and two 3.5-inch drives. Additional devices can be installed in the empty bays. Diskette drives in this unit use the standard diskette advanced technology (AT) interface. Hard disk drives in this unit use an integrated drive electronics (IDE) AT interface. This computer supports the American National Standards Institute (ANSI) standard for AT attachment disk drives.

It also has interface slots for installation of additional cards devices. Industry Standard Architecture (ISA) and Peripheral Component Interconnect (PCI) adapter cards are both supported.

1. Bay 1.

This drive bay can hold a 5.25-inch half high drive or a 5.25-inch slim drive. A 3.5-inch drive can be accommodated with additional brackets.

This bay can hold a CD-ROM, DVD-ROM, diskette, hard disk, tape, or Zip drive.

2. **Bay 2.**

This drive bay can hold a 5.25-inch half high drive or a 5.25-inch slim drive. A 3.5-inch drive can be accommodated with additional brackets. This bay can hold a CD-ROM, DVD-ROM, diskette, hard disk, tape, or Zip drive.

3. **Bay 3.**

This drive bay can hold a 3.5-inch slim drive, such as a diskette, hard disk, tape, or Zip drive.

4. **Bay 4.**

This drive bay is designed for a 3.5-inch diskette drive.

5. **Adapter card connectors.**

Adapter card connectors are sockets on the system board into which adapter cards are installed. Your system board has three adapter card connectors. One of these connectors is for a PCI card and two are for ISA cards. Since two of these connectors share the same adapter card slot, only two cards can be installed at any one time.

6. **Adapter cards.**

Adapter cards add to your computer's capabilities.

7. **Adapter card slots.**

Adapter card slots are the holes in the back of the tower that permit external access to adapter cards.

8. **System board.**

The system board is the main circuit board in your computer. It contains the processor, also known as the central processing unit (CPU), and the system battery. It also contains sockets for memory modules, connectors for adapter cards, and connectors for the cables that carry data to and from drives.

9. **Power supply.**

The power supply provides the electricity that is used by the other hardware components in your computer. This model may come with either a 95W or 145W power supply. When replacing a power supply, make sure to replace the 145W power supply with a 145W power supply.

Cover

- Disconnect the system unit power cord.
- Remove the screws at the back of the tower.

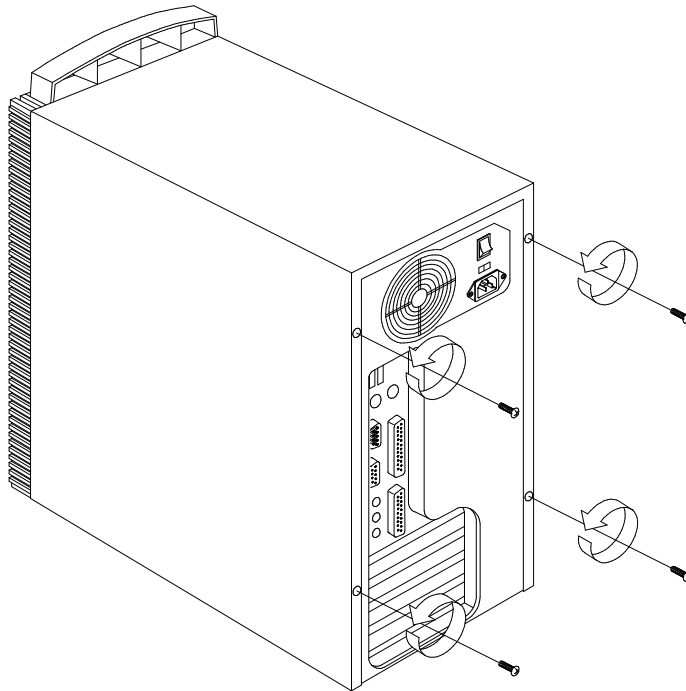


Figure 4- 2 Remove the screws

- Insert a screwdriver under one of the tabs on the back of the cover and gently pry the tower cover so that it separates from the tower.
- Slide the cover back about half inch (or 1.25 centimeters).
- Lift the cover up by the top front and back edges, pulling the sides out and away from the tower.

- Touch the outside of the bare metal frame of the tower to dissipate any static electricity from your body. Do not touch any of the components inside the frame. Be careful not to touch any component displaying a voltage warning label, such as the power supply.
- Disconnect the tower power cord.
NOTE: To prevent the tower from tipping over, you may want to lay the tower on its side on a work surface, such as a table.
- Touch the bare metal frame of the system to dissipate any static electricity from your body (do not touch any of the components inside the frame until you have done this). Do not touch any component(s) with a voltage warning label.

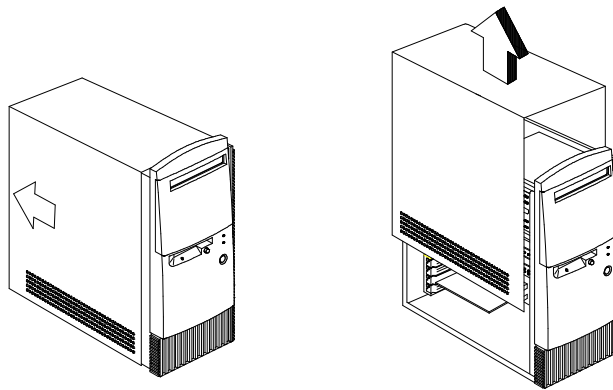


Figure 4-3 Pull out on the cover

NOTE: Replacing the Cover

- To replace the tower cover, lower the cover down over the tower, pressing in on the sides so the hooks inside the cover fit over the bottom ledge of the tower. Slide the cover forward into place. Secure the tower cover by replacing the screws you removed.

NOTE: When you replace the cover, there are hooks inside the cover that help fit it to the tower.

Bay Panels

If you remove a drive from an external bay and you do not intend to install a new drive immediately, reinstall the bay panel on the empty exposed drive bay.

Follow these steps to remove the plastic bay panel from the front of the system unit cover.

- Hold a bay panel and press either side to unlatch it from the front of the system unit cover.
- Pull the bay panel out.

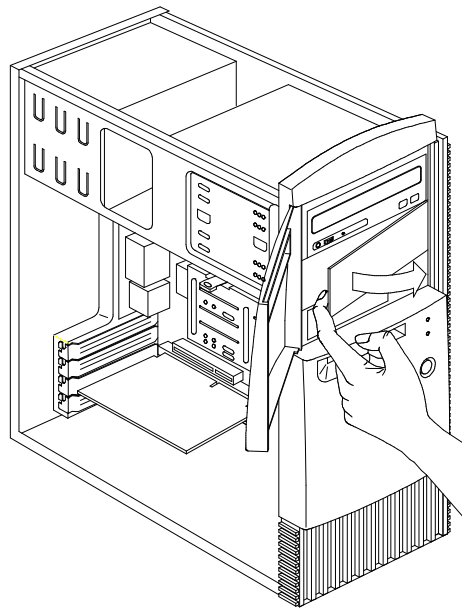


Figure 4- 4 Remove the drive bay panel

Removing the system cover, exposes metal plates in front of each unpopulated drive bay. Push back and break-off these metal plates before installing additional drives.

Use a screwdriver to push back the metal bay plate. After pushing the metal cover for about an inch, you may use your hand to push it all the way to a 90-degree angle.

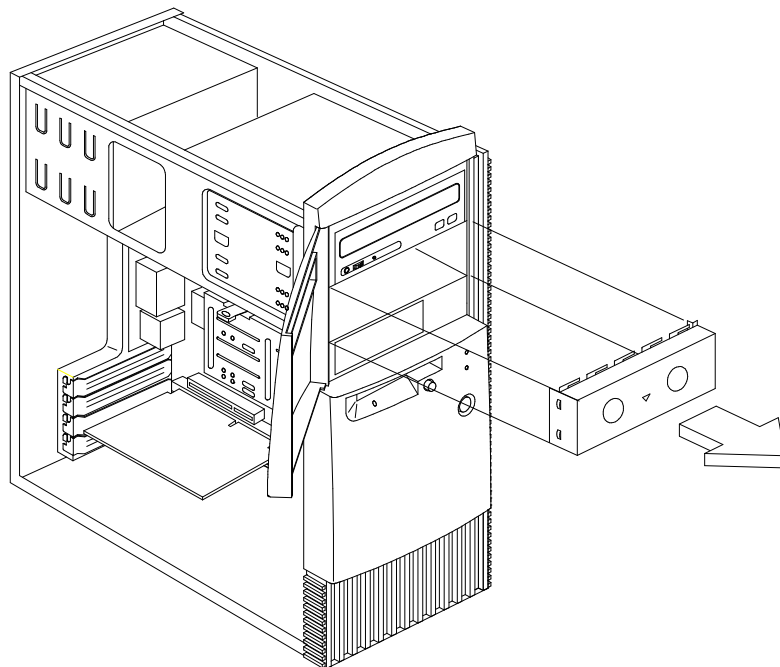


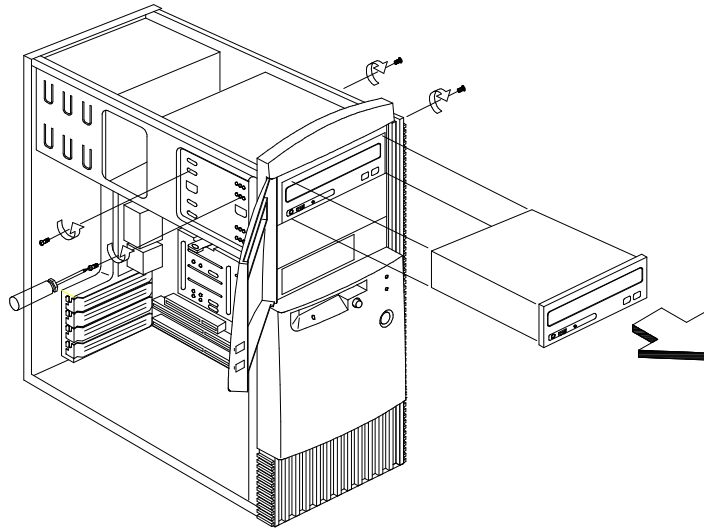
Figure 4- 5 Remove the metal plate

NOTE: To Reinstall A Bay Panel

- Insert a bay panel into the opening at the front of the system cover, aligning the panel latches with the sides of the unit.
- Push the panel back until you hear the latches click into place.

Bays 1, 2 (5.25-In. Internal/External Bays)

- Disconnect any cable on the drive (note location of cables).
- Remove the screws.
WARNING: For 5.25-In. Hard Disk Drive installation, it uses different screws than the 3.5-In Hard Disk Drive.
- Pull out the drive.



- Figure 4-6 Bay 1 (5.25-In.)

Bay 3,4 (3.5-In. Diskette/Hard Disk Drives)

- Disconnect the cables (note location of cables).
- Press the lever and rotate outward.
- Pull carefully and slowly as soon as the warning arrow appears.
- The drive frame becomes free after the line behind the arrow appears. Remove the frame from the chassis.

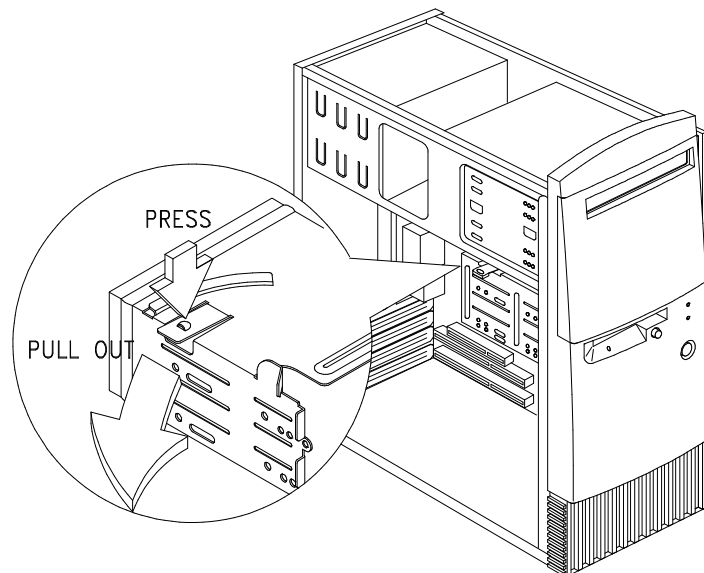


Figure 4-7 Bay 4 (3.5-In)

- Remove the screws located on either side of the disk drive, then pull the drive out.

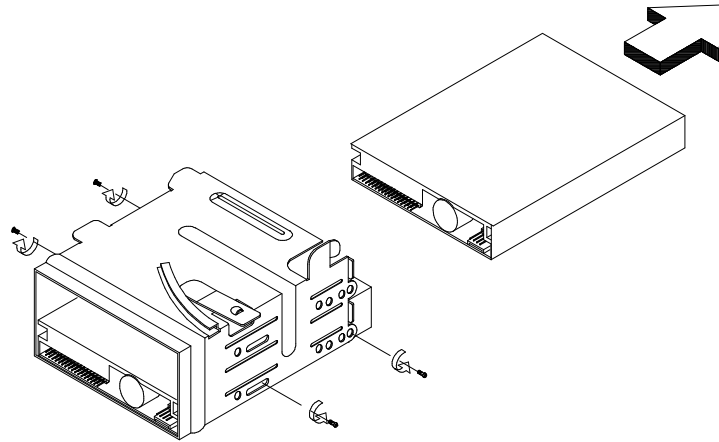


Figure 4- 8 Remove the drive

NOTE: Reinstall The 3.5-in Drive Frame

- Before reinstalling the drive frame into the main unit, make sure the upper and lower drive frames are properly reattached.
- Align the front notch of the drive frame with the system chassis
- Align the top rail of the drive frame with the system chassis and swing inward until it "clicks" to lock.

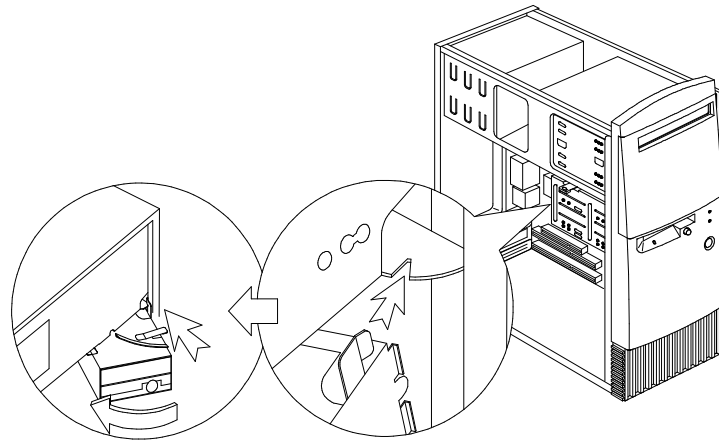


Figure 4- 9 Reattach the 3.5-inch drive

- Re-attach the power and signal cables to the drives.

Power Supply

- Disconnect all cables necessary before removal (note location of cables).
- Remove the four screws from the chassis.
- Push the power supply forward towards the CD/DVD-ROM drive.
- Once it is sufficiently forward, place your hand underneath the power supply and push upwards to detach it from the chassis.

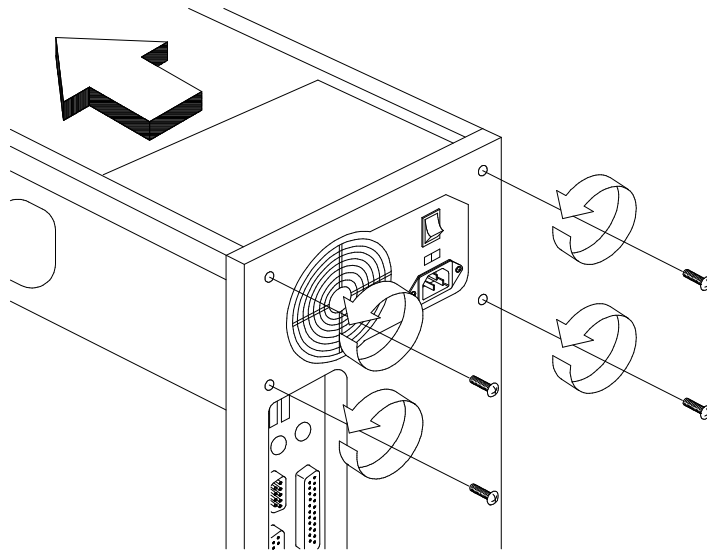


Figure 4- 10 Remove the power supply

Adapter Cards

NOTE: 1. Before removing an adapter card, note the location of the adapter card and any cables. When removing an adapter card, install the replacement card in the same slot as the one you removed.

2. If necessary, remove cards from the adjacent slots of the failed card.

- Position the system unit such that the card is accessible to you.
- If the adapter card has cables, disconnect them. Be sure to take note where those cables are connected. You will need to reconnect those cables when you reinstall the card.
- Remove the adapter card screw.
- Carefully pull the adapter card straight out of the slot so that the card does not bend.

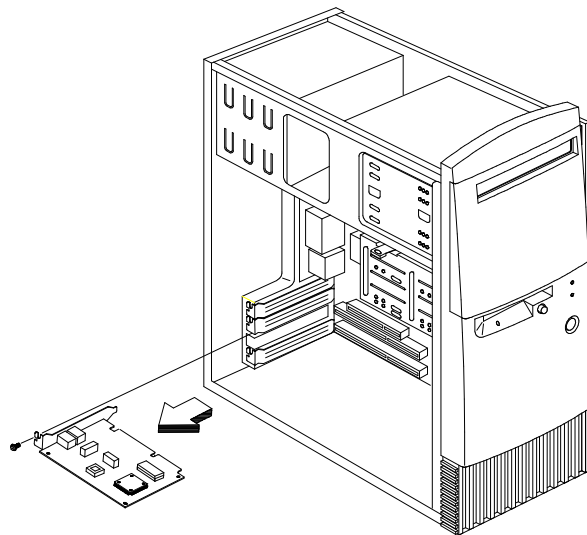


Figure 4- 11 Remove Adapter Cards

Memory(DIMM)

ATTENTION: Memory modules are sensitive to static discharge.

- Press the levers on both sides of the socket down and outwards.
- Lift the DIMM to remove.

CAUTION: Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

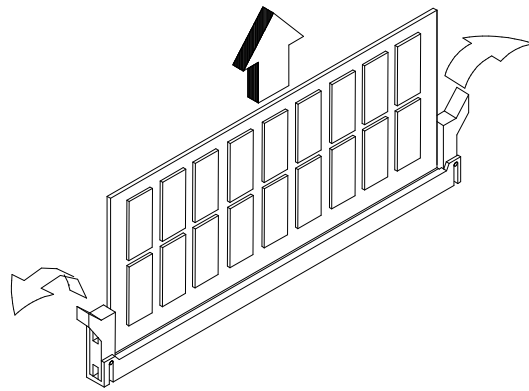


Figure 4- 12 Remove memory modules (DIMM)

Processor(K6)

NOTE: Determine the type of processor you are installing and make sure the jumpers are set correctly. Run the Setup Utility after correctly installing a processor.

ATTENTION: Processors are sensitive to static discharge.

- Remove adapter cards if applicable.
- Detach the heat sink cable from the fan connector FN1.
- Remove the fan sink by pressing the release tab (rectangular end) and lifting it up from the Processor.
- Pull up the ZIF socket release lever.
- Lift the processor out of the socket.

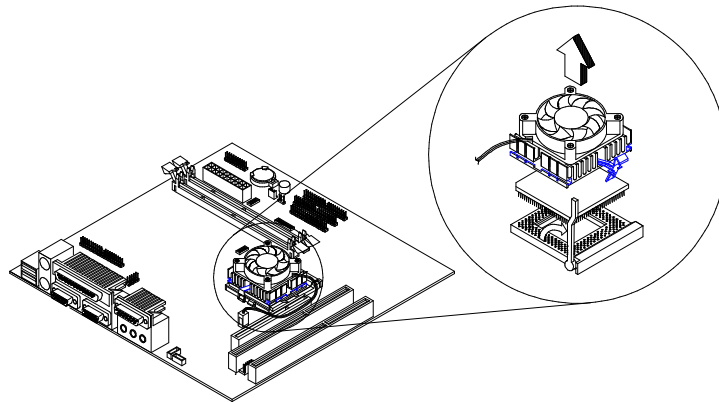


Figure 4- 13 Removing the processor

NOTE: Installing the processor

- Place the ZIF socket release lever to the release (up) position.
- Insert the new processor, matching the notched corner of the processor with the pin 1 indicator on the socket.

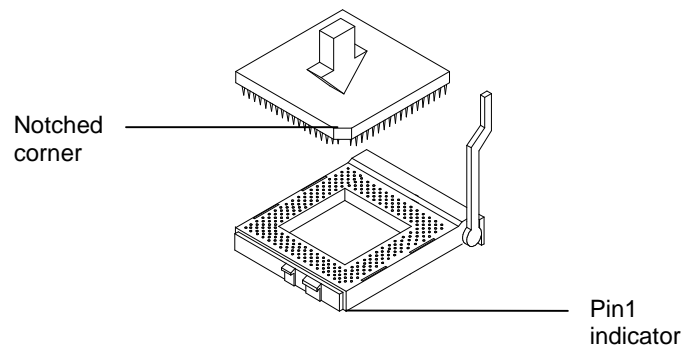


Figure 4- 14 Inserting the processor

- Push down the lever to lock the processor to the socket.
- Place the processor heat sink fan over the processor.
- Insert one side of fan brace onto the ZIF socket
- Secure by latching the other side to the ZIF socket.
- Reconnect the processor fan sink cable to the connector FN1 on the system board.

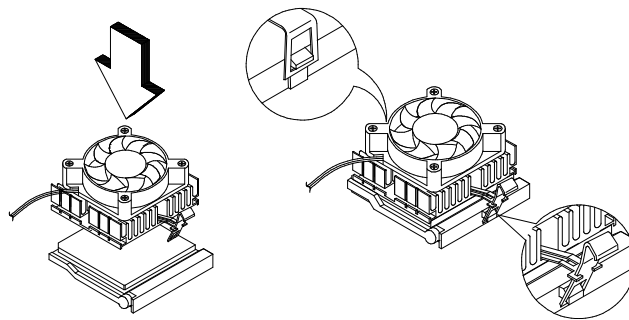


Figure 4- 15 Installing the processor

Processor(Celeron)

NOTE: Determine the type of processor you are installing and make sure the jumpers are set correctly. Run the Setup Utility after correctly installing a processor.

ATTENTION: Processors are sensitive to static discharge.

- Use a screw driver to unlock the heat sink from the CPU cartridge, by releasing the faster. Press the faster nodes one by one to release all four of them.

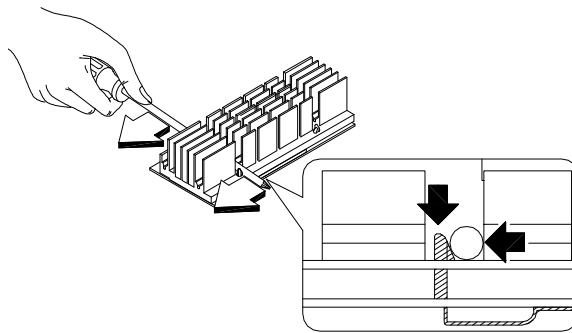


Figure 4- 16 Removing the heat sink

- Release the retention cover from the CPU connector on the system board by pulling out both sides.

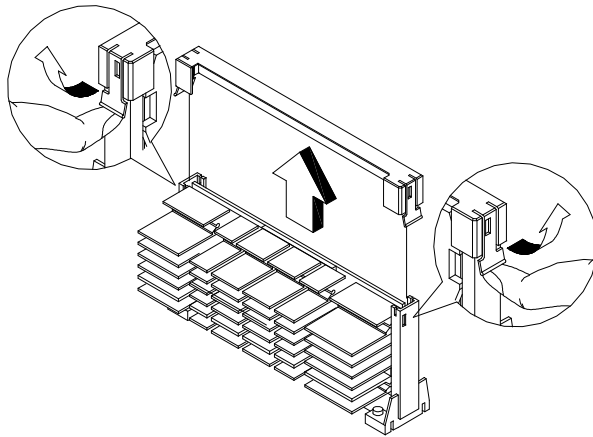


Figure 4- 17 Releasing the retention

- Remove the CPU cartridge from the slot of the system board.

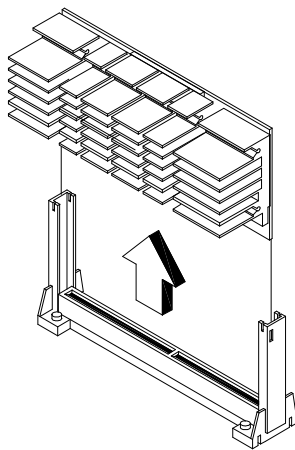


Figure 4- 18 Removing the CPU cartridge

NOTE: Installing the processor

- Remove the Celeron processor from its protective packaging.
- Attach the heat sink on top of the Celeron processor, after removing the thermal tape protector at the back of the heat sink, with the wide side connecting to golden finger.

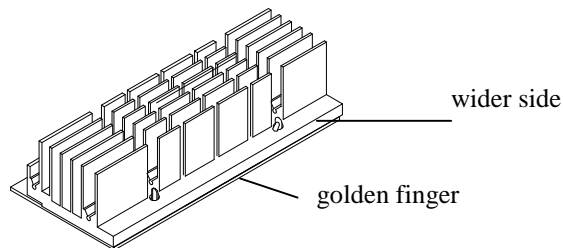


Figure 4- 19 Attaching the heat sink

- Press the heat sink and fasteners together to lock the heat sink.

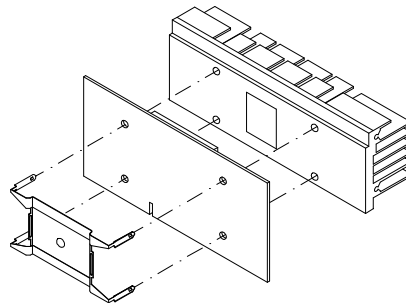


Figure 4- 20 Pressing the heat sink

- Place the retention mechanism over the CPU connector on the system board and press down on it until it clicks into place.
- Press the four plastic rivets to secure the retention mechanism. Make sure all four rivets are properly inserted into the holes on the system board.

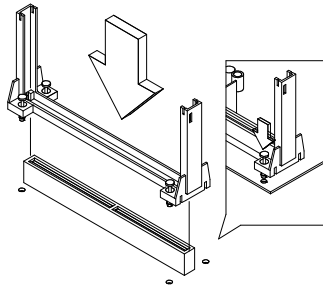


Figure 4- 21 Pressing the plastic rivet

- Press down the processor until the golden fingers completely fit into the connector.

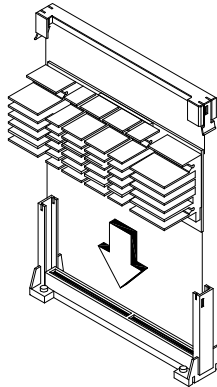


Figure 4- 22 Pressing down the processor

- Snap the retention cover into place as shown in the figure above.

System Backup Battery

CAUTION: All BIOS configuration settings will be lost when the backup battery is removed!

ATTENTION: Be careful when removing the backup battery. If the metal lever is damaged or broken, the system board must be replaced.

- Gently pull the metal lever away from the backup battery.
- Lift the backup battery out.

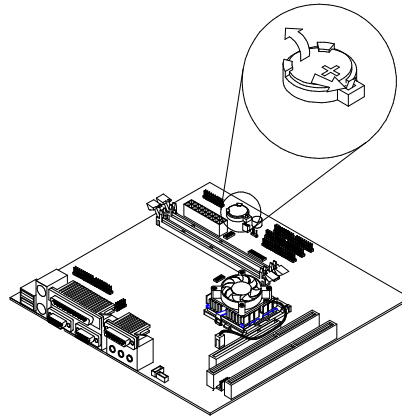


Figure 4- 23 Remove the backup battery

IMPORTANT: Make sure to insert the battery with the positive side facing up. A plus(+) sign indicates the positive side.

- If you replace the system battery, you need to reset the system date and time. You can perform this task from the Window 98 desktop or from the Setup Utility. To reset the system date and time in the Setup Utility, select the Date and Time option from the Main Menu.

Indicator LED and Cable

- Push in on the indicator LED and remove from the rear.
- Disconnect the LED and cable from the system board.

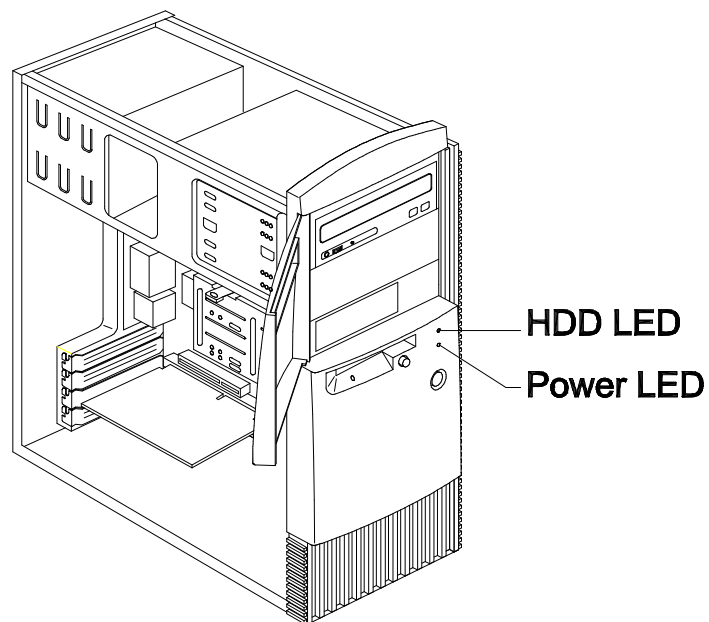


Figure 4- 24 Remove the LED indicator

System Board

- Remove all adapter cards.
- Disconnect all cables connected to the system board.
- Remove the screws securing the system board to the chassis.
- Lift the system board to remove from chassis.
- Remove memory (DIMM) if applicable.
- Remove processor if necessary.

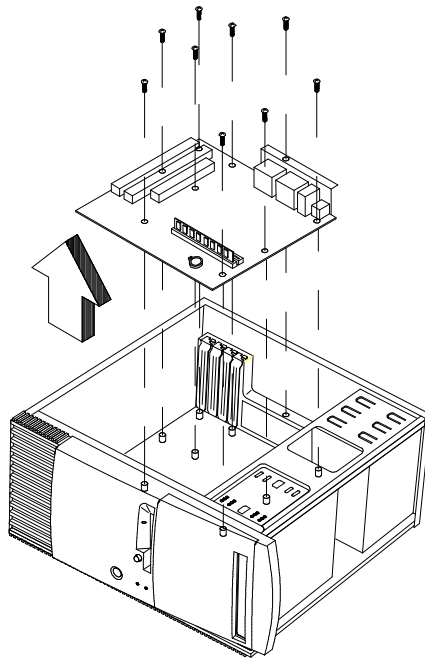


Figure 4- 25 Removing the system board

NOTE: System Board Installation

- Before reinstallation, position the housing on its side. When installing a new system board, push the board to the rear and align it with the front locating pin. Visually verify that the board is aligned properly, then press the board down.
- Be sure to reinstall the processor, DIMMs, I/O port bracket onto the new system board if applicable.
- After installing the system board, secure with original screws.
- Upgrade the BIOS version on the new system board. See "Flash (BIOS) Update Procedure" on page 1-10.
- Run the Setup Utility after correctly changing the system board. See "BIOS Setup Utility" on page 1-12.
- Change the Machine Type and Serial Number in the BIOS for the new system. See "BIOS-contained Model Number and Serial Number" on page 1-11.

Removals and Replacements (Machine Type 2139)

See Safety Notice following Translation on page VII

BEFORE REMOVING ANY FRU, POWER-OFF THE COMPUTER, UNPLUG ALL POWER CORDS FROM ELECTRICAL OUTLETS, THEN DISCONNECT ANY INTERCONNECTING CABLES.

The arrows in the removals and replacements procedures show the direction of movement to remove a field-replaceable unit (FRU), to turn a screw, or the direction to press a tab to release the FRU.

Begin all removals by removing the cover (and rear cover, if applicable). When other FRUs must be removed prior to removing the failing FRU, they are listed at the top of the page. Go to the removal procedure for each FRU listed, remove the FRU, and then continue with the removal of the failing FRU.

To replace a FRU, reverse the removal procedure and follow any notes that pertain to replacement.

Before disconnecting any cables, note their location and orientation. Reinstall any new FRUs with cabling in their original location.

ATTENTION: The system board, processors, adapter cards, DIMMs, and upgrade processors can be damaged by electrostatic discharge. Use an electrostatic discharge (ESD) strap to establish personal grounding. If you don't have an ESD strap, establish personal grounding by touching a ground point with one hand before touching the static-sensitive FRUs.

Identifying the Parts of the System Unit

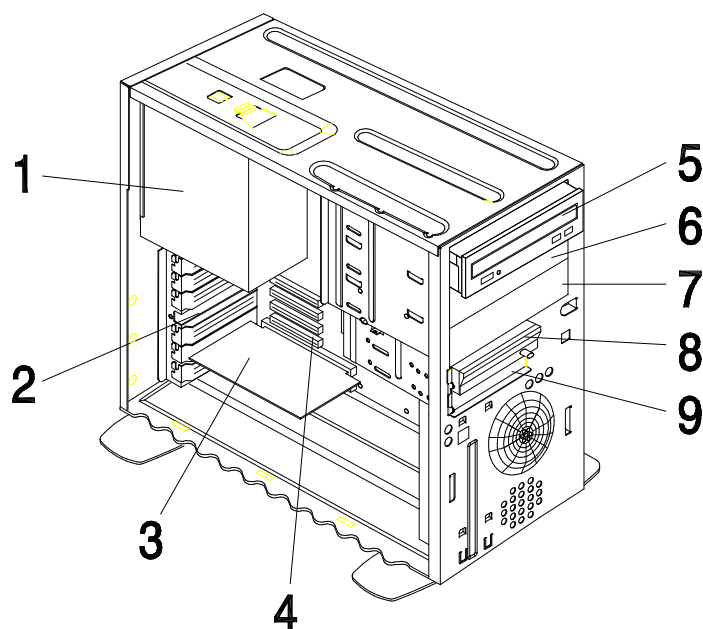


Figure 4- 26 The parts of the system unit

This computer system has five bays that can hold up to three 5.25-inch and two 3.5-inch drives. Additional devices can be installed in the empty bays. Diskette drives in this unit use the standard diskette advanced technology (ATX) interface. Hard disk drives in this unit use an Integrated Drive Electronics (IDE) ATX interface. This computer supports the American National Standards Institute (ANSI) standard for ATX attachment disk drives.

It also has interface slots for installation of additional card devices. Industry standard architecture (ISA) and Peripheral Component Interconnect (PCI) adapter cards are both supported.

1. **Switching Power Supply.**

The system comes with a 145-watt switching power supply.

2. **Expansion slots.**
On the rear panel of the system chassis are seven slot openings for installation of adapter cards. When installing an adapter, remove the cover of the slot that you intend to use.
3. **Modem Card.**
The system includes a 56.6K voice fax modem.
4. **System board.**
The system board is secured by screws on the inner wall of the chassis.
5. **Bay 1.**
This drive bay may accommodate a 5.25-inch half-high drive, such as diskette, hard disk, tape, or CD/DVD-ROM drive. Normally, this bay holds the factory-installed CD/DVD-ROM drive.
6. **Bay 2.**
This drive bay may accommodate a 5.25-inch half-high drive, such as diskette, hard disk, tape or CD/DVD-ROM drive.
7. **Bay 3.**
This drive bay may accommodate a 5.25-inch half-high drive, such as diskette, hard disk, tape or CD/DVD-ROM drive.
8. **Bay 4.**
This drive bay may accommodate a 3.5-inch slim drive, such as a diskette, hard disk or tape drive. Normally, this bay holds a factory-installed diskette drive.
9. **Bay 5.**
This drive bay may accommodate an internal 3.5-inch slim drive, such as a hard disk drive.

Cover

- Disconnect the system unit power cord.
- Release the lock that secures the cover at the back of the unit by pressing it toward the unlocked icon.
- Slip your hand into the underside of the front panel and pull the release handle forward to release the cover.
- The cover slides along grooves that run on the sides of the unit. While still holding the handle, slide the cover forward to remove it completely.
- Touch the bare metal frame of the system to dissipate any static electricity from your body (do not touch any of the components inside the frame until you have done this). Do not touch any component(s) with a voltage warning label.

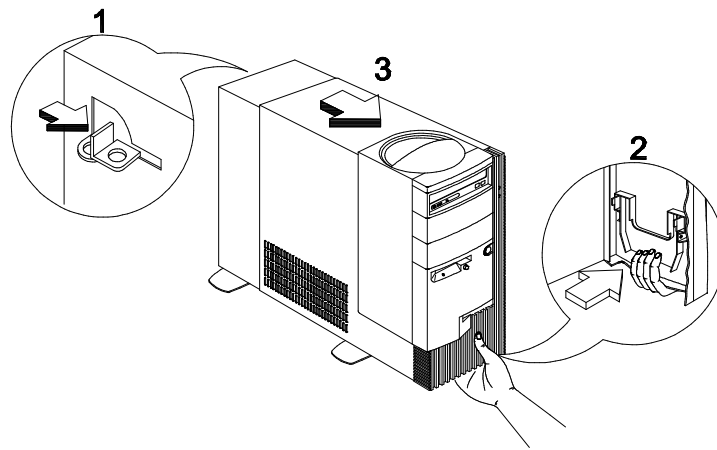


Figure 4- 27 Pulling out the cover

NOTE: Replacing the Cover

- Align the end corners of the cover with the front corners of the chassis. Ensure that the rails of the cover slide along the grooves on the sides of the chassis.

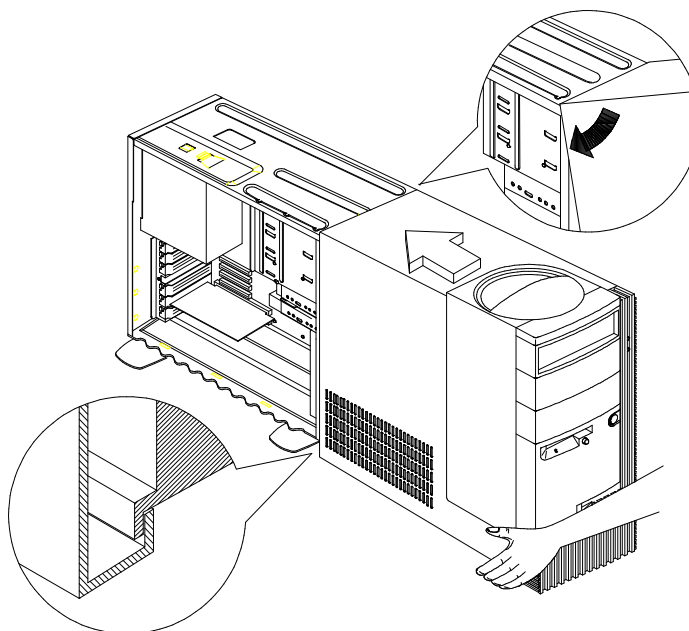


Figure 4- 28 Replacing the cover

- Slide back the cover until it fits into place. If the cover does not slide all the way to the rear, hold the upper rear corners of the cover and slightly press it inward while pushing it toward the rear end of the unit.

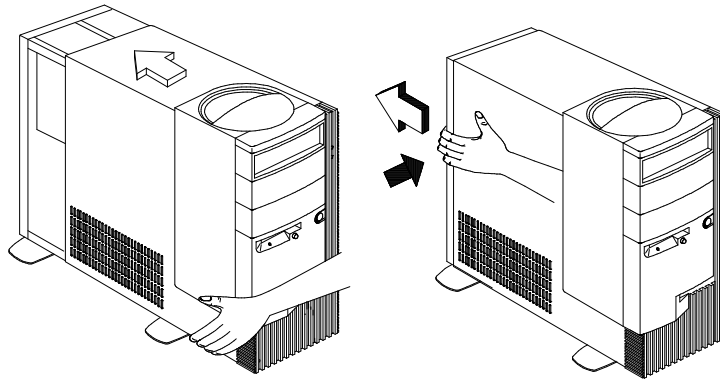


Figure 4- 29 Align and slide the cover

- Slide the lock on the back of the unit to the “locked” icon to secure the cover to the chassis.

Bay Panels

If you remove a drive from an external bay and you do not intend to install a new drive immediately, reinstall the bay panel on the empty exposed drive bay.

Follow these steps to remove the plastic bay panel from the front of the system unit cover.

- Hold a bay panel and press either side to unlatch it from the front of the system unit cover.
- Pull the bay panel out.

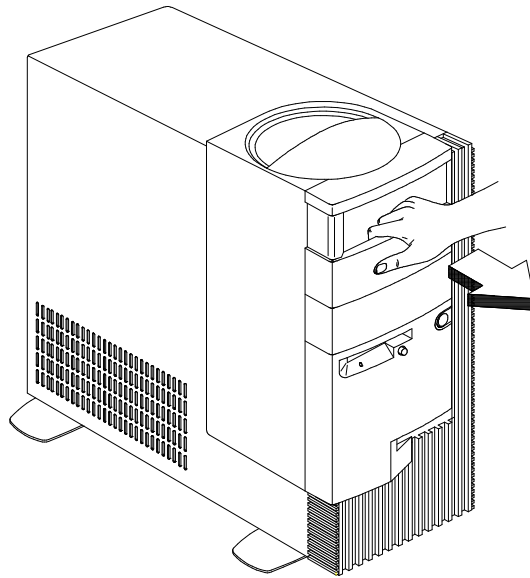


Figure 4- 30 Remove the drive bay panel

NOTE: Removing the system cover, exposes metal plates in front of each unpopulated drive bay. Push back and break-off these metal plates before installing additional drives.

Use a screwdriver to push back the metal bay plate. After pushing the metal cover for about an inch, you may use your hand to push it all the way to a 90-degree angle.

NOTE: To Reinstall A Bay Panel

- Insert a bay panel into the opening at the front of the system cover, aligning the panel latches with the sides of the unit.
- Push the panel back until you hear the latches click into place.

Bays 1, 2, 3 (5.25-In. Internal/External Bays)

- Disconnect all cables on the drive (note location of cables).
- Remove the screws.
WARNING: For 5.25-In. Hard Disk Drive installation, it uses different screws from 3.5-In. Hard Disk Drive which may be installed in Bay 5.
- Pull out the drive.

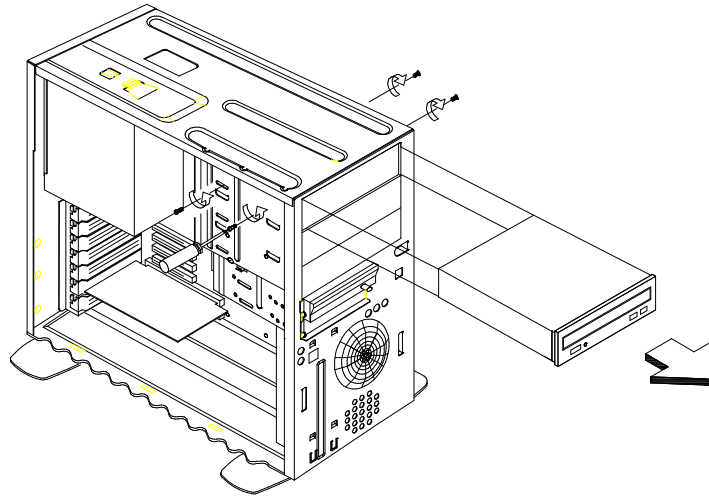


Figure 4- 31 Bay 1(5.25-in.)

Bay 4, 5 (3.5-In. Diskette/Hard Disk Drives)

- Disconnect the cables (note location of cables).
- Press the lever and rotate outward.
- Pull carefully and slowly as soon as the warning arrow appears.
- The drive frame becomes free after the line behind the arrow appears. Remove the frame from the chassis.

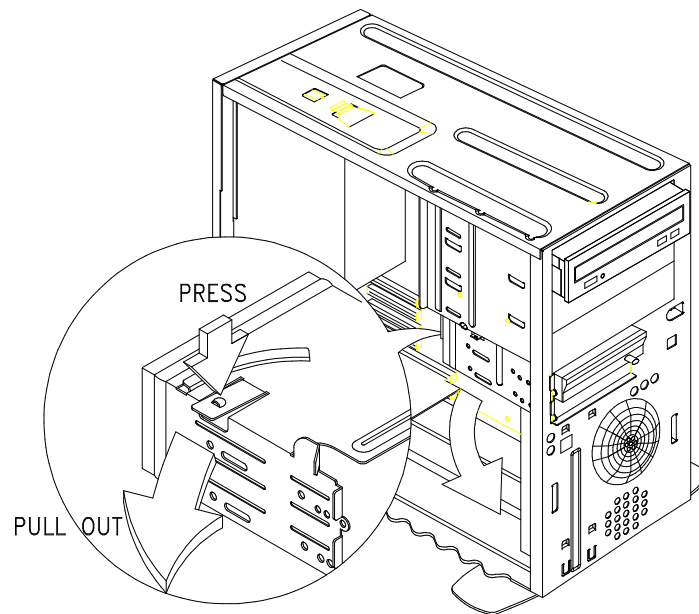


Figure 4- 32 Bay 4 (3.5-In)

NOTE: Reinstall The 3.5-in Drive Frame

- Align the front notch of the drive frame with the system chassis
- Align the top rail of the drive frame with the system chassis and swing inward until it "clicks" to lock.

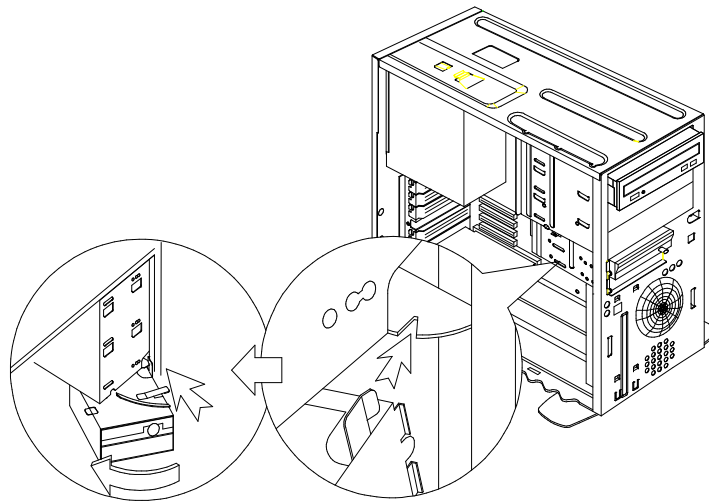


Figure 4- 33 Reattach the 3.5-inch drive

- Re-attach the power and signal cables to the drives.

Power Supply

- Disconnect all necessary cables before removal (note location of cables).
- Remove the two screws from the chassis.
- Press the tab located on top of the housing frame just above the power supply.
- Push the power supply forward towards the CD-ROM drive to detach it from the chassis.

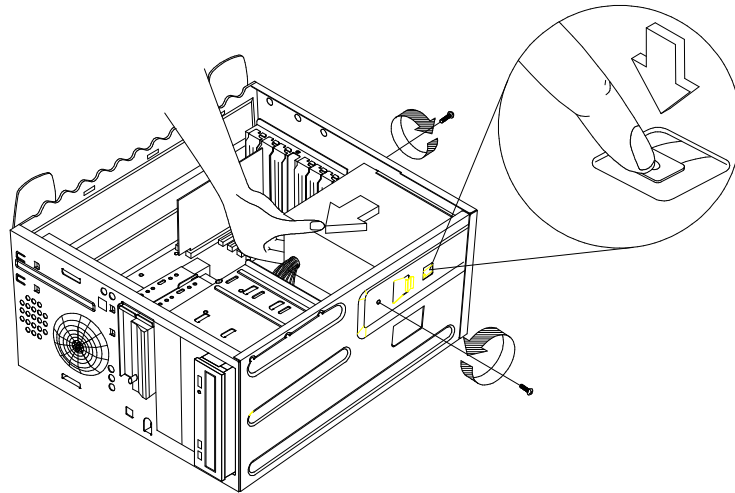


Figure 4- 34 Remove the power supply

- Detach the power supply from the frame by removing it's four screws.

NOTE: Replacing the Power Supply

- Insert the power supply frame into its corresponding cut-away openings on the chassis.
- Align the top rails and slide in to lock.
- Secure the power supply with its two original screws.

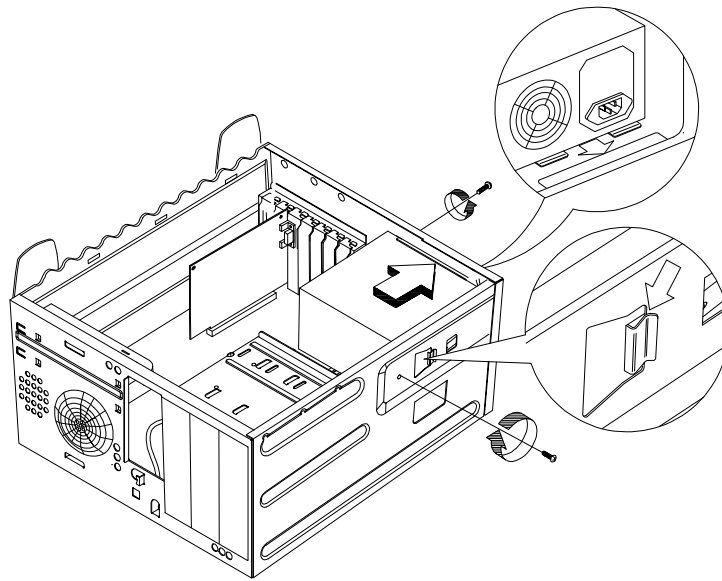


Figure 4- 35 Replacing the Power Supply

Adapter Cards

NOTE: 1. Before removing an adapter card, note the location of the adapter card and any cables. When removing an adapter card, install the replacement card in the same slot as the one you removed.

2. If necessary, remove cards from the adjacent slots of the failed card.

- Position the system unit such that the card is accessible to you.
- If the adapter card has cables, disconnect them. Be sure to take note of where those cables are connected. You will need to reconnect those cables when you reinstall the card.
- Remove the adapter card screw.
- Carefully pull the adapter card straight out of the slot so that the card does not bend.

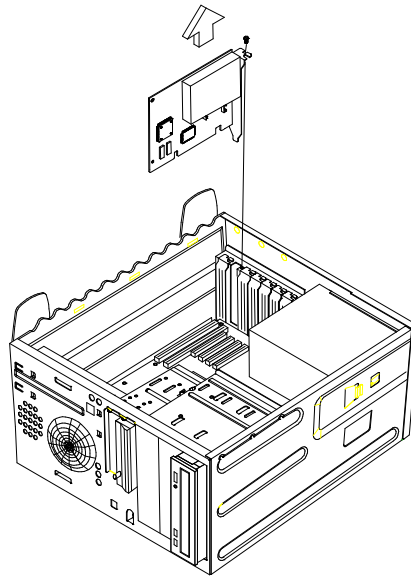


Figure 4- 36 Removing Adapter Cards

Memory(DIMM)

ATTENTION: Memory modules are sensitive to static discharge.

- Press the levers on both sides of the socket down and outwards.
- Lift the DIMM to remove.

CAUTION: Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

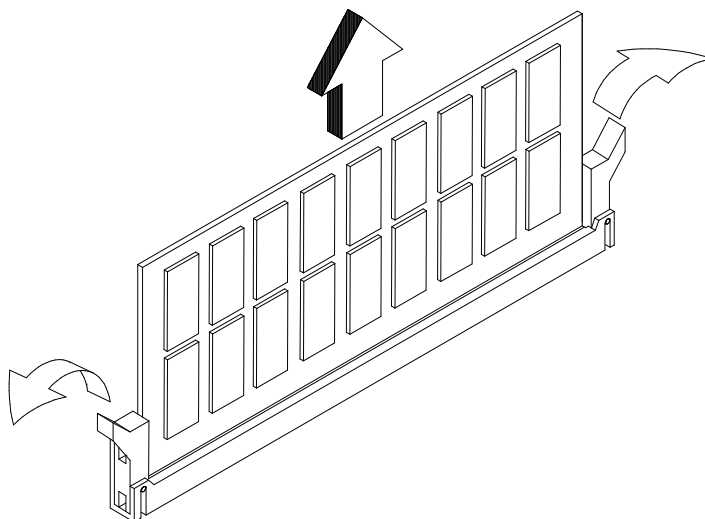


Figure 4- 37 Removing memory modules (DIMM)

Pentium II Processor Module

Follow these steps to remove the Pentium II CPU module from the slot.

NOTE: Determine the type of processor you are installing and make sure the jumpers are set correctly. Run the Setup Utility after correctly installing a processor.

ATTENTION: Processors are sensitive to static discharge.

- Unlock the latches that secure the processor module.

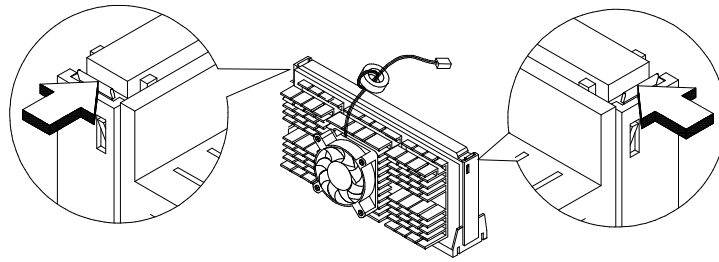


Figure 4- 38 Unlocking the Module Latches

- Firmly hold the processor module and pull it out of the socket.

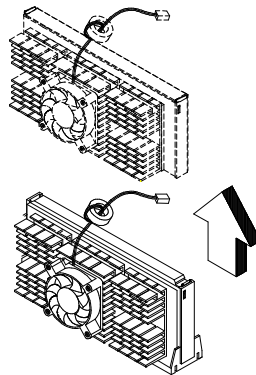


Figure 4- 39 Removing the Pentium II Processor

NOTE: Pentium II Processor Installation

Follow these steps to install the Pentium II processor module with heat sink and fan to the socket on the system board

- Place the retention mechanism over the processor socket on the CPU board. Secure it with the screws that came with the package.

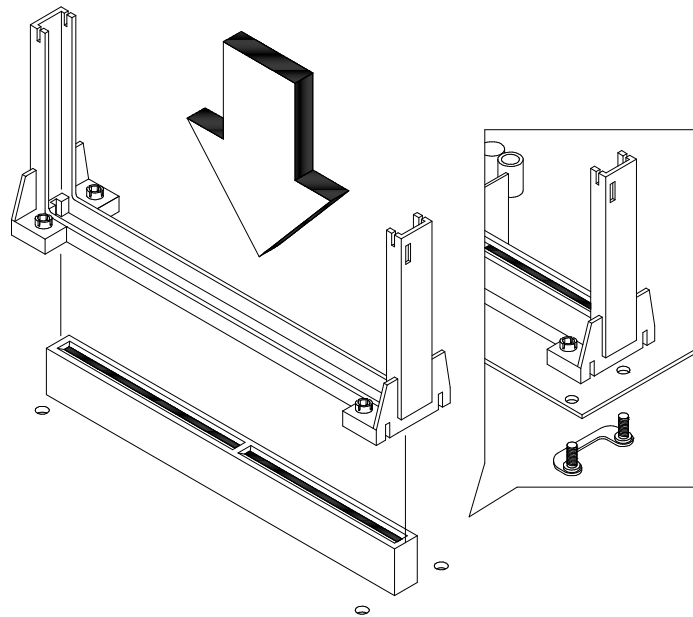


Figure 4- 40 Installing the Pentium II Retention Mechanism

- With the processor module golden fingers pointing downward, align the processor to the posts of the retention mechanism, then lower it down.
- The golden fingers of the Pentium II module are slotted in such a way that the module only fits in one direction. Make sure that the module groove matches the one on the processor socket.

Installing the Processor Heat Sink and Fan

The Pentium II processor module comes with holes on one side to hold the clips of the heat sink and fan. The upper set of holes (near the latches) on the processor are wider and should match the wider ends of the clips on the heat sink. The lower set of holes are smaller and should match the narrow ends of the heat sink clips.

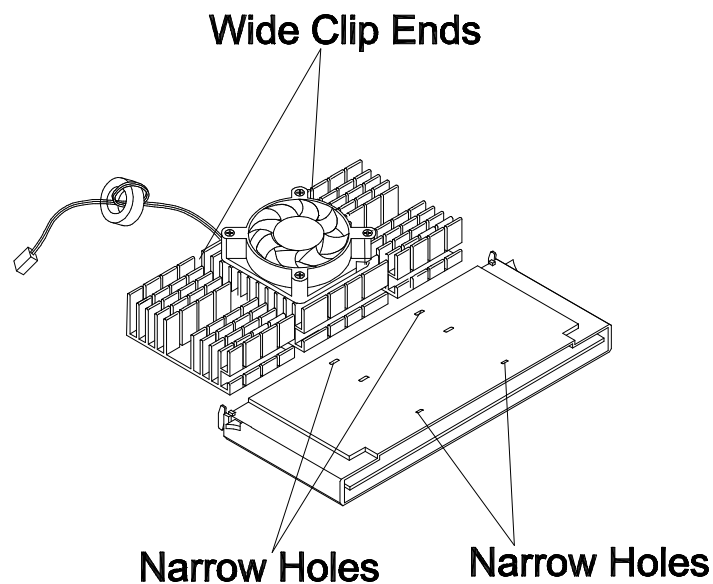


Figure 4- 41 Matching the Fan-Heat Sink Clips with the Holes on the Processor

Follow these steps when installing the heat sink and fan to the Pentium II processor module:

- Remove the thermal tape protector at the back of the heat sink.
- Insert the wide clip ends to the wide holes on the processor and the narrow clip ends to the narrow holes.

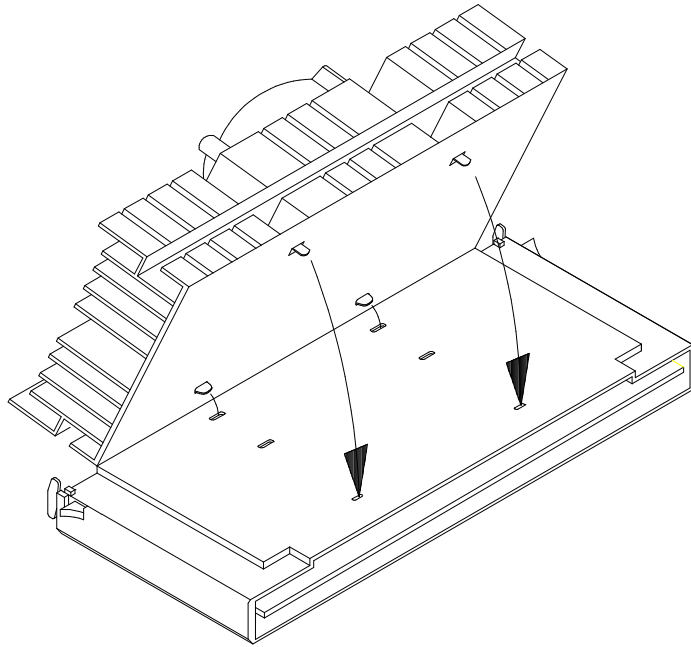


Figure 4- 42 Inserting the Clip Ends to the Processor Holes

- Use a screwdriver to press and lock in the wide end of a clip first. Then without lifting the screwdriver, point it downward to press and lock the narrow end of the clip.

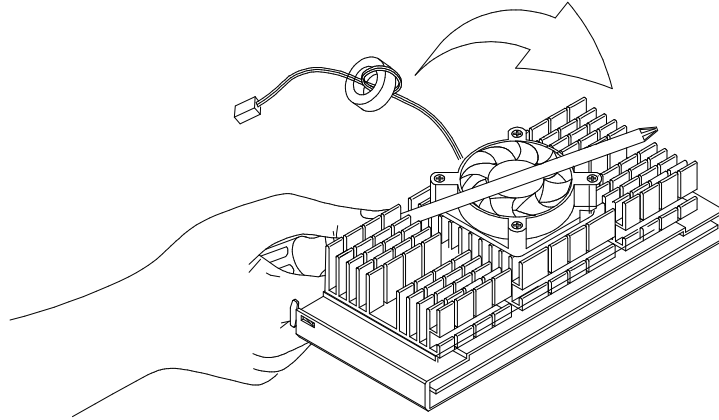


Figure 4- 43 Locking a Wide Clip End

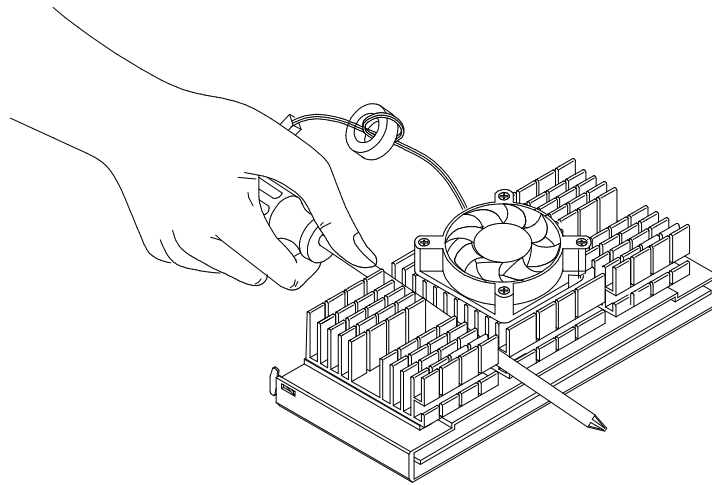


Figure 4- 44 Locking a Narrow Clip End

- Repeat to lock clip on the other side.

System Backup Battery

CAUTION: All BIOS configuration settings will be lost when the backup battery is removed!

ATTENTION: Be careful when removing the backup battery. If the metal lever is damaged or broken, the system board must be replaced.

- Gently pull the metal lever away from the backup battery.
- Lift the backup battery out.

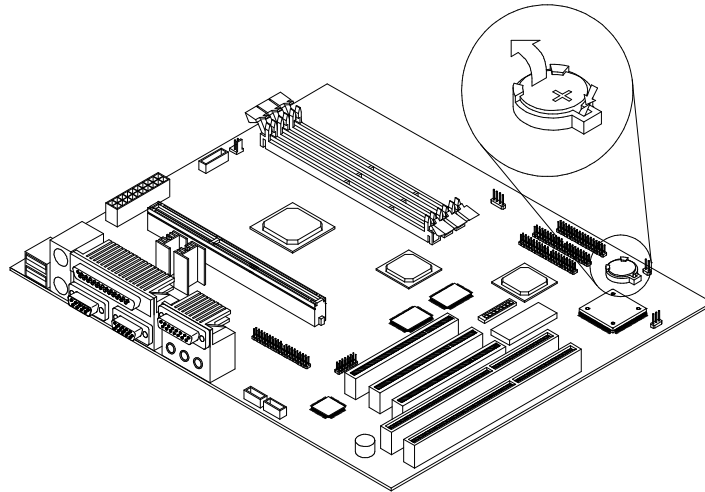


Figure 4- 45 Remove the backup battery

IMPORTANT: Make sure to insert the battery with the positive side facing up. A plus(+) sign indicates the positive side.

- If you replace the system battery, you need to reset the system date and time. You can perform this task from the Windows 98 desktop or from the Setup Utility. To reset the system date and time in the Setup Utility, select the Date and Time option from the Main Menu.

Indicator LED and Cable

- Push in on the indicator LED and remove from the rear.
- Disconnect the LED and cable from the system board.

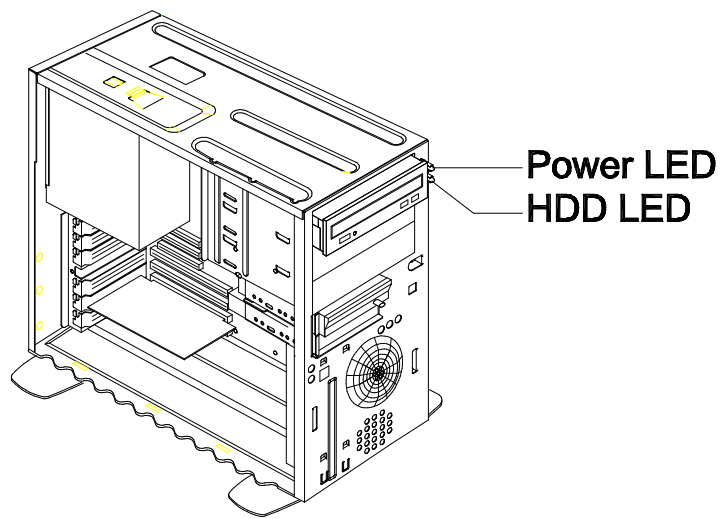


Figure 4- 46 Removing the LED indicator

System Board

- Remove all adapter cards.
- Disconnect all cables connected to the system board.
- Remove the screws securing the system board to the chassis.
- Lift the system board to remove from chassis.
- Remove memory (DIMM) if applicable.
- Remove processor.

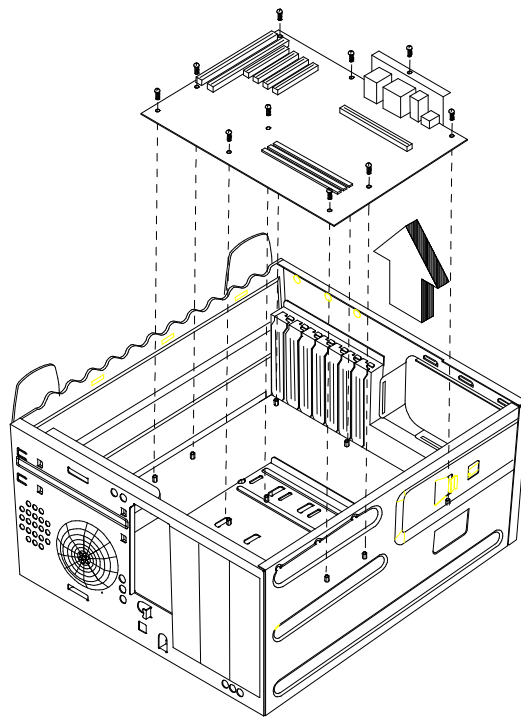


Figure 4- 47 Removing the system board

NOTE: System Board Installation

- Before you re-install the new system board, the CPU retention module and the I/O Port Bracket should be assembled on the system board if they are not already installed.
- Be sure to reinstall the processor and DIMMs onto the new system board if applicable.
- Before reinstallation, position the housing on it's side. When reinstalling a new system board, push the board to the rear and align it with the front locating pin. Visually verify that the board is aligned properly, then press the board down
- After installing the system board, secure with it's original screws.
- Run the Setup Utility after correctly changing the system board.
- Upgrade the BIOS version on the new system board. See "Flash (BIOS) Update Procedure" on page 1-10.
- Run the Setup Utility after correctly changing the system board. See "BIOS Setup Utility" on page 1-12.
- Change the Machine Type and Serial Number in the BIOS for the new system. See "BIOS-contained Model Number and Serial Number" on page 1-11.

Handling ESD-Sensitive Parts

Many electronic parts are sensitive to electrostatic discharge (ESD). To prevent damage when working with ESD-sensitive parts, observe the following instructions. Do these in addition to taking all the usual precautions, such as switching off the power and unplugging the power cord.

- Keep the ESD-sensitive part in its original shipping container (or special ESD bag) until you are ready to install the part.
- Make the fewest possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Ensure the machine is turned off. Connect the wrist strap to the serial bracket mounting screw. This discharges any static electricity in your body to the machine frame.
- Hold the ESD-sensitive part by its edge connector shroud (cover). Do not touch its pins. If you are removing a plug-able module, use the correct tools.
- Do not place the ESD-sensitive part on the machine cover or on a metal table. If you need to put down the ESD-sensitive part for any reason, put it into its original container.
- Machine covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other persons. Reinstall machine covers when you are not working on the machine.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet.
- Be extra careful when working with ESD-sensitive parts while cold-weather heating is being used. Low humidity increases static electricity.

Software Recovery Procedure

The Recovery CD includes an install program that can be used to restore the original system software.

To recover the original software on the hard disk drive, use the following procedures:

1. Insert the Recovery CD into the CD-ROM drive.
2. Power-off, then power-on the system unit.
3. You will be prompted with a message.
“Do you wish to update the software on your hard disk (Y/N)?”
Press “y” to continue.
4. A warning message will show.
“ Do you accept these terms and conditions (Y/N)?”
Press “y” to continue.
5. A message will appear telling you that old data will be erased and asks if you wish to continue. If you wish to continue, press enter.
If your hard disk drive is not partitioned, the following message will be displayed.
“Do you want to partition it (Y/N)?”
Press “y” to continue, then press any key to reboot.
6. Follow the instructions on the display (Auto-formatted and copied.).

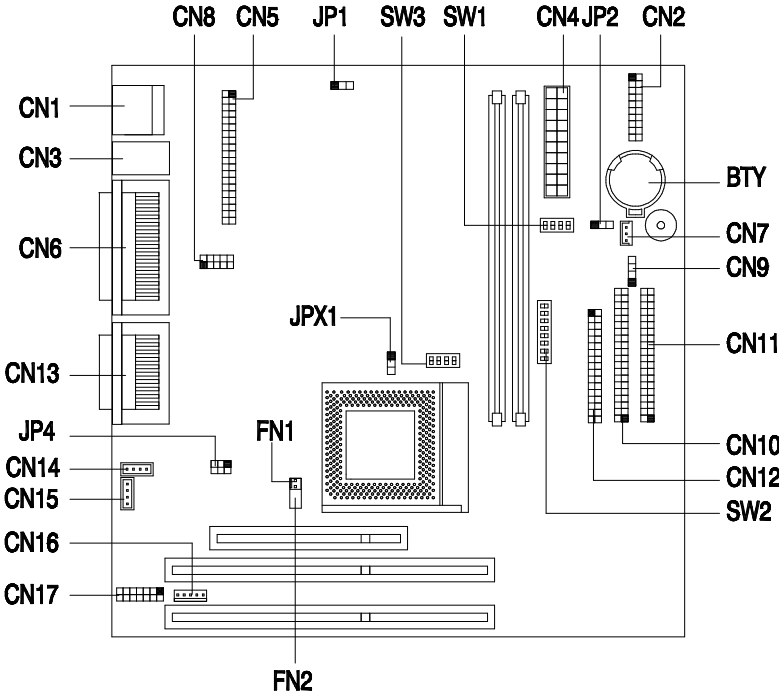
Parts/Test Point Locations

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Introduction

This chapter contains system board layouts and jumper settings. It is useful when you are asked to measure voltages. Use this information to help you locate parts such as electronic boards, connectors, pin numbers, and test points. This chapter also contains jumper settings for the hard disk drive, CD/DVD-ROM (compact disc-read-only memory) drive, and the connector information for modem adapter card.

Machine Type 2153/K6 System Board Layout



NOTE: The blackened pin of a jumper represents pin 1.

Figure 5- 1 Machine Type 2153 System Board Jumper and Connector Locations

**2153/K6 System Board Jumper Settings
(00K8747, 20I2184 and 36L9051)**

Table 5- 1 Machine Type 2153 System Board Jumper Settings						
Jumper/Settings			Function			
JPX1 1-2 2-3 ^{*#}			CPU Type AMD K6S-300 Other CPUs			
JP1 1-2 ^{*#} 2-3			VGA Interrupt Disabled Enabled			
SW1(B1) On Off ^{*#}			Hardware Monitor Function Enabled Disabled			
SW1(B2, B3, B4)			Bus Frequency(MHz)			
<u>CY2283-1</u>		<u>Y2283-3</u>	<u>CPU</u>	<u>AGP</u>	<u>PCI</u>	
Off, On, Off		Off, On, Off	66	66	33	
Off, Off, Off		--, --, --	75	60	30	
On, On, Off		On, On, Off	83	66	33	
--, --, --		Off, Off, Off	95 [#]	64	32	
On, Off, Off		On, Off, Off	100*	66	33	
SW2			CPU Core Clock Multiplier			
<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>P55C</u>	<u>M2</u>	<u>K6</u> [#]	
Off	Off	Off	3.5	3.5	3.5 [#]	
On	Off	On	2.0	2.0	4.0	
Off	On	Off	3.0	3.0	3.0*	
On	On	Off	2.5	2.5	2.5	
On	On	On	--	--	4.5	
On	Off	Off	--	--	2.0	
Off	On	On	--	--	5.0	
Off	Off	On	--	--	5.5	

* Default settings for 00K8747 & 20L2184

Default settings for 36L9051

Table 5- 1 Machine Type 2153 System Board Jumper Settings	
Jumper/Settings	Function
SW2 <u>B4</u> <u>B5</u> <u>B6</u> <u>B7</u> <u>B8</u> Off On On Off On Off On On Off Off Off On Off Off On Off On Off Off Off Off Off Off On On Off Off Off On Off	CPU Core Voltage 3.3V 3.2V 2.9V 2.8V 2.3V 2.2V [#]
SW3(B1) Off On [#]	AMD K6S-300 Voltage Select 3.6V 3.45V
SW3(B2) On [#] Off	Password Checking Check password Bypass password
SW3(B3, B4) <u>CY2283-1</u> <u>Y2283-3</u> Off, Off Off, Off On, Off --, -- Off, On Off, On --, -- On, Off On,On On, On	M1542 Bus Frequency 66 MHz 75 MHz 83 MHz 95 MHz [#] 100 MHz *

* Default settings for 00K8747 & 20L2184.

Default settings for 36L9051

2153/K6 Processor Type Jumper Settings

WARNING: You must verify the exact processor type before setting the processor type jumpers. The wrong processor type jumper setting may damage the CPU. The system only supports dual-voltage CPU.

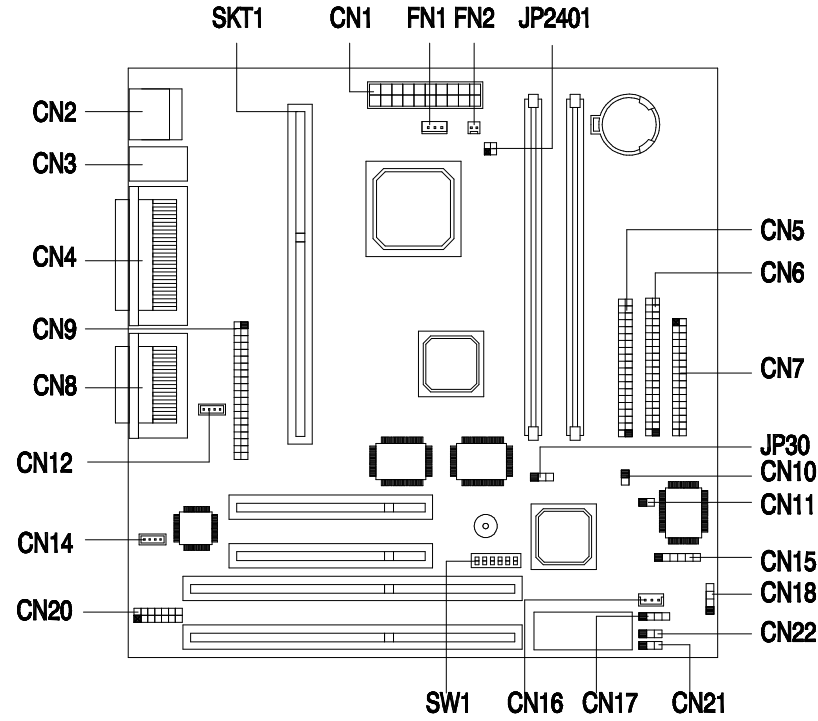
Table 5- 2 Machine Type 2153 Processor Type Jumper Settings															
CPU	SW1			SW2								SW3			JPX1
	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
	2	3	4	1	2	3	4	5	6	7	8	1	3	4	
K6-2 266 66MHz	F	N	F	N	F	N	F	F	F	N	F	N	F	F	2-3
K6S 300 66MHz	F	N	F	N	N	N	F	F	F	N	F	N	F	F	1-2
K6-2 300 66MHz	F	N	F	N	N	N	F	F	F	N	F	N	F	F	2-3
K6-2 300 100MHz	N	F	F	F	N	F	F	F	F	N	F	N	N	N	2-3
K6-2 333 95MHz	F	F	F	F	F	F	F	F	F	N	F	N	N	F	2-3
K6-2 350 100MHz	N	F	F	F	F	F	F	F	F	N	F	N	N	N	2-3

N-On, F-Off

2153/K6 System Board Connectors and Functions

Table 5- 3 System Board Connector Functions	
Connector	Function
CN1	USB port
CN2	Power LED (pins 1-3) HDD LED (pins 4-7) Reset button (pins 8-9) Power button (pins 10, 20) IrDA connector (pins 14-19) Turbo LED (pins 11-13)
CN3	Lower: PS/2 keyboard port Upper: PS/2 mouse port
CN4	ATX power connector
CN5	ATI AMC feature connector
CN6	Upper: Printer port Lower: VGA port (right) COM2 port (left)
CN8	COM1 port
CN9	Modem ring-in connector
CN10	IDE2 connector
CN11	IDE1 connector
CN12	Floppy disk drive connector
CN13	Upper: MIDI/game port Lower: (R-to-L) Microphone-in port Stereo line-in port Stereo line-out port
CN14	Fax/voice connector
CN15	CD-in connector
FN1	2-pin CPU fan connector

Machine Type 2153/Celeron System Board Layout



NOTE: The blackened pin of a jumper represents pin 1.

Figure 5- 2 Machine Type 2153 System Board Jumper and Connector Locations

2153/Celeron System Board Jumper Settings

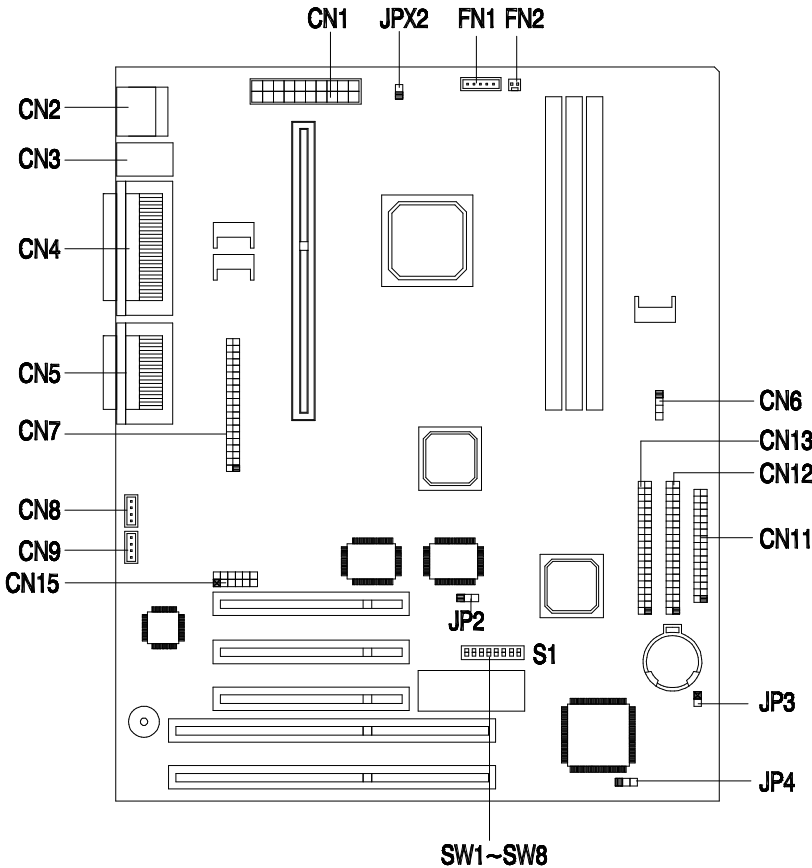
Table 5- 4 Machine Type 2153 System Board Jumper Settings	
Jumper/Settings	Function
SW1 On Off*	Password Bypass password Check password
SW2 On* Off	BIOS Logo OEM Acer
SW3, 4, 5, 6 On, Off, Off, On Off, On, On, On Off, On, Off, On Off, Off, On, On	CPU Frequency(MHz) 233=66MHz x 3.5 266=66MHz x 4 300=66MHz x 4.5 333=66MHz x 5

2153/Celeron System Board Connectors and Functions

Table 5- 5 System Board Connector Functions	
Connector	Function
CN1	ATX 20-pin power connector
CN2	USB ports
CN3	Upper: PS/2 mouse port Lower: PS/2 keyboard port
CN4	Upper: Parallel port Lower: VGA port (left) COM1 port (right)
CN5	Primary IDE connector
CN6	Secondary IDE connector
CN7	Floppy disk drive connector
CN8	Upper: Game/MIDI port Lower: (L-to-R) Stereo line-out port Stereo line-in port Mono microphone-in port
CN9	ATI Multimedia Connector(AMC)
CN10	Power switch connector
CN11	Reset connector
CN12	Modem microphone-in and speaker-out connector
CN14	CD line-in connector
CN15	IrDA connector
CN16	Wake-on LAN connector
CN17	Modem ring-in connector
CN18	HDD LED connector
CN19	System speaker connector
CN20	Audio connector(for CS4610 adapter card)
CN21	Turbo LED connector
CN22	3-Pin power connector
FN1	3-Pin fan connector

Table 5- 5 System Board Connector Functions	
Connector	Function
FN2	2-Pin fan connector
JP2401	Thermal sensor connector 1-2: SYS TMP 3-4: CPU TMP

Machine Type 2139 System Board Layout



NOTE: The blackened pin of a jumper represents pin 1.

Figure 5- 3 System Board (Machine Type 2139) Jumper and Connector Locations

2139 System Board Jumper Settings

Table 5- 6 System Board Jumper Settings	
Jumper/Settings	Function
J1 1-2 2-3	Audio Resource Protection Write Protected Programmable
JP2 1-2 2-3	VGA IRQ Disable IRQ Enable IRQ
S1, SW 1 On Off*	Host Bus Clock Selection 66MHz 100MHz
S1, SW 2 On Off*	Password Check Bypass password Check password
S1, SW 3,4	Reserved
S1, SW 5,6,7,8 On, On, On, On On, Off, On, On Off, On, On, On Off, Off, On, On On, On, Off, On On, Off, Off, On Off, On, Off, On Off, Off, Off, On	Slot1 Core/Bus Clock Ratio 2 3 4 5 5/2 7/2 9/2 11/2

2139 System Board Connectors and Functions

Table 5- 7 System Board Connector Functions		
Connector	Function	Connect to...
CN1	ATX power connector	Power supply
CN2	Universal Serial Bus (USB) connector	USB device
CN3	Upper: PS/2 mouse connector Lower: PS/2 keyboard connector	Keyboard Mouse
CN4	Upper: Printer port (25-pin female) Lower: Serial port 1 (9-pin male) Video port (15-pin female)	Printer Serial device Monitor
CN5	Upper: MIDI connector Lower: Mic-in/Line-in/Line-out connectors	Joystick Speaker, microphone
CN6	IDE LED connector Connect the red wire to pin-1, white wire to pin-2, then leave pin-3, -4 as non-connected; or connect the red wire to pin-4, white wire to pin-3, then leave pin-1, -2 as non-connected.	Hard drive LED
CN7	ATI media connector (AMC)	Reserved
CN8	Modem/Line-in connector	Modem card
CN9	CD/DVD audio input connector	CD/DVD-ROM drive
CN10	Modem wake up on ring connector	Modem card
CN11	Diskette drive connector	Diskette drive
CN12	Primary IDE connector	Hard disk drive
CN13	Secondary IDE connector	Hard disk drive
CN15	CS4610 adapter feature connector	Reserved
JP4	Power LED connector Connect the green wire to pin-1, white wire to pin-3.	Power LED
FN1,2	Processor heat-sink fan connector	Processor fan

Power Supply Cable Connector Specifications

Refer to the following figures when checking for voltages on power supply cable connectors.

When checking voltages, the power supply fan must be running. To power-on the power supply without using the on/off switch, use a screw driver or other tool to short the connector CN2, pins 10, 20 (for 2153) or CN10 (for 2139) or use a connection (jumper) to short the black and green wires of the 20-pin connector on power supply.

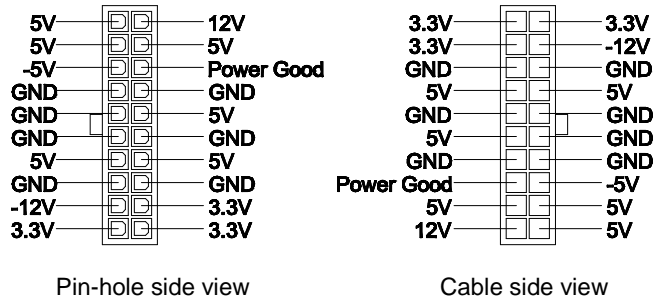


Figure 5- 4 Power Supply Connector

Power Supply Output Pin Assignment

Pin	Function	Color
1	3.3V	Orange
2	3.3V	Orange
3	Ground	Black
4	5V	Red
5	Ground	Black
6	5V	Red
7	Ground	Black
8	Power Good	Gray
9	5V	Purple
10	12V	Yellow
11	3.3V	Orange

Table 5- 8 Power Supply Output Pin Assignment		
Pin	Function	Color
12	-12V	Blue
13	Ground	Black
14	Power-on control, 5V default	Green
15	Ground	Black
16	Ground	Black
17	Ground	Black
18	-5V	White
19	+5Vdc	Red
20	+5Vdc	Red

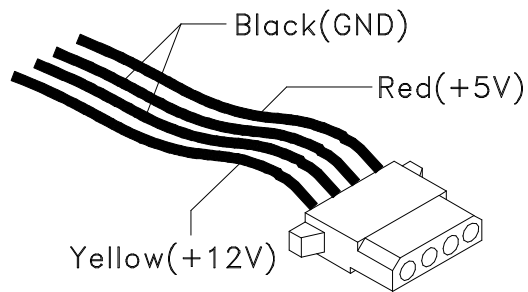


Figure 5- 5 Hard Drive or CD/DVD-ROM Power Cable Connector

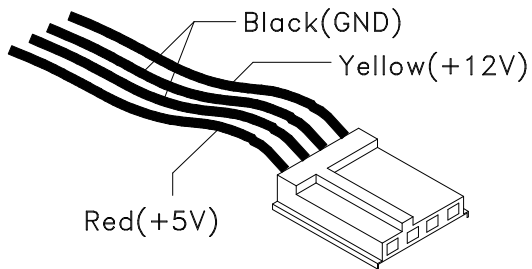


Figure 5- 6 3.5-In. Diskette Drive Power Cable Connector

Factory-Installed Modem Card Layout

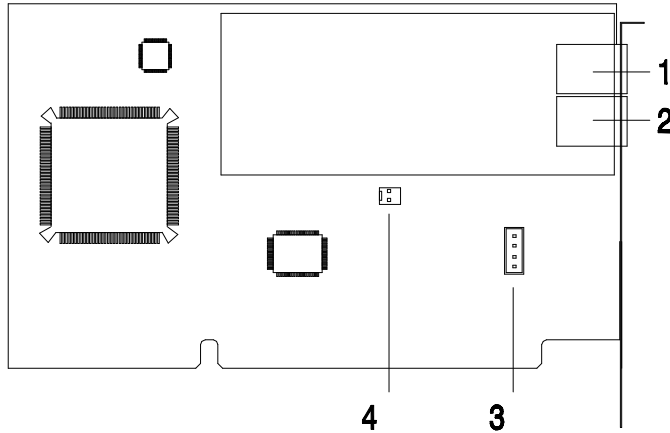


Figure 5- 7 Factory-Installed Modem Card Layout

Factory-Installed Modem Card Connector Functions

Item	Function	Connect to...
1	Telephone line-out Some modem adapters may come without this jack.	Telephone set
2	Telephone line-in	Telephone line
3	Voice-in/speaker-out connector	System board Machine Type 2153: CN14 Machine Type 2139: CN8
4	Ring-in wake-up connector	System board Machine Type 2153 CN9 2139 CN10

NOTE: Care should be taken while connecting the voice-in/speaker-out connector. The longer exposed end (approx 15mm) of the cable should be connected to the modem card. The other end should be connected to the system board.

3.5-In. Hard Disk Drive Jumper Locations (For 2153)

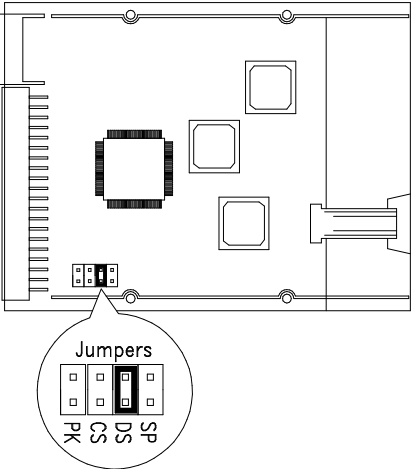


Figure 5- 8 3.5-In. Hard Disk (Quantum Fireball TM Series) Jumper Locations

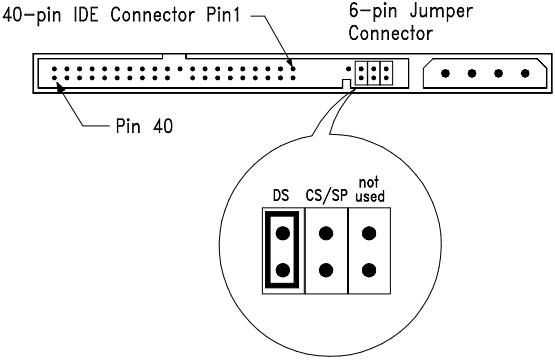


Figure 5- 9 3.5-in Hard Disk (Quantum Fireball ST Series) Jumper Locations

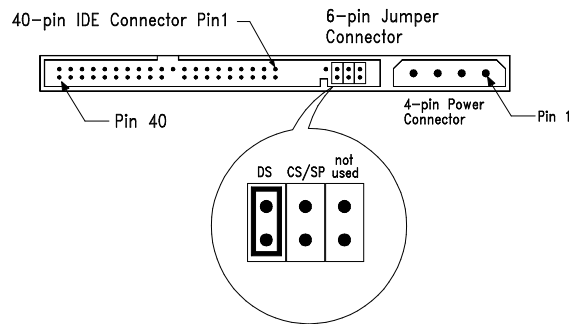


Figure 5- 10 3.5-in Hard Disk (Seagate) Jumper Settings Locations

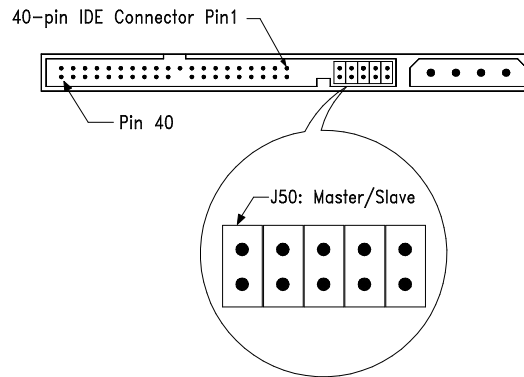


Figure 5- 11 3.5-in Hard Disk (Maxtor) Jumper Settings Locations

3.5-In. Hard Disk Drive Jumper Settings

The configuration of the following jumpers controls the drive's mode of operation:

- SP – Slave Present
- DS – Drive Select
- CS – Cable Select
- PK – Park, used as a place to store a jumper

Quantum Fireball TM and ST Series Hard Disk Drives

Table 5-10 Quantum Fireball TM and ST Series Hard Disk Drives Jumper Settings			
DS	CS	SP	Description
On	Off	--	Drive configured as a Master, or Drive configured as a Master, with an attached Slave
Off	Off	--	Drive configured as a Slave.

Seagate Hard Disk Drive

Table 5-11 Seagate Hard Disk Drive Jumper Settings		
DS	CS/SP	Description
On	Off	Drive configured as a Master.
Off	Off	Drive configured as a Slave.
On	On	Drive configured as a Master, with an attached Slave

Maxtor Hard Disk Drive

Table 5-12 Maxtor Hard Disk Drive Jumper Settings	
J50:Master/Slave	Description
On	Drive configured as a Master, or Drive configured as a Master, with an attached Slave
Off	Drive configured as a Slave.

3.5-In. Hard Disk Drive Jumper Locations (For 2139)

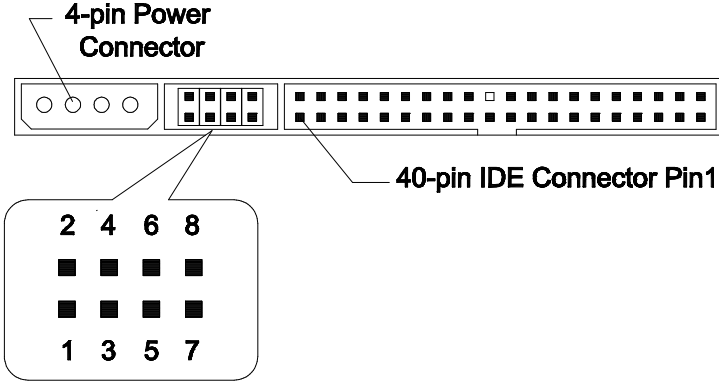


Figure 5- 12 3.5-in Hard Disk (Quantum) Jumper Settings Locations

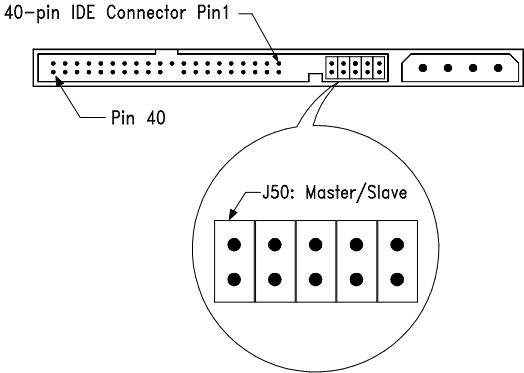


Figure 5- 13 3.5-in Hard Disk (Maxtor) Jumper Settings Locations

3.5-In. Hard Disk Drive Jumper Settings

The configuration of the following jumpers controls the drive's mode of operation:

- SP – Slave Present
- DS – Drive Select
- CS – Cable Select
- PK – Park, used as a place to store a jumper

Seagate Hard Disk Drive

Table 5-13 Seagate Hard Disk Drive Jumper Settings		
DS	CS/SP	Description
On	Off	Drive configured as a Master.
Off	Off	Drive configured as a Slave.
On	On	Drive configured as a Master, with an attached Slave

Maxtor Hard Disk Drive

Table 5-14 Maxtor Hard Disk Drive Jumper Settings	
J50:Master/Slave	Description
On	Only drive in single drive system, or Master drive in dual drive system
Off	Slave drive in dual drive system

5.25-In Hard Disk Drive Jumper Locations (For 2153)

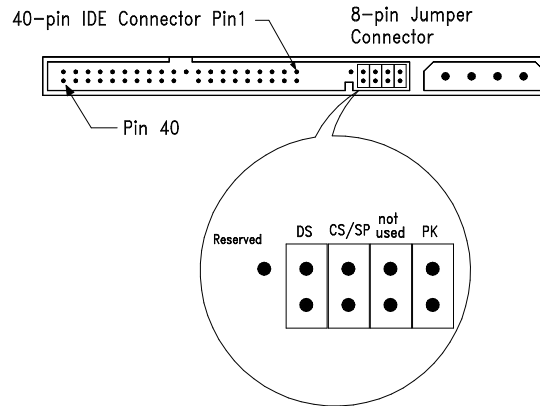


Figure 5- 14 5.25-in Hard Disk Jumper Locations

The configuration of the following four jumpers controls the drive's mode of operation:

- DS – Drive Select
- CS/ SP–Cable Select / Slave Present
- PARK – Used as a place to store a jumper

5.25-In Hard Disk Drive Jumper Settings

Table 5-15 5.25-in Hard Disk Drive Jumper Settings		
DS	CS/SP	Description
On	Off	Drive configured as a Master.
Off	Off	Drive configured as a Slave.
On	On	Drive configured as a Master, with an attached Slave

5.25-In. Hard Disk Drive Jumper Locations (For 2139)

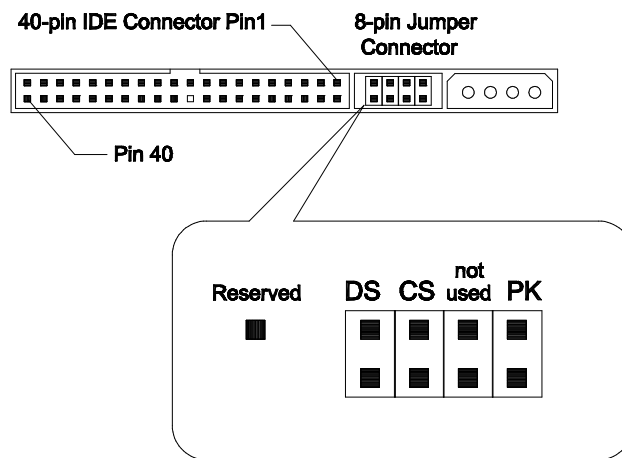


Figure 5- 15 5.25-in Hard Disk Jumper Locations

The configuration of the following four jumpers controls the drive's mode of operation:

- DS – Drive Select
- CS–Cable Select
- PARK – Park or Store position

5.25-In. Hard Disk Drive Jumper Settings

Table 5-16 5.25-in Hard Disk Drive Jumper Settings		
DS	CS/SP	Description
On	Off	Drive is configured as a Master.
Off	Off	Drive is configured as a Slave.
On	On	Drive is configured as a Master, with an attached Slave that supports DASP

CD-ROM Drive

ATTENTION: Either <option 1> or <option 2> CD-ROM drive may come with your Aptiva machine. Their front panel buttons, indicators and emergency eject method may be different.

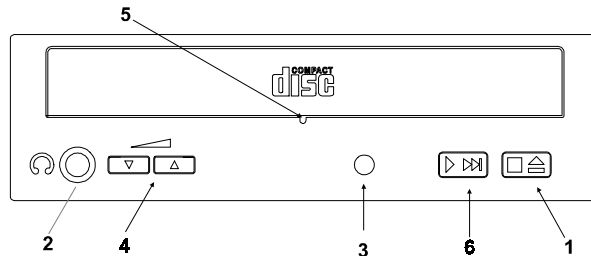
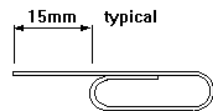


Figure 5- 16 CD-ROM Front Panel <option 1>

Item	Description
1	Load / eject button
2	Headphone jack
3	Power-on / busy indicator, lights up in green color while disc is set in ready state; lights up and flashes in amber color during data read or seek operation.
4	Headphone volume control
5	Emergency eject hole. See CD-ROM Emergency-exit <option 1> below.
6	Audio Play/Skip track control button

CD-ROM Emergency-exit <option 1>



If for any reason the tray does not eject automatically, insert and press an eject-bar inside the emergency eject hole to manually eject the tray. A straightened paper clip with a diameter of 1.2 mm (typical) can be used as an eject-bar.

NOTE: Make sure to turn off the power before manual disc eject operation.

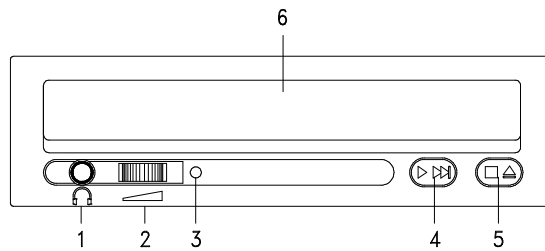
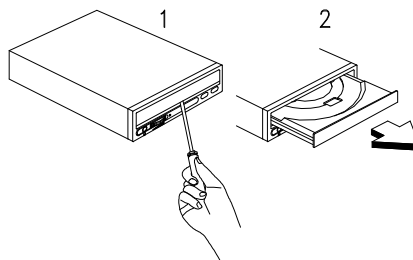


Figure 5- 17 CD-ROM Front Panel <option 2>

Item	Description
1	Headphone jack
2	Headphone volume control
3	Busy indicator, lights up and flashes in amber color during data read or seek operation.
4	Audio Play/Skip track control button
5	Load / eject button
6	Disc tray and emergency eject See CD-ROM Emergency-exit <option 2> below.

CD-ROM Emergency-exit Option <2>



Locate the bottom edge of the disc tray. Gently pry the disc tray open with a screwdriver. When the disc tray opens, simply remove the disc from the CD-ROM drive.

CD-ROM Drive Rear Panel Connectors and Features

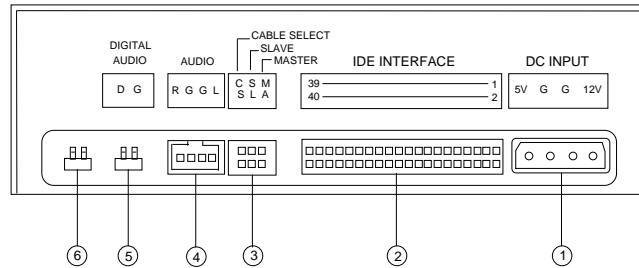


Figure 5- 18 CD-ROM Rear Panel

Note: CD-ROM drives may come with no item 5 and 6 (digital audio output and testing jumper) connectors.

Item	Function	Connect to...
1	Power supply connector	Power supply
2	Interface connector	System board (CN10)
3	Configuration jumper. See Table 5-20.	--
4	Audio line out connector	System board (CN15)
5	Digital audio output	--
6	Testing jumper is reserved for manufacturer internal testing purposes.	--

CD-ROM Drive Jumper Settings

CS	SL	MA	Description
--	--	On	Drive configured as a Master. (default)
--	On	--	Drive configured as a Slave.
On	--	--	Cable select

DVD-ROM Drive

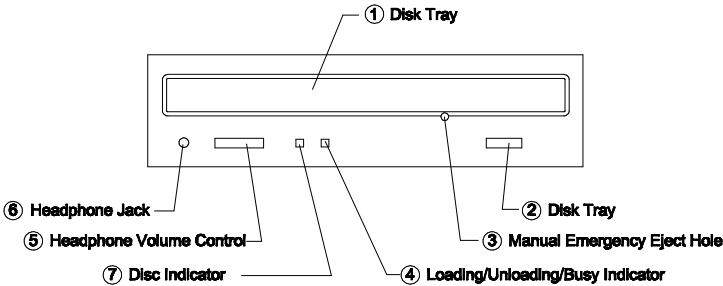
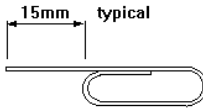


Figure 5- 19 DVD-ROM Front Panel

Item	Description
1	Disc Tray
2	Open/Close Button
3	Loading/Unloading/Busy Indicator
4	Loading/Unloading
5	Headphone Volume Control
6	Headphone Jack
7	Disc Indicator

DVD-ROM Emergency-exit



If for any reason the tray does not eject automatically, insert and press an eject-bar inside the emergency eject hole to manually eject the tray. A straightened paper clip with a diameter of 1.2 mm (typical) can be used as an eject-bar.

NOTE: Make sure to turn off the power before manual disc eject operation.

DVD-ROM Drive Rear Panel Connectors and Features

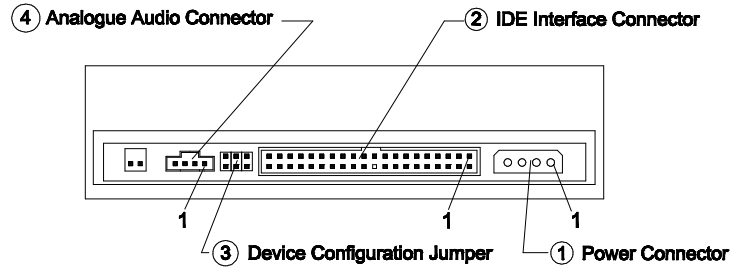


Figure 5- 20 DVD-ROM Rear Panel

Item	Function	Connect to...
1	Power connector	Power supply
2	IDE Interface connector	System board (CN13)
3	Device Configuration jumper. See Table 5-20.	--
4	Analogue Audio connector	System board (CN9)

DVD-ROM Drive Jumper Settings

CS	SL	MA	Description
--	--	On	Drive configured as a Master (default).
--	On	--	Drive configured as a Slave.
On	--	--	Cable select

DIMM Configurations

The 2153 system board has two DIMM sockets. A maximum of 256KB memory may be installed. The 2139 system board has three DIMM sockets. A maximum of 384KB memory may be installed.

You can install 16MB, 32MB, 64MB, or 128MB PC-100 DIMM in any sockets and with any combinations.

System Board Connector Pin Signals

Monitor Port Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Red Video	O	9	+5 V dc	
2	Green Video	O	10	Synch Ground	
3	Blue Video	O	11	Monitor ID Bit 0	I
4	Monitor ID Bit 2	I	12	SDA	I
5	Synch Ground		13	Horizontal Synch	O
6	Red Ground		14	Vertical Synch	O
7	Green Ground		15	SCL	I
8	Blue Ground				

Serial Port Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Data Carrier Detect	I	6	Data Set Ready	I
2	Receive Data	I	7	Request To Send	O
3	Transmit Data	O	8	Clear To Send	I
4	Data Terminal Ready	O	9	Ring Indicator	I
5	Signal Ground				

Parallel Port Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Strobe	O	14	Auto Feed	N/A
2	Data Bit 0	I/O	15	Error	I
3	Data Bit 1	I/O	16	Initialize	O
4	Data Bit 2	I/O	17	Select (In)	O
5	Data Bit 3	I/O	18	Ground	Power
6	Data Bit 4	I/O	19	Ground	Power
7	Data Bit 5	I/O	20	Ground	Power
8	Data Bit 6	I/O	21	Ground	Power
9	Data Bit 7	I/O	22	Ground	Power
10	Acknowledge	I	23	Ground	Power
11	Busy	I	24	Ground	Power
12	Paper Empty	I	25	Ground	Power
13	Select	O			

Mouse Port Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Mouse Data	I/O	4	+5 V dc	Power
2	No Connection		5	Mouse Clock	I/O
3	Ground	Power	6	No Connection	

Keyboard Port Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Data	I/O	4	+5 V dc	Power
2	Mouse Data		5	Clock	I/O
3	Ground	Power	6	Mouse Clock	

Diskette Drive Cable Connector Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Ground		18	Direction	O
2	Density Select	O	19	Ground	
3	No Connection		20	Step	O
4	No Connection		21	Ground	
5	Ground		22	Write Data	I
6	No Connection		23	Ground	
7	Ground		24	Write Enable	O
8	Index	I	25	Ground	
9	Ground		26	Track 0	I
10	Motor Enable 0	O	27	Ground	
11	Ground		28	Write Protect	I
12	Drive Select 1	O	29	Ground	
13	Ground		30	Read Data	I
14	Drive Select 0	O	31	Ground	
15	Ground		32	Select Head 1	O
16	Motor Enable 1	O	33	Ground	
17	Ground		34	Diskette Change	I

IDE Cable Connector Signals

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	Host Reset	O	21	No Connection	
2	Ground		22	Ground	
3	Host Data 7	I/O	23	Host IOW	O
4	Host Data 8	I/O	24	Ground	Power
5	Host Data 6	I/O	25	Host IOR	O
6	Host Data 9	I/O	26	Ground	Power
7	Host Data 5	I/O	27	I/O Channel Ready	I
8	Host Data 10	I/O	28	No Connection	
9	Host Data 4	I/O	29	No Connection	
10	Host Data 11	I/O	30	Ground	Power
11	Host Data 3	I/O	31	Host IRQ	I
12	Host Data 12	I/O	32	No Connection	
13	Host Data 2	I/O	33	Host A1	O
14	Host Data 13	I/O	34	No Connection	
15	Host Data 1	I/O	35	Host A0	O
16	Host Data 14	I/O	36	Host A2	O
17	Host Data 0	I/O	37	Host CS0	O
18	Host Data 15	I/O	38	Host CS1	O
19	Ground	Power	39	ACTIVE bar	I
20	No Connection		40	Ground	Power

Safety Inspection Guide

Safety Inspection Guide	6-1
General Guidelines.....	6-2

General Guidelines

The purpose of this Safety Inspection Guide is to help you identify possible unsafe conditions on machines that are being inspected for a Maintenance Agreement. Each machine has necessary functions items installed to provide the operators and service personnel with an acceptable level of safety. This guide lists only these items. Good judgment should be used to identify possible safety conditions not covered by this Safety Inspection Guide.

If any unsafe conditions are present, you must find out how serious the hazard is and if you can continue before you correct the hazard.

All current IBM Aptiva service supplements outlining feature/model changes, along with the machine history, should be reviewed.

Check the following items:

- Damaged, missing, or changed parts, especially in the area of the On/Off switch and the power supply.
- Damaged, missing, or changed covers.
- Possible safety exposure from any non-IBM attachments.

Parts Catalog

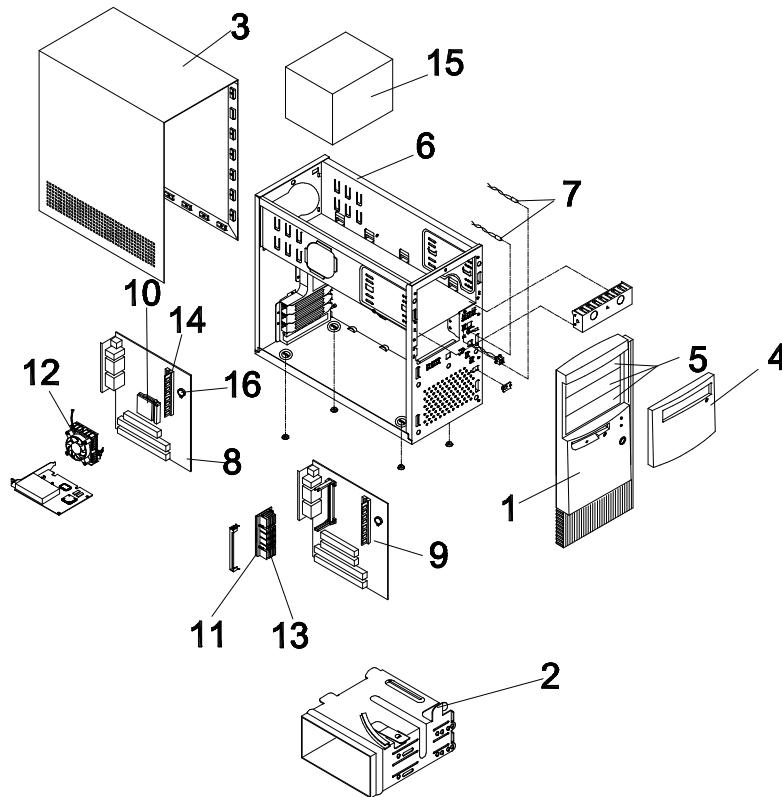
Parts Catalog	7-1
Assembly 1: Machine Type 2153 System Unit.....	7-3
Assembly 2: Machine Type 2153 Diskette, Hard Drive	7-5
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Abbreviations

In this chapter, the following abbreviations are used to identify country and language version:

AT	Austria
AU	Australia
BD	Belgium – Dutch
BF	Belgium – French
BU	Belgium – UK/Flemish
CA	Canada
CE	Canada – English
CF	Canada – French
CN	China
DK	Denmark – Danish
FI	Finland – Finnish
FR	France
GB	Great Britain
GE	Germany
HK	Hong Kong
IT	Italy
JP	Japan
LS	LA-Spanish
ND	Netherlands - Dutch
NL	Netherlands - Dutch
NO	Norway - Norwegian
SF	Swiss - French
SG	Swiss - German
SP	Spain
SW	Sweden - Swedish
TW	Taiwan
UK	United Kingdom
US	United States
SZ	Switzerland

Assembly 1: Machine Type 2153 System Unit

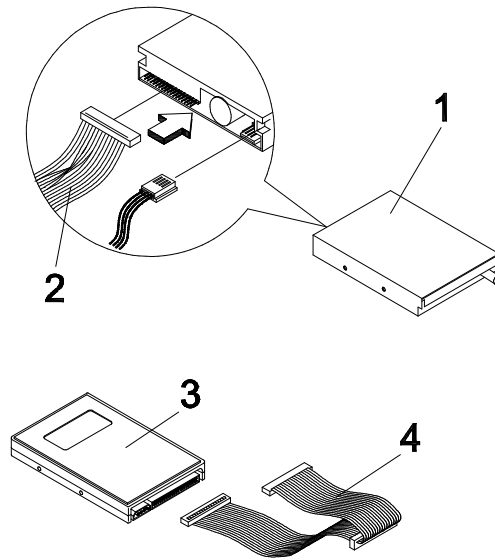


Asm-Index	FRU Number	Description
1-NS	20L2192	Micro ATX (H61) Complete set
1-1	20L2196	Front Panel
1-2	20L2197	Hard Drive Holder
1-3	20L2193	Top Cover
1-4	20L2194	Door Cover
1-NS	02K2329	Screws for Front Panel
1-5	20L2195	Drive Bay Panel
1-6	20L2198	Assembly Lower Case (w/o SPS)
1-NS	02K2334	Screws for Power Supply

Asm-Index	FRU Number	Description
1-NS	02K2334	Screws for Bracket plate and Top Cover
1-NS	20L2207	Port Bracket, w/ Screw Hex., Bracket and Label
1-7	20L2190	Power Switch Wire (Switch + Wire) + Hard Drive LED Wire (LED + wire) + Power LED Wire (LED+wire)
1-8	20L2183	V70MA-CR (Rage Pro 1X, 2MB SGRAM, 256KB Cache)
1-8	00K8473	V70MA-CR (Rage Pro 1X, 2MB SGRAM, 256KB Cache, w/o "ROC" Marking on PCB Surface)
1-8	20L2184	V70MA (Rage Pro 2X, 4MB SGRAM, 512KB Cache)
1-8	36L9051	V70MA (Rage Pro 2X, 4MB SGRAM, 512KB, Support 95MHz Host Bus Speed)
1-9	36L9049	V65MA (Rage Pro 2X, 4MB SGRAM)
1-9	00K8752	V65MA (Rage Pro 2X, 4MB SGRAM, w/o "ROC" Marking on PCB Surface)
1-NS	02K2334	Screws for System Board
1-10	28L3823	K6-2 266MHz, w/o Heatsink and Fan
1-10	20L2185	K6 3D 300MHz, w/o Heatsink and Fan
1-10	36L9079	K6 3D 333MHz, w/o Heatsink and Fan
1-10	20L2186	K6 3D 350MHz, w/o Heatsink and Fan
1-11	00K8499	Celeron CPU 300/128K
1-11	00K8500	Celeron CPU 333/128K
1-NS	20L2187	2-Pin Power Connector
1-12	20L2187	Processor Fansink (2-Pin)
1-13	00K8501	Heatsink
1-14	20L2200	16MB DIMM (PC-100) LG, Hyundai
1-14	20L2201	32MB DIMM (PC-100) LG 2M*8, 4M*16, Hyundai 2M*8, 4M*16
1-14	20L2202	64MB DIMM (PC-100) LG 8M*8, Hyundai 8M*8

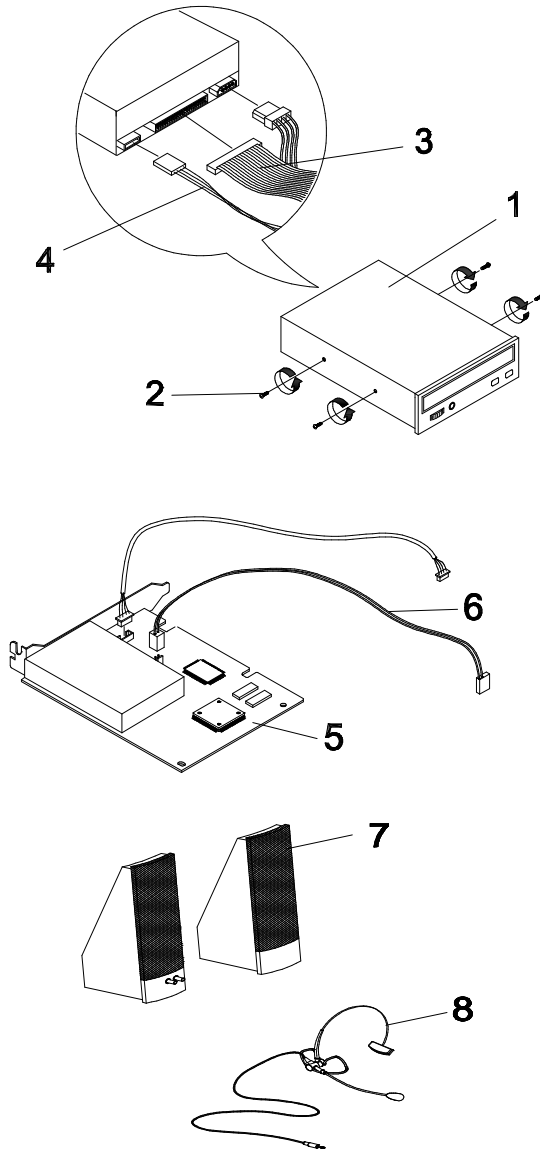
Asm-Index	FRU Number	Description
1-14	20L2203	32MB DIMM (PC-66)
1-14	20L2204	64MB DIMM (PC-66)
1-NS		Modem Card, see Assembly 3: Machine Type 2153 CD/DVD-ROM, Modem Card, Speaker and Microphone on page 7-7.
1-15	20L2166	API, 145W, S/W, Fan
1-15	20L2167	API, 145W, S/W, Fan (JP)
1-15	00K8468	95W Power Supply
1-16	01K4278	RTC Backup Battery (CR2032)

Assembly 2: Machine Type 2153 Diskette, Hard Drive



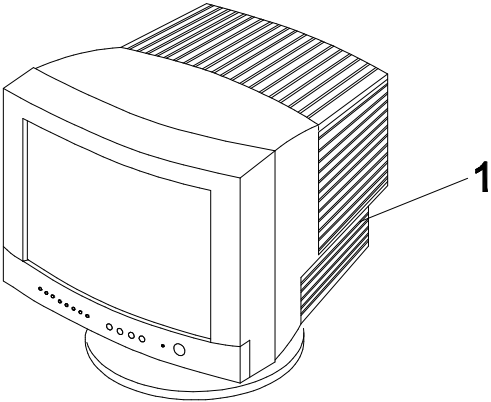
Asm-Index	FRU Number	Description
2-1	02K2299	Diskette Drive 3.5-In., 3-Mode (JU256A276P)
2-2	02K2603	Diskette Drive Cable
2-3	10L6646	5.25-In. , 4.x GB
2-3	10L6649	5.25-In. , 6.x GB
2-3	10L6645	5.25-In. , 8.x GB
2-3	36L9074	3.5-In. , 8 GB
2-4	36L9084	3.5-In., 6.x GB
2-4	36L9085	3.5-In., 10.x GB
2-4	01K4224	IDE Cable (w/ 3 Connectors)
2-NS	01K4260	Screws for 3.5-In. Hard Drive
2-NS	01K4259	Screws for Big Foot 5.25-In. Hard Drive

**Assembly 3: Machine Type 2153 CD/DVD-ROM,
Modem Card, Speaker and Microphone**



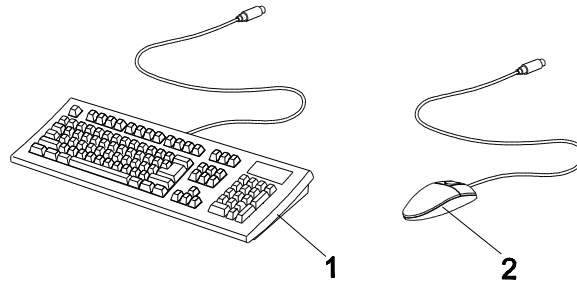
Asm-Index	FRU Number	Description
3-1	28L3767	CD-ROM 32X, API
3-1	20L2188	CD-ROM 32X, Hitachi
3-1	36L9087	CD-ROM 32X, Sanyo, LG
3-NS	02K2575	DVD-ROM 2X
3-2	01K4259	Screws for CD-ROM
3-3	01K4224	IDE Cable (w/ 3 Connectors)
3-4	02K2339	Audio Cable
3-5	10L6633	56.6K GVC 1641B Voiceless (US, CA)
3-5	02K2633	56.6K GVC 1641B Voiceless (IT)
3-5	02K2587	56.6K GVC 1641B Voiceless (SZ)
3-5	02K2610	56.6K GVC 1641B Voiceless (SP)
3-5	02K2632	56.6K GVC 1641B Voiceless (UK/NO/FI/DK/GR/SW/ND/BU/FR)
3-5	28L3848	56.6K CIS 1641B Voiceless (US, CA)
3-5	02K2294	56.6K CIS 1643 Data Fax Voice (JP)
3-5	02K2630	56.6K GVC 1641B Data Fax (AT)
3-6	00K8183	Modem ring-in Cable
3-7	20L2168	Speaker Tier 1 Zylux
3-7	20L2175	Speaker Tier 0
3-NS	20L2169	Adapter US/CE/CF/LA/TW
3-NS	20L2170	Adapter (JP)
3-NS	20L2171	Adapter (EURO)
3-NS	20L2172	Adapter (UK/HK)
3-NS	20L2173	Adapter AP-S
3-NS	20L2174	Adapter (CN)
3-NS	02K2648	Power Cord TA-HSING T-MARK 10A/125V (JP)
3-8	10L6656	Microphone (Andrea NC-8) Noise Canceling

Assembly 4: Machine Type 2153 Monitor and Power Cord



Asm-Index	FRU Number	Description
4-1	02K2359	15-In. for (JP) - 2126-004 (high end)
4-1	02K2363	17-In. for (JP) - 2127-004

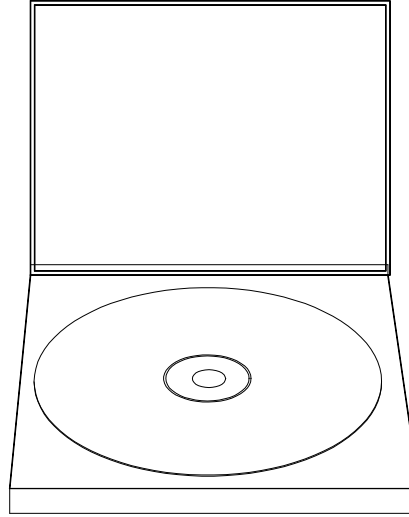
Assembly 5: Machine Type 2153 Keyboard and Mouse



Asm-Index	FRU Number	Description
5-1	12J5558	Rapid Access - U.S. English, 104 Keys
5-1	12J5562	Rapid Access – French Canadian, 104 Keys
5-1	12J5575	Rapid Access - German, 105 Keys
5-1	12J5574	Rapid Access - France, 105 Keys
5-1	12J5593	Rapid Access - U.K. English, 105 Keys
5-1	12J5573	Rapid Access – Netherlands, 105 Keys
5-1	12J5589	Rapid Access - Sweden/Finland, 105 Keys
5-1	12J5572	Rapid Access – Denmark, 105 Keys
5-1	12J5581	Rapid Access - Norwegian, 105 Keys
5-1	12J5580	Rapid Access – Italy, 105 Keys
5-1	12J5588	Rapid Access - Spain, 105 Keys
5-1	12J5564	Rapid Access - L.A. Spain, 105 Keys
5-1	12J5590	Rapid Access - Swiss Fr/Gr, 105 Keys
5-1	12J5569	Rapid Access - Belgium UK/Flemish, 105 Keys
5-1	12J5568	Rapid Access - Belgium French, 105 Keys
5-1	12J5596	Rapid Access - Japan ,109 Keys
5-1	12J5597	Rapid Access – Traditional Chinese
5-1	02K0806	Standard – US English

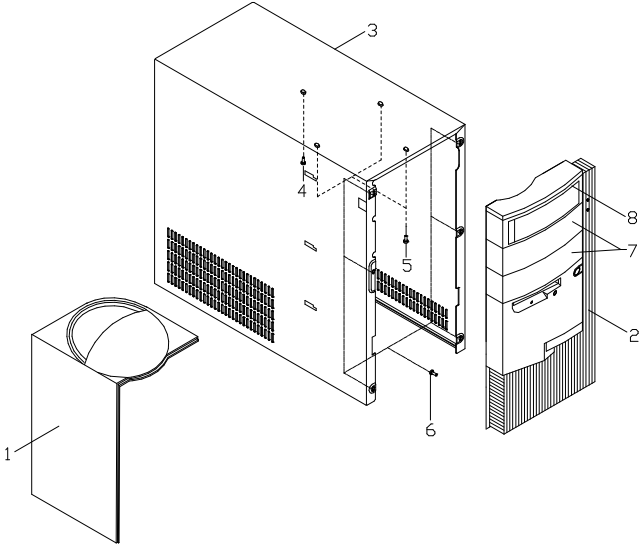
5-1	02K0812	Standard – LA Spanish
5-1	02K0810	Standard – French Canadian 445
5-1	02K0816	Standard – Belgium/French
5-1	02K0817	Standard – Belgium/Flemish
5-1	02K0820	Standard – Danish/Denmark
5-1	02K0821	Standard – Dutch/Netherlands
5-1	02K0822	Standard – France
5-1	02K0823	Standard – German
5-1	02K0828	Standard – Italy
5-1	02K0829	Standard – Norwegian
5-1	02K0836	Standard – Spain
5-1	02K0837	Standard – Swed/Finn
5-1	02K0838	Standard – Swiss/French/German
5-1	02K0841	Standard – UK English
5-1	02K0844	Standard – Japanese
5-1	02K0845	Standard – Traditional Chinese
5-2	76H5080	2 Button Sleek Logitech M-S34
5-2	72J4546	Mouse, Scroll Point

Assembly 6: Machine Type 2153 Software



Asm-Index	FRU Number	Description
6-		Application CD Pack, Voice Type 3.0 Kit, Lotus SmartSuite 97, MS Win98 Pack and Aptiva Customized I.E. 4.0 Aptiva owners and servicers will need to call their local IBM HelpCenter to order the above software

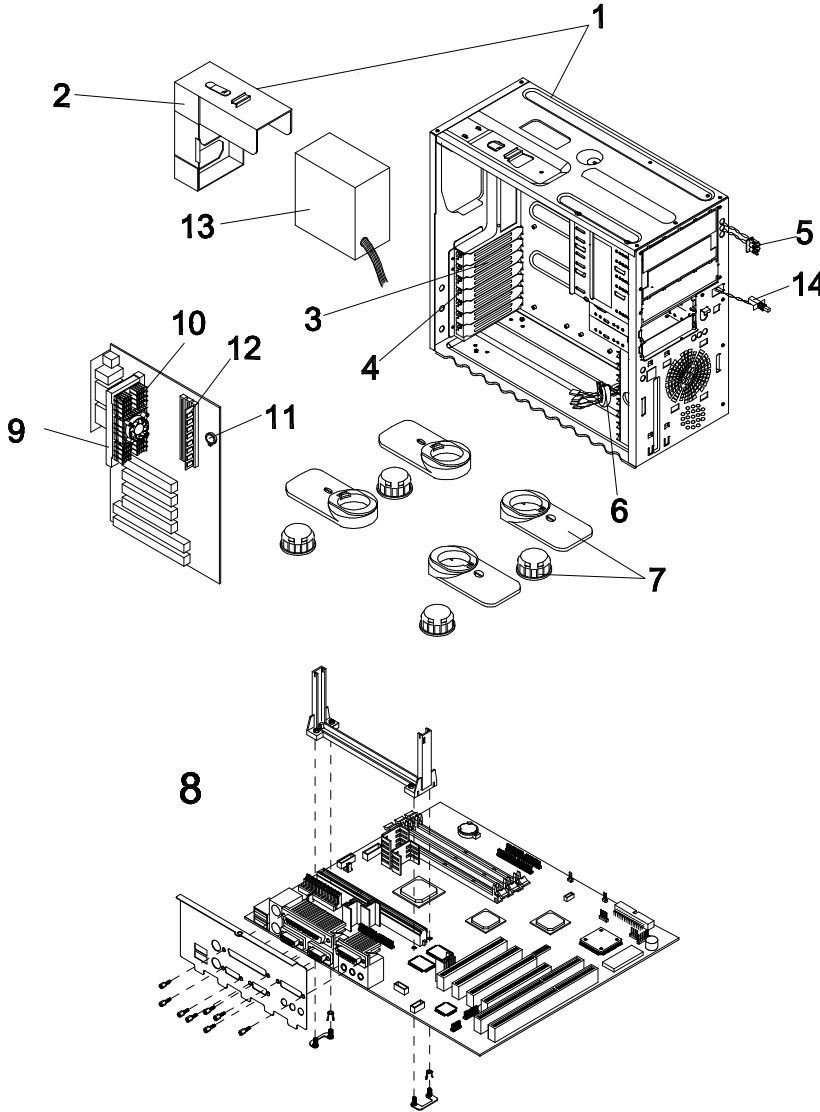
Assembly 1: Machine Type 2139 System Unit - Exterior



Asm-Index	FRU Number	Description
1-1	02K2324	Top/Side Panel
1-1	00K8479	Top/Side Panel, Black
1-2	02K2325	Front Panel
1-2	00K8480	Front Panel, Black
1-3	02K2326	Top Cover
1-3	00K8478	Top Cover, Black
1-4	02K2327	Screws for Top/Side Panel
1-5	02K2329	Screws for Top/Side Panel
1-6	02K2329	Screws for Front Panel
1-7	02K2330	Drive Bay Panel, for 2nd or 3rd Closed Drive
1-7	00K8481	Drive Bay Panel, for 2nd or 3rd Closed Drive, Black
1-7	36L9090	Drive Bay Panel, for 2nd Drive(Zip Drive)

Asm-Index	FRU Number	Description
1-7	36L9091	Drive Bay Panel, for 2nd Drive(Zip Drive), Black
1-8	02K2331	Drive Bay Panel, for 1st 5.25-In. Open Drive
1-8	00K8482	Drive Bay Panel, for 1st 5.25-In. Open Drive, Black

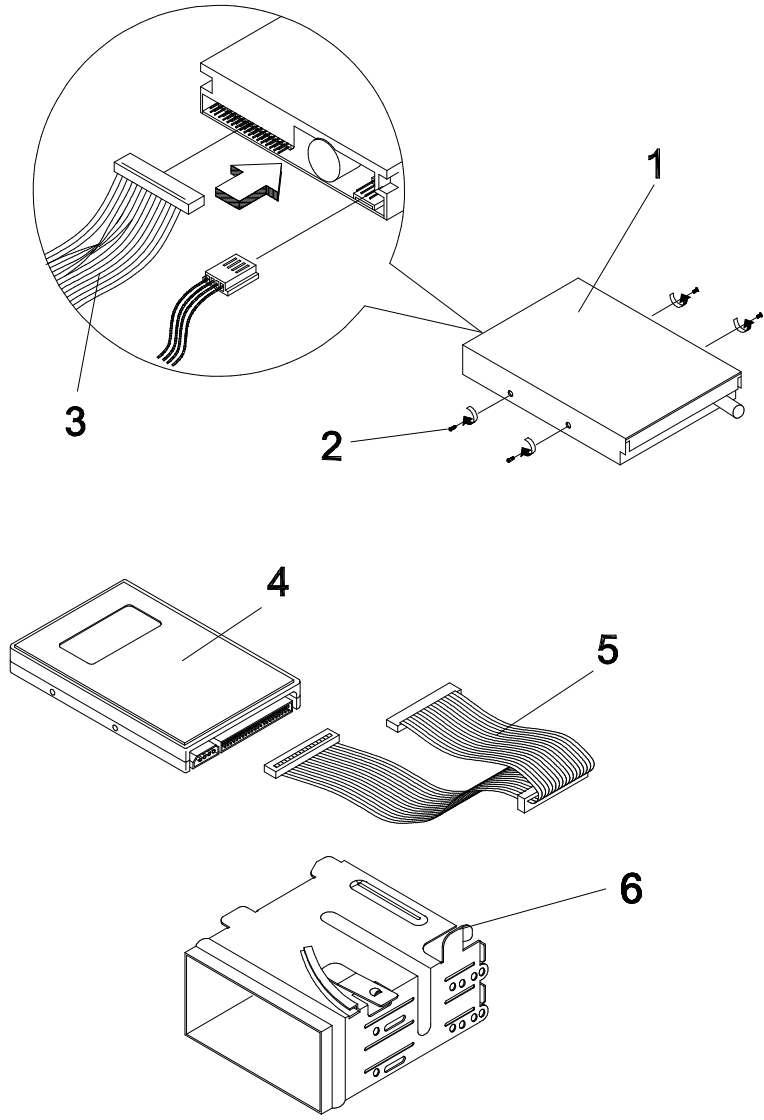
Assembly 2: Machine Type 2139 System Unit - Interior



Asm-Index	FRU Number	Description
2-1	02K2605	Assembly Lower Case
2-2	02K2604	Power Supply Frame
2-NS	02K2334	Screws for Power Supply Frame
2-3	01K4200	Bracket Port
2-4	02K2334	Screws for Bracket Port
2-5	02K2335	Assembly Wire LED
2-6	01K4192	EMI Core
2-7	02K2337	Housing Stand
2-7	00K8483	Housing Stand, Black
2-8	20L2161	V66XA (Rage Pro AGP 4MB SGRAM, CS4235+CS4610)
2-8	00K8749	V66XA (Rage Pro AGP 4MB SGRAM, CS4235+CS4610), w/o ROC
2-NS	02K2334	Screws for System Board
2-9	00K8476	Pentium II 450 w/ ECC
2-9	20L2162	Pentium II 400 w/ ECC
2-9	28L3842	Pentium II 350 w/ ECC
2-10	20L2163	Fansink 2-Pin (TDM)
2-11	01K4278	RTC Backup Battery (CR2032)
2-12	20L2201	32MB DIMM PC-100
2-12	20L2202	64MB DIMM PC-100
2-NS		Modem Card, see Assembly 4: Machine Type 2139 CD/DVD-ROM, Modem Card, Speaker and Micropone on page 7-20.
2-13	20L2166	SPS 145W ATX API-7675 Rev. A H61
2-13	20L2167	SPS 145W ATX API (JP)
2-14	12J6877	Power Switch w/ Cable
2-NS	01K4259	Screws for Power Switch
2-NS	01K4198	Power Cord Volex UK-10A/250V (UK)
2-NS	01K4196	Power Cord Volex CE-10A/250V (EURO)
2-NS	06J7900	Power Cord Cordset CSA/UL 10A/125V (US/CE/CF/LA)

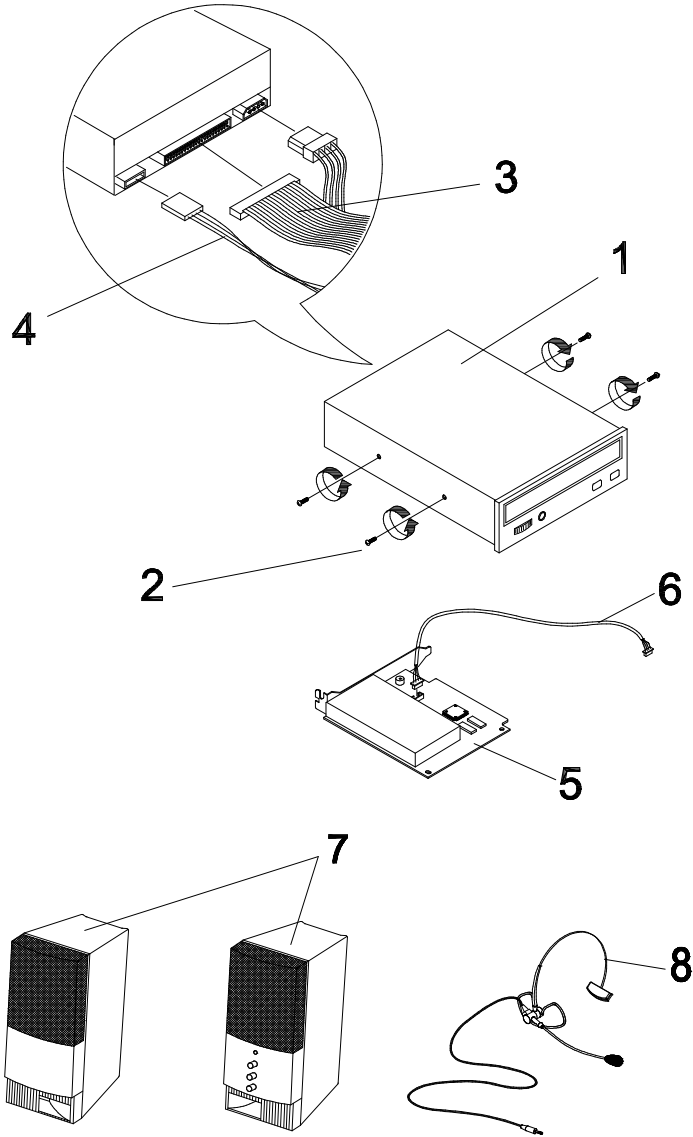
Asm-Index	FRU Number	Description
2-NS	06J7900	Power Cord Volex CSA/UL 10A/125V (US/CE/CF/LA)
2-NS	02K2648	Power Cord TA-HSING T-MARK 10A/125V (JP)

Assembly 3: Machine Type 2139 Diskette, Hard Disk Drives



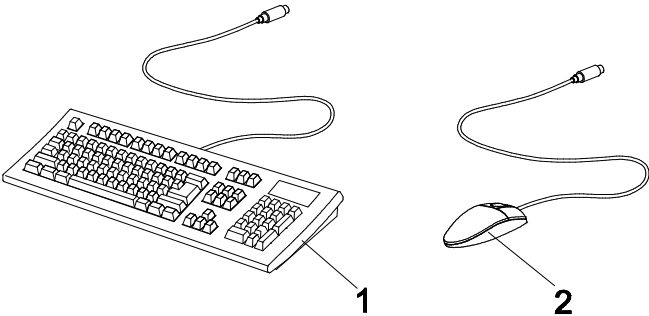
Asm-Index	FRU Number	Description
3-1	02K2299	Diskette Drive-3.5-In. 3-Mode
3-2	01K4259	Screws for Diskette Drive
3-3	02K2603	Diskette Drive Cable
3-4	20L2165	5.25-In., 12 GB
3-4	36L9084	3.5-In., 6.x GB
3-4	36L9074	3.5-In., 8.x GB
3-4	00K8477	3.5-In., 13.x GB
3-4	10L6019	3.5-In., 16.x GB
3-NS	01K4259	Screws for 5.25-In. Hard Drive
3-5	01K4224	Hard Disk Drive IDE Cable (w/ 3 Connectors)
3-NS	01K4260	Mounting Screws for Hard Disk Drive, 3.5-In.
3-6	02K2607	3.5-In. Drive Frame

**Assembly 4: Machine Type 2139 CD/DVD-ROM,
Modem Card, Speaker and Micropone**



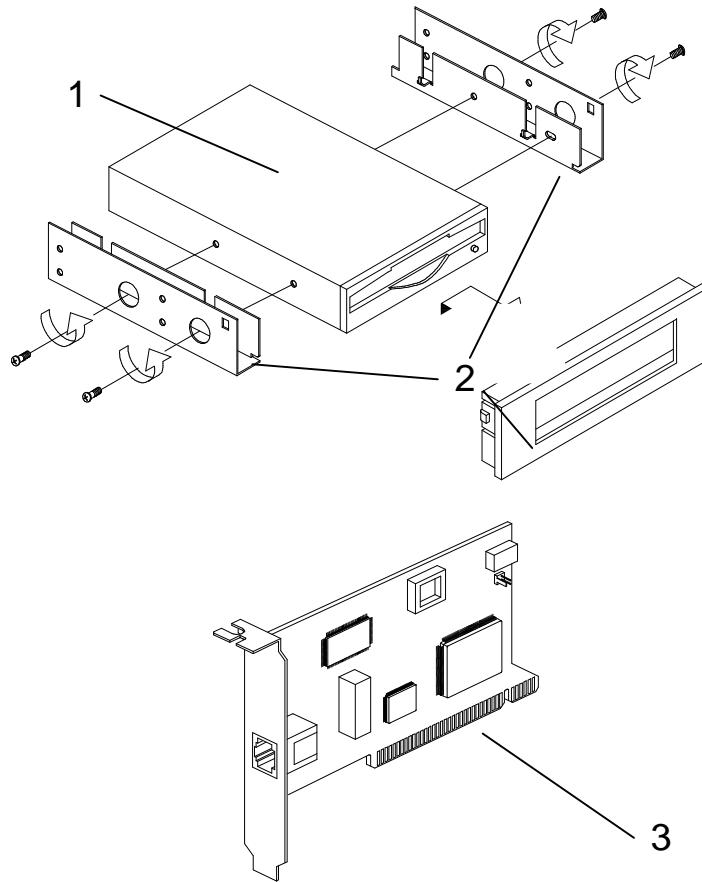
Asm-Index	FRU Number	Description
4-1	28L3767	CD-ROM 32X, API
4-1	02K2575	DVD-ROM 2X, Hitachi
4-1	00K7888	DVD-ROM 2X, Hitachi, Black
4-1	36L9094	DVD-ROM 4X, Hitachi
4-1	36L9078	DVD-ROM 4X, Hitachi, Black
4-1	36L9097	DVD-ROM 2X (Transition Period)
4-1	36L9098	DVD-ROM 2X, Black (Transition Period)
4-2	01K4259	Mounting Screws for CD-ROM
4-3	01K4224	CD-ROM IDE Cable
4-4	20L2289	DVD-ROM Drive Audio Cable
4-5	02K2294	Modem, CIS 1643 56.6K – D/F/V (JP)
4-5	02K2295	Modem, CIS 1643 56.6K – D/F/V (US,CA)(Second Source)
4-5	02K2293	Modem, GVC 1643 56.6K - D/F/V (US,CA)
4-5	02K2580	Modem, GVC 1643 56.6K - D/F/V (UK,NL,SW,DK,NO,FI,BD,SP)
4-5	02K2582	Modem, GVC 1643 56.6K - D/F/V (FR)
4-5	02K2581	Modem, GVC 1643 56.6K - D/F/V (IT)
4-5	02K2583	Modem, GVC 1643 56.6K - D/F/V (SP)
4-5	02K2630	Modem, GVC 1641B 56.6K -D/F (AU)
4-6	02K2308	Modem Card Audio Cable
4-NS	00K8183	Modem Ring-In Cable
4-7	20L2168	Speaker
4-7	00K8474	Speaker, Black
4-NS	20L2169	Speaker ADT 9VDC1120V A40910M (US/CE/CF/LA/TW)
4-NS	20L2170	Speaker ADT 9VDC1120V A40910J (JP)
4-NS	20L2171	Speaker ADT 9VDC1230V A40910G (Euro/LA-HI Voltage Mds)
4-NS	20L2172	Speaker ADT 9VDC1230V A40910B (GB/UK)
4-NS	20L2173	Speaker ADT 9VDC1230V A40910B (AP-S)
4-NS	20L2174	Speaker ADT 9VDC1230V A40910B (CN)
4-NS	02K2648	Power Cord TA-HSING T-MARK 10A/125V (JP)
4-8	10L6656	Microphone (Andrea NC-8) Noise Canceling

Assembly 5: Machine Type 2139 Keyboard and Mouse



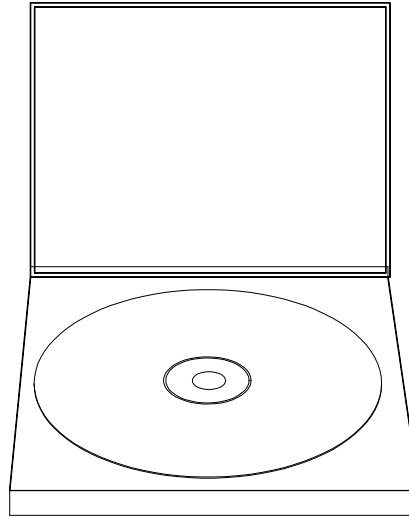
Asm-Index	FRU Number	Description
5-1	12J5558	Rapid Access-Keyboard-104 (US)
5-1	12J5562	Rapid Access-Keyboard-104 (CF)
5-1	12J5575	Rapid Access-Keyboard-105 (GE)
5-1	12J5574	Rapid Access-Keyboard-105 (FR)
5-1	12J5593	Rapid Access-Keyboard-105 (UK)
5-1	12J5573	Rapid Access-Keyboard-105 (NL)
5-1	12J5589	Rapid Access-Keyboard-105 (FI)
5-1	12J5572	Rapid Access-Keyboard-105 (DK)
5-1	12J5581	Rapid Access-Keyboard-105 (NO)
5-1	12J5580	Rapid Access-Keyboard-105 (IT)
5-1	12J5588	Rapid Access-Keyboard-105 (SP)
5-1	12J5564	Rapid Access-Keyboard-105 (LS)
5-1	12J5590	Rapid Access-Keyboard-105 (SF/SG)
5-1	12J5569	Rapid Access-Keyboard-105 (BD)
5-1	12J5568	Rapid Access-Keyboard-105 (BF)
5-1	12J5596	Rapid Access-Keyboard-109 (JP)
5-1	12J5597	Rapid Access-Keyboard (CN)
5-2	12J4546	ScrollPoint Mouse
5-2	12J4549	ScrollPoint Mouse, Black

Assembly 6: Machine Type 2139 Zip Drive and Network Adapter



Asm-Index	FRU Number	Description
6-1	28L1605	Zip Drive
6-1	36L9093	Zip Drive, Black
6-2	36L9092	Zip Drive Mounting Bracket and Panel
6-2	36L9096	Zip Drive Mounting Bracket and Panel, Black
6-3	08L2550	IBM Ethernet Adapter

Assembly 7: Machine Type 2139 Software



Asm-Index	FRU Number	Description
7-		Application CD Pack, Voice Type 3.0 Kit, Lotus SmartSuite 97, MS Win98 Pack and Aptiva Customized I.E. 4.0 Aptiva owners and servicers will need to call their local IBM HelpCenter to order the above software

Appendix A. FRU Number Index for Machine Type 2153

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01K4196	4-NS	7-9	02K2334	1-NS	7-4
01K4198	4-NS	7-9	02K2339	3-4	7-7
01K4224	2-4	7-6	02K2353	4-1	7-9
01K4224	3-3	7-7	02K2355	4-1	7-9
01K4259	2-NS	7-7	02K2359	4-1	7-9
01K4259	3-2	7-5	02K2361	4-1	7-9
01K4278	1-13	7-8	02K2363	4-1	7-9
02K0806	5-1	7-10	02k2575	3-NS	7-7
02K0810	5-1	7-11	02K2603	2-2	7-5
02K0812	5-1	7-10	02K2620	4-1	7-9
02K0816	5-1	7-11	02K2622	4-1	7-9
02K0817	5-1	7-11	02K2630	3-5	7-7
02K0820	5-1	7-11	02K2632	3-5	7-7
02K0821	5-1	7-11	02K2648	3-NS	7-8
02K0822	5-1	7-11	06J7900	4-NS	7-9
02K0823	5-1	7-11	10L6615	4-1	7-9
02K0828	5-1	7-11	10L6633	3-5	7-7
02K0829	5-1	7-11	10L6645	2-3	7-5
02K0836	5-1	7-11	10L6646	2-3	7-5
02K0837	5-1	7-11	10L6647	3-1	7-7
02K0838	5-1	7-11	10L6649	2-3	7-5
02K0841	5-1	7-11	10L6656	3-8	7-8
02K0844	5-1	7-11	12J5558	5-1	7-10
02K0845	5-1	7-11	12J5562	5-1	7-10
02K2269	1-10	7-4	12J5564	5-1	7-10
02K2294	3-5	7-7	12J5568	5-1	7-10
02K2299	2-1	7-5	12J5569	5-1	7-10

FRU Number	Asm-Index	Page	FRU Number	Asm-Index	Page
12J5572	5-1	7-10	20L2189	3-5	7-7
12J5573	5-1	7-10	20L2190	1-7	7-4
12J5574	5-1	7-10	20L2191	1-NS	7-4
12J5575	5-1	7-10	20L2192	1-NS	7-3
12J5580	5-1	7-10	20L2193	1-3	7-4
12J5581	5-1	7-10	20L2194	1-4	7-3
12J5588	5-1	7-10	20L2195	1-5	7-4
12J5589	5-1	7-10	20L2196	1-1	7-3
12J5590	5-1	7-10	20L2197	1-2	7-3
12J5593	5-1	7-10	20L2198	1-6	7-4
12J5596	5-1	7-10	20L2200	1-11	7-4
12J5597	5-1	7-10	20L2201	1-11	7-4
12J6886	1-9	7-4	20L2202	1-11	7-4
12J6903	4-1	7-9	20L2206	1-NS	7-4
12J6904	4-1	7-9	20L2207	1-NS	7-4
20L2166	1-12	7-4	00K8473	1-8	7-5
20L2167	1-12	7-4	00K8572	1-8	7-5
20L2168	3-7	7-7	12J4546	5-2	7-12
20L2169	3-NS	7-8	20L2190	1-7	7-5
20L2170	3-NS	7-8	20L2183	1-8	7-5
20L2171	3-NS	7-8	20L2184	1-8	7-5
20L2172	3-NS	7-8	20L2185	1-10	7-5
20L2173	3-NS	7-8	20L2203	2-12	7-5
20L2174	3-NS	7-8	20L2204	2-12	7-5
20L2175	3-7	7-7	20L2207	1-NS	7-5
20L2183	1-8	7-4	20L2186	1-10	7-5
20L2184	1-8	7-4	36L9051	1-8	7-5
20L2185	1-9	7-4	36L9049	1-8	7-5
20L2186	1-9	7-4	28L3823	1-10	7-5
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01K4192	2-6	7-15	02K2337	2-7	7-15
01K4196	2-NS	7-15	02K2575	4-1	7-19
01K4198	2-NS	7-15	02K2580	4-5	7-20
01K4200	2-3	7-15	02K2581	4-5	7-20
01K4224	3-5	7-17	02K2582	4-5	7-20
01K4224	4-3	7-19	02K2583	4-5	7-20
01K4259	2-NS	7-15	02K2603	3-3	7-17
01K4259	3-2	7-17	02K2604	2-2	7-15
01K4259	3-NS	7-17	02K2605	2-1	7-15
01K4259	4-2	7-19	02K2607	3-6	7-17
01K4260	3-NS	7-17	02K2630	4-5	7-20
01K4278	2-11	7-15	02K2648	2-NS	7-15
02K2293	4-5	7-19	02K2648	4-NS	7-20
02K2294	4-5	7-19	06J7900	2-NS	7-15
02K2295	4-5	7-19	10L6656	4-8	7-20
02K2299	3-1	7-17	12J4546	5-2	7-21
02K2308	4-6	7-20	12J5558	5-1	7-21
02K2324	1-1	7-13	12J5562	5-1	7-21
02K2325	1-2	7-13	12J5564	5-1	7-21
02K2326	1-3	7-13	12J5568	5-1	7-21
02K2327	1-4	7-13	12J5569	5-1	7-21
02K2329	1-5	7-13	12J5572	5-1	7-21
02K2329	1-6	7-13	12J5573	5-1	7-21
02K2330	1-7	7-13	12J5574	5-1	7-21
02K2331	1-8	7-13	12J5575	5-1	7-21
02K2334	2-NS	7-15	12J5580	5-1	7-21
02K2334	2-4	7-15	12J5581	5-1	7-21

FRU Number	Asm- Index	Page	FRU Number	Asm- Index	Page
12J5588	5-1	7-21	36L9074	3-1	7-19
12J5589	5-1	7-21	00K8477	3-1	7-19
12J5590	5-1	7-21	10L6019	3-1	7-19
12J5593	5-1	7-21	02K2575	4-1	7-21
12J5596	5-1	7-21	00K7888	4-1	7-21
12J5597	5-1	7-21	36L9094	4-1	7-21
12J6877	2-14	7-15	36L9078	4-1	7-21
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20L2167	2-13	7-15			
20L2168	4-7	7-20			
20L2169	4-NS	7-20			
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20L2173	4-NS	7-20			
20L2174	4-NS	7-20			
20L2182	2-NS	7-15			
20L2201	2-12	7-15			
20L2202	2-12	7-15			
20L2289	4-4	7-19			
00K8480	1-2	7-14			
00K8478	1-3	7-14			
00K8482	1-8	7-14			
00K8481	1-7	7-14			
36L9090	1-7	7-14			
36L9091	1-7	7-14			
00K8749	2-8	7-16			
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Appendix B. Online Support Information

This section describes online technical support services available to help repair the Aptiva computer.

This section covers:

- IBM PC Company Bulletin Board Service (BBS)
- IBM PC Company Fax-Back Service
- IBM Online HelpCenter on Prodigy, America Online, CompuServe
- IBM useful sites on the World Wide Web (WWW)

Online technical support offers convenient and valuable information when you need it. IBM offers support areas on several online services where you can work with IBM technicians for solutions to your questions, download key files, and access database information for the Aptiva computer.

The IBM PC Company offers online resources including several Internet World Wide Web sites, the IBM Online HelpCenter support areas, a Fax-Back service, and a Bulletin Board Service.

The IBM PC Company BBS telephone number is (919) 517-0001. (U.S. and Canada only). The BBS contains a valuable file library with drivers, software updates, product information, and other file updates. To access the BBS, set your modem for **eight data bits, one stop bit, and no parity bit**.

The IBM PC Company Automated Fax-Back System offers a variety of IBM computer-related articles. To access this service, call 800-IBM-3395. The Fax-Back system file library can also be accessed through the PC Company BBS. Aptiva technical support is offered through the IBM Online HelpCenters on the Prodigy Service, America Online, and through the IBM support forums on CompuServe.

IBM online support areas on all of the services can assist with your technical questions. These areas offer message boards monitored by IBM technicians, databases of computer-related solutions, and file libraries.

World-wide users can access the IBM Aptiva support forums on CompuServe. CompuServe users can use the Go word: APTIVA to reach the Aptiva support forum. For information about CompuServe, call (800) 848-8990 (U.S. and Canada only).

To reach the IBM Online HelpCenter on Prodigy, use the jumpword: **IBM**. For information about Prodigy, please call (800) 776-3449 (U.S. and Canada only). You can reach the IBM Online HelpCenter on America Online using keyword: **IBM Connection**. For information about America Online, please call (800) 827-6364 (U.S. and Canada only). Prodigy and America Online have limited international availability.

To access the IBM PC Company Internet sites, you will need to acquire Internet access. Please check with your local Internet provider for more

information. (Members of Prodigy, AOL, and CompuServe can reach these sites through the Internet capabilities of the services.)

Here are useful IBM Internet addresses for Aptiva information:

<http://www.pcco.ibm.com>

IBM PC Company Home Page on the World Wide Web

<http://www.pc.ibm.com/us/ibmhome>

Aptiva Home Page

<http://www3.pc.ibm.com/support>

Aptiva Product Specifications and Support

<http://www.pc.ibm.com/files.html>

IBM PC Company Searchable File Library

Appendix C. Model/Monitor Configurations and FRU Part Numbers

The models described in this appendix are Service Level A (SL-A) machines. Only factory-installed parts are listed.

If the machine you are serving has Service Level A on the label, but you cannot find it listed in this appendix, call your local IBM Aptiva Service Bulletin Board for updated model information.

Notes: The FRU no. in () is substitution parts.

2153 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	E2N	E3N	E4N	E2U	E2C
Country/ Language	US	US	US	US	US
System Board	00K8747	00K8747	20L2184	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	28L3823	20L2185	20L2186	36L9079	36L9079
Memory	20L2201	20L2202	20L2202	20L2201	20L2200 20L2201
Hard Drive	10L6646	10L6649	36L9074	10L6649 36L9084	10L6649 36L9084
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	10L6633	10L6633	10L6633	10L6633	10L6633
Speaker	20L2175	02K0322	20L2168	20L2168	20L2175
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	E3U
Country/ Language	US
System Board	36L9051
Power Supply	00K8468
Processor	20L2186
Memory	20L2202
Hard Drive	36L9074
Diskette Drive	02K2299
CD-ROM	36L9087
DVD-ROM	--
Modem Card	10L6633
Speaker	20L2168
Sub-woofer	--
Monitor	--

2153 Model/Monitor Configurations and FRU Part Numbers for Canada Geography

Model	E3U	E2F	E2N	E3F	E3N
Country/ Language	CE	CF	CE	CF	CE
System Board	36L9051	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	36L9079	28L3823	28L3823	20L2185	20L2185
Memory	20L2202	20L2201	20L2201	20L2202	20L2202
Hard Drive	36L9074	10L6646	10L6646	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	10L6633	10L6633	10L6633	10L6633	10L6633
Speaker	20L2168	20L2175	20L2175	02K0322	02K0322
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for Canada Geography

Model	E2V	E2U	E3V
Country/ Language	CF	CE	CF
System Board	36L9051	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468
Processor	20L2185	36L9079	36L9079
Memory	20L2201	20L2200	20L2202
Hard Drive	10L6646	10L6649	36L9074
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087
DVD-ROM	--	--	--
Modem Card	10L6633	10L6633	10L6633
Speaker	20L2168	20L2175	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for Latin America Geography

Model	E1L	E1K	E2L	E2K	E3L
Country/ Language	LA	LA	LA	LA	LA
System Board	36L9051	369L9051	00K8747	00K8747	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	28L3823	28L3823	36L9079
Memory	20L2201	20L2201	20L2201	20L2201	20L2202
Hard Drive	10L6646	10L6646	10L6646	10L6646	36L9084
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	28L3767	28L3767	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	10L6633	10L6633	10L6633	10L6633	10L6633
Speaker	20L2175	20L2175	20L2175	20L2175	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for Latin America Geography

Model	E3K	E4L	E4K
Country/ Language	LA	LA	LA
System Board	36L9051	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468
Processor	20L2185	20L2186	20L2186
Memory	20L2202	20L2202	20L2202
Hard Drive	36L9084	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	36L9087	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	10L6633	10L6633	10L6633
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography

Model	E28	E29
Country/ Language	EMEA	EMEA
System Board	00K8752	00K8752
Power Supply	00K8468	00K8468
Processor	00K8500	00K8500
Memory	20L2204	20L2204
Hard Drive	10L6649	10L6649
Diskette Drive	02K2299	02K2299
CD-ROM	28L3767	28L3767
DVD-ROM	--	--
Modem Card	02K2582	02K2582
Speaker	20L2168	20L2168

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E25)

Model	E25	E25	E25	E25	E25
Country/ Language	FR	UK	SW	DK	FI
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	28L3823	28L3823	28L3823	28L3823	28L3823
Memory	20L2201	20L2201	20L2201	20L2201	20L2201
Hard Drive	10L6646	10L6646	10L6646	10L6646	10L6646
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2175	20L2175	20L2175	20L2175	20L2175
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E25)

Model	E25	E25	E25	E25	E25
Country/ Language	NO	IT	SP	NL	SF
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	28L3823	28L3823	28L3823	28L3823	28L3823
Memory	20L2201	20L2201	20L2201	20L2201	20L2201
Hard Drive	10L6646	10L6646	10L6646	10L6646	10L6646
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2633	02K2610	02K2632	02K2587
Speaker	20L2175	20L2175	20L2175	20L2175	20L2175
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E25)

Model	E25	E25	E25
Country/ Language	SG	BU	BF
System Board	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468
Processor	28L3823	28L3823	28L3823
Memory	20L2201	20L2201	20L2201
Hard Drive	10L6646	10L6646	10L6646
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2587	02K2632	02K2632
Speaker	20L2175	20L2175	20L2175
Sub-woofer	--	--	--
Monitor	--	--	--

**2153 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E35)**

Model	E35	E35	E35	E35	E35
Country/ Language	FR	UK	SW	DK	FI
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E35)

Model	E35	E35	E35	E35	E35
Country/ Language	NO	IT	SP	NL	SF
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2633	02K2610	02K2632	02K2587
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

**2153 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E35)**

Model	E35	E35	E35
Country/ Language	SG	BU	BF
System Board	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2587	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E37)

Model	E37	E37	E37	E37	E37
Country/ Language	FR	UK	SW	DK	FI
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E37)

Model	E37	E37	E37	E37	E37
Country/ Language	NO	IT	SP	NL	SF
System Board	00K8747	00K8747	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2633	02K2610	02K2632	02K2587
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E37)

Model	E37	E37	E37
Country/ Language	SG	BU	BF
System Board	00K8747	00K8747	00K8747
Power Supply	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185
Memory	20L2202	20L2202	20L2202
Hard Drive	10L6649	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2587	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

**2153 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E45)**

Model	E45	E45	E45	E45	E45
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E45)

Model	E45	E45	E45	E45	E45
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2633	02K2610	02K2632	02K2587
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E45)

Model	E45	E45	E45
Country/ Language	SG	BU	BF
System Board	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2587	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E47)

Model	E47	E47	E47	E47	E47
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E47)

Model	E47	E47	E47	E47	E47
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2633	02K2610	02K2632	02K2587
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E47)

Model	E47	E47	E47
Country/ Language	SG	BU	BF
System Board	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468
Processor	20L2186	20L2186	20L2186
Memory	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2587	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E18)

Model	E18	E18	E18	E18	E18
Country/ Language	UK	BF	NO	DK	SW
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201
Hard Drive	36L9084	36L9084	36L9084	36L9084	36L9084
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2175	20L2175	20L2175	20L2175	20L2175
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E18)

Model	E18	E18	E18	E18	E18
Country/ Language	FI	IT	ND	BD	FR
System Board	20L2184	20L2184	20L2184	20L2184	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2185	20L2185	20L2185	20L2185
Memory	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201	20L2200 20L2201
Hard Drive	36L9084	36L9084	36L9084	36L9084	36L9084
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2175	20L2175	20L2175	20L2175	20L2175
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E44)

Model	E44	E44	E44	E44	E44
Country/ Language	UK	BF	NO	DK	SW
System Board	36L9051	36L9051	36L9051	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	36L9079	36L9079	36L9079	36L9079	36L9079
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E44)

Model	E44	E44	E44	E44	E44
Country/ Language	FI	IT	ND	BD	FR
System Board	36L9051	36L9051	36L9051	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	36L9079	36L9079	36L9079	36L9079	36L9079
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E46)

Model	E46	E46	E46	E46	E46
Country/ Language	UK	BF	NO	DK	SW
System Board	36L9051	36L9051	36L9051	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	36L9079	36L9079	36L9079	36L9079	36L9079
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E46)

Model	E46	E46	E46	E46	E46
Country/ Language	FI	IT	ND	BD	FR
System Board	36L9051	36L9051	36L9051	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	36L9079	36L9079	36L9079	36L9079	36L9079
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	36L9087	36L9087	36L9087	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2632	02K2632	02K2632	02K2632	02K2632
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for Japan Geography

Model	E21	E31	E41	E2J	E3J
Country/ Language	JP	JP	JP	JP	JP
System Board	00K8747	00K8747	20L2184	36L9051	36L9051
Power Supply	00K8468	00K8468	00K8468	00K8468	00K8468
Processor	28L3823	20L2185	20L2186	20L2185	20L2186
Memory	20L2201	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6646	10L6649	10L6645	10L6649	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	36L9087	36L9087
DVD-ROM	--	--	--	--	--
Modem Card	02K2631	02K2294	02K2294	28L3848	02K2294
Speaker	20L2175	20L2168	20L2168	20L2175	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for Australia Geography

Model	E4A	E2A	E3A	E3Q
Country/ Language	AU	AU	AU	AU
System Board	00K8752	00K8747	00K8747	20L2184
Power Supply	00K8468	00K8468	00K8468	00K8468
Processor	00K8500	12J6886	20L2185	20L2185
Memory	20L2204	20L2201	20L2202	20L2200 20L2201
Hard Drive	10L6649	10L6646	10L6649	10L6646
Diskette Drive	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	20L2188	36L9087
DVD-ROM	--	--	--	--
Modem Card	02K2630	02K2630	02K2630	02K2630
Speaker	20L2168	20L2175	20L2168	20L2175
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for APN (TW/HK/CN) Geography

Model	E3B	E4H	E3H	E1H
Country/ Language	HK	HK	HK	HK
System Board	20L2183	36L9049	36L9049	36L9049
Power Supply	00K8468	00K8468	00K8468	00K8468
Processor	20L2185	20L2186	00K8500	00K8499
Memory	20L2201	20L2202	20L2204	20L2203
Hard Drive	10L6649	36L9074	10L6649	10L6646
Diskette Drive	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767
DVD-ROM	--	--	--	--
Modem Card	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2153 Model/Monitor Configurations and FRU Part Numbers for APN (TW/HK/CN) Geography

Model	E1P	E3P	E3T
Country/ Language	CN	CN	TW
System Board	36L9049	36L9049	00K8752
Power Supply	00K8468	00K8468	00K8468
Processor	00K8499	00K8500	00K8500
Memory	20L2203	20L2204	20L2204
Hard Drive	10L6646	10L6649	10L6649
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767
DVD-ROM	--	--	--
Modem Card	02K2640	02K2640	02K2639
Speaker	20L2168	20L2168	20L2168
Sub-woofer	--	--	--
Monitor	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for Canada Geography

Model	E5F	E5N	EPV	EP4	E6F
Country/ Language	CF	CE	CF	CE	CF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	28L3842	28L3842	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	10L6645	10L6645	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2293	02K2293	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	02K2295	02K2295	02K2295
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for Canada Geography

Model	E5U	E5V	E6U	E6V	
Country/ Language	CE	CF	CE	CF	
System Board	20L2161	20L2161	20L2161	20L2161	
Power Supply	20L2166	20L2166	20L2166	20L2166	
Processor	28L3842	28L3842	20L2162	20L2162	
Memory	20L2202	20L2202	20L2202	20L2202	
Hard Drive	36L9074	36L9074	00K8477	00K8477	
Diskette Drive	02K2299	02K2299	02K2299	02K2299	
DVD-ROM	36L9097	36L9097	36L9097	36L9097	
Modem Card	02K2295	02K2295	02K2295	02K2295	
Speaker	02K2295	02K2295	02K2295	02K2295	
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	E5D	EP4	E6N	E5U
Country/ Language	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	28L3842	00K8476	28L3842
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	10L6645	10L6645	20L2165	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	36L9097
Modem Card	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	02K2295	02K2295	02K2295
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	E6U	E6C
Country/ Language	US	US
System Board	20L2161	20L2161
Power Supply	20L2166	20L2166
Processor	20L2162	20L2162
Memory	20L2202	20L2202 20L2201
Hard Drive	00K8477	00K8477
Diskette Drive	02K2299	02K2299
DVD-ROM	36L9097	36L9097
Modem Card	02K2295	02K2295
Speaker	02K2295	02K2295
Sub-woofer	--	--
Monitor	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for Latin America Geography

Model	E6K	E6L
Country/ Language	LA	LA
System Board	20L2161	20L2161
Power Supply	20L2166	20L2166
Processor	28L3842	28L3842
Memory	20L2202 20L2201	20L2202 20L2201
Hard Drive	00K8477	00K8477
Diskette Drive	02K2299	02K2299
DVD-ROM	36L9094	36L9094
Modem Card	02K2293	02K2293
Speaker	20L2168	20L2168
Sub-woofer	--	--
Monitor	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for Japan Geography

Model	E51	E6J
Country/ Language	JP	JP
System Board	20L2161	20L2161
Power Supply	20L2167	20L2167
Processor	20L2162	00K8476
Memory	20L2202	20L2202
Hard Drive	20L2165	00K8477
Diskette Drive	02K2299	02K2299
DVD-ROM	02K2575	36L9094
Modem Card	02K2294	02K2294
Speaker	20L2168	20L2168
Sub-woofer	--	--
Monitor	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E48)

Model	E48	E48	E48	E48	E48
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E48)

Model	E48	E48	E48	E48	E48
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E48)

Model	E48	E48	E48	E48
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E49)

Model	E49	E49	E49	E49	E49
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E49)

Model	E49	E49	E49	E49	E49
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E49)

Model	E49	E49	E49	E49
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E55)

Model	E55	E55	E55	E55	E55
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E55)

Model	E55	E55	E55	E55	E55
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E55)

Model	E55	E55	E55	E55
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E57)

Model	E57	E57	E57	E57	E57
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E57)

Model	E57	E57	E57	E57	E57
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

**2139 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E57)**

Model	E57	E57	E57	E57
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	20L2165	20L2165	20L2165	20L2165
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E65)

Model	E65	E65	E65	E65	E65
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E65)

Model	E65	E65	E65	E65	E65
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E65)

Model	E65	E65	E65	E65
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E67)

Model	E67	E67	E67	E67	E67
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E67)

Model	E67	E67	E67	E67	E67
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E67)

Model	E67	E67	E67	E67
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	02K2575	02K2575
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E68)

Model	E68	E68	E68	E68	E68
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E68)

Model	E68	E68	E68	E68	E68
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E68)

Model	E68	E68	E68	E68
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E69)

Model	E69	E69	E69	E69	E69
Country/ Language	FR	UK	SW	DK	FI
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2582	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for EMEA Geography--(E69)

Model	E69	E69	E69	E69	E69
Country/ Language	NO	IT	SP	NL	SF
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2580	02K2581	02K2583	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--	--
Monitor	--	--	--	--	--

**2139 Model/Monitor Configurations and FRU
Part Numbers for EMEA Geography--(E69)**

Model	E69	E69	E69	E69
Country/ Language	SG	GR	BU	BF
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476	00K8476
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	36L9094	36L9094	36L9094	36L9094
Modem Card	02K2580	02K2580	02K2580	02K2580
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for Australia Geography

Model	E5A	EPA	E6Q	E7A
Country/ Language	AU	AU	AU	AU
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	28L3842	00K8476	20L2162
Memory	20L2202	20L2202	20L2202	20L2202 20L2201
Hard Drive	20L2165	20L2165	20L2165	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	02K2575	36L9094	36L9094
Modem Card	02K2630	02K2630	02K2630	02K2630
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--



2139 Model/Monitor Configurations and FRU Part Numbers for APN (TW/HK/CN) Geography

Model	E6P	E5H	E5T	E5P
Country/ Language	CN	HK	TW	CN
System Board	20L2161	20L2161	20L2161	00K8749
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842
Memory	20L2202	20L2202	20L2202	20L2202
Hard Drive	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299
DVD-ROM	02K2575	36L9094	36L9094	36L9094
Modem Card	02K2640	02K2295	02K2639	02K2640
Speaker	20L2168	20L2168	20L2168	20L2168
Sub-woofer	--	--	--	--
Monitor	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EJ1	EJ2	EJ3	EJ4	EJ5
Country/ Language	US	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842	28L3842
Memory	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201
Hard Drive	36L9074	36L9074	36L9074	36L9074	36L9074
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	28L3767	28L3767	28L3767	28L3767	--
DVD-ROM	--	--	--	--	02K2575
Modem	02K2295	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Ethernet	08L2550	08L2550	08L2550	--	08L2550
Zip Drive	28L1605	--	--	--	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EJ6	EJ7	EJ8	EJ9
Country/ Language	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	28L3842	28L3842	28L3842
Memory	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201
Hard Drive	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299
CD-ROM	--	28L3767	28L3767	--
DVD-ROM	02K2575	--	--	02K2575
Modem	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168
Ethernet	--	08L2550	--	08L2550
Zip Drive	--	--	--	28L1605

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EN1	EN2	EN3	EL3	EL4
Country/ Language	US	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	28L3842	20L2162	20L2162	20L2162	20L2162
Memory	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201
Hard Drive	00K8477	00K8477	00K8477	00K8477	00K8477
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	--	28L3767	28L3767	--	--
DVD-ROM	02K2575	--	--	02K2575	02K2575
Modem	02K2295	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Ethernet	08L2550	--	--	08L2550	08L2550
Zip Drive	--	--	--	28L1605	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EL5	EL6	EL7	EL8	EL9
Country/ Language	US	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201
Hard Drive	00K8477	10L6019	10L6019	10L6019	10L6019
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	--	--	--	--	--
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem	02K2295	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Ethernet	--	08L2550	08L2550	--	--
Zip Drive	28L1605	28L1605	--	28L1605	--

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EM1	EM2	EM3	EM4	EM5
Country/ Language	US	US	US	US	US
System Board	20L2161	20L2161	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202	20L2202	20L2202
Hard Drive	00K8477	00K8477	00K8477	00K8477	10L6019
Diskette Drive	02K2299	02K2299	02K2299	02K2299	02K2299
CD-ROM	--	--	--	--	--
DVD-ROM	02K2575	02K2575	02K2575	02K2575	02K2575
Modem	02K2295	02K2295	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168	20L2168	20L2168
Ethernet	08L2550	08L2550	--	--	08L2550
Zip Drive	28L1605	--	28L1605	--	28L1605

2139 Model/Monitor Configurations and FRU Part Numbers for US Geography

Model	EM6	EM7	EM8
Country/ Language	US	US	US
System Board	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162
Memory	20L2202	20L2202	20L2202
Hard Drive	10L6019	10L6019	10L6019
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	--	--	--
DVD-ROM	02K2575	02K2575	02K2575
Modem	02K2295	02K2295	02K2295
Speaker	20L2168	20L2168	20L2168
Ethernet	08L2550	--	--
Zip Drive	--	28L1605	--

2139 Configurations and FRU Part Numbers for US Geography

Model	SE7	SEE	SEZ
Country/ Language	US	US	US
System Board	20L2161	20L2161	20L2161
Power Supply	20L2166	20L2166	20L2166
Processor	00K8476	00K8476	00K8476
Memory	20L2202 20L2201	20L2202	20L2202
Hard Drive	10L6019	10L6019	10L6019
Diskette Drive	02K2299	02K2299	02K2299
CD-ROM	--	--	--
DVD-ROM	36L9098	36L9078	36L9078
Modem	02K2295	02K2295	02K2295
Speaker	00K8474	00K8474	00K8474
Ethernet	08L2550	--	--
Zip Drive	--	--	36L9093

2139 Configurations and FRU Part Numbers for EMEA Geography

Model	2139S49
Country/ Language	UK
System Board	20L2161
Power Supply	20L2166
Processor	00K8476
Memory	20L2202 20L2201
Hard Drive	10L6019
Diskette Drive	02K2299
CD-ROM	--
DVD-ROM	36L9078
Modem	02K2295
Speaker	00K8474
Ethernet	--
Zip Drive	--

2139 Configurations and FRU Part Numbers for APN (TW/HK/CN) Geography

Model	2139S4P	2139S4T	2139S4H	2139S6E
Country/ Language	CN	TW	HK	HK
System Board	00K8749	20L2161	00K8749	00K8749
Power Supply	20L2166	20L2166	20L2166	20L2166
Processor	20L2162	20L2162	20L2162	00K8476
Memory	20L2202 20L2201	20L2202 20L2201	20L2202 20L2201	20L2202
Hard Drive	00K8477	00K8477	00K8477	10L6019
Diskette Drive	02K2299	02K2299	02K2299	02K2299
CD-ROM	--	--	--	--
DVD-ROM	36L9078	36L9078	36L9078	36L9078
Modem	02K2640	02K2639	02K2295	02K2293
Speaker	00K8474	00K8474	00K8474	00K8474
Ethernet	--	--	--	--
Zip Drive	--	--	--	--

2139 Configurations and FRU Part Numbers for APS (AUS) Geography

Model	2139S8A
Country/ Language	AUS
System Board	20L2161
Power Supply	20L2166
Processor	00K8476
Memory	20L2202
Hard Drive	10L6019
Diskette Drive	02K2299
CD-ROM	--
DVD-ROM	36L9078
Modem	02K2630
Speaker	00K8474
Ethernet	--
Zip Drive	--

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