

# When and How to Use the BIOS Setup Utility

## When to Use

You need to run the BIOS Setup Utility when:

- You see an error message on the screen requesting you to run Setup.
- You want to restore the factory default settings.
- You want to modify some specific settings according to the hardware.
- You want to modify some specific settings to optimize system performance.

## Starting BIOS Setup

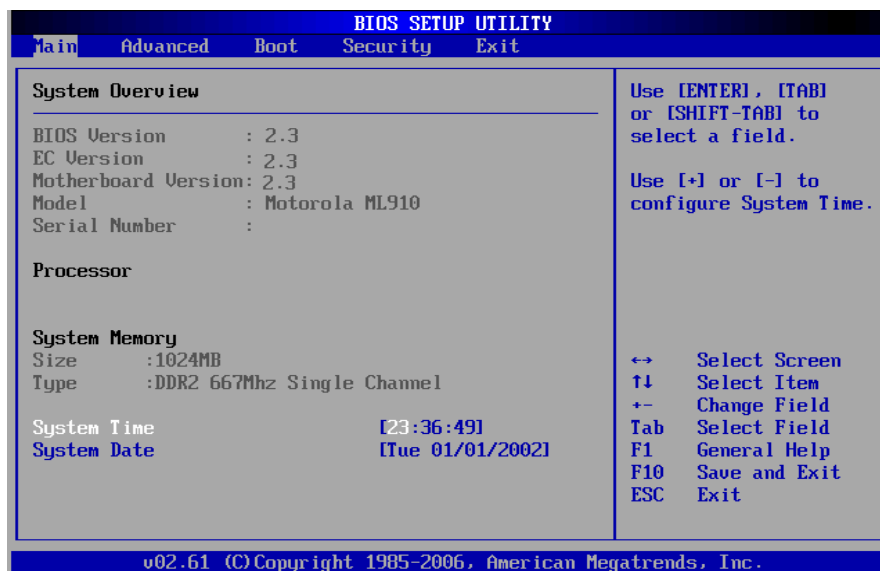
### NOTE:

1. The Setup screens shown in this chapter are for your reference only. The actual items or settings on your computer may differ.
2. The Setup utility may have been updated after the publication of this user guide.
3. The settings you select in your operating system might override similar settings in the Setup.

To run BIOS Setup, press F2 when the prompt appears in the lower left corner of the screen during system startup. The prompt shows up on the screen for only a few seconds. You must press F2 quickly. The BIOS Setup menu appears as shown next.

## Moving Around and Making Selections

A brief description of keyboard usage is listed next:



Key	Function
F1	General Help
F2	General Help
F9	Load optimal defaults
F10	Save and Exit
← →	Select Screen
↑ ↓	Select Item
+ -	Change Field/Option
<b>Enter</b>	1) Brings up the sub-menu when available. 2) Opens or closes the options window when an item is selected.
<b>Tab</b>	Jumps from one item to another.
<b>Esc</b>	1) Exits the BIOS Setup Utility. 2) Returns to the previous menu if in a sub-menu. 3) Closes the options window if one is open.

## Main Menu

**BIOS SETUP UTILITY**

Main    Advanced    Boot    Security    Exit

---

**System Overview**

BIOS Version : 2.3  
 EC Version : 2.3  
 Motherboard Version: 2.3  
 Model : Motorola ML910  
 Serial Number :

**Processor**

**System Memory**  
 Size : 1024MB  
 Type : DDR2 667Mhz Single Channel

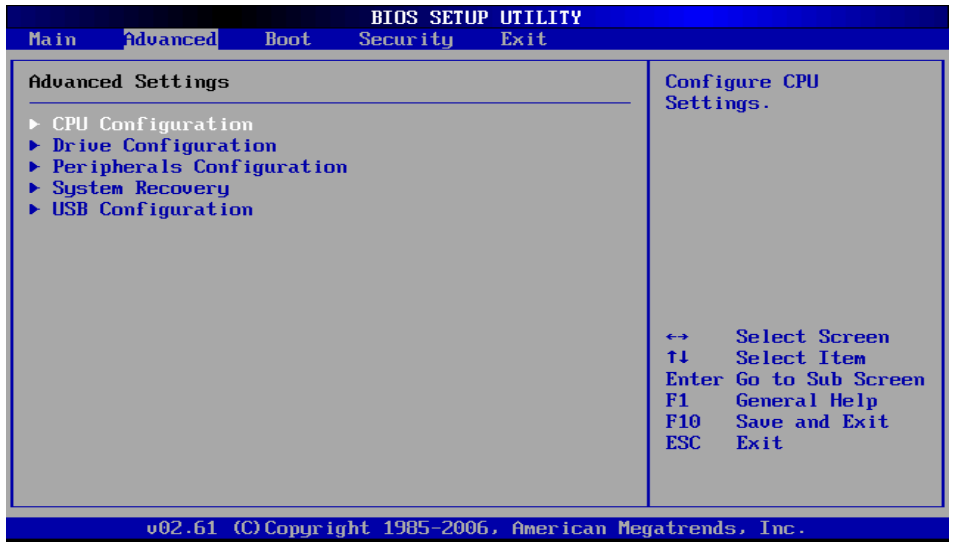
System Time [23:36:49]  
 System Date [Tue 01/01/2002]

Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.  
 Use [+] or [-] to configure System Time.

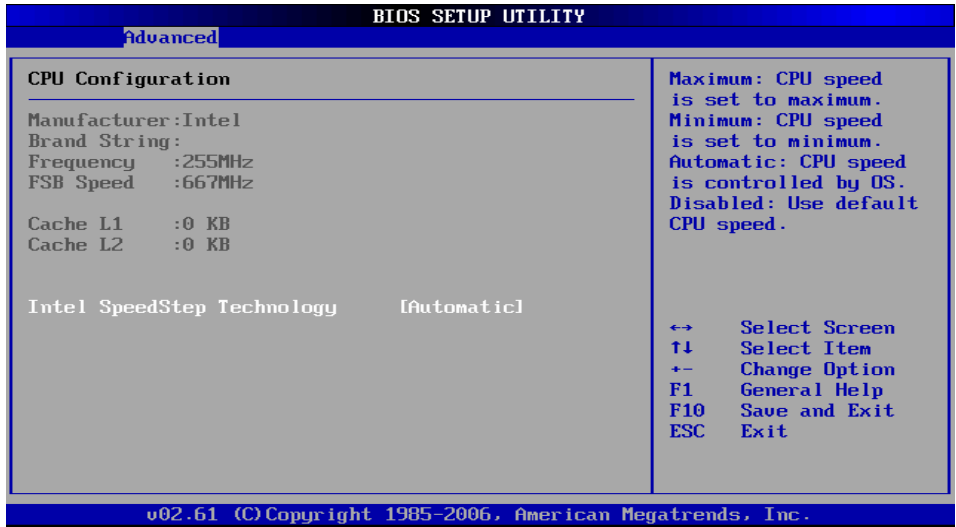
↔ Select Screen  
 ↑↓ Select Item  
 +- Change Field  
 Tab Select Field  
 F1 General Help  
 F10 Save and Exit  
 ESC Exit

v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.

# Advanced Menu



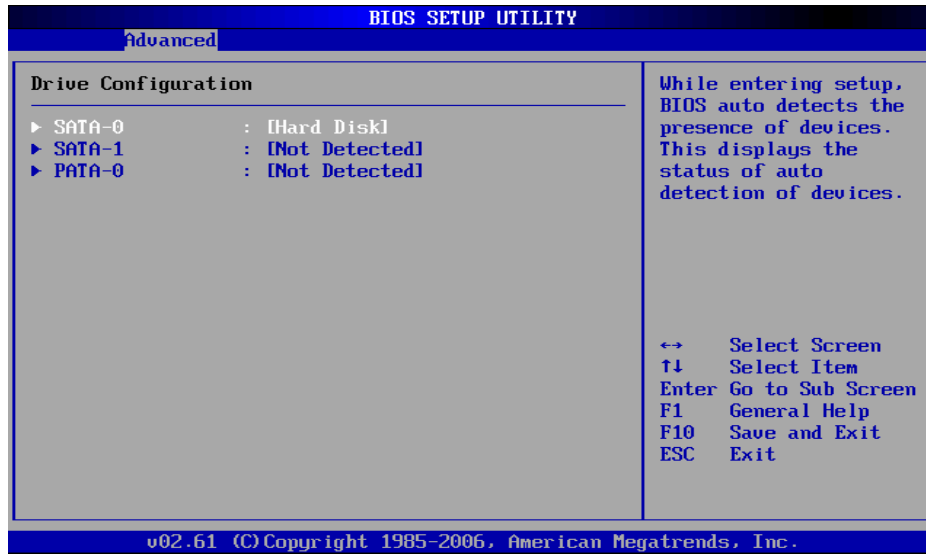
# CPU Configuration



Setup function of "Intel SpeedStep Technology": Under the slide of "Advanced", use **↑↓** key to move cursor on the string of "Intel SpeedStep Technology" and you will find the option of "Maximum", "Minimum", "Automatic" & "Disabled" on the right top corner of screen.

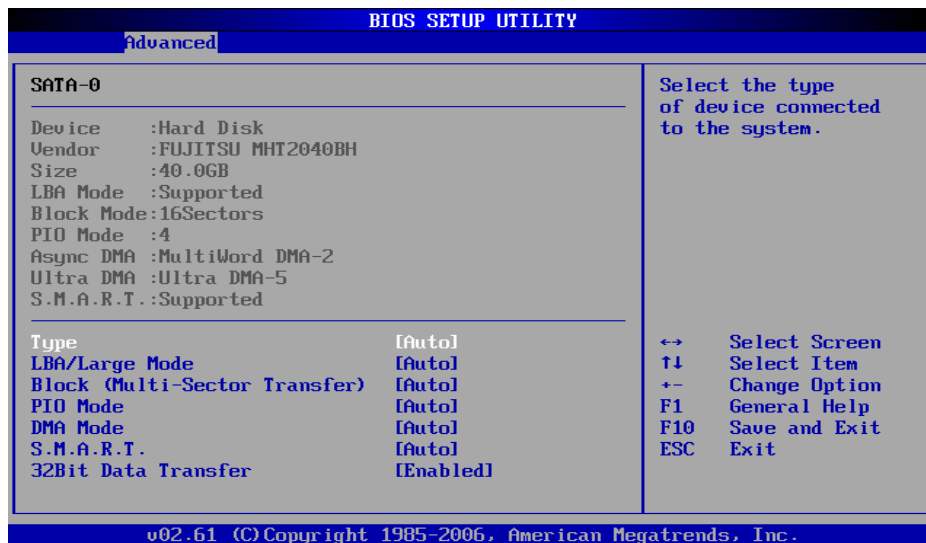
- Maximum: CPU speed is set to maximum.
- Minimum: CPU speed is set to minimum.
- Automatic: CPU speed is controlled by OS.
- Disabled: Use default CPU speed.

## Drive Configuration

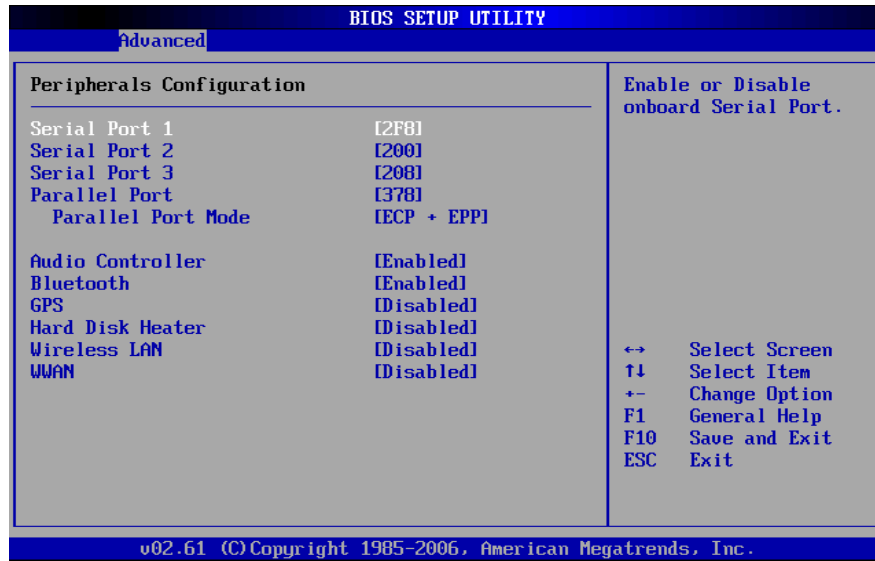


While entering setup, BIOS auto detects the presence of devices. This displays the status of auto detection of devices.

## Information of Device

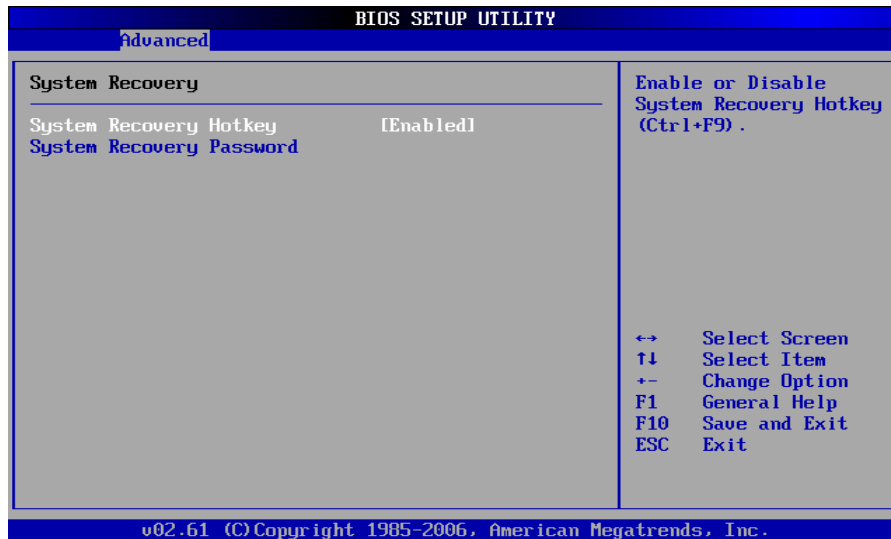


# Peripherals Configuration



Enables or disables the feature of “Peripherals Configuration”:  
Under the slide of “Advanced”, use **↑↓** key to move cursor on the string of peripherals and enable or disable peripherals configuration as you need.

# System Recovery



## System Recovery Hotkey:

Enable or Disable System Recovery Hotkey by (Ctrl+F9).

## System Recovery Password:

The BIOS support the recovery of the HDD with a Ctrl+ F9 during POST by using one to six character password.

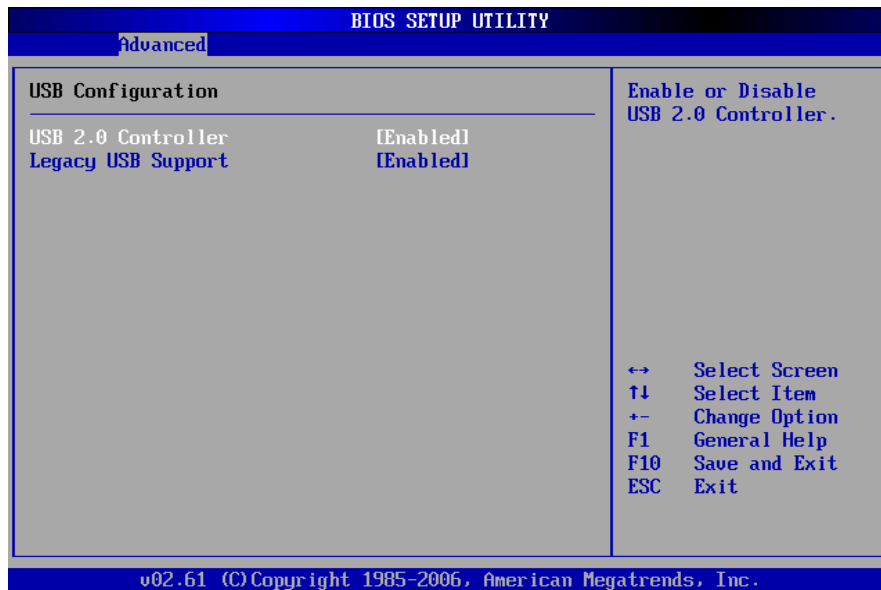
**Set and Change Password:**

Select Change Password from the System recovery password Setup menu and press <Enter>.

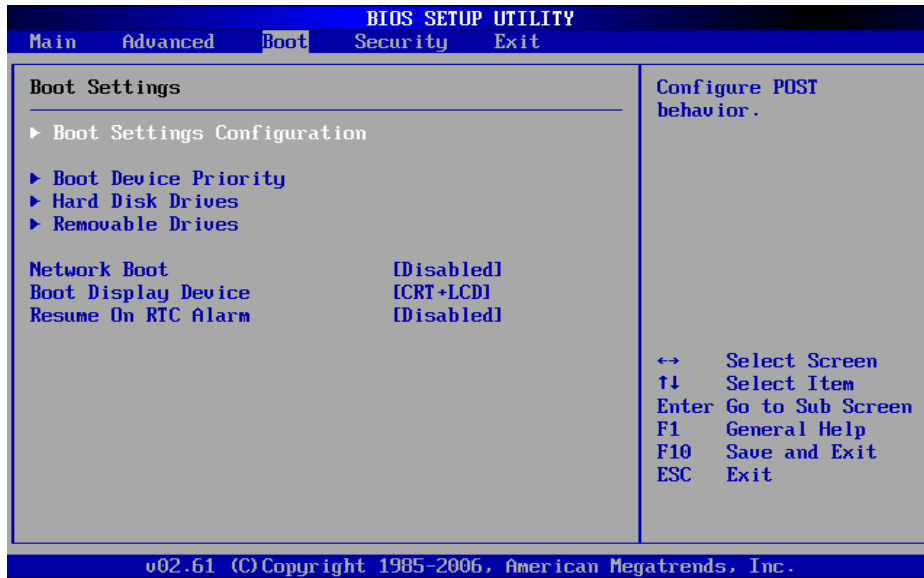
**Enter New Password:**

Appears. Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after completes.

## USB Configuration



# Boot Settings

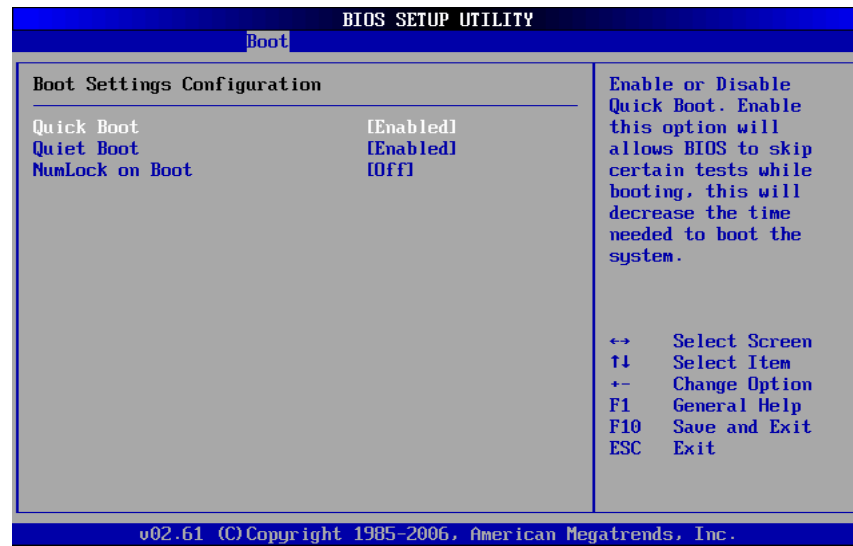


## Boot Settings:

Under the slide of "Boot", use  $\uparrow\downarrow$  key to move cursor on the string of "Boot Settings Configuration", "Boot Device Priority", "Hard Disk Drives" & "Removable Drives" for following features.

- Boot Setting Configuration: Configure POST behavior.
- Boot Device Drives: Set the Boot Device Priority Sequence.
- Hard Disk Drives/Removable Drives/CD & DVD Drives: Set the Boot Device Priority Sequence from available Drives.
- Network Boot: Enables or Disables Network Boot.
- Boot Display Device: Set Display Device used when system boots.
- Resume On RTC Alarm: Enable or Disable System wake up on RTC Alarm.

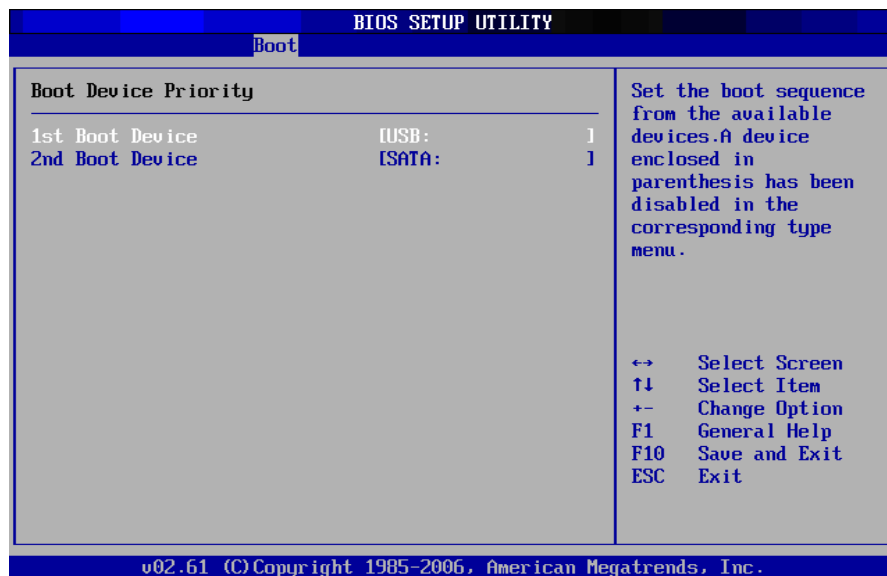
## Boot Settings Configuration



Under the Slide of "Boot" use ↑↓ key to move cursor on the string of "Quick Boot", "Quiet Boot" & "NumLock on Boot" for the features enable or disable.

- Quick Boot: Enable or Disable Quick Boot. Enable this option will allows BIOS to skip certain tests while booting, this will decrease the time needed to boot the system.
- Quiet Boot: Enable this option will shows logo screen instead of POST messages.
- NumLock on Boot: set status & NumLock when system boot.

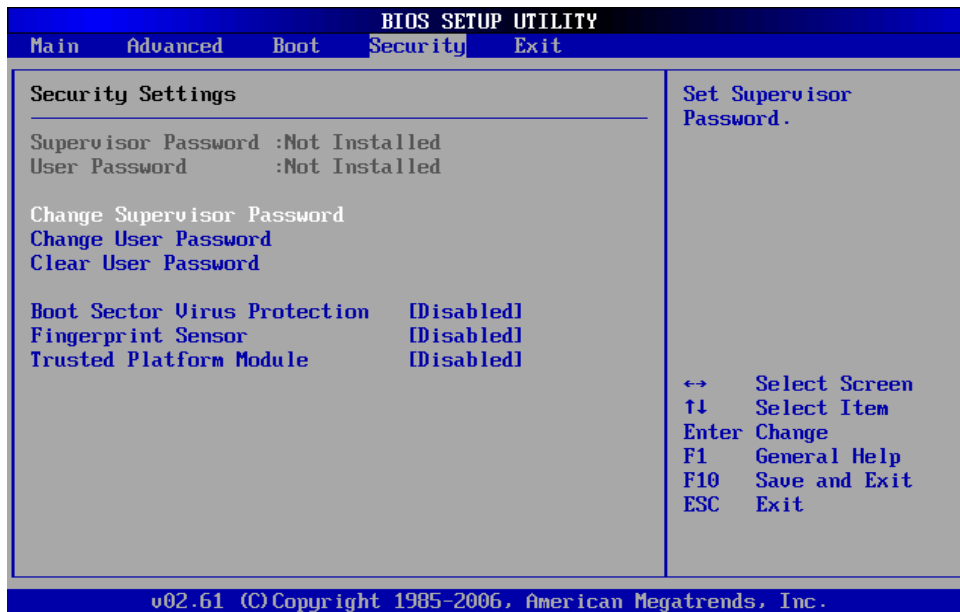
## Boot Device Priority



Set the boot sequence from the available devices. A device enclosed in parenthesis is has been disabled in the corresponding type menu.



# Security Settings



## BIOS Password Setup

Provide both a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first. The system can be configured so that all users must enter a password every time the system boots or when Setup is executed, using either or either the Supervisor password or User password. The Supervisor and User passwords activate two different levels of password security. If you select password support, you are prompted for a one to six character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain NVRAM and reconfigure. Select Security Setup from the Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection, are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

- Change Supervisor Password
- Change User Password
- Clear User Password
- Supervisor Password

Indicate whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

## User Password

Indicate whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

## Change Supervisor Password:

Select Change Supervisor Password from the Security Setup menu and press <Enter>.

**Enter New Password:**

Appear Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after completes.

**Change User Password:**

Select Change User Password from the Security Setup menu and press <Enter>.

**Enter New Password:**

Appear Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after completes.

**Clear User Password:**

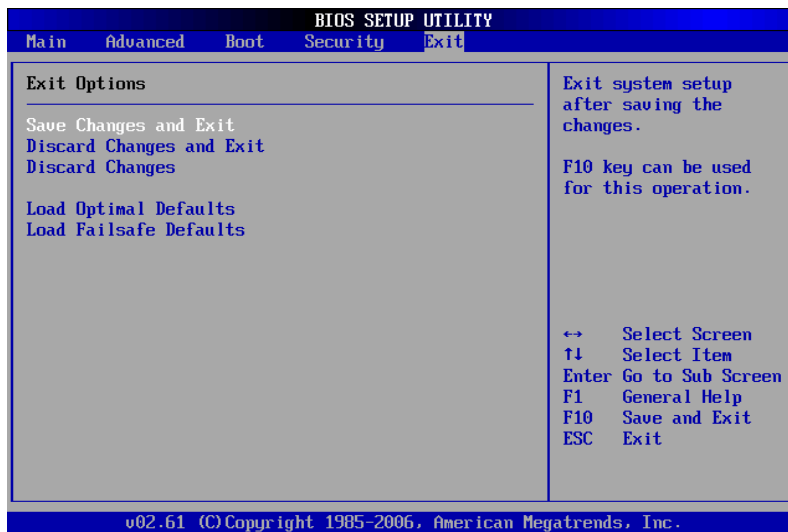
Select Clear User Password from the Security Setup menu and press <Enter>.

**Clear New Password:**

[Ok] [Cancel]

Appear Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after completes.

## Exit Options

**CAUTION:**

It will conflict with ML910™ Com Ports resource and there is a work-around to fix it if you use I/O resources is "2F8h", "3F8h", "2E8h" or "3E8h" to PCMCIA card.

Please enter "BIOS Setup Utility" menu and refer following procedure to setup:

1. Click "Advanced ".
2. Select "Peripherals Configuration".
3. To disable "Serial Port 1".

**("Serial Port 1" is located on the left side of the notebook, when you disable it, this Serial Port1 will be no function.)**

## ML User Application (MLUA)

As previously described the MLUA is designed for users to configure the parameters of various functions in the notebook. By using these configuration parameters, you can change the default configuration that automatically loads when you turn on the computer.

ML User Application is automatically launched every time you boot your notebook into Windows Operating System, this can be indicated by the ML User Application icon on the taskbar. Double-click on the ML User Application icon will bring up the application window.



ML User Application is presented in a tab-based user interface, which consists of below tabs:

- About tab displays the following system information:
  - Motherboard Version
  - BIOS Version
  - EC Version
  - Application Version
- GPS tab displays the name of the built-in GPS module, and it allows user to turn ON or OFF the built-in GPS module. Default setting is OFF.
- General Purpose I/O tab allows user to turn ON or OFF the GPIO port 0 and GPIO port 1 when notebook is docked to a Vehicle Dock. Default setting is OFF both GPIO ports.
- Monitor tab displays the following information:
  - Processor Temperature
  - Battery Capacity
  - Car Voltage
  - Docking Board Temperature
  - Docking Fan Speed
- WWAN Device tab displays the name of the built-in WWAN module, and it allows user to turn ON or OFF the built-in WWAN module. Default setting is OFF.

- Temperature tab displays the following temperature readings from different sensors located on the system:
  - Processor Temperature
  - LCD Display Temperature
  - System Temperature
  - Hard Disk Drive Temperature
  - Primary Battery Temperature
  - Secondary Battery Temperature
- Battery tab allows user to select the most frequently used battery charger profile which defines the battery calibration cycle.
- This WLAN Device tab displays the name of the built-in WLAN module, and it allows user to turn ON or OFF the built-in WLAN module. Default setting is OFF.
- This Speaker Output tab allows user to define the notebook speaker behavior.

### **General Guidelines**

Below are the general guidelines on how to use the ML User Application:

- Click on the **OK** button to save changes and close the ML User Application window.
- Click on the **Cancel** button to discard changes and close the ML User Application.
- Click on the **Apply** button to save changes and keep the ML User Application window remained open.
- Click on the **Get Default Value** button to reset option to its default value.
- Click on the **Help** button to show the Help Content for the ML User Application.

#### **Note:**

Changing on ML User Application parameters will impact the ML Administrator Application configuration that has connection with ML User Application and vice versa

Specific details on the MLUA application and the setting that can be addressed are explained in more detail in the On-line Help that accompanies the application.

## ML Administrator Application (MLAA)

This application is designed for administrator to configure the parameters of various functions in the notebook. By using these configuration parameters, you can change the default configuration that automatically loads when you turn on the computer.

Every time you start the ML Administrator Application, the current configuration parameters saved in EC is loaded and displayed in the ML Administrator Application window.

For specific details on this application and the various parameters that can be adjusted please refer to the On-line for the application.



### **CAUTION:**

It is recommended the any changes made using the MLAA application only be performed by a System Administrator.

This page intentionally left blank

# ***Installing Software Drivers***

To take full advantage of the unique features of your computer, some operating systems require customized software, known as drivers, to be installed.

If you purchased the computer with Windows pre-installed, your dealer may have already installed the drivers. If not, you need to install the drivers using the driver CD supplied with your computer.

This chapter describes how to install the drivers.



# How to Use the Driver CD

**NOTE:**

1. The drivers may have been updated after this user guide was published. For latest driver updates, please contact your dealer.
2. You can always find README or document files in the folders for the LAN, TPM, Touch , Bluetooth, WLAN, HD Audio and Chipset on the driver CD. These files contain the latest information from the software supplier.
3. The available items may differ according to your computer model and operation system.
4. In order to access the User Guide on this CD you will need to have a copy of ADOBE Acrobat Reader on the computer or access to the Internet by the computer to use the ADOBE hot link icon to down load the reader.

An Autorun program is provided on the driver CD to help you easily install the drivers. When the driver CD is inserted, the Autorun program automatically starts. If you need to start the program manually, run the **AutoRun.exe** program from the root directory of the driver CD.

# Main Menu

The Main Menu Screen:

To install drivers and applications for your computer, make your selecting the right.



Device Drivers	Provides access to the available drivers selections
Applications	Provides access to the available applications selections
User Guide	Allows you to access the electronic version of the User Guide
Browse CD	Allows you to browse the contents of this CD. Requires the ADOBE Reader
Get ADOBE Reader Icon	This is a hot link to the ADOBE web site in order to access and download the ADOBE Reader for viewing the ML910™ User Guide on this CD

## Installing Device Drivers

1. Click “Device Drivers” in the “Main Menu”.
2. To install the necessary driver, just click on the particular option and follow the onscreen instructions to continue and complete installation.

- **Device Driver Installers Menu Screen**

There are 5 screens located in the Device Driver Installers menus. You can use the Next and Back buttons to navigate back and forth in the screens.



Bluetooth	Click on the Bluetooth button to install both the driver & application
Chipset	Click on the Chipset button to install the Chipset driver
DSP	Click on the DSP button to install the DSP driver
EVDO	Click on the EVDO button to access the Driver and Watcher installs

- **EVDO Device Driver Installers Menu Screen**



EVDO	Click on the EVDO button to install Watcher
EVDO MC5725 Driver	Click on the EVDO MC5725 Driver button to install the EVDO driver

- **Device Driver Installers Page 2 of 5**



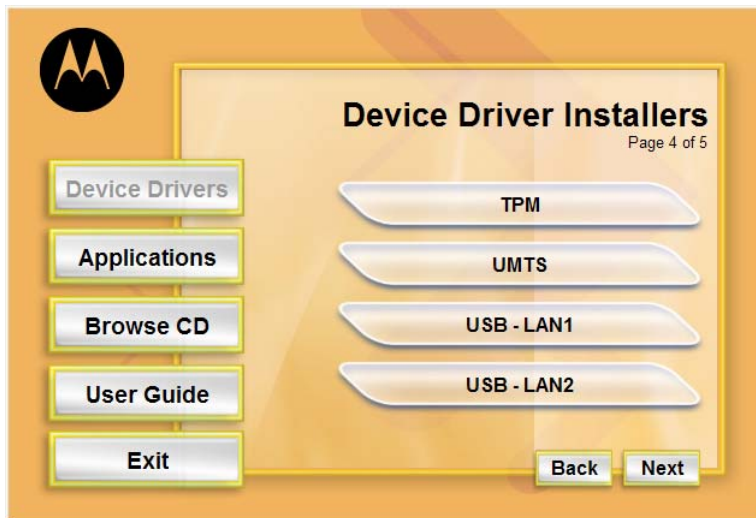
Fingerprint	Click on the Fingerprint button to installs the Fingerprint driver.
HD Audio	Click on the HD Audio button to installs the HD Audio driver.
LAN	Click on the LAN button to installs the LAN driver.
Modem	Click on the HD Modem button to installs the Modem driver.

- **Device Driver Installers Page 3 of 5**



MotoMesh	Click on the MotoMesh button to both the MotoMesh driver & application.
Serial Mouse Patch for GPS	This is neither driver or app but is a required patch for GPS Operation
TouchPad	Click on the TouchPad button to installs the LAN driver.
TouchPanel	Click on the TouchPanel button to installs the TouchPanel driver.

- **Device Driver Installers Page 4 of 5**



TPM	Click on the TPM button to install the Trusted Platform Module driver.
UMTS	Click on the UMTS button to installs both the UMTS driver and application.
USB – LAN1	Click on the USB – LAN1 button to installs the USB – LAN1 driver.
USB – LAN2	Click on the USB – LAN2 button to installs the USB – LAN2 driver.

- **Device Driver Installers Page 4 of 5**



Video	Click this button to access ATI video Driver Installer and NET Framework 2.0
WDE1000	Click on the WDE1000 button to install both the WDE1000 driver & application

- **Video Device Driver Installers**



ATI Video	Click on the ATI Video to install the ATI video Driver
NET Framework 2.0	Click on the NET Framework 2.0 button to install the NET Framework 2.0 which required for the ATI video driver

# Installing Applications

1. Click "Applications" in the "Main Menu".
2. Click on the application program you want to install.



ML Service	Click on the ML Service button to install the ML admin Application
ML User Application	Click on the ML User Application button to install the ML User Application
MW800 Display Utilities	Click on the MW800 Display Utilities button to install the MW800 Display Application Utilities

# ***Caring for the Computer***

Taking good care of your computer ensures trouble-free operation and also reduces the risk of damage to your computer.

This chapter gives you guidelines covering these areas of maintenance:

- How to protect the computer.
- What to note when using and storing the computer.
- How to clean the computer.
- What to note when using the battery pack.
- What to note when traveling with the computer.



# Protecting the Computer

To safeguard the integrity of your computer data as well as the computer itself, you can protect the computer in several ways as described in this section.

## Using the Password

The power-on password protects your computer against unauthorized use. If the password is set, the prompt requesting for the password appears on the screen whenever the computer is turned on.

The password is set via the SCU program. See “Security Settings” in Chapter 5 for instructions.

## Using an Anti-Virus Strategy

The Security feature of the SCU program protects the boot sector of the hard disk from virus attacks..

It is recommended that you install a virus-detecting program to keep your computer secure from potential viruses that could damage your files and system.

# Taking Care of the Computer

## Location Guidelines

- Use the computer where the temperature is between -20 °C (-4 °F) and 50 °C (122 °F).
- Avoid placing the computer in a location subject to high humidity, extreme temperatures, mechanical vibration, direct sunlight, or heavy dust.
- Do not cover or block any ventilation openings on the computer. For example, do not place the computer on a bed, sofa, rug, or other similar surface. Otherwise, overheating may occur which could result in damage to the computer.
- Keep the computer at least 13 cm (5 inches) away from electrical appliances that can generate a strong magnetic field such as a TV, refrigerator, motor, or a large audio speaker.
- Do not move the computer abruptly from a cold to a warm place. A temperature difference of more than 10 °C (18 °F) will cause condensation inside the unit, which may damage the storage media.
- Do not place the computer on an unsteady surface.

## General Guidelines

- Do not place heavy objects on top of the computer as this may damage the display.
- The screen surface can be easily scratched. Do not use paper towels to clean the display. Avoid touching it with a ballpoint pen or pencil.
- To maximize the life of the backlight in the display, use the system's power management feature to automatically turn off the backlight. Avoid using a screen saver or other software that prevents the power management from working.

## Cleaning Guidelines

- Never clean the computer with its power on.
- Use a soft cloth moistened with water or a non-alkaline detergent to wipe the exterior of the computer.
- Gently wipe the display with a soft, lint-free cloth. Do not use alcohol or detergent on the display.
- Dust or grease on the touchscreen can affect its sensitivity. Clean the touchscreen by using adhesive tape to remove the dust and grease on its surface.

# Battery Pack Guidelines

## Optimal Use of the ML910 RUGGED NOTEBOOK Battery

The battery is a consumable product and its performance will gradually degrade based on usage. To minimize battery degradation and ensure longer life, limit the number of charges and ensure the battery is not exposed to high ambient temperatures. If possible, the battery pack should only be recharged when it is nearly fully discharged. It is recommended to store the battery removed from the ML910™RUGGED NOTEBOOK with a nominal charge to prevent over-discharge. A full charge is recommended if the battery is to be stored in the ML910™RUGGED NOTEBOOK.

For optimal use, users should **avoid** the following:

- Use on battery power for short periods of time then repeatedly charging
- Using or storing in a place with high temperature.

## Charging

Charge and discharge time will differ depending on the computer's power status and temperature. Battery charging time increases when the computer's power is on and is also dependent on the battery's temperature. To charge the battery more quickly, power off the computer or place it in the standby or the hibernation mode. Battery charging time also increases when in low or high temperature environments below 10°C, (50°F) or above 30°C (86°F). During normal charging (between 32°F and 113°F) the battery indicator will glow amber. When full the indicator will glow green. The ML910™'s battery will **not** be charged if its temperature is outside the allowable range of 0° to 45°C (32°F to 113°F). During this condition, the battery indicator will not be illuminated.

- **The battery should be charged in a temperature range of 10°C to 35°C (50°F to 95°F).**

When the outside air temperature is high (35°C or above), the temperature inside the battery will be higher. Avoid charging the battery where the temperature is high, such as inside a vehicle, with all its windows closed and/or exposed to the hot sun or other places where the ambient temperature is high. Although the battery can also be charged down to 0°C, the charging time will be greatly increased and the battery capacity will be greatly reduced.

- **It is not recommended to charge the battery more than once per day.**

Constant recharging of the battery after every use accelerates battery degradation. To increase battery life it is recommended to recharge the battery no more than once per day or when the remaining charge drops below 20%. To increase battery life, the computer will not charge the battery immediately after it has been fully charged unless the remaining charge has fallen to less than 95%

- **If possible, charge the battery while the computer is powered off.**

When the computer's power is on, the temperature inside the battery will increase due to the heat generated by the internal electronic components. Charging the battery at higher temperatures will degrade the battery more quickly. It is highly recommended

that you charge the battery while the computer is powered off. This allows for faster charging, less degradation, and longer battery life.

## Maximizing Battery Operation Time

- **Leave the computer off when not in use!**
- **Decrease the internal LCD brightness by pressing FN + F5**  
Pressing Fn + F5 will lower the degree of brightness, thereby reducing the power consumption.
- **Before stepping away from your computer, place it in standby or hibernation mode**  
Standby or hibernation mode will reduce power consumption.
- **To select Power Options: Click: [Start] - [Control Panel] - [Performance and Maintenance] - [Power Options], and select the desired power-saving setting.**
- **Motorola recommends against using screen savers or applications that place a significant load on the CPU**  
Some screen savers and applications place a large load on the CPU, producing a significant decrease in battery runtime even when the computer is not being used.
- **If possible remove unnecessary peripheral devices (USB devices, PC Cards, external mouse, etc.) when not in use.**
- **For all other power-saving settings, please refer to the Power Management information in this section of the User Guide.**

## Storage and Non Use for Extended Periods

**When the computer is not in use for an extended period (10 days or more):**

- **Remove the battery from the computer with a remaining charge of 30% to 45%, and then store it in a cool, dark and dry place.**

If the battery pack is kept installed in the computer, it will discharge steadily even when the computer's power is off. If this condition continues for a long period (10 days or more), the battery may over discharge, causing performance degradation. In addition, this degradation will accelerate if the unit is stored in any high temperature environment such as inside a vehicle with windows closed, exposed to direct sun or in any other environment where the temperature is high. Store the unit with battery pack where the temperature is within the range of 10°C to 30°C (50°F to 86°F). Never allow the temperature to exceed 60°C (140°F) or permanent damage may occur.

If the battery has been stored out of the notebook computer, longer than 60 days, it should be checked for remaining charge condition. If below 20% remaining charge, the battery should be charged up to 30 to 45% before placing it back in storage.

## Removal of the Battery Pack

- Do not install or remove while the computer is on or connected to external power.



### CAUTION:

Removal of the battery pack with power on may present a dangerous condition and may cause the computer to malfunction or permanent damage to the battery.

- If you remove or store the battery pack, make sure the battery terminals do not contact any conductors such as metal objects or water. Otherwise the battery may become unusable as a result of a short circuit.
- Do not touch or attempt to clean the terminals. If battery terminals are dirty or damaged the battery may not function properly or the computer may not operate properly. Properly dispose of the dirty or damaged battery and obtain a new one.

## Battery Charge Status and Battery Calibration

The battery pack has built-in functions to measure, store and display the battery charge status. As the battery pack is used over a long period of time, the remaining capacity display may become inaccurate due to aging of the battery pack, usage, and other factors. To display the remaining battery charge accurately, the Battery Calibration function will automatically check the state of the battery, and then discharge it to the appropriate level for calibration. A one hour rest period is then necessary. (AC or external power must stay connected during the preceding steps). After the rest period, the battery will fully charge as long as the AC power or external power is still applied. This procedure will be performed once after initial setup and every 30-45 days thereafter depending on the usage setting, mostly vehicle or mostly office.

### NOTE:

1. A full charge is not necessary for successful completion of the calibration.
2. Battery Calibration **does not** increase the battery's capacity; it only allows the battery to recalibrate and report its full capacity, accurately.

# When Traveling

- Before traveling with your computer, make a backup of your hard disk data into optical discs or other storage devices. As an added precaution, bring along an extra copy of your important data.
- Make sure the battery pack is fully charged.
- Make sure the computer is turned off.
- Do not leave objects that will press onto the display.
- Disconnect the AC adapter from the computer and take it with you. Use the AC adapter as the power source and as a battery-charger.
- Hand-carry the computer. Do not check it in as luggage.
- Allow extra time for airport security. Many airports inspect electronic devices carefully.
- When going through airport security, it is recommended that you send the computer and USB disks through the X-ray machine (the device you set your bags on). Avoid the magnetic detector (the device you walk through) or the magnetic wand (the hand-held device used by security personnel).
- If you plan to travel abroad with your computer, consult your dealer for the appropriate AC power cord for use in your country of destination.

This page intentionally left blank

# ***Troubleshooting***

Hardware, software, or a combination of both can cause computer problems. This chapter tells you what actions to take when solving common computer problems.

This chapter is divided into three sections:

- Preliminary checklist.
- Solving common problems.
- Resetting the computer.
- HDD Recovery Process.



# Preliminary Checklist

Here are helpful hints to follow when you encounter any problem before taking further action.

- Try to isolate which part of the computer is causing the problem.
- Make sure you turn on all peripheral devices before turning on the computer.
- If an external device has a problem, make sure that the cable connections are correct and secure.
- Make sure the configuration information is properly set in the BIOS Setup Utility.
- Make sure all the device drivers are correctly installed.
- Make note of your observations. Are there any messages on the screen? Do any indicators light? Do you hear any beeps? Detailed descriptions are useful to the service personnel when you need to consult one for assistance.

If the problem persists after you follow the instructions in this chapter, contact an authorized dealer for help.

# Solving Common Problems

For easy reference, the problems are divided into these categories.

<b>Problem Type</b>	<b>Go to</b>
Battery Problems	P. 8-4
Bluetooth Problems	P. 8-5
ODD Drive Problems	P. 8-5
Display Problems	P. 8-6
Hardware Device Problems	P. 8-7
Hard Disk Drive Problems	P. 8-7
Keyboard, Mouse and Touchpad Problems	P. 8-8
LAN Problems	P. 8-8
WLAN Problems	P. 8-9
Modem Problems	P. 8-10
Power Management Problems	P. 8-10
Software Problems	P. 8-10
Sound Problems	P. 8-11
Startup Problems	P. 8-11
Other Problems	P. 8-11
Resetting the Computer	P. 8-12
The HDD Recovery Process	P. 8-13

## Battery Problems

**The battery does not charge (Battery Charge indicator does not light amber).**

- Make sure the AC adapter is properly connected.



- Make sure the battery is not too hot or cold. Allow time for the battery pack to return to room temperature.
- Make sure the battery pack is correctly installed.
- Make sure the battery terminals are clean.



**The operating time of a fully charged battery becomes shorter.**

- If you often partially recharge and discharge, the battery might not be charged to its full potential. Initialize the battery to solve the problem. (See “Initializing the Battery Pack” in Chapter 3 for instructions.)

**The battery operating time indicated by the battery meter does not match the actual operating time.**

- The actual operating time can be different from the estimated time, depending on how you are using the computer. If the actual operating time is much less than the estimated time, initialize the battery. (See “Initializing the Battery Pack” in Chapter 3 for instructions.)

## Bluetooth Problems

### **I cannot connect to another Bluetooth-enabled device.**

- Make sure both devices have Bluetooth activated.
- Make sure the distance between the two devices is not over 10 meters or that there are no walls or other obstructions between the devices.
- Make sure the other device is not in “Hidden” mode.
- Make sure both devices are compatible.

### **I cannot end a Bluetooth connection.**

- If another device is connected to your computer, you can either end the connection using the other device or by deactivating Bluetooth.

## ODD Drive Problems

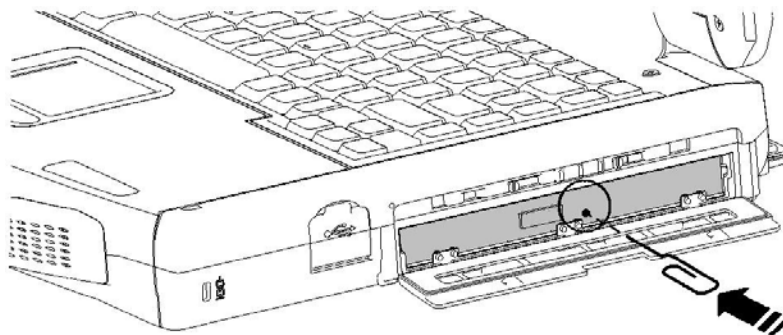
The ODD drive cannot read a disc.

- Make sure the disc is correctly seated in the tray, with the label facing up.
- Make sure the disc is not dirty. Clean the disc with a disc cleaning kit, available in most computer stores.
- Make sure the computer supports the disc or the files contained.

### **You cannot eject a disc.**

The disc is not properly seated in the drive. Manually release the disc following the method described next:

1. Turn off the computer.
2. Insert a small rod, such as a straightened paperclip, into the drive’s manual-eject hole and push firmly to release the tray.
3. Pull the tray out until fully extended, and then remove the disc.



# Display Problems

## **Nothing appears on the screen.**

- If the power-on indicator is not on, check the electrical outlet, the plugs and power cords.
- If the power button does not respond to a light touch, press the button firmly.
- If you are using battery power, make sure that it has a charge remaining and that it is installed correctly.
- During operation, the screen may automatically turn off as a result of power management. Press any key to see if the screen comes back.
- The brightness level might be too low. Increase brightness by pressing **Fn+F6**.
- The display output might be set to an external device. To switch the display back to the LCD, press **Fn+F9**, or change the display through the settings in **Display Properties**.
- Try turning the computer off (refer the “**Resetting the computer**” section on P. 8–14), wait for a few seconds then turn on again.

## **The characters on the screen are dim.**

- Adjust the brightness and/or contrast.

## **Bad dots appear on the display at all times.**

- A small number of missing, discolored, or bright dots on the screen are an intrinsic characteristic of TFT LCD technology. It should not be regarded as a LCD defect.

## **Resolution cannot be adjusted to desired setting.**

- Make sure that the video driver is correctly installed.

## **The external monitor displays nothing.**

- Make sure that the monitor is turned on.
- Make sure that the monitor's signal cable is properly connected.



- Switch the display to the monitor by pressing **Fn+F9**, or change the display through the settings in **Display** Properties.

**Simultaneous display/multi-display does not work.**

- Make sure you turn on the external monitor before turning on the computer.
- Press **Fn+F9** to toggle through the display options or change the settings in **Display** Properties in Windows.

## Hardware Device Problems

**The computer does not recognize a newly installed device.**

- The device may not be correctly configured in the BIOS Setup Utility. Run the BIOS Setup Utility program to identify the new type.
- Make sure if the device driver needs to be installed. (Refer to the documentation that came with the device.)
- Make sure if the device needs any jumper or switch settings. (Refer to the documentation that came with the device.)
- Check the cables or power cords for correct connections.
- For an external device that has its own power switch, make sure the power is turned on.

## Hard Disk Drive Problems

**The hard disk drive error message appears on the screen.**

- Insert a bootable diskette and check the integrity of your hard drive.
- The hard disk drive has defects. Ask your dealer for help.

**The hard disk drive operations seem slow.**

- The data files stored on the hard disk drive may be badly fragmented. Use a tool such as Window's **Disk Defragmenter** to rearrange the files and improve the performance.

**The hard disk drive in-use indicator glows without blinking.**


- The data files stored on the hard disk drive may be badly fragmented. Use a tool such as Window's **Disk Defragmenter** to rearrange the files and improve the performance.

## Keyboard, Mouse and Touchpad Problems

### **The keyboard does not respond.**

- Try connecting an external keyboard. If it works, contact an authorized dealer, as the internal keyboard cable might be loose.

### **The numeric keypad is disabled.**

- Make sure **Num Lk** is switched on. (Check if the Num Lock Indicator  glows or not.)

### **The external keyboard does not work.**

- Make sure the keyboard cable is properly connected.

### **The USB mouse does not work.**

- Make sure the mouse cable is properly connected.

### **The touchpad does not work, or the pointer is difficult to control with the touchpad.**

- Make sure the touchpad is clean.

## LAN Problems

### **I cannot access the network.**

- Make sure the LAN driver is correctly installed.
- Make sure the LAN cable is properly connected to the RJ-45 connector and the network hub.



- Make sure the network is properly setup and configured.
- Make sure the user name or password is correct.

## WLAN Problems

### **I cannot use the WLAN feature.**

- Make sure the WLAN card is correctly installed.
- Make sure the necessary driver(s) is correctly installed.
- Make sure the WLAN feature is turned on.

### **Transmission quality is poor.**

- Your computer may be in an out-of-range situation. Move your computer closer to the Access Point or to the WLAN device it is associated with.
- Check if there is high interference around the environment and solve the problem as described next.

### **Radio interference exists.**

- Move your computer away from the device causing the radio interference such as microwave oven and large metal objects.
- Plug your computer into an outlet on a different branch circuit from that used by the affecting device.
- Consult your dealer or an experienced radio technician for help.

### **I cannot connect to another WLAN device.**

- Make sure the WLAN feature is turned on.
- Make sure the SSID setting is the same for every WLAN device in the network.
- Your computer is not recognizing changes. Restart the computer.
- Make sure the IP address or subnet mask setting is correct.

### **I cannot communicate with the computer in the network when Infrastructure mode is configured.**

- Make sure the Access Point your computer is associated with is powered on and all the LEDs are working properly.
- If the quality of the operating radio channel is poor, change the Access Point and all the wireless station(s) within the BSSID to another radio channel.
- Your computer may be in an out-of-range situation. Move your computer closer to the Access Point it is associated with.
- Make sure your computer is configured with the same security option (encryption) to the Access Point.
- Use the Web Manager/Telnet of the Access Point to check whether Access Point is connected to the network.
- Reconfigure and reset the Access Point.



**I cannot access the network.**

- Make sure the necessary driver(s) is correctly installed.
- Make sure the network configuration is appropriate.
- Make sure the user name or password is correct.
- You have moved out of range of the network.
- Turn off power management.

## Modem Problems

**The modem does not work.**

- Make sure the modem driver is correctly installed.

## Power Management Problems

**The computer does not enter Standby or Hibernation mode automatically.**

- When your computer is connected to another device, it may not enter Standby or Hibernation mode if the connection is actively in use.
- Make sure the Standby or Hibernation time-out is enabled.

**The computer does not enter Standby or Hibernation mode immediately.**

- If the computer is busy performing tasks, it will only enter Standby or Hibernation mode after completing the tasks.

**The computer does not resume from Standby or Hibernation mode.**

- The computer automatically enters Standby or Hibernation mode when the battery pack drops to 3% of being fully discharged. Do any one of the following:
  - Connect the AC adapter to the computer.
  - Replace the empty battery pack with a fully charged one.

**The computer does not enter Hibernation mode with the Fn+F10 hot keys.**

- Make sure the Hibernation function is specified on the sleep button.

## Software Problems

**An application program does not work correctly.**

- Make sure the software is correctly installed.
- If an error message appears on the screen, consult the software's documentation for further information.

- If you are sure the operation has stopped, reset the computer. (See “Resetting the Computer” later in this chapter.)
- Use “Task Manager” by pressing Ctrl+Alt+Del to close the error application.

## Sound Problems

### **No sound is audible.**

- Make sure the volume control is not set too low.
- Make sure the audio driver is correctly installed.
- Make sure the computer is not in Standby mode.
- If using an external speaker, make sure the speaker is properly connected.

### **Distorted sound is produced.**

- Make sure the volume control is not set too high or too low. In most cases, a high setting can cause the audio electronics to distort the sound.

### **The sound system does not record.**

- Adjust the playback or recording sound levels.

### **The external microphone or audio device does not work.**

- Make sure the microphone is connected to the proper connector on the computer.
- Make sure the driver is installed in your computer.
- Click the speaker icon on the taskbar and check the Windows volume control.
- Check the volume control of your computer.

## Startup Problems

### **When you turn on the computer, it does not respond and the Power Indicator does not light green.**

- If you are using an external AC power, make sure the AC adapter is correctly and securely connected. Also, make sure the electrical outlet works properly.
- If you are using the battery power, make sure the battery has been charged prior to turning on the computer.

### **When you turn on the computer, it stops after POST.**

- Restart your computer.

## Other Problems

### **The date/time is incorrect.**

- Correct the date and time via the operating system or BIOS setup Utility.

- If the above does not work, the RTC (Real-Time Clock) battery is at the end of its life. Call an authorized dealer to replace the RTC battery.

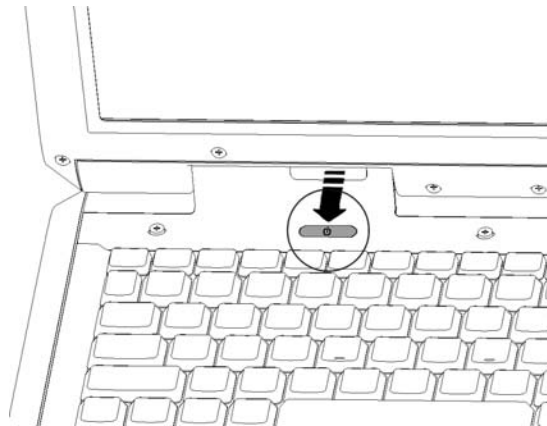
## Resetting the Computer

You may have to reset (reboot) your computer when an error occurs and the program you are using hangs up.

If the system operation appears to hang, first wait. It is possible that the system is processing data. Check the hard disk drive in-use indicator. If it blinks irregularly, the program may be accessing data and preventing you from using the keyboard. If you are sure the operation has stalled and the “restart” function of the operating system does not work, reset the computer.

Reset the computer by any one of these methods:

- Press **Ctrl+Alt+Del** – to launch the “Task Manager” window and select “Shut Down” or “Restart”.
- If the above action does not work, turn off the system by pressing the Power Button for 4 seconds. Wait for at least five seconds and turn on again.
- If the above does not work, press the Power Button for 10 seconds. The system will shut down and the Embedded Controller BIOS will be reset. Wait for at least five seconds before turning it on again.



### **CAUTION:**

Resetting will cause any unsaved data to be lost, but does not impact any of the saved data on the hard drive. Only the Embedded Controller information will be reset.

# The HDD Recovery Process

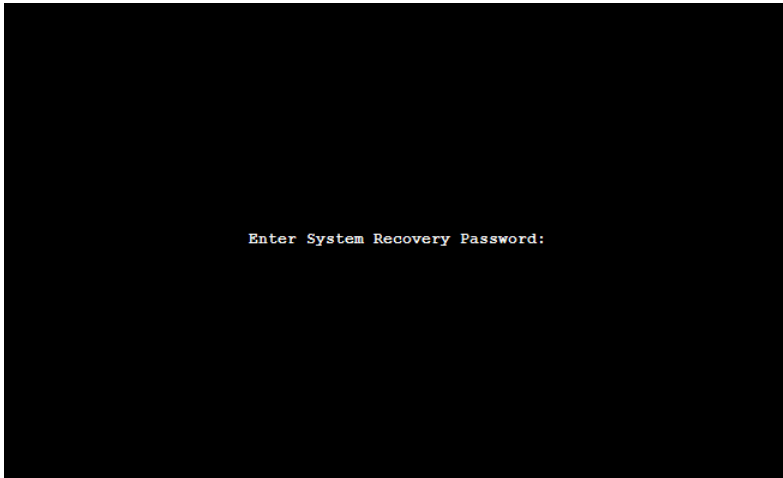
## System Recovery Program

Your system comes with a System Recovery program that can help you to diagnose and solve problems you found on your system. It consists of the following options:

- Run System Restore Utility– This option will activate the System Restore function, which is a component of Windows XP that you can use to restore your computer to a previous state, if a problem occurs, without losing your personal data files.
- Run System Recovery – This option will wipe out the entire hard disk and restore your system back to its original state as it was shipped out from factory.
- Run Disk Diagnostic Utility – This option will help you to detect disks errors and attempt to repair errors automatically.



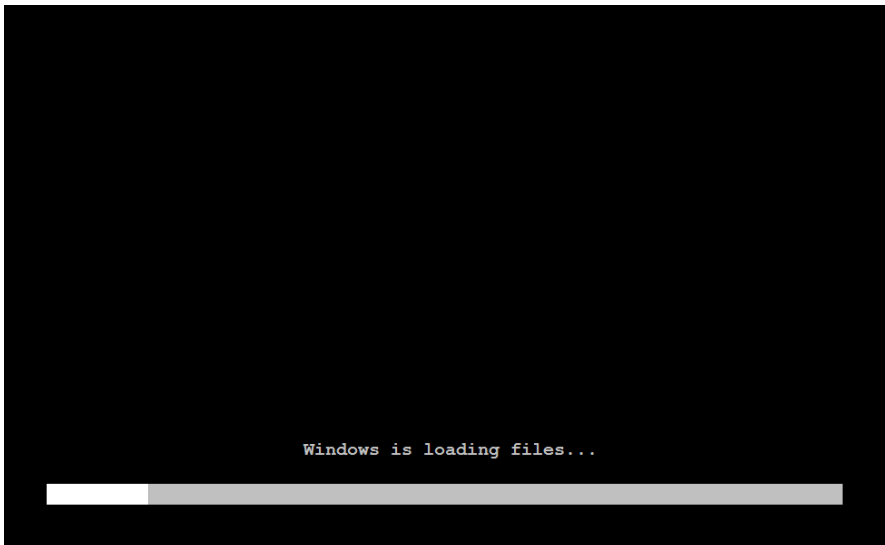
1. During system boots up, press on Ctrl + F9 keys on keyboard to activate the System Recovery.



2. You will be prompted for the System Recovery password, enter the password then press Enter key to continue.

**Note:**

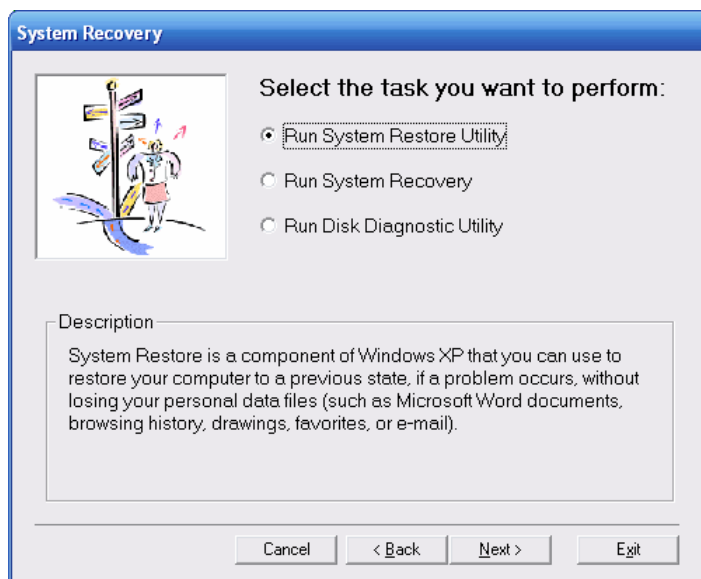
- The default System Recovery password is **123456**.
- It can be changed in BIOS Setup.
- If you failed to enter the correct password in 3 attempts, system will be halted and you will need to restart the system in order to try again.



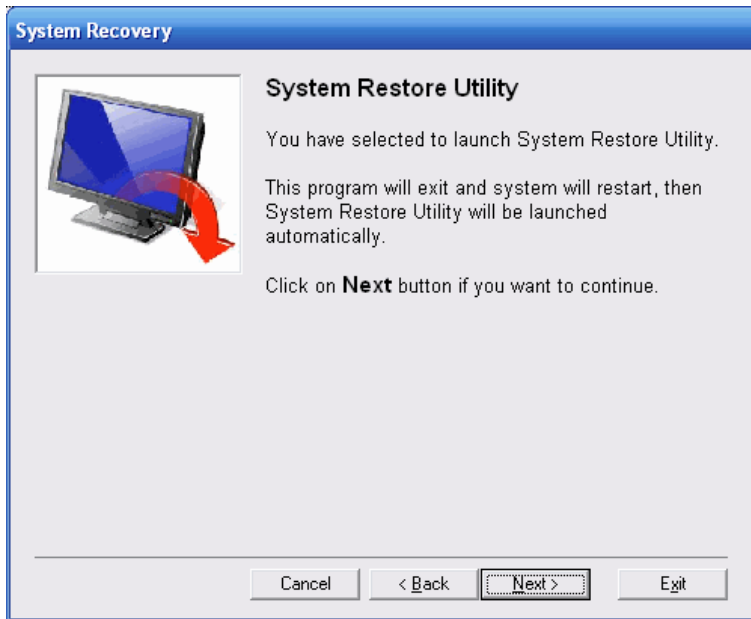
3. System will be booting into System Recovery program if you entered the correct password.



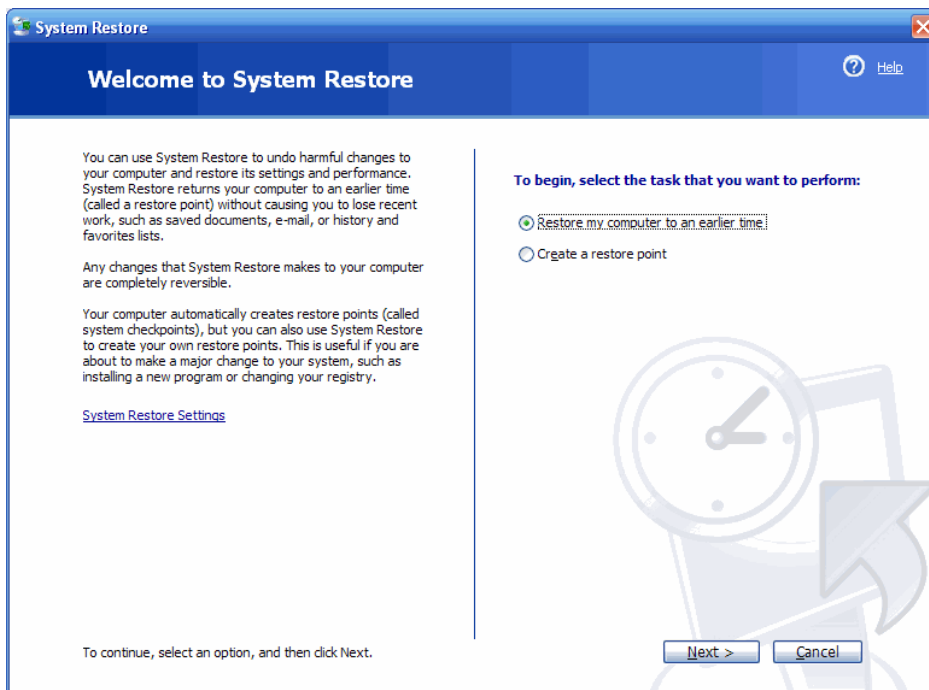
4. This is the Welcome screen you will be seeing if you successfully activate the System Recovery program. The standard navigation of the program are outlined as below:
- To proceed to the next step, click on the **Next** button.
  - To go back to previous screen, click on the **Back** button.
  - To go back to the Welcome screen, click on the **Cancel** button.
  - To terminate this program and restart to Windows, click on the **Exit** button.



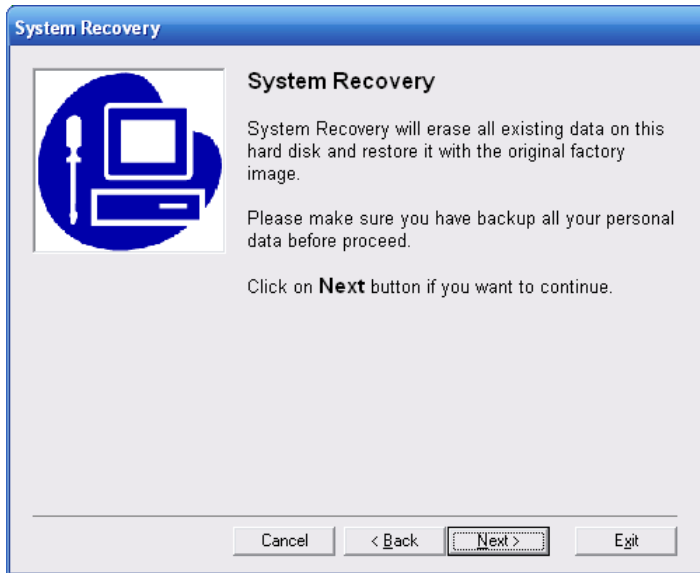
5. You will be presented with the options of task that you may perform with this program. A brief description of the selected task is also displayed at the bottom of the screen to help you.
- After select the task you want to perform, click on **Next** button.



6. If you selected System Restore Utility as the task that you want to perform, you will be presented with this screen.
- To proceed with System Restore, click on the **Next** button.



7. System Restore will be launched automatically after the system restarted.

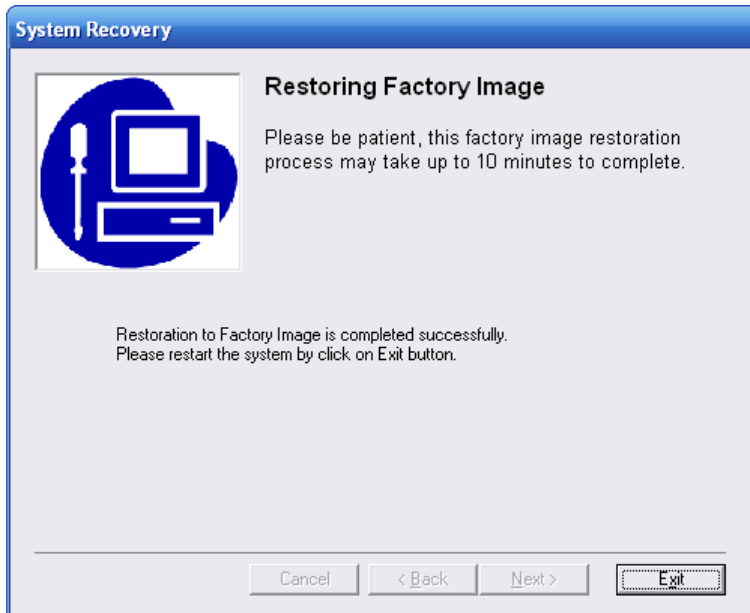


8. If you selected System Recovery as the task that you want to perform, you will be presented with this screen.
- To proceed with System Recovery, click on the **Next** button.



9. Please wait while System Recovery is in progress, it may takes up to 10 minutes to complete.





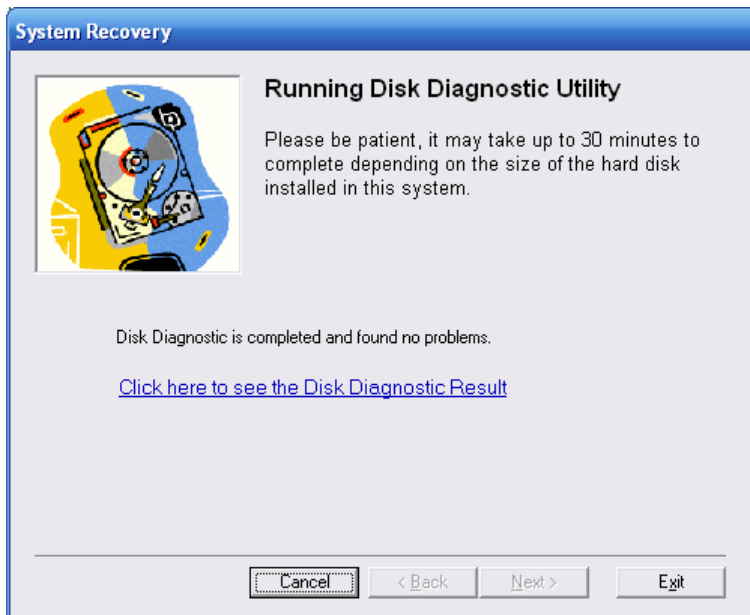
10. System Recovery is completed successfully.
- To restart your system, click on the **Next** button.



11. If you selected Disc Diagnostic Utility as the task that you want to perform, you will be presented with this screen.
- To proceed with Disc Diagnostic Utility, click on the **Next** button.



12. Please wait while Disk Diagnostic Utility is checking your hard drive.



13. Disk Diagnostic Utility will show the summary of the disk diagnostic.
- To see the detailed result, click on the **Click here to see the Disk Diagnostic Result** link.
  - To exit the program and restart to Windows, click on the **Exit** button.

This page intentionally left blank

## The Accessories List

Item No.	Parts No.	Description
1	HKNN4004A	ML910™ Primary Battery
2	HKNN4006A	Secondary Battery—for media bay
3	HKVN4005A	Software CD, ML910™ User Manual & Drivers
4	HKLN4317A	ML910™ High-Tier Dock
5	HKLN4310A	ML910™ Mid-Tier Dock
6	HKLN4311A	ML910™ Office Port Replicator
7	HKUN4082A	Full Travel Keyboard US , ML910™
8	HKUN4083A	Rubberized Keyboard Backlit Assy US—ML910™
9	HKLN4309A	ML910™ Spare AC ADAPTER
10	DDN756	ML910™ Cigarette ADAPTER
11	HKLN4315A	80G HDD Assembly, ML910™
12	HKLN4316A	120G HDD Assembly, ML910™
13	HKLN4359A	Smartcard Reader, PCMCIA **
14	FAG5027A	GPS Antenna
15	FAG5026A	Wireless WAN Antenna
16	HKUN4064A	RF Pass thru kit
17	HKUN4081A	Secondary SSD 8Gb Drive
18	HKLN4313A	SSD Secondary Installation Kit
Carriers Modems		
19	HKUN4067A	EVDO Internal Module – VERIZON
20	HKUN4071A	UMTS Internal Module – UMTS
21	HKUN4066A	PVDT Modem Installation Kit (PRM w/o Modem)
22	HKUN4075A	EVDO Internal Module – SPRINT

\*\* **Note:** The smartcard reader (HKLN4359A) was designed to meet the ISO7816 operating temperature requirements (0-50C) and does not meet the MIL SPEC-810F temperature requirements. Operating outside of this temperature range may result in abnormal behavior.

Item No.	Parts No.	Description
EMEA Specific Accessories		
23	HKKN4016A	Cable, AC Power UK
24	HKKN4015A	Cable, AC Power Europe
25	HKUN4068A	Full Travel Keyboard UK, ML910™
26	HKUN4065A	Rubberized Keyboard Backlit Assy – ML910™ UK
27	HKUN4073A	UMTS Internal Module–EMEA
Media Bay Options		
28	HKUN4078A	CD-RW/DVD Combo Drive
29	HKUN4079A	CD-RW/DVD-RW Dual Drive
Contact local Motorola representative for inquiries please.		
30	HKUN4084A	512MB RAM Module, ML910™
31	HKUN4085A	1GB RAM Module, ML910™
32	DDN7511A	USB Floppy Drive (YE-DATA) External ML910™
33	HKLN4273A	External PCMCIA Mesh Modem WDE 1100
34	HK1235A	External PCMCIA Mesh Modem WMC7300
35	HK1234A	External PCMCIA Mesh Modem WMC6300

**Note:** Accessory List and availability subject to change without notice. Contact your Motorola Dealer for latest information.

## *The Acronyms and Glossary*

2

Items	Acronyms	Glossary
1	AC	Alternating Current
2	ACPI	Advanced Configuration and Power Interface: An industry-standard specification (co-developed by Hewlett-Packard, Intel, Microsoft, Phoenix, and Toshiba, for operating-system-directed power management for laptop, desktop, and server computers. A replacement for APM.
3	AP	Access Point
4	ATA	Advanced Technology Attachment, The computer disk drive interface standard. The specification is for IDE interface.
5	BIOS	Basic Input/Output System
6	BSSID	Basic Service Set Identifier.
7	CCD	Charge Coupled Device, A storage device in which individual semiconductor components are connected to each other so that the electrical charge at the output of one device provides the input to the next.
8	CPU	Central processing unit: The computational and control unit of a computer.
9	CRT	Cathode-Ray Tube
10	DC	Direct Current
11	DVCAM	A digital video compression format provided by Sony. The DVCAM format provides fixed media compression.
12	DVD	Digital Versatile Disk
13	DVD-RW	Digital Versatile Disk – Read and Write
14	EEPROM	Electrically Erasable Programmable Read-Only Memory: EPROM that can be erased using electrical signals applied to specific pins. See EPROM.
15	EIRP	Effective Isotropic Radiated Power
16	EMEA	Europe, Middle East and Africa, a term used in traditional and electronic commerce to signify activities in those regions of the world or to refer specifically to those regions.

3

Items	Acronyms	Glossary
17	EMI	Electromagnetic interference, Interference by electromagnetic signals that can cause reduced data integrity and increased error rates on transmission channels.
18	EVDO	Evolution Data Only, EVDO is a high-speed network protocol used for wireless Internet data communications. EVDO supports up to 2.4 Mbps bandwidth using a set of radio frequency channels. The EVDO protocol supports asymmetric communications, allocating a
19	FCC	Federal Communications Commission.
20	GPS	Global Positioning System. A system that uses satellites, receivers and software to allow users to determine their precise geographic position.
21	HDD	Hard Disk Drive
22	IP	Internet Protocol: Network layer protocol in the TCP/IP stack offering a connectionless internet work service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security. Defined in RFC 791.
23	LAN	Local Area Network
24	LCD	Liquid Crystal Display
25	LED	Light-Emitting Diode: A semiconductor device that emits light (usually visible or infrared) when forward-biased.
26	MAC	Media Access Control
27	MESH	A set of faces, each of which is described by a simple polygon.
28	MMCX	Multimedia Communications Exchange
29	NVRAM	Nonvolatile RAM, RAM that retains its contents when a unit is turned off.
30	ODD	Optical Disk Drive
31	OS	Operating System
32	PCMCIA	Personal Computer Memory Card International Association. An industry trade association that creates standards for notebook computer peripheral devices such as PC cards.
33	POST	Power-On Self-Test
34	PVDT	Private DataTAC, a registered trademark of Motorola Inc.
35	RF	Radio Frequency, The part of the general frequency spectrum between the audio and infrared light regions (about 10 kHz to 10,000,000 MHz).
36	RoHS	Restriction of Hazardous Substance,
37	RTC	Real-Time Clock

Items	Acronyms	Glossary
38	S/PDIF	Sony/Philips Digital Interface: It is a standard (developed by Sony and Philips) for the digital transfer of audio data. Transferring audio data between two devices digitally avoids the degradation of quality inherent in using digital to analogue devices.
39	SAR	Specific Absorption Rate
40	SATA	Serial Advanced Technology Attachment or serial ATA
41	SCU	Setup Configuration Utility
42	SSID	Service set identifier: A code or name attached to a wireless Wi-Fi® network. All devices must use this same, case-sensitive name to communicate.
43	TFT	Thin Film technology
44	TPM	Trusted Platform Module.
45	UMTS	Universal Mobile Telephone System, UMTS is the name for the third generation mobile telephone standard in Europe, standardized by ETSI (see ETSI). UMTS will deliver broadband information at speeds up to 2 MBIT/s. Besides voice and data, UMTS will deliver
46	USB	Universal serial bus, An external bus connection that supports a maximum bandwidth of 12 Mbps and is widely used to connect peripheral devices (sometimes called dongles) to a computer.
47	VCR	video cassette recorder,
48	VGA	Variable-gain amplifier
49	WEEE	Waste Electrical and Electronic Equipment: A safety directive.
50	WLAN	Wireless Local Area Network.
51	WWAN	Wireless Wide Area Network,
52	WXGA	Wide Extended Graphic Array

2

3

4

5

6

7

8



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18

This page intentionally left blank

# Specifications

**NOTE:**

Specifications are subject to change without any prior notices.

Parts		Specifications
CPU		Intel® Core™ Duo L2400 1.66GHz Processor.
Video Graphics Adapter		ATIMobility Radeon™ X1400 (dedicated 128MB) MotionComp capability, support hardware aid for DVD playback Support Dual View function LCD/CRT simultaneous
Memory		2 MB L2 Cashe
ROM BIOS		512 KB Flash EEPROM, system and VGA BIOS, ACPI 2.0, PC2001-compliant.
RAM	System	Two 200-pin DDR2 667 SO-DIMM sockets, Standard 512 MB, maximum 1GB*2 pcs.
	Video	ATI M54 128 MB
Display	Panel	13.3" transmissive WXGA (1280 x 800) LCD with touch screen 500 NIT Brightness.
	Video port	VGA port, video capture.
Audio	Controller	Azalia ALC262 codec, AC97 Rev.2.2 support.
	Ports	Optical S/PDIF output. 2 channel support.
Keyboard		Optional: Full travel QWERTY, fully-sealed backlight keyboard; rubberized backlight keyboard.
Pointing device		Touchpad with 4 programmable buttons.
Storage device	Hard disk drive	2.5-inch, SATA interface 80 GB standard shock-mounted w/ heater; Optional: 120 GB hard disk drive, 16GB Solid State Drive(SSD)
	Floppy Disk Drive	Optional: External USB floppy.

	Configurable Media Bay	Configurable Media Bay, Optional: CD RW / DVD ROM (Combo Drive), CD RW/ DVD RW (Dual Drive), Secondary Battery, or Removable 8GB Secondary Solid State Drive (SSD).
--	------------------------	--

Parts		Specifications
I/O ports		<ul style="list-style-type: none"> <li>•Fingerprint Scanner; 500dpi (requires customer provided software application)</li> <li>•PCMCIA : 1x External Type II - Cardbus support. (Accessory PCMCIA to pci Express 34 converter card included)</li> <li>•I/O ports: <ul style="list-style-type: none"> <li>* 1x Serial</li> <li>* 3x USB 2.0</li> <li>* 1x RJ-11</li> <li>* 1xDC input</li> <li>* 1xShrouded Hot-docking Port</li> <li>* 1xRJ-45 10/100/100 Base-TLAN</li> <li>* 2xExternal RF Pass-Through Ports (1:GPS, 1:WWAN)</li> </ul> </li> </ul>
Communications	Modem	56 K (V.90/V.92; 28,000 ~ 56,000 bits/s data rates)
	LAN (Option)	Broadcom BCM5755M 10/100/1000Mbps.
	Others (options)	Intel 3945 Wireless LAN 802.11a/b/g using diversity antennas. GPS Lassen IQ module Bluetooth V2
Power	AC adapter	<ul style="list-style-type: none"> <li>•Universal AC adapter <ul style="list-style-type: none"> <li>- Input: 100-240 V, 50/60 Hz AC</li> <li>- Output: 18.5V DC/120W</li> </ul> </li> </ul>
	Battery	Primary: Smart Li-ion battery 11.1 V / 7200 mAH (3S3P) Secondary: Smart Li-ion battery 11.1V/ 3500mAH (Configurable Media Bay Option)

Parts		Specifications
Dimension (WxDxH)		3.2"x11.1"x13.2" (336mmx283mmx78mm)
Weight		9.9 lbs (4.5 kg)
Operating System		Supports Windows XP, SP2
Environment	Temperature	According to IEC 68-2-1,2,14 / MIL-STD-810F, Method 501.4, 502.4 Operating: -20°C to 60°C (Tested)
	Humidity	According to IEC 68-2-30 / MIL-STD-810F, Method 507.4 5% to 95% RH, non condensing.
	Altitude	According to IEC 68-2-30 / MIL-STD-810F, Method 500.4 Operating: 15,000 ft Non-operating: 40,000 ft altitude change rate: 2,000 ft/min
	Shock	According to IEC 68-2-27 / MIL-STD-810F, Method 516.5 Operating: 40g, 11 ms, half sine wave Non-operating: 50g, 11 ms, half sine wave
	Vibration	According to IEC 68-2-6 / MIL-STD-810F, Method 514.5 Operating: 10~55Hz/0.075mm, 55~500Hz/1.0g Non-operating: 10~55Hz/0.15mm, 55~500Hz/2.0g
	Drop	According to IEC 68-2-32 / MIL-STD-810F, Method 516.5 (base unit only) Survives 30-36 drop depending on configuration

**This page intentionally left blank**

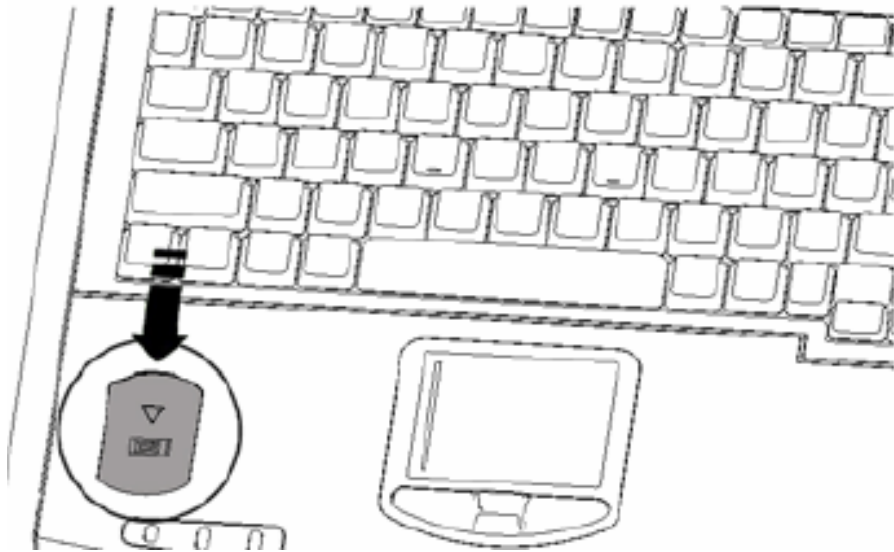
# ***Fingerprint Recognition***

Your ML910™ RUGGED NOTEBOOK features a fingerprint recognition system designed for computer security. It provides a high level of user convenience and gives you a set of powerful tools for securing your computer and protecting your private data. The system can:

- Display fingerprint images derived from the sensor IC.
- Enroll new users.
- Extract fingerprint templates from raw images, and store them in a local database.
- Match live-scan fingerprints against the local database.

# Finger Placement

1. The fingerprint sensor is located at the left side of palm-rest.
2. Slip your finger with the arrow's direction firmly with steady pressure.



**NOTE:**

Be sure that you are making contact with the sensor surface during the scan. The system works best when user follows the recommended direction.

# Fingerprint Recognition

The ML910™ RUGGED NOTEBOOK has a separate embedded Fingerprint Module and a Trusted Platform Module (TPM) included in the unit. This will allow ML910™RUGGED NOTEBOOK to support applications for Trusted Platform Module (TPM) and Fingerprint Recognition.

1. Fingerprint Module can support Fingerprint Recognition applications which can provide for the following features:

- Computers
- Application of Protection
- Secure Windows Logon,
- Enterprise Class Password Management,
- File,

**NOTE:**

1. Above functions will be defined by the Application Provider and the software is used with the Fingerprint Module.
2. Installation of the Fingerprint Module driver can be found in Chapter 6 of this User Guide.

2. Trusted Platform Module (TPM) can support applications TPM device in the unit. This can provide the following functions based on the application used:

- Personal Secure Drive,
- Encrypted virtual drive
- Protection against dictionary attacks

**NOTE:**

1. Above functions will be defined by the Application Provider.
2. Installation of the TPM driver can be found in Chapter 6 of this User Guide.



**This page intentionally left blank.**



## ***Self Install Internal Wireless Modems***

Most customers will purchase their embedded EVDO or HSDPA WWAN modems from Motorola and have them pre-installed by the factory. It is possible to add an EVDO REV A. or HSDPA WWAN (Cellular Carrier) modem later by purchasing a WWAN module from Motorola.

**Note:**

Normally, Motorola's Agencies will provide several kind of Wireless Internal Module and they are different in one/two connectors by one/two of WWAN cable to snap on the joint of the mini card. Please refer following information for installation. Only the items listed in the below table are Motorola certified dives for the ML910™ RUGGED NOTEBOOK operation.

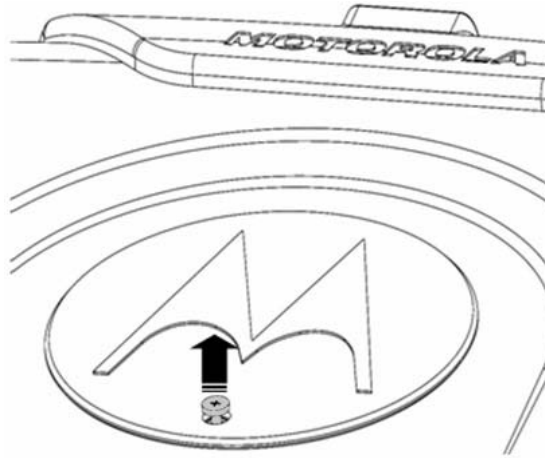
<b>Item</b>	<b>Kit No.</b>	<b>Description</b>	<b>Connector Numbers</b>	<b>WWAN Cable</b>
1	HKUN4067A	Wireless EVDO REV. A Internal Module - VERIZON	2	2
2	HKUN4075A	Wireless EVDO REV. A Internal Module - SPRINT	2	2
3	HKUN4071A	Wireless HSDPA Internal Module – HSDPA	1	1
4	HKUN4073A	Wireless HSDPA Internal Module - EMEA	1	1

## Installation of the HSDPA Internal Modem

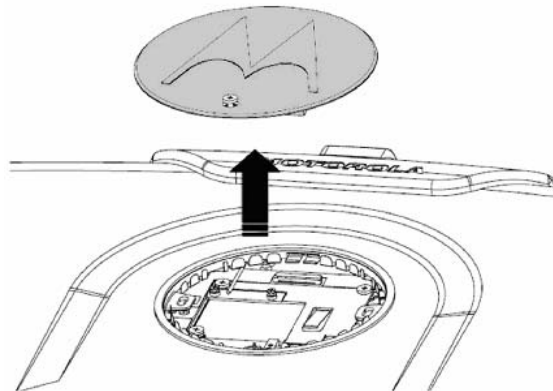
HSDPA Internal kits should have one mini Card port and one WWAN cable such as HKUN4071A and HKUN4073A. Please refer to following procedure for installation.

Remove the M logo for installation.

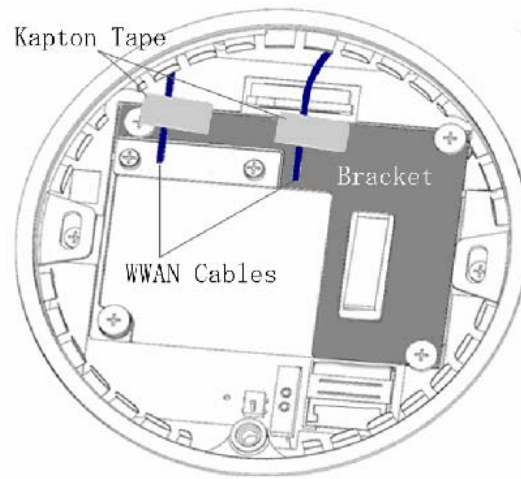
- Remove one screw from the M logo.



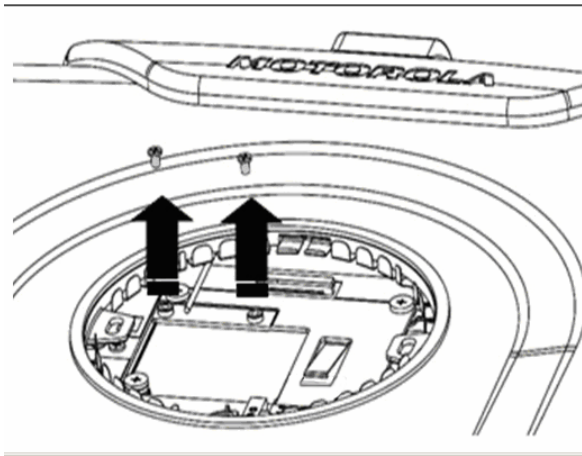
- Remove the M logo.



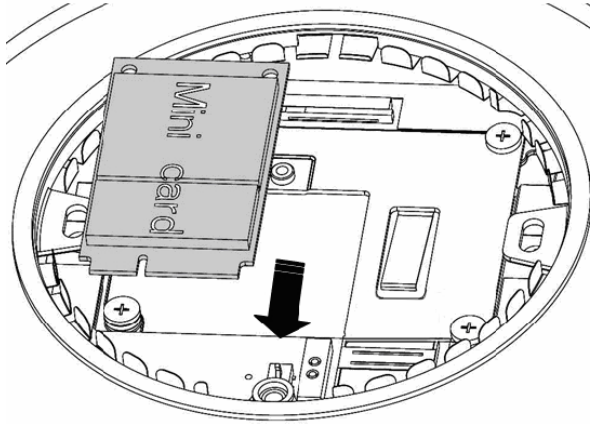
- You will find two antenna (WWAN) cables attached by two pieces of Kapton® tape on the mini card bracket.



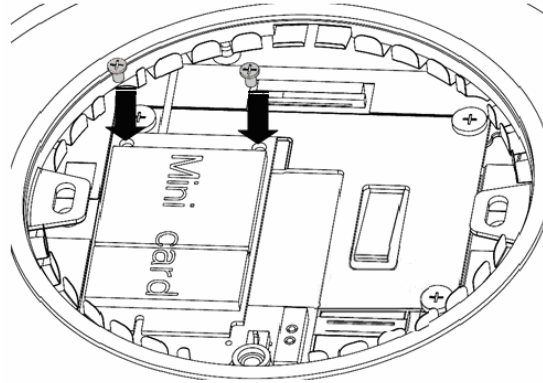
- Remove Kapton® tape from the cable.
- Remove two screws from the mini card bracket.



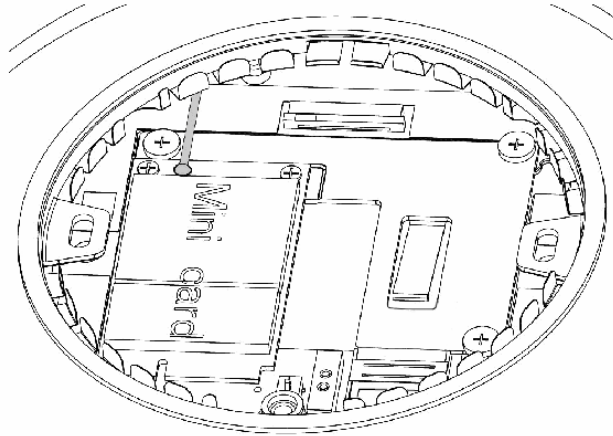
- Insert the Wireless HSDPA Modem Kit.



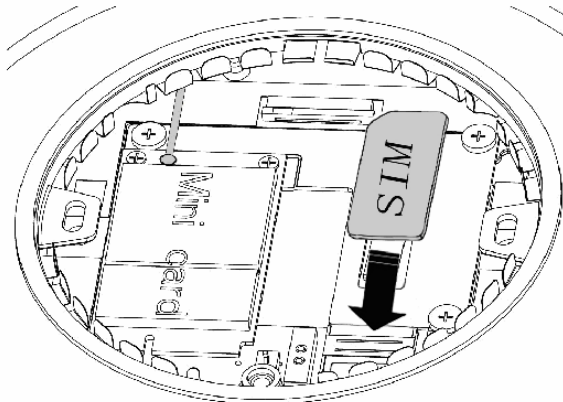
- Fix two screws on the Wireless HSDPA Modem kit.



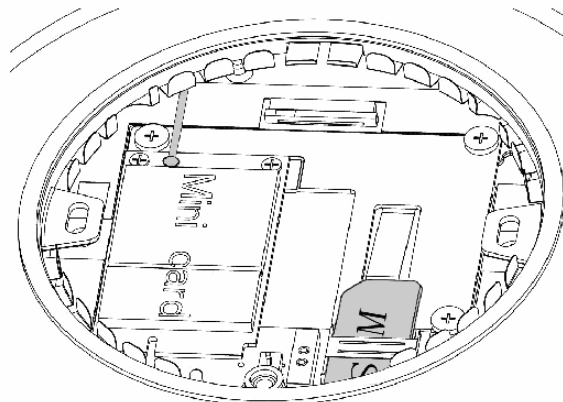
- Snap the Black WWAN cable onto the main port on the mini card.



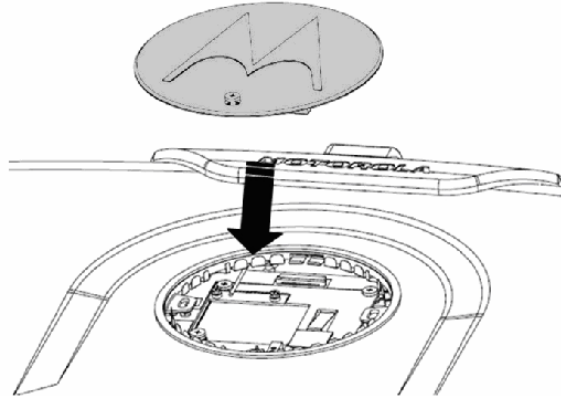
- Insert the SIM card.



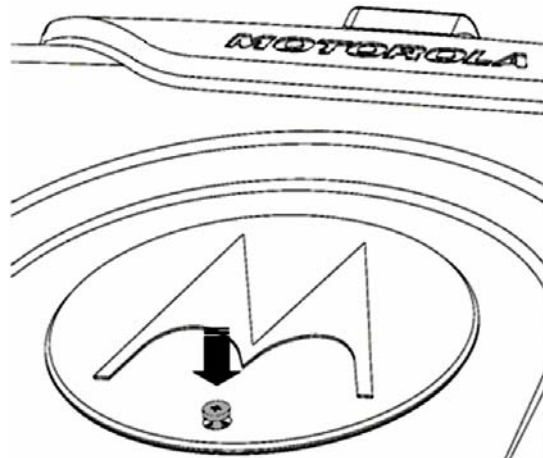
- Installed Internal Wireless HSDPA Modem kit with SIM card.



- Place the M logo back on ML910™ RUGGED NOTEBOOK unit.



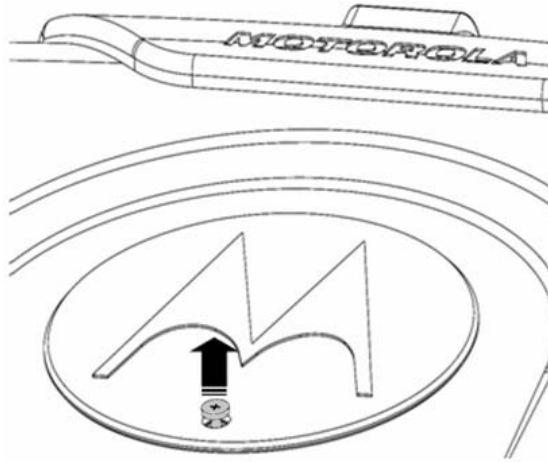
- Fix the M logo with a screw.



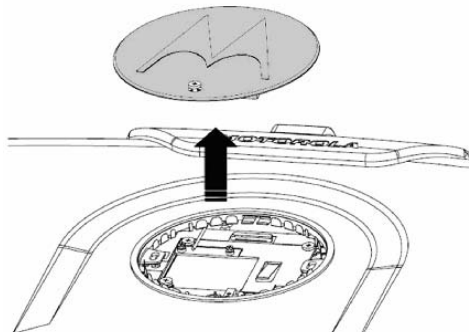
## Installation of the EVDO REV. A Internal Modem

EVDO REV. A Internal Kits should have two mini card port connectors and two WWAN Cables such as Kit No. HKUN4067A and HKUN4075A. Please refer to following procedure for installation.

- Remove one screw from the M logo.

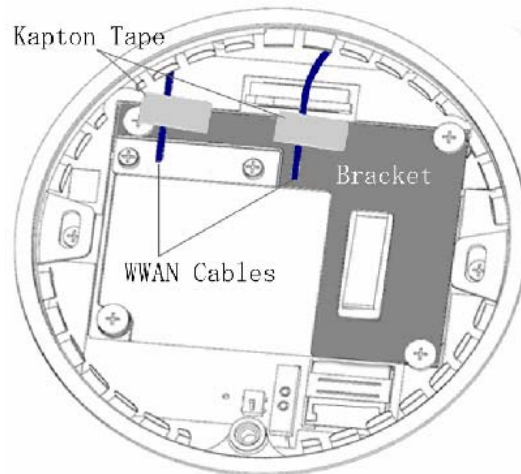


- Remove the M logo.

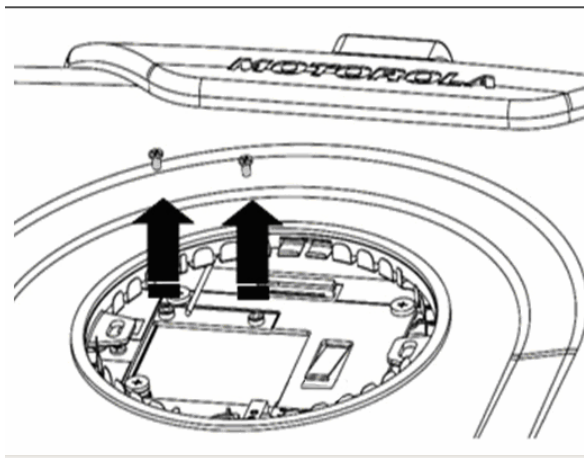




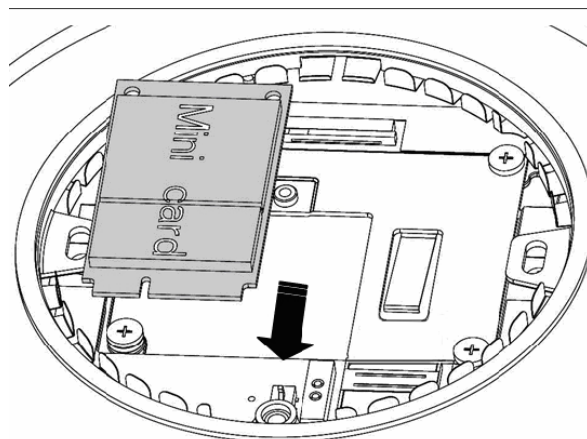
- You will find two antenna (WWAN) cables attached by two pieces of Kapton® tape on the mini card bracket.



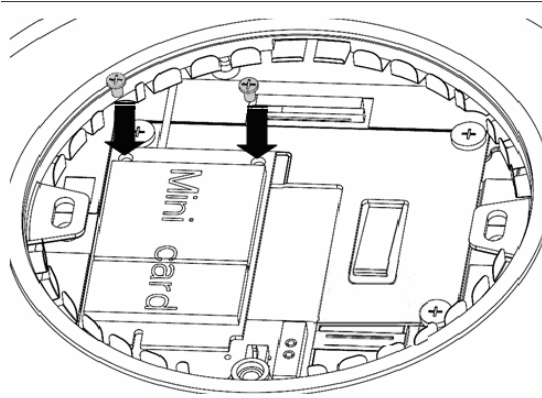
- Remove Kapton® tape from the cable.
- Remove two screws from the mini card bracket.



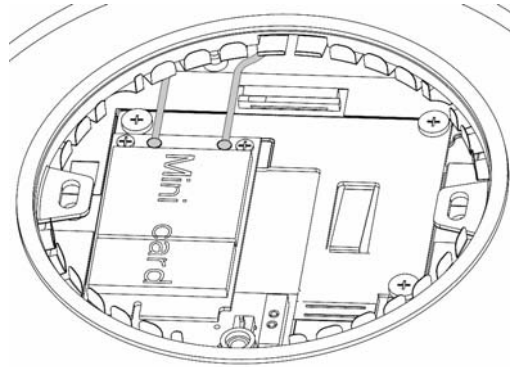
- Insert the Wireless EVDO REV. A Module Kit.



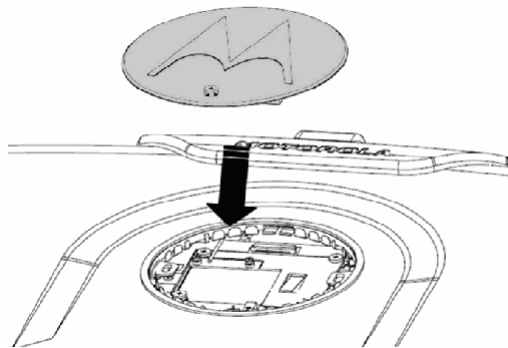
- Fix two screws on the Wireless EVDO REV. A Module.



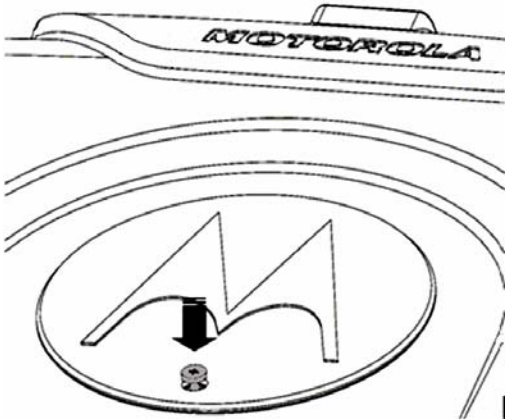
- Snap the Black WWAN cable onto the Main port of the mini card and the White WWAN cable onto the AUX post of the mini card.



- Place the M logo back on ML910™ RUGGED NOTEBOOK unit.

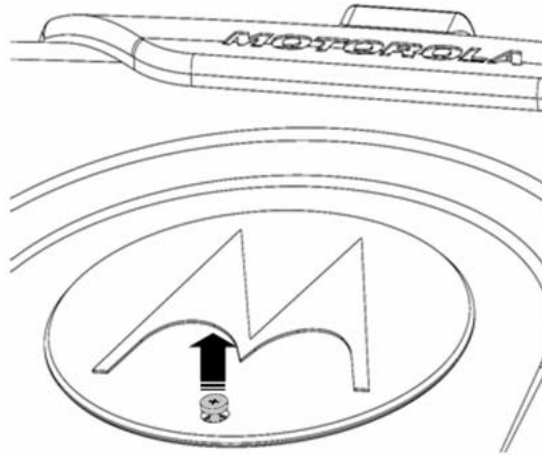


- Fix the M logo with a screw.

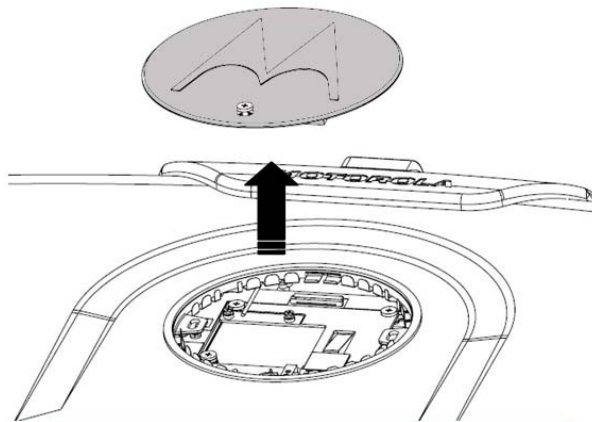


## Installation of the PRM240 Internal Modem Module

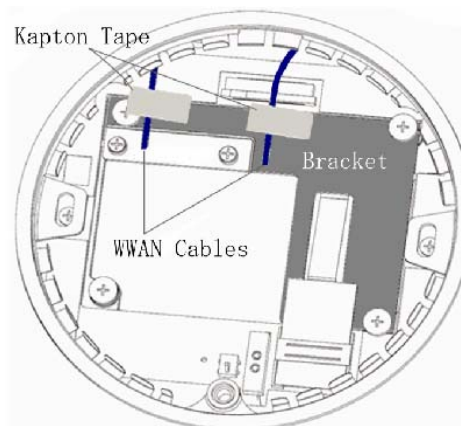
- Remove one screw from the M logo.



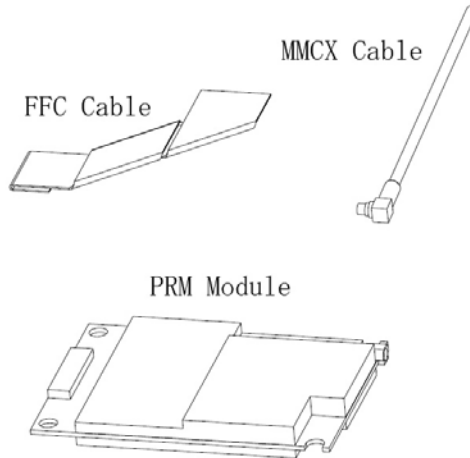
- Remove the M logo.



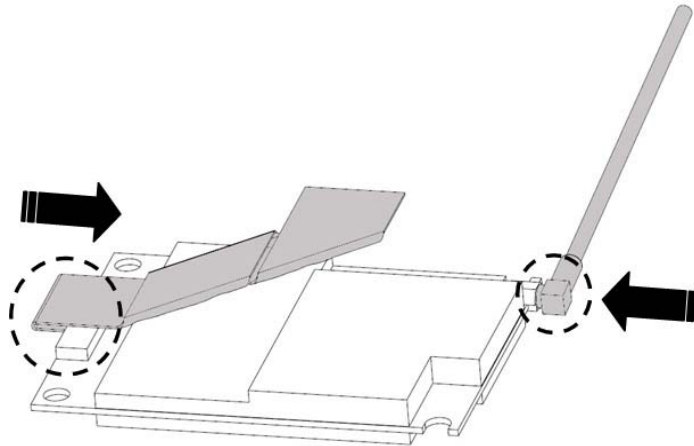
- You will find two WWAN cables attached by two pieces of Kapton® tape on the mini card bracket.



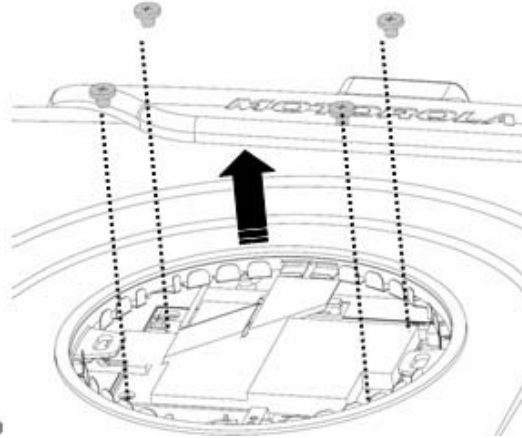
- Remove Kapton<sup>®</sup> tape from cables.
- For each PRM240 Internal Modem Kit (kit no. HKUN4066A), it includes one FFC cable, one MMCX cable and one PRM240 Internal Modem module.



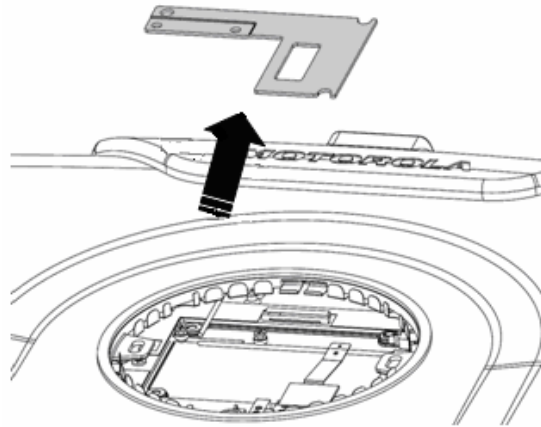
- Connect one side of the MMCX cable to the PRM240 module.



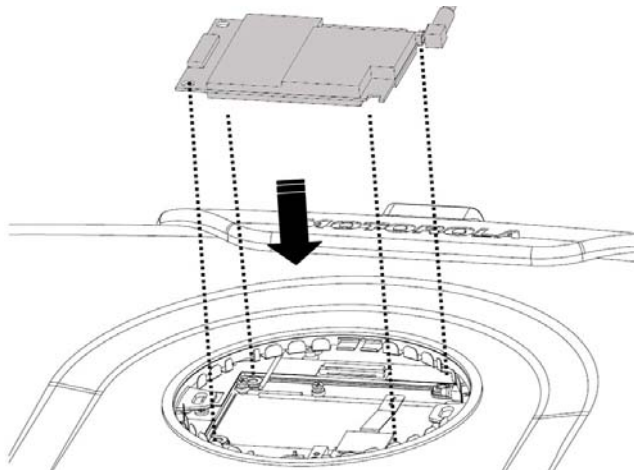
- Remove four screws from the mini card bracket.



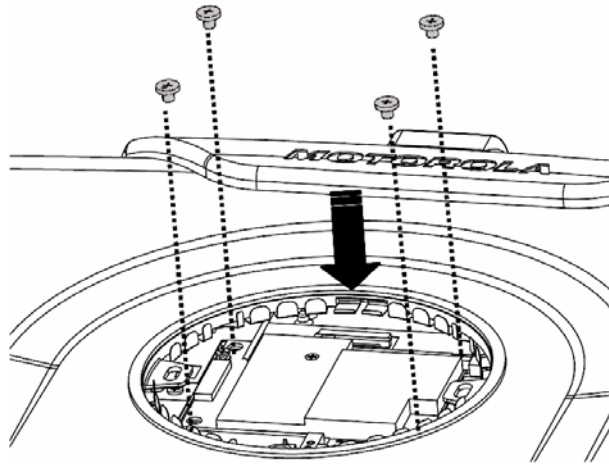
- Remove the mini card bracket from ML910™ RUGGED NOTEBOOK unit.



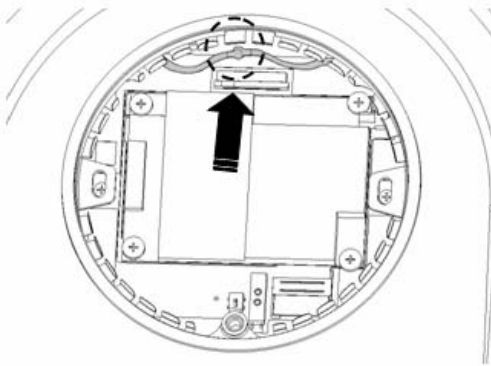
- Place the PRM240 module on ML910™ RUGGED NOTEBOOK by matching each corner of the PRM240 Internal Modem module with the four screw holes.



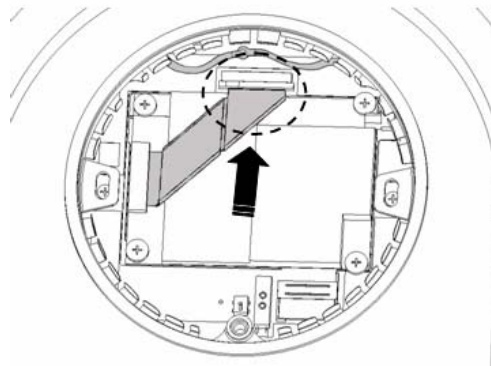
- Fix four screws back on to lock the PRM240 Internal Modem Module.



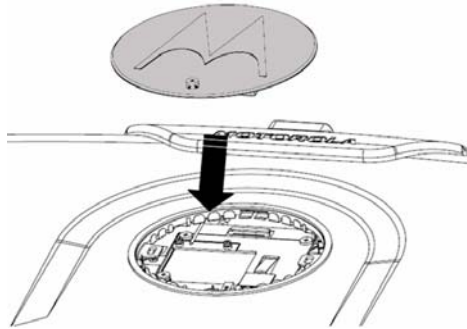
- Snap the Black WWAN cable to the MMCX cable..



- Connect the FFC cable to the FFC connector on the main board.

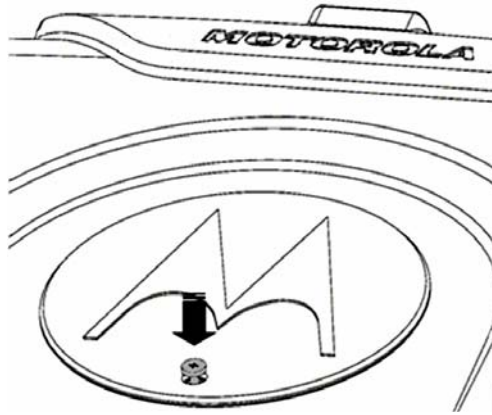


- Place the M logo back on ML910™ RUGGED NOTEBOOK unit.





- Fix the M logo with a screw.



# RoHS / WEEE



**Waste (Disposal)  
of your Electronic  
and Electric  
Equipment**

6866537D90-P



**EN** European Union (EU) Waste of  
Electrical and Electronic Equipment  
(WEEE) directive

The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trashbin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trashbin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste. Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.

**FR** Directive de l'Union Européenne (UE)  
sur l'Élimination des Équipements  
Électriques et Électroniques (DEEE)

La directive DEEE de l'Union Européenne impose que les produits vendus dans les pays de l'UE portent la marque (éventuellement sur l'emballage) d'une poubelle sur roues barrée d'une croix. Comme la directive DEEE l'explique, cette marque composée d'une poubelle sur roues barrée d'une croix signifie que les clients et les utilisateurs des pays de l'UE ne devraient pas inclure leurs équipements électriques et électroniques ou accessoires dans leurs déchets ménagers. Les clients ou utilisateurs des pays de l'UE devraient contacter le représentant local de leur fournisseur d'équipement ou un centre de service pour s'informer sur le système de collection de déchets dans leur pays.

**IT** La direttiva della Unione Europea (EU)  
sui rifiuti di apparecchiature elettriche  
ed elettroniche (RAEE)

La direttiva RAEE della Unione Europea richiede che i prodotti venduti nei paesi della UE debbano essere marcati con il simbolo di un contenitore di spazzatura mobile barrato sul prodotto (o in casi eccezionali sull'imballaggio). Il simbolo di un contenitore di spazzatura mobile barrato, conforme alla direttiva RAEE, significa che i clienti e i detentori finali nei paesi della UE, non dovrebbero smaltire gli apparecchi o gli accessori elettronici ed elettrici con i normali rifiuti domestici. I clienti o i detentori finali nei paesi della UE dovrebbero rivolgersi al fornitore, rappresentante o centro di riparazione locale per ottenere informazioni sui sistemi predisposti nel proprio paese per la raccolta di tali apparecchi usati.

DE

**Richtlinie über Elektro- und Elektronik-Altgeräte (WEEE) der Europäischen Union (EU)**

Produkte, die in EU Ländern auf den Markt gebracht werden, müssen mit einer durchgestrichenen Abfalltonne gekennzeichnet sein (oder in einzelnen Fällen die Verpackung). Die WEEE Richtlinie definiert, dass Kunden und Endnutzer in Ländern der Europäischen Union (EU) elektronische und elektrische Geräte sowie elektronisches oder elektrisches Zubehör nicht in den Hausmüll entsorgen dürfen. Innerhalb der EU setzen Sie sich bitte mit dem örtlichen Vertreter oder Kundendienst Ihres Geräteherstellers in Verbindung, der Ihnen Auskunft zur Altgeräteentsorgung/-abholung geben kann.

PR

**Directiva da União Europeia (UE) relativa aos Resíduos de Equipamentos Eléctricos e Electrónicos (REEE)**

A Directiva REEE da União Europeia exige que os produtos vendidos em países da UE tenham a etiqueta com o símbolo do contentor do lixo barrado com uma cruz no próprio produto (ou, em determinados casos, na embalagem). Tal como definido pela Directiva REEE, este contentor do lixo barrado com uma cruz significa que os clientes e utilizadores finais nos países da UE não devem eliminar equipamentos eléctricos e electrónicos ou acessórios junto com o lixo doméstico. Os clientes ou utilizadores finais nos países da UE devem contactar o representante local do fornecedor do equipamento ou um centro de assistência para obter informações relativas ao sistema de recolha de lixo no país onde vivem.

ES

**La directiva de la Unión Europea (EU) sobre Residuos de Aparatos Eléctricos y Electrónicos (RAEE)**

La directiva RAEE de la Unión Europea requiere que los productos vendidos en los países de la UE sean rotulados mediante el símbolo de un contenedor de basura tachado sobre el producto (o en algunos casos sobre el envase). Conforme con la directiva RAEE, el símbolo del contenedor de basura tachado significa que los clientes y usuarios finales en los países de la UE no deberían de disponer los aparatos eléctricos o electrónicos ni ninguno de sus componentes junto a la basura doméstica. Clientes o usuarios finales en los países de la UE deben entrar en contacto con el centro de servicio o proveedores del equipo para obtener información acerca del sistema de recolección en su país.

SV

**Europaparlamentets och rådets direktiv om avfall som utgörs av eller innehåller elektriska eller elektroniska produkter (WEEE)**

Europaparlamentets direktiv om avfall av elapparater (WEEE) förutsätter, att elektriska apparater (eller i vissa fall deras förpackningar) till salu i EU-länderna skall förses med en symbol som markerar en överkorsad soptunna på hjul. Enligt direktivet bör elapparater eller elektriska tillbehör försedda med denna symbol icke kastas bland allmänt hushållsavfall. I EU-länderna kan man kontakta sina lokala leverantör eller ett servicecenter för att få information om insamling av avfall.

**NL** De richtlijn inzake afgedankte elektrische en elektronische apparatuur (AEEA) van de Europese Unie (EU)

De richtlijn AEEA van de Europese Unie vereist dat producten die in de landen van de EU worden verkocht (of in sommige gevallen de verpakking daarvan), moeten zijn voorzien van het etiket met een doorgekruiste vuilnisbak. Zoals bepaald door de richtlijn AEEA, betekent dit etiket met de doorgekruiste vuilnisbak dat klanten en eindgebruikers in de landen van de EU elektrische en elektronische apparatuur of toebehoren niet met het huisvuil mogen wegwerpen. Klanten en eindgebruikers binnen de EU moeten contact opnemen met hun plaatselijke leverancier of onderhoudscentrum voor informatie over het afvalinzamelsysteem in hun land.

**DA** Den Europæiske Unions (EU) direktiv vedrørende bortskaffelse af elektrisk og elektronisk udstyr (WEEE-direktivet)

Den Europæiske Unions WEEE-direktiv fordrer, at produkter, der sælges til EU-lande, skal bære en mærkat med en overstreget affaldsspand (i visse tilfælde skal mærkaten være placeret på emballagen). Som angivet i WEEE-direktivet betyder dette mærkat med en overstreget affaldsspand, at kunder og slutbrugere i EU-lande ikke må bortskaffe elektronisk og elektrisk udstyr eller tilbehør sammen med husholdningsaffald. Kunder eller slutbrugere i EU-lande skal kontakte deres lokale leverandørrepræsentant eller servicecenter for at få oplysninger om det pågældende lands affaldsindsamlingsystem.

**SF** Euroopan parlamentin ja neuvoston direktiivi sähkö- ja elektroniikkalaiteromusta (WEEE)

Euroopan parlamentin ja neuvoston direktiivi sähkö- ja elektroniikkaromusta (WEEE) edellyttää, että laitteet (jossain tapauksissa pakkaukset) on varustettava merkillä, jossa on ristillä yliviivattu, pyörillä varustettu roska-astia. Direktiivi määrittelee, että tällä merkillä varustettua sähkö- tai elektroniikkaromua ei saa heittää talousjätteisiin. Tietoa kierrätysmateriaalin lajittelusta EU-maissa saa paikalliselta laitteen jälleenmyyjältä tai kierrätyskeskuksesta.

**FL** De Europese WEEE-richtlijn (Waste of Electrical and Electronic Equipment)

De Europese WEEE-richtlijn vereist dat producten die worden verkocht in EU-landen beschikken over het doorgestreepte vuilnisemmerlabel op het product (of, in sommige gevallen, op de verpakking). Hiermee wil de WEEE-richtlijn klanten en eindgebruikers in EU-landen erop wijzen dat ze hun elektronische en elektrische apparatuur of accessoires niet mogen weggooien met het huishoudelijk afval. Klanten of eindgebruikers in EU-landen dienen contact op te nemen met de vertegenwoordiger of het servicecentrum van de lokale leverancier voor informatie over het afvalinzamelingsstelsel in hun land.

**HU**

**Az Európai Unió (EU) Elektromos és elektronikus készülék hulladékaira (WEEE) vonatkozóirányelve**

Az Európai Unió WEEE irányelve előírja, hogy az EU tagállamaiban értékesített termékek esetében legyen feltüntetve az áthúzott hulladékgyűjtőt ábrázoló címke a terméken (vagy egyes esetekben a csomagoláson). A WEEE irányelvben foglaltak szerint ez az áthúzott hulladékgyűjtőt ábrázoló címke azt jelenti, hogy az EU tagállamokban az ügyfelek és a végfelhasználók nem dobhatják ki az elektronikai és elektromos készülékeket vagy tartozékokat a háztartási hulladékgyűjtőkbe. Az EU tagállamokban az ügyfelek és a végfelhasználók lépjenek kapcsolatba a helyi berendezés-szállító képviselőjével vagy a szervíz központtal, hogy tájékozódjanak az országuk hulladékgyűjtő rendszeréről.

**GK**

**Ευρωπαϊκή Ένωση (ΕΕ) Οδηγία για τα Απόβλητα Ηλεκτρικού και Ηλεκτρονικού Εξοπλισμού (WEEE)**

Η οδηγία WEEE της Ευρωπαϊκής Ένωσης απαιτεί τα προϊόντα που πωλούνται σε χώρες της ΕΕ να έχουν μια ετικέτα με ένα διαγραμμένο δοχείο απορριμμάτων πάνω στο προϊόν (ή στη συσκευασία σε κάποιες περιπτώσεις). Όπως ορίζεται από την οδηγία WEEE, αυτή η ετικέτα με το διαγραμμένο δοχείο απορριμμάτων σημαίνει ότι οι πελάτες και οι τελικοί χρήστες στις χώρες της ΕΕ δεν θα πρέπει να απορρίπτουν ηλεκτρονικό ή ηλεκτρικό εξοπλισμό ή εξαρτήματα στα απορρίμματα του νοικοκυριού. Οι πελάτες ή οι τελικοί χρήστες σε χώρες της ΕΕ θα πρέπει να επικοινωνούν με τον τοπικό αντιπρόσωπο παροχής εξοπλισμού ή το κέντρο υπηρεσιών για πληροφορίες σχετικά με το σύστημα περισυλλογής απορριμμάτων στη χώρα τους.

**ET**

**EUROOPA PARLAMENDI JA NÕUKOGU DIREKTIIV elektri- ja elektroonikaseadmete jäätmete kohta**

Euroopa Parlamendi direktiiv elektri- ja elektroonikaseadmete jäätmete kohta nõuab, et Euroopa Liidu maades müüdavatele tootele (või mõnel juhul pakendile) on peale pandud ratastega prügikonteineri märg, millele on rist peale tõmmatud. Elektri- ja elektroonikaseadmete jäätmete direktiivi järgi tähendab see märg, et elektroonika- ja elektriseadmeid ega nende abiseadmeid ei või utiliseerida koos majapidamisjäätmetega. Euroopa Liidus pöörduge oma riigi jäätmekogumissüsteeme puudutava teabe saamiseks seadmete kohaliku edasimüügiesinduse või teeninduskeskuse poole.

**LA**

**Eiropas Savienības (ES) direktīva par elektrisko un elektronisko iekārtu atkritumiem (EEIA) (*Waste of Electrical and Electronic Equipment – WEEE*)**

Eiropas Savienības EEIA direktīva pieprasa, lai uz ražojumiem, kas tiek pārdoti ES valstīs, būtu uzlīme ar pārkrustotu atkritumu tvertni (vai dažos gadījumos uz šo ražojumu iepakojuma). Saskaņā ar EEIA definīciju, šī pārkrustotās atkritumu tvertnes uzlīme nozīmē, ka pircēji un gala lietotāji ES valstīs nedrīkst elektroniskās un elektriskās iekārtas vai to piederumus izmest kopā ar mājsaimniecības atkritumiem. Lai saņemtu informāciju par atkritumu savākšanas sistēmu konkrētā valstī, pircējiem vai gala lietotājiem ES valstīs ir jāsažinās ar savu vietējo iekārtas piegādātāju pārstāvi vai servisa centru.



**Den europeiske unionens (EUs) WEEE-direktiv (Waste of Electrical and Electronic Equipment)**

Den europeiske unionens WEEE-direktiv krever at produkter som selges til EU-land må ha fjernet søppelkassemerket på produktet (eller i noen tilfeller på innpakningen). Som definert av WEEE-direktivet betyr denne fjerningen av søppelkassemerket at kundene og sluttbrukerne i EU-land ikke skal kassere elektronisk og elektrisk utstyr eller tilbehør sammen med husholdningsavfallet. Kunder eller sluttbrukere innenfor EU skal kontakte en representant fra sin lokale utstyrsleverandør eller servicesenter for informasjon om avfallshåndteringssystemet i det enkelte land.



**Europos Sąjungos (ES) Direktyva dėl elektrinių ir elektroninių atliekų (WEEE)**

Europos Sąjungos direktyva WEEE reikalauja, kad prekės, parduodamos ES šalyse, būtų pažymėtos perbrauktos šiukšlių dėžės etikete (kai kuriais atvejais etiketė gali būti ant įpakavimo). WEEE direktyva nurodo, kad šis perbrauktos šiukšlių dėžės simbolis reiškia, kad pirkėjai ir galutiniai naudotojai ES šalyse neturi išmesti elektroninės ir elektrinės įrangos kartu su buitėmis šiukšlėmis. Pirkėjai ir galutiniai naudotojai ES šalyse turi kreiptis į įrangos gamintojo vietinį atstovą arba aptarnavimo centrą, kur jiems bus suteikta informacija apie atliekų surinkimą jų šalyje.



**Smernica Európskej Únie (EÚ) o odpade elektrických a elektronických zariadení (OEEZ)**

Smernica Európskej Únie OEEZ vyžaduje, aby výrobky predávané do krajín EÚ mali na sebe (alebo v niektorých prípadoch na svojom obale) umiestený symbol v podobe preškrtnutej kolieskovej nádoby na odpad. Podľa definície tejto OEEZ smernice tento symbol preškrtnutej kolieskovej nádoby na odpad znamená, že zákazníci a koneční používatelia v krajinách EÚ by sa nemali zbavovať elektrických a elektronických zariadení alebo doplnkov vyhadzovaním ich do domáceho odpadu. Zákazníci alebo koneční používatelia v krajinách EÚ by sa mali obrátiť pre informácie o systéme zberu odpadu v ich krajine na zástupcu dodávateľa v ich lokalite alebo na



**Směrnice Evropské unie (EU) o odpadních elektrických a elektronických zařízeních (OEEZ)**

Směrnice Evropské unie OEEZ vyžaduje, aby byly výrobky prodávané do zemí EU (nebo v některých případech obaly) opatřeny nálepkou s přeškrtnutým odpadkovým košem. Jak stanoví směrnice OEEZ, tato nálepka s přeškrtnutým odpadkovým košem znamená, že zákazníci a koncoví uživatelé v zemích EU by neměli likvidovat elektrická a elektronická zařízení nebo příslušenství jako komunální odpad. Zákazníci nebo koncoví uživatelé v zemích EU by se měli u místního zástupce dodavatele zařízení nebo u servisního střediska informovat o systému sběru odpadu v jejich zemi.

SL

**Direktiva Evropske unije (EU) o odpadni električni in elektronski opremi (WEEE)**

Direktiva WEEE Evropske unije predpisuje, da imajo izdelki, ki so naprodaj v državah EU, na sebi nalepko s simbolom prekrižanega smetnjaka (v nekaterih primerih je lahko tudi na embalaži). Kot določa direktiva WEEE, ta nalepka opozarja lastnike in uporabnike v državah EU, da električne in elektronske opreme ter dodatkov ne smejo odvreči skupaj z gospodinjstvi odpadki. Lastniki in uporabniki v državah EU se morajo pozanimati o odvozu te vrste odpadkov v svoji državi pri svojih krajevnih dobaviteljih opreme ali centrih za popravila.

TU

**Avrupa Birliği (AB) Elektrikli ve Elektronik Gereçler Atık (EEGA) direktifi**

Avrupa Birliği EEGA direktifi AB ülkelerinde satılan ürünlerin etiketlerinde (ya da bazı hallerde ambalajlarında ürünün çöp sepetine atılmaması gerektiğini belirten çapraz sembol konulmasını gerektirmektedir. EEGA direktifinde belirtildiği üzere, bu çöp sepetine atılmaması gerektiğini belirten çapraz işareti AB ülkelerindeki tüketiciler ya da son kullanıcıların elektrikli ve elektronik ürünleri mesken çöpleri/atıkları içinde atmamaları gerektiği anlamını taşır. AB ülkelerindeki tüketiciler ya da son kullanıcılar ülkelerinde uygulanan atık sistemi ile ilgili bilgi almak için ilgili ürünün bölge satış temsilcisi ya da servis merkezleri ile bağlantı kurmalıdır.

PL

**Dyrektywa Unii Europejskiej (UE) dotycząca zużytego wyposażenia elektrycznego i elektronicznego (WEEE)**

Zgodnie z dyrektywą Unii Europejskiej WEEE na produktach (lub w niektórych wypadkach na opakowaniu) sprzedawanych w krajach UE powinna być umieszczona ikona przekreślonego kosza. Zgodnie z definicją zamieszczoną w dyrektywie WEEE, ikona przekreślonego kosza oznacza, że klienci i użytkownicy końcowi w krajach UE nie powinni usuwać wyposażenia elektronicznego i elektrycznego lub akcesoriów razem z odpadami komunalnymi. Aby uzyskać informacje dotyczące sieci punktów, w których przyjmowane jest zużyte wyposażenie w danym kraju, klienci lub użytkownicy końcowi w krajach UE powinni kontaktować się z lokalnym przedstawicielem lub centrum serwisowym dostawcy wyposażenia.