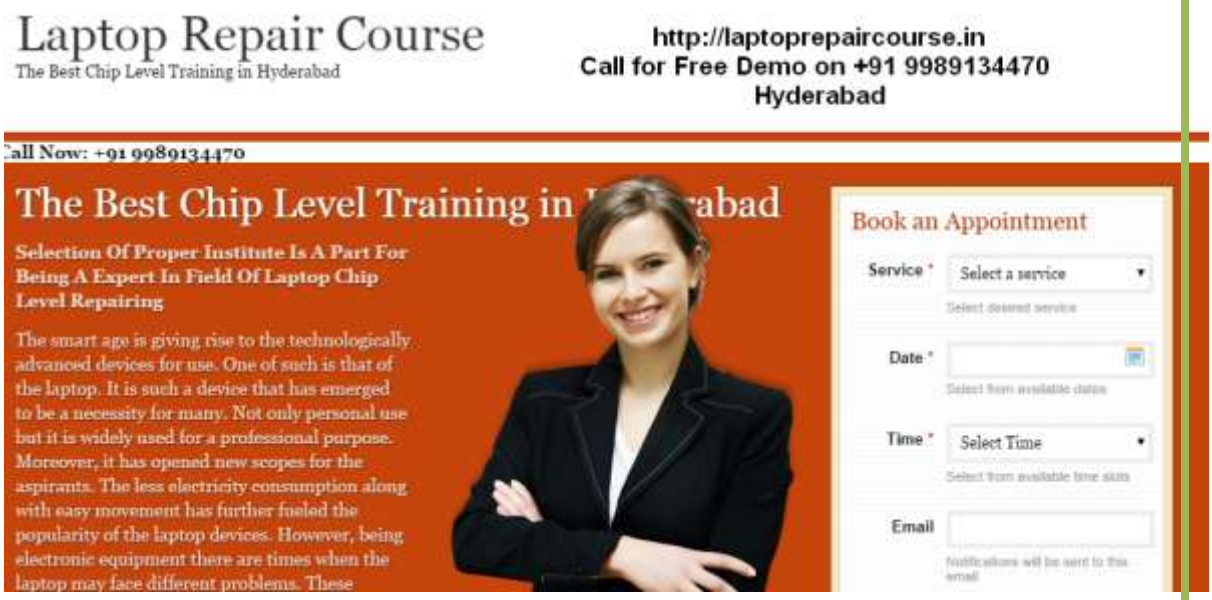
Laptop Chip Level Repair

Classroom Notes

http://laptoprepaircourse.in



LAPTOP

- Two power management modes—suspend mode (or standby mode in Windows 98) and suspend-to-disk mode—that help you conserve battery power.
- Automatic thermal management that slows the microprocessor or starts a small fan when necessary.
- An infrared port compatible with IrDA 1.1 (Fast IR) and 1.0 standards, and a USB connector that supports stand-alone and hub devices.
- A PC Card slot with two connectors that support 5-V and 3.3-V PC Cards.
- A BIOS that resides in flash memory and that can be upgraded by diskette if required.
- A PS/2-compatible touch pad with full mouse functionality.
- Hardware and software support for the Dell Latitude C/Port Advanced Port Replicator (APR) and Latitude C/Dock Expansion Station.

For a complete list of system features, see "Technical Specifications" found later in this chapter.

Physical Description

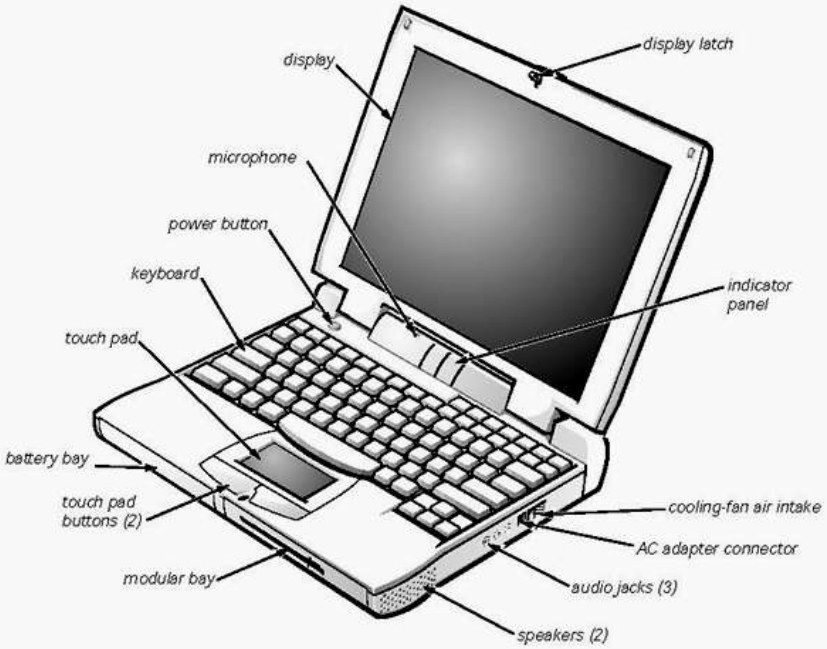


Figure 1-1. Front View of the Computer

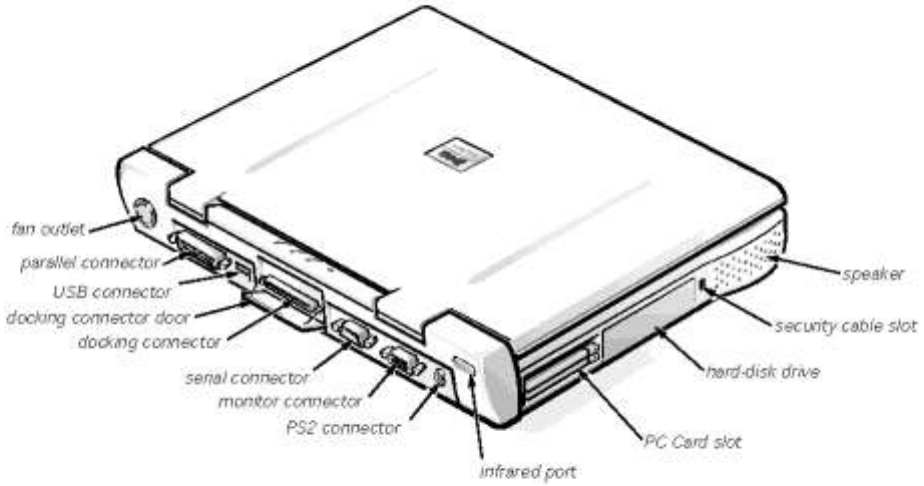


Figure 1-2. Back View of the Computer

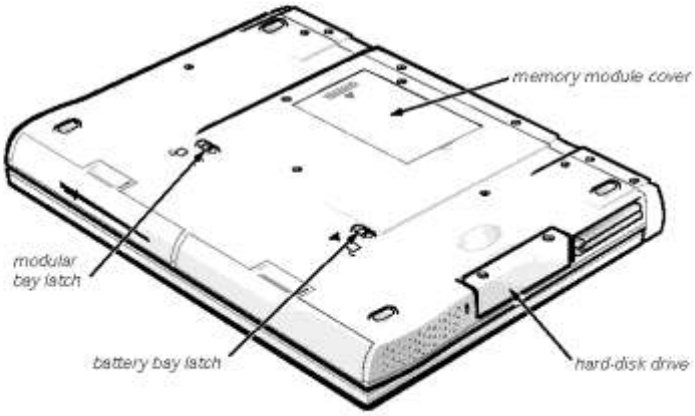


Figure 1-3. Bottom View of the Computer

Indicator Panel

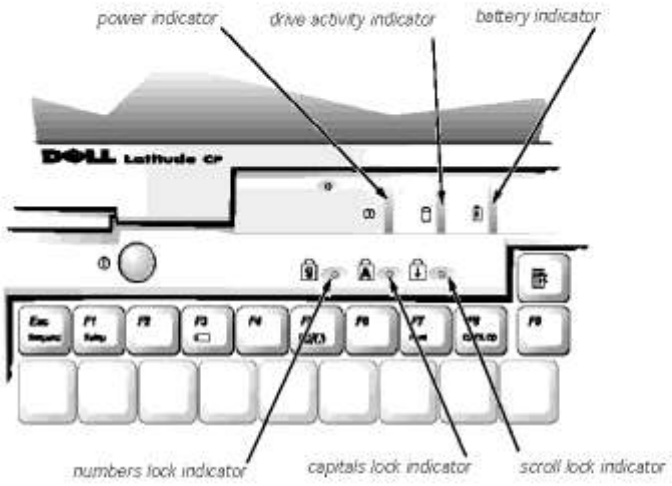


Figure 1-4. Indicator Panel

The Latitude CP or CPi computer has three indicators on the display assembly's indicator panel and three on the keyboard assembly. The following subsections describe the functions of these indicators.

Power Indicator

The power indicator is a green LED. After the computer is turned on, the power indicator lights up constantly to indicate that the computer is receiving stable power. If the power indicator is off, the computer is either in suspend mode (or standby mode for Windows 98), suspend-to-disk mode, or off.

Drive Activity Indicator

The drive activity indicator is a green LED. The indicator lights up when data is being transferred to or from the hard-disk drive, or to or from a diskette drive, CD-ROM drive, or other device installed in the modular bay.

Battery Indicator

The battery indicator displays the following conditions:

- The indicator turns green while the AC adapter is fast-charging. During the normal charging cycle, the indicator remains on without blinking. After the battery is fully charged, the battery indicator blinks green to indicate that the AC adapter is providing a maintenance (trickle) charge to keep the battery at full capacity.

9. Remove the main battery assembly from the battery bay.

Slide the battery bay latch away from the center of the computer. Then slide the battery out of the battery bay (see Figure 4-2).

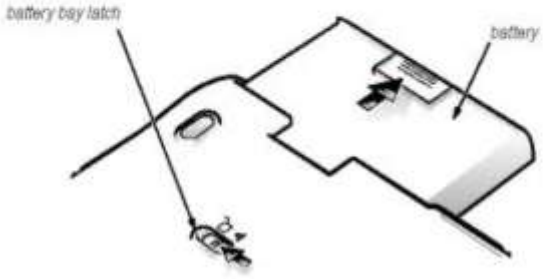


Figure 4-2. Main Battery Assembly Removal

10. Remove the hard-disk drive assembly (see "Hard-Disk Drive Assembly" found later in this chapter).

Screw Identification and Tightening

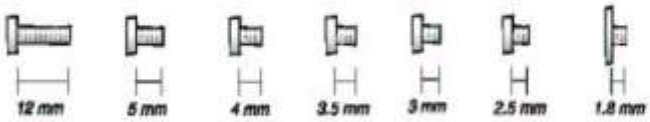


Figure 4-3. Screw Identification

CAUTION: When reinstalling a screw, it is essential that a screw of the correct length be used. Otherwise, hardware damage could result. Make sure that the screw is properly aligned with its corresponding hole, and avoid overtightening.

The illustrations in the following removal procedures provide the correct screw length as part of the screw's label. A graphic for that length screw is also included in the illustration. Match the actual screw to the graphic in the illustration to check for correct length.

ZIF Connectors

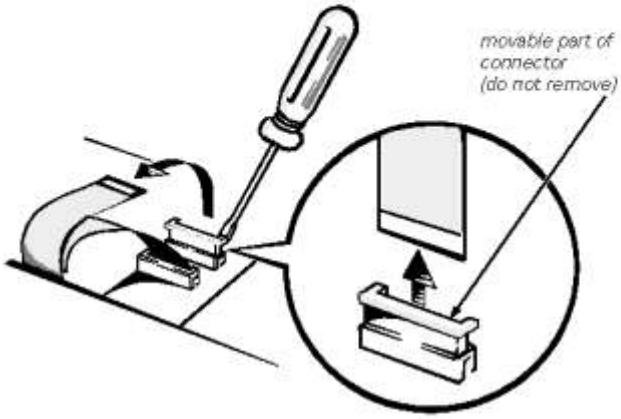


Figure 4-4. Disconnecting an Interface Cable

Some of the computer's interface connectors are zero insertion force (ZIF) connectors. These connectors are not removable, but they must be released to disconnect a cable from them.

CAUTION: The ZIF connectors are fragile. To avoid damage, do not apply too much pressure to the movable part of the connector.

To disconnect an interface cable from a ZIF connector, follow these steps:

1. **Insert a small flat-blade screwdriver under the movable part of the connector.**
2. **Pull gently upward on the movable part of the connector until it releases the interface cable.**
3. **Grasp the interface cable and pull it out of the connector.**

To reconnect an interface cable to a ZIF connector, follow these steps:

1. **Use a small flat-blade screwdriver to open the movable part of the ZIF connector.**
2. **Orient the end of the interface cable with the ZIF connector, and insert the end of the cable into the connector.**
3. **While holding the cable in place, close the ZIF connector.**

   To ensure a firm connection, make sure the ZIF connector is completely closed.

Removing Field-Replaceable Parts and Assemblies

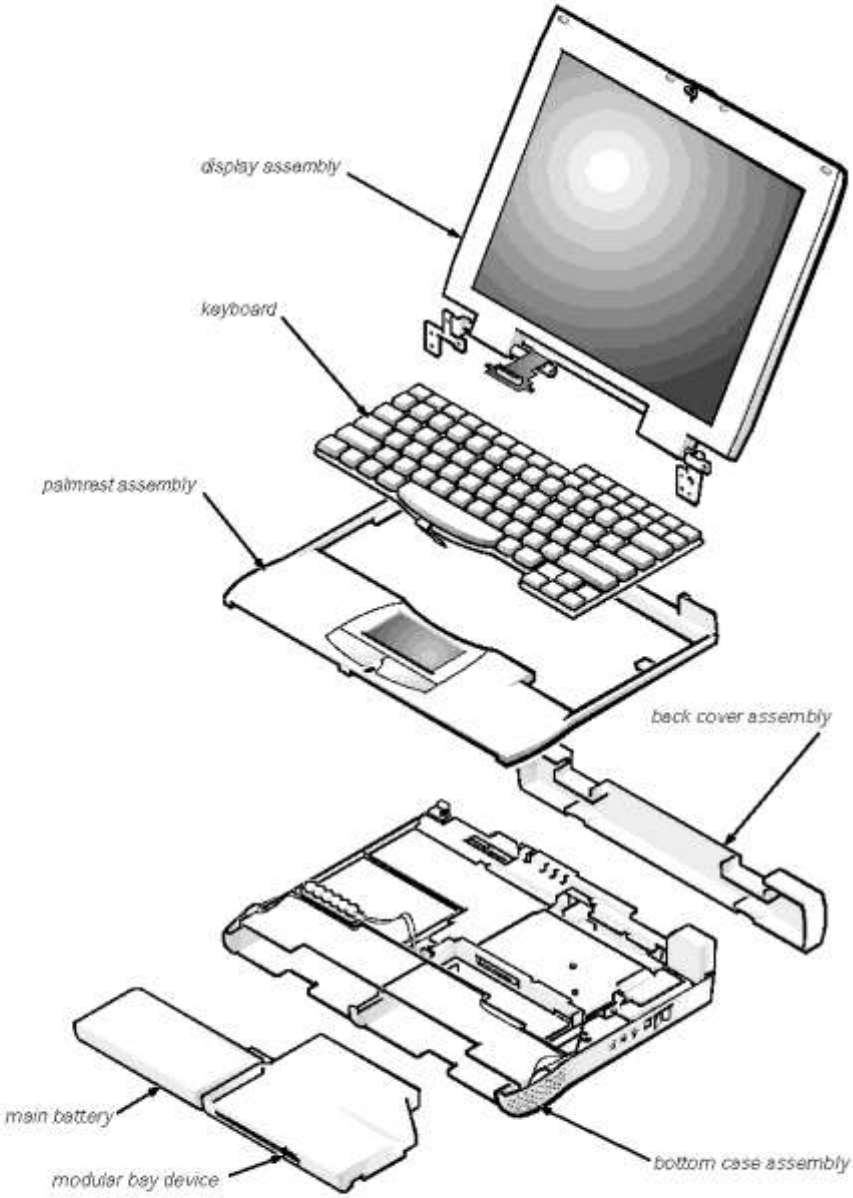


Figure 4-5. Exploded View—Computer

The following subsections provide instructions for removing and replacing field-replaceable parts and assemblies.

Hard-Disk Drive Assembly

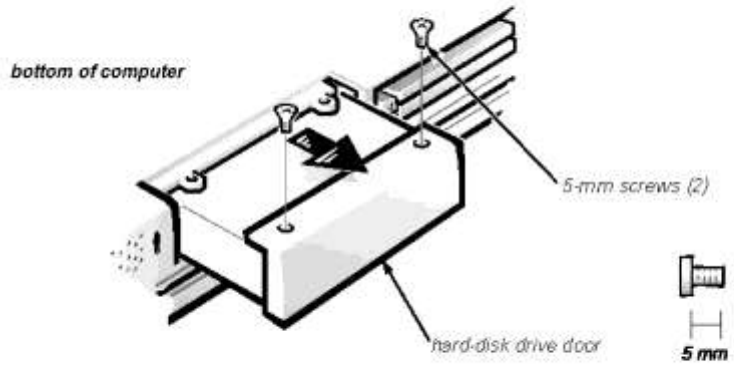


Figure 4-6. Hard-Disk Drive Assembly Removal

1. **Turn the computer over, and remove the two 5-mm screws from the hard-disk drive door.**

   The drive is on the left side of the computer.

CAUTION: The hard-disk drive is very sensitive to shock. Handle the assembly by its edges (do not squeeze the top of the hard-disk drive case), and avoid dropping it.

2. **Grasp the drive door and pull the drive out of the computer.**

Memory Module Cover

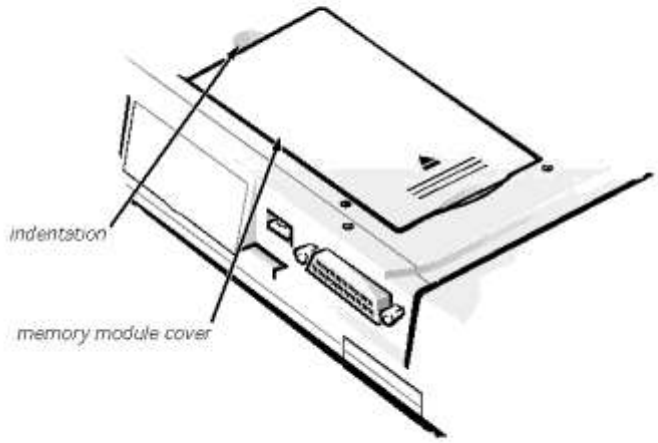


Figure 4-7. Memory Module Cover Removal

CAUTION: Make sure the work surface is clean to prevent scratching the computer cover.

1. **Close the display, and turn the computer upside down on a flat work surface.**

2. **Release the memory module cover.**

   Insert a fingertip in the indentation in the bottom case assembly and lift the cover slightly; then slide the cover in the direction indicated by the arrow on the cover.

Memory Modules

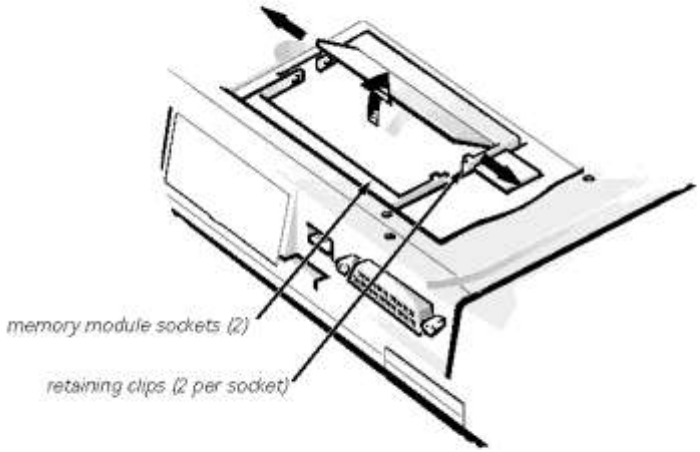


Figure 4-8. Memory Module Removal

1. **Remove the memory module cover.**
2. **To avoid possible damage to the memory module from ESD, ground yourself by touching the metal surface of an I/O connector on the computer's back panel.**
3. **To release a memory module from its socket, gently push outward on each of the memory module's two metal retaining clips.**

   The memory module should rotate upward out of its retaining clips.
4. **Lift the memory module out of its socket.**

Memory modules can be installed only one way. Do not attempt to force the memory module into the socket. Align the notch near the center of the memory module with the corresponding key in the memory module socket.

Keyboard Assembly

To remove the keyboard assembly, follow these steps:

CAUTION: Make sure the work surface is clean to prevent scratching the computer cover.

1. **Close the display assembly, and turn the computer upside down on a flat work surface (see Figure 4-9).**

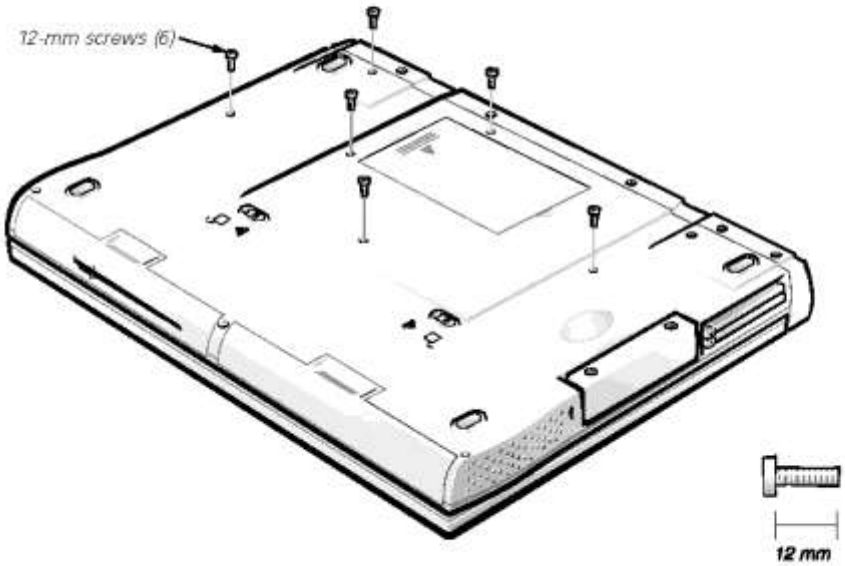


Figure 4-9. Removing the Keyboard Assembly Screws

2. **Remove the six 12-mm screws securing the keyboard to the computer.**
3. **Turn the computer right-side up and open the display.**

CAUTION: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

4. **Release the keyboard from the palmrest assembly:**

   a. Carefully deflect the palmrest (next to the blank key below the <Shift> key) away from the center of the keyboard, until the tab on the palmrest's inner edge disengages from the keyboard. The keyboard should raise up slightly.

   b. Insert a fingernail or a small flat-bladed screwdriver under the scalloped edge of the blank key (see Figure 4-10), and lift the right edge of the keyboard.

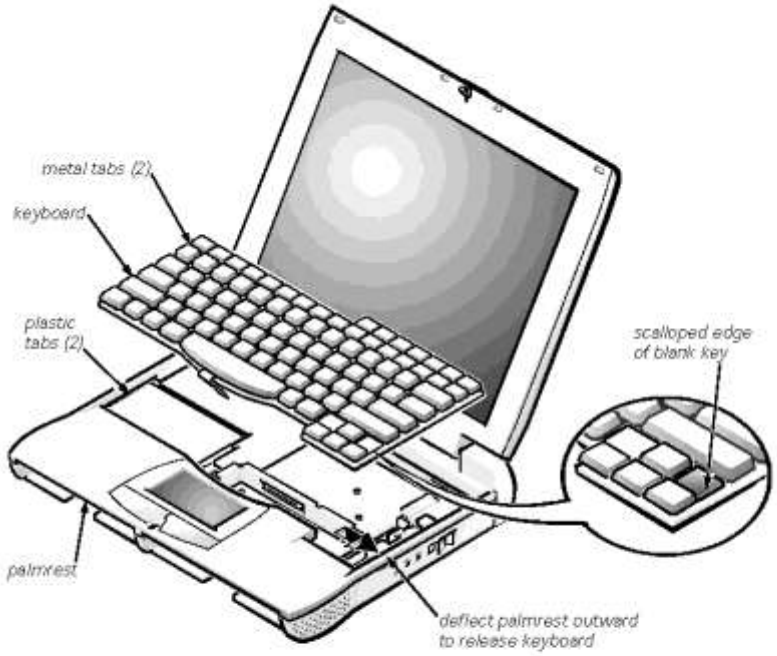


Figure 4-10. Keyboard Assembly Removal

5. **Once the keyboard is fully released from the palmrest, place the keyboard upside down over the touch pad.**
6. **Disconnect the keyboard cable from connector KB1 on the system board.**
7. **Remove the keyboard assembly.**

Follow these steps when replacing the keyboard assembly:

1. **Connect the keyboard cable to connector KB1 on the system board.**
2. **Fit the left edge of the keyboard into place, making sure the two small metal tabs on the keyboard fit under the corresponding plastic tabs on the palmrest's inner edge.**
3. **Lower the right edge of the keyboard into place, and press on the blank key below the <Shift> key until the tab on the palmrest's inner edge engages the keyboard with an audible "click."**
4. **Check that the keyboard is correctly installed. The keys should be flush with the left and right surfaces of the palmrest.**
5. **Reinstall the six 12-mm screws.**

Back Cover Assembly

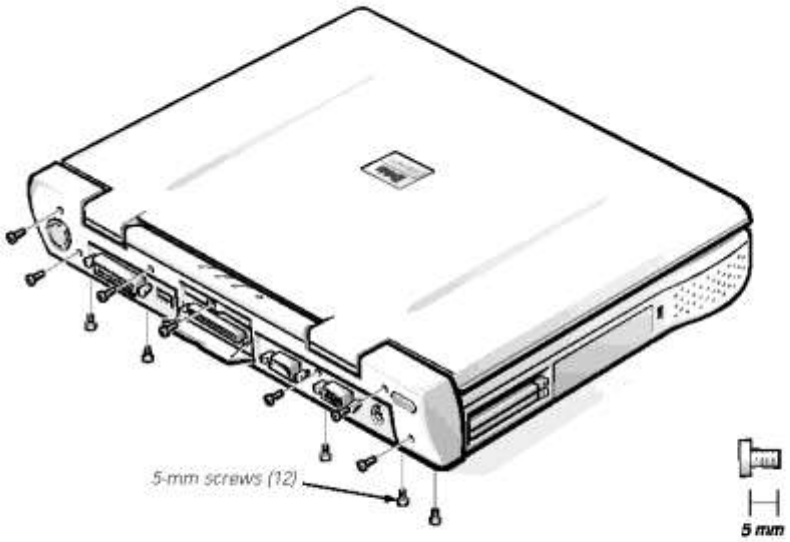


Figure 4-11. Back Cover Assembly Removal

1. **Close the display.**
2. **Remove the twelve 5-mm screws securing the back cover:**
   - Five screws on the underside of the back cover
   - One screw behind the docking connector door
   - Six screws on the face of the back cover
3. **Close the docking connector door.**
4. **Remove the back cover assembly.**

   Grasp the right end of the back cover assembly firmly, and unsnap it from the computer. Then disengage the left end of the back cover assembly.

Palmrest Assembly

The palmrest assembly consists of the touch pad and the palmrest.

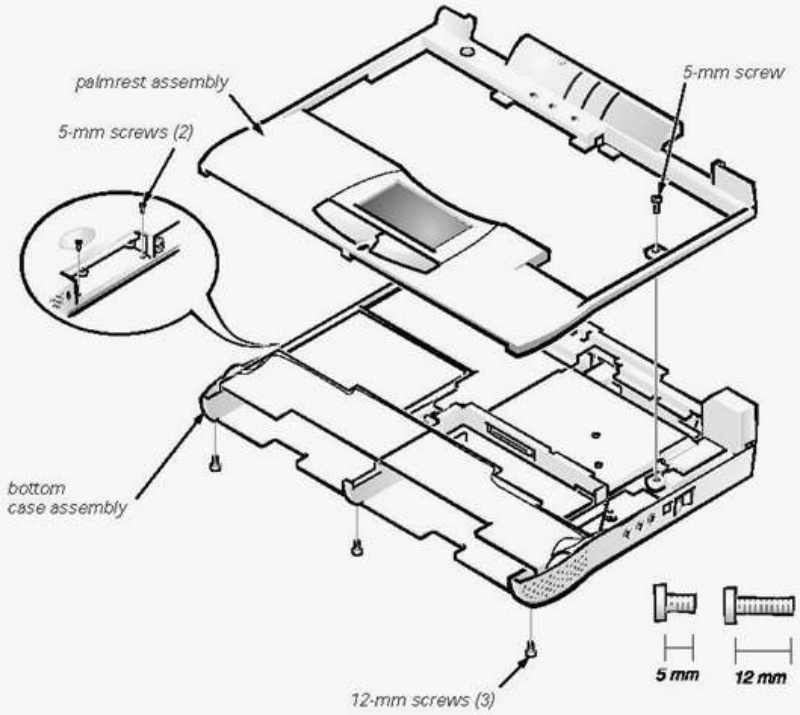


Figure 4-12. Palmrest Assembly Removal

1. **Remove the keyboard.**
2. **Disconnect the touch-pad cable from ZIF connector JP2 on the system board.**
3. **Remove the back cover assembly.**
4. **Remove the following screws securing the palmrest to the computer:**
   - One 5-mm screw inside the computer, adjacent to the thermal cooling assembly
   - Two 5-mm screws inside the upper edge of the hard-disk drive bay (you must remove the hard-disk drive to access these screws)
   - Three 12-mm screws underneath the front edge of the computer

Touch-Pad Interface Module

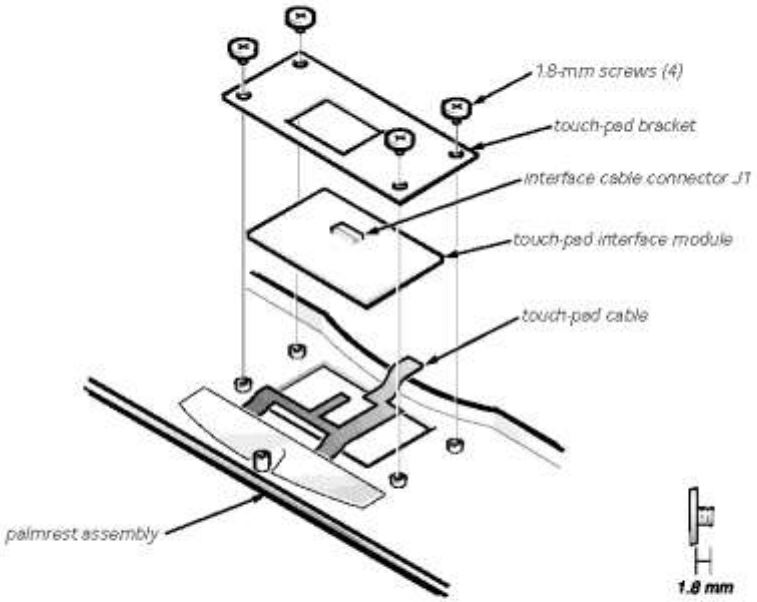


Figure 4-13. Touch-Pad Interface Module Removal

1. **Remove the palmrest assembly.**
2. **Turn the palmrest assembly upside down on a flat work surface.**
3. **Remove the four 1.8-mm screws securing the touch-pad bracket.**
4. **Carefully disconnect the touch-pad cable from ZIF connector J1 on the touch-pad interface module.**

   To release the ZIF connector latch, use a fingernail to lift up the central portion of the black plastic latch.
5. **Remove the touch-pad interface module from the palmrest.**

Display Assembly Components

For removal purposes, the display assembly consists of the following components:

- Display assembly bezel
- LCD panel
- LCD inverter board
- LCD inverter board shield (13.3-inch display only)
- Display-assembly interface cable
- Display assembly latch
- Display assembly top-cover assembly
- Display assembly hinges
- Display assembly right bracket (12.1-inch display only)

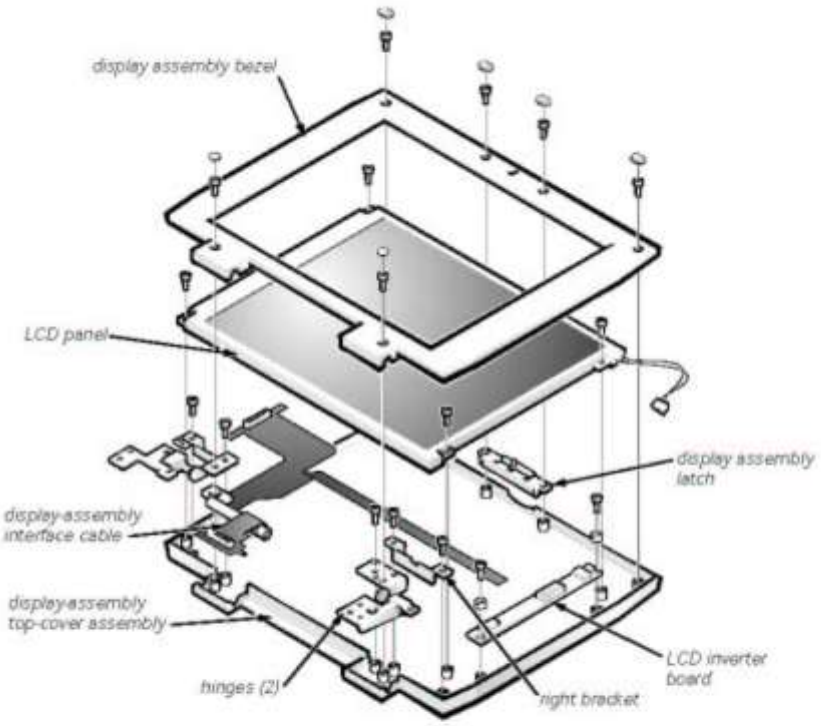


Figure 4-14. Exploded View—Display Assembly (12.1-Inch Display Shown)

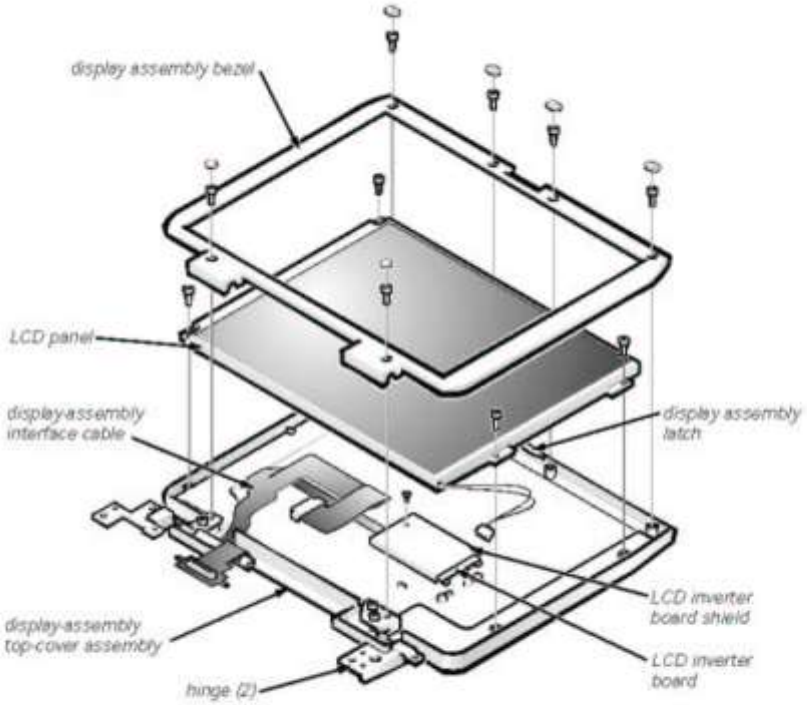


Figure 4-15. Exploded View—Display Assembly (13.3-Inch Display Shown)

Display Assembly

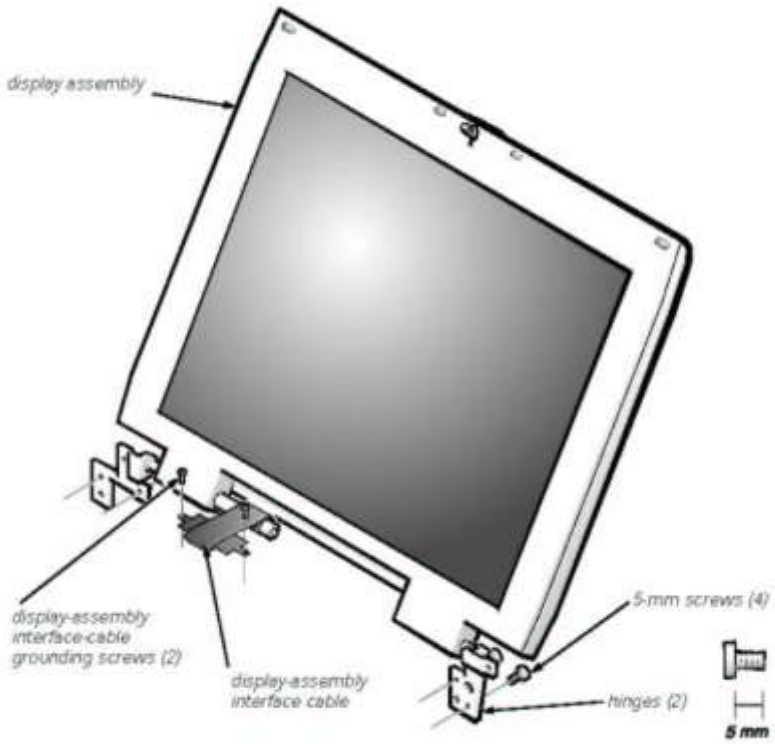


Figure 4-16. Display Assembly Removal

1. **Remove the palmrest assembly.**
2. **Remove the two 5-mm interface-cable grounding screws from the display-assembly interface cable.**
3. **Disconnect the display-assembly interface cable from connector JP1 on the system board.**

   Grasp the grounding tabs and pull the connector straight up from the system board.
4. **Close the display, being careful not to damage the display interface cable.**

Display Assembly Bezel

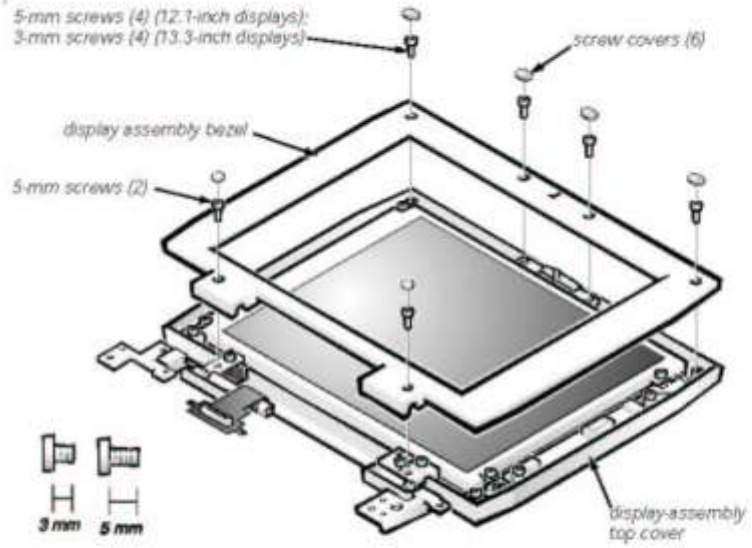


Figure 4-17. Display Assembly Bezel Removal (12.1-Inch Display Shown)

1. **Use a scribe to carefully pry the screw covers out of the six screw holes in the bezel.**

2. **Remove the six screws from the bezel.**

   On 12.1-inch displays, all six screws are 5-mm screws. On 13.3-inch displays, the four upper screws are 3-mm screws, while the lower two screws are 5-mm in length.

3. **Separate the bezel from the display-assembly top cover.**

   If removing the bezel from a 12.1-inch display — The bezel is secured by snaps around all four of its edges. Insert your fingertips between the bezel and the LCD panel, and lift upward on the bezel to release the hidden snaps. Avoid pressing on the surface of the LCD panel.

   If removing the bezel from a 13.3-inch display — The bezel is secured by snaps along its lower edge, and hooks along its right and left edges.

   a. Insert your fingertips between the lower edge of the bezel and the LCD panel, and lift upward on the bezel to release the hidden snaps.

   b. Lift the lower right corner of the bezel slightly, and then slide the bezel off of the display assembly until the hooks on the right and left edges release from the display-assembly top cover.

LCD Panel

The following subsections describe how to remove an LCD panel.

12.1-Inch LCD Displays

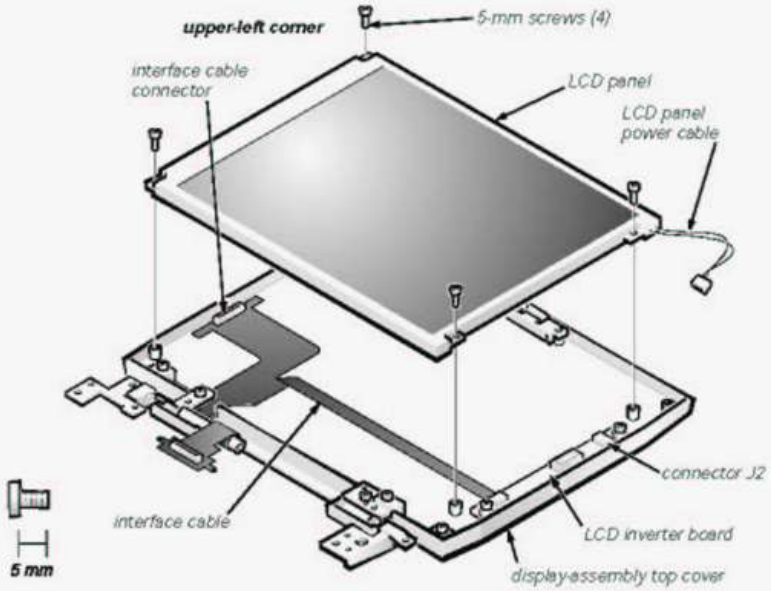


Figure 4-18. LCD Panel Removal (12.1-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the four silver 5-mm screws at the corners of the LCD panel.**
3. **Disconnect the LCD panel power cable from connector J2 on the LCD inverter board.**
4. **Lift the left edge of the LCD panel far enough to gain access to the the display-assembly interface cable connector on the underside of the LCD panel.**
5. **Using the two pull-tabs, disconnect the display-assembly interface cable from the LCD interface connector on the underside of the LCD panel.**

CAUTION: When replacing the STN LCD panel on the Latitude CP M233SD, you must replace the screws at the four corners of the LCD panel in the following order or the panel may be damaged: first, reinstall the upper-right screw; second, reinstall the lower-left screw; third, reinstall the lower-right screw; and fourth, reinstall the upper left-screw.

NOTE: When replacing the LCD panel, ensure that the tabs on the display-assembly EMI shield fit over the four LCD panel mounting bosses. (This is necessary for adequate grounding of the LCD panel.)

13.3-Inch LCD Displays

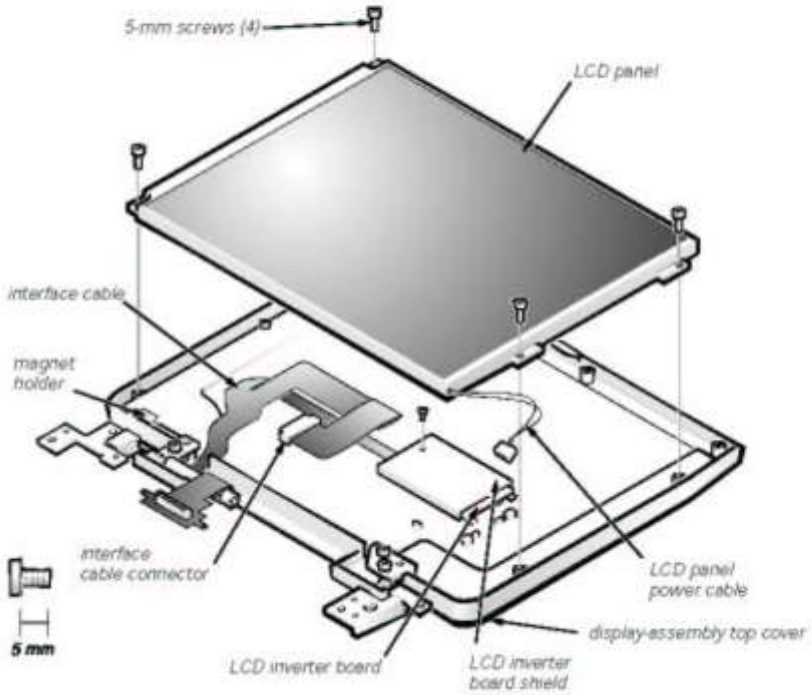


Figure 4-19. LCD Panel Removal (13.3-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the four silver 5-mm screws at the corners of the LCD panel.**
3. **Lift the upper edge of the LCD panel and pivot the panel up to gain access to the LCD inverter board in the display-assembly top cover.**
4. **Remove the screw securing the LCD inverter board to the display-assembly top cover.**
5. **Lift the LCD inverter board and inverter board shield far enough to disconnect the LCD panel power cable.**

LCD Inverter Board

The following subsections describe how to remove an LCD inverter board from a 12.1-inch or 13.3-inch LCD display.

12.1-Inch LCD Display

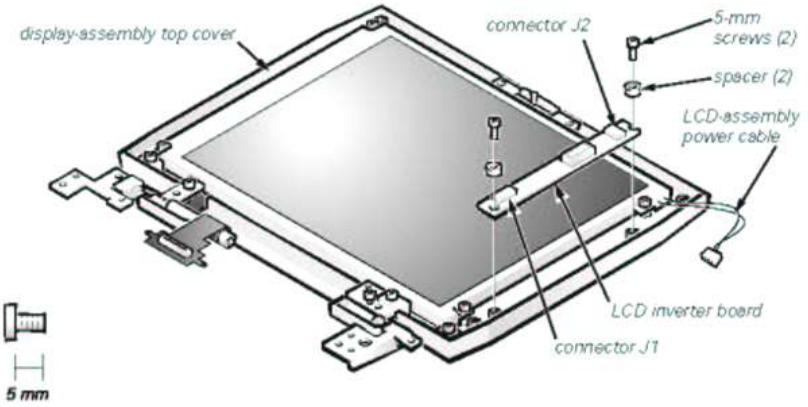


Figure 4-21. LCD Inverter Board Removal (12.1-Inch Display)

1. **Remove the display assembly bezel.**
2. **Disconnect the LCD-assembly power cable from connector J2 on the LCD inverter board.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Remove the two silver 5-mm screws and plastic spacers securing the LCD inverter board.**

   Note the placement of the EMI shield over the lower screw boss, and the routing of the LCD-panel power cable around the upper screw boss.

5. **Lift the LCD inverter board out of the display-assembly top cover.**

NOTE: When installing the inverter board, connect the LCD interface cable to the board prior to securing the board in the display-assembly top cover. After installing the inverter board, ensure that the LCD-panel power cable is routed around the plastic screw bosses in the display-assembly top cover.

13.3-Inch LCD Display

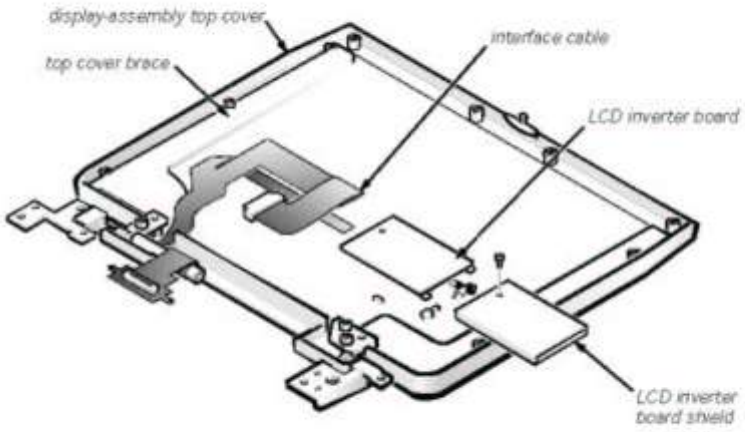


Figure 4-22. LCD Inverter Board Removal (13.3-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the LCD panel.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Slide the LCD inverter board out of the LCD inverter board shield.**

NOTE: Replace the LCD inverter board in the shield so that the components on the board face towards the display-assembly top cover.

Display-Assembly Interface Cable

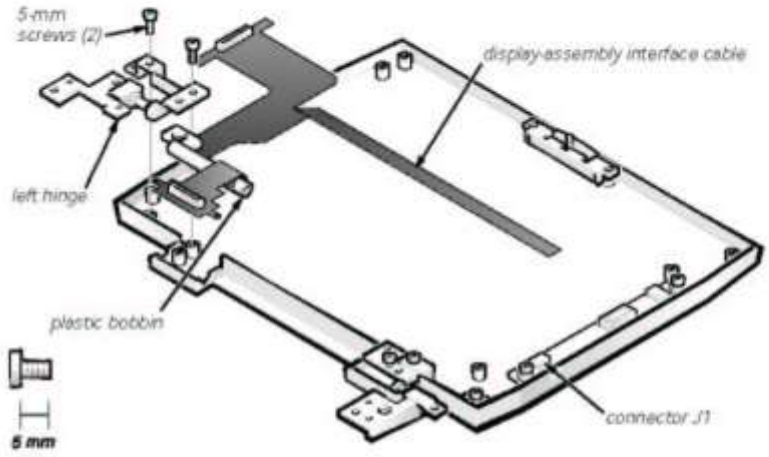


Figure 4-23. Display-Assembly Interface Cable Removal (12.1-Inch Display Shown)

1. **Remove the display assembly.**
2. **Remove the LCD panel.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Remove the two 5-mm screws securing the left hinge, and then remove the hinge from the display-assembly top cover.**
5. **If you are removing the display-assembly interface cable from a 13.3-inch display, remove the left top-cover brace from the display-assembly top cover (see Figure 4-22).**

   To remove the top cover brace, remove the 3-mm screw securing it.
6. **Lift the display-assembly interface cable out of the display-assembly top cover.**

NOTE: When replacing the display assembly, reinstall the screws securing the left hinge at the locations marked on the hinge by arrows. Ensure that the display-assembly interface cable wraps once around the plastic bobbin before connecting the cable to the system board.

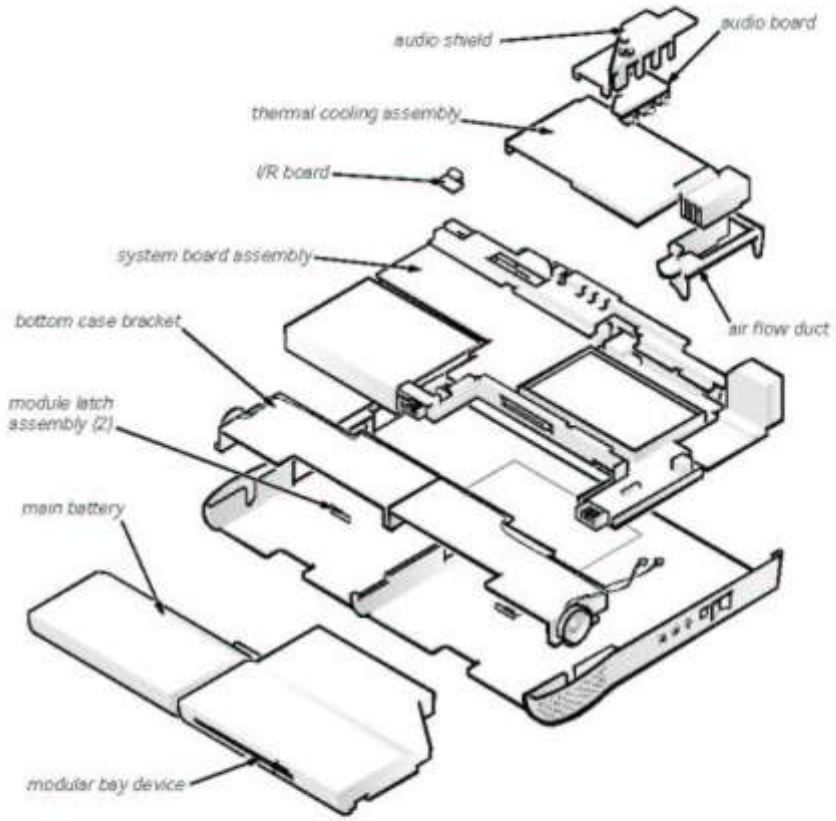


Figure 4-24. Bottom Case Assembly

Audio Board

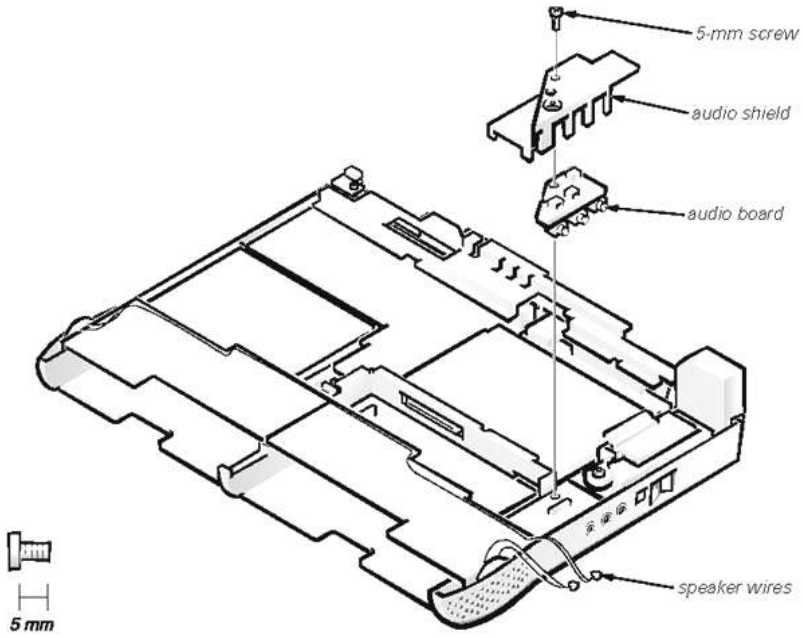


Figure 4-26. Audio Board Removal

1. **Remove the palmrest assembly.**
2. **Remove the 5-mm screw securing the audio board shield.**
3. **Remove the audio board shield.**
4. **Disconnect the speaker wires and microphone wires from their connectors on the audio board.**

   The connectors are fragile—do not pull on the wires to disconnect them.
5. **Remove the audio board from the bottom case.**

NOTE: When replacing the audio shield, ensure that the audio shield is properly seated to prevent it from cutting into the speaker wires or interfering with devices installed in the modular bay. (You can check this by temporarily installing a device in the modular bay prior to reinstalling the palmrest assembly.)

Bottom Case Bracket

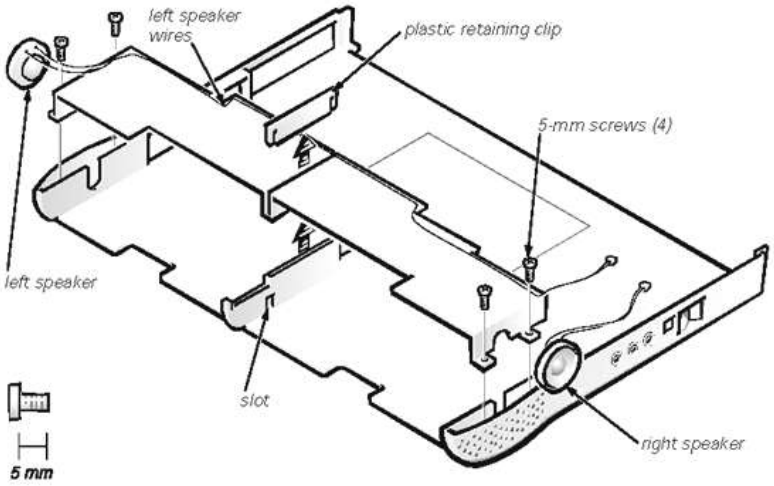


Figure 4-27. Bottom Case Bracket Removal

1. **Remove the palmrest assembly.**
2. **Remove the audio board shield.**
3. **Disconnect the speaker wires from connectors JP1 and JP2 on the audio board.**

   The connectors are fragile—do not pull on the speaker wires to disconnect them.
4. **Remove the two 5-mm screws at each end of the bottom case bracket.**
5. **Insert the end of a small flat-bladed screwdriver into the slot in the vertical support in the center of the bottom case, and disengage the plastic retaining clip.**
6. **Lift the bottom case bracket from the computer.**

NOTE: When replacing the bottom case bracket, follow these guidelines to prevent damage to the speaker wires:

- *Orient each speaker in the bottom case so that its wires are facing upwards.*
- *Route the speaker wires under their respective retaining clips on the bottom case bracket.*

Module Latch Assemblies

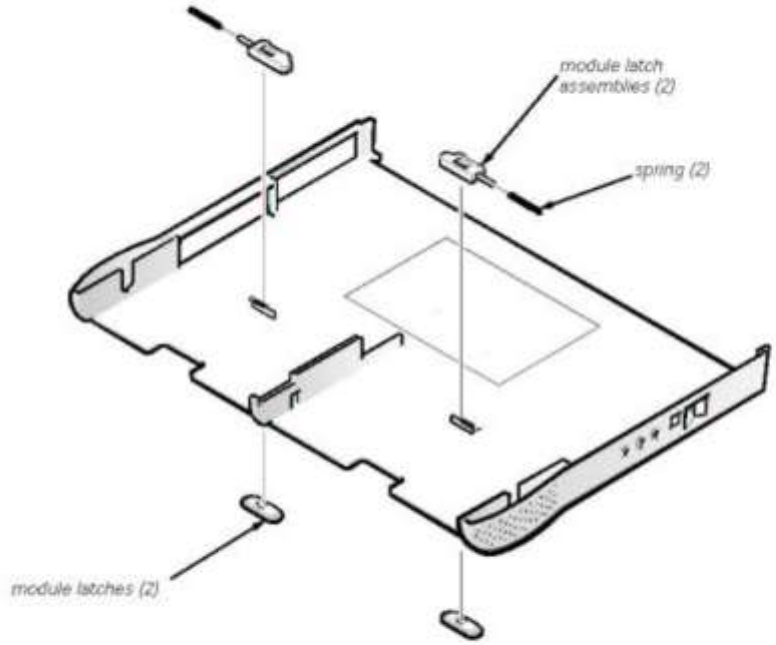


Figure 4-28. Module Latch Assemblies Removal

1. **Remove the bottom case bracket.**
2. **Remove the left latch from the outside of the bottom case by unsnapping the slider-spring assembly.**

   Keep pressure applied to the slider-spring assembly while unsnapping the latch to prevent the slider-spring assembly from coming loose from the case. If the slider-spring assembly does come loose from the case:

   a. Carefully reinsert the spring onto the plunger on the slider, and reinstall the slider-spring assembly into the holding features on the inside of the case.

   b. Ensure that the plunger is inserted in its respective hole, that the side of the slider with the two bumps is facing the rear of the case, and that the surface with the wear ribs is facing the bottom of the case (see Figure 4-29).

3. **Snap in the new latch from the bottom of the base, making certain its snap features are fully engaged in the slider.**
4. **Ensure that the newly installed latch moves smoothly and freely when pushed and released.**

5. **Repeat steps 1–4 for the right latch.**

6. **On the base plastic, find the molded label "RN. ASSY 89501"; then, using a permanent marker, write "A01" to the right of "89501."**

   This revision mark indicates that the latch rework is complete.

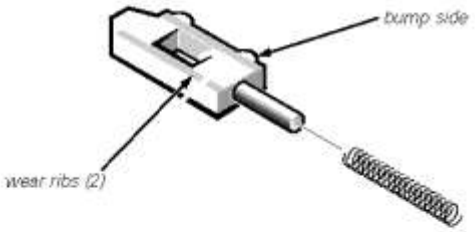


Figure 4-29. Left Slider

Speakers

1. **Remove the bottom case bracket.**

2. **If you are replacing the left speaker, carefully remove the speaker wires from the retaining clips along the bracket's edges.**

3. **Remove the speaker from the bottom case bracket.**

NOTES: When replacing the speaker, follow these guidelines to prevent damage to the speaker wires:

- *Orient the speaker in the bottom case so that the speaker wires are facing upwards.*
- *Route the speaker wires under their retaining clips on the bottom case bracket.*

System Board Assembly

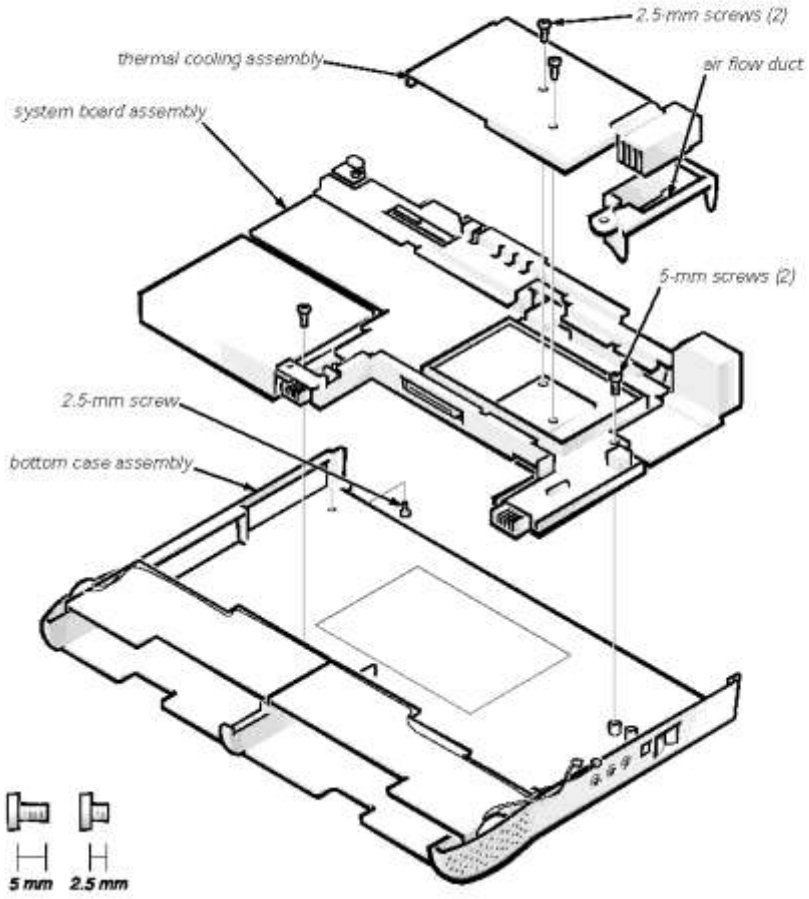


Figure 4-30. System Board Assembly Removal

The system board's BIOS chip contains the system service tag number, which is also visible on a bar-code label on the bottom of the computer. The replacement kit for the system board assembly includes a diskette that provides a utility for transferring the service tag number to the replacement system board assembly.

1. **Remove the palmrest assembly.**
2. **Remove the LCD display assembly.**
3. **Remove the audio board.**
4. **Remove the two 2.5-mm screws securing the thermal cooling subassembly to the microprocessor module.**

CAUTION: To ensure maximum cooling for the microprocessor, do not touch the heat transfer areas on the thermal cooling assembly. The oils in your skin reduce the heat transfer capability of the thermal pads.

5. **Remove the thermal cooling subassembly from the microprocessor module.**
6. **Remove the air flow duct.**
7. **Verify that the PC Card ejectors do not extend from the PC Card bay.**
8. **Remove the 2.5-mm screw from the center of the computer's left rear foot.**
9. **Remove the following two screws from the system board assembly (see Figure 4-30):**
   - The 5-mm screw near the reserve-battery cable connector
   - The 5-mm screw near the microprocessor module
10. **Lift the system board assembly out of the bottom case assembly.**

Be sure and transfer the memory module(s) to the replacement system board assembly. If you are replacing the thermal cooling assembly with a new one, remove any lining present on the thermal pad before installing the new thermal cooling assembly.

After replacing the system board assembly, be sure to enter the system's service tag number into the BIOS of the replacement system board assembly. Insert the diskette that accompanied the replacement system board assembly into the diskette drive, and turn on the computer. Follow the instructions on the display screen.

Exhaust Fan

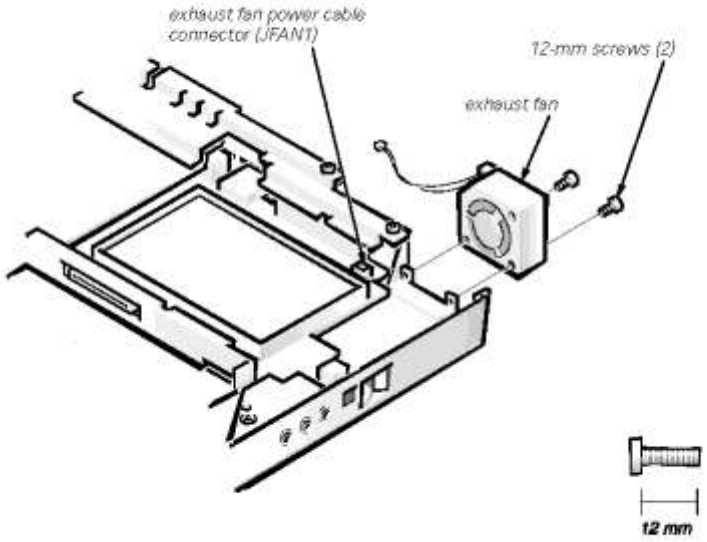


Figure 4-31. Exhaust Fan Removal

1. **Remove the palmrest assembly.**
2. **Disconnect the exhaust fan power cable from connector JFAN1 on the system board.**
3. **Remove the two 12-mm screws securing the exhaust fan, and then remove the exhaust fan.**

NOTE: When replacing the exhaust fan, orient the fan such that the fan label faces outward and the power cable is at the upper right corner of the fan (when viewed from the back of the computer). (This will prevent the fan wires from being pinched when you reassemble the computer.) Make sure that the wires are routed below the upper EMI shield.

I/R Board

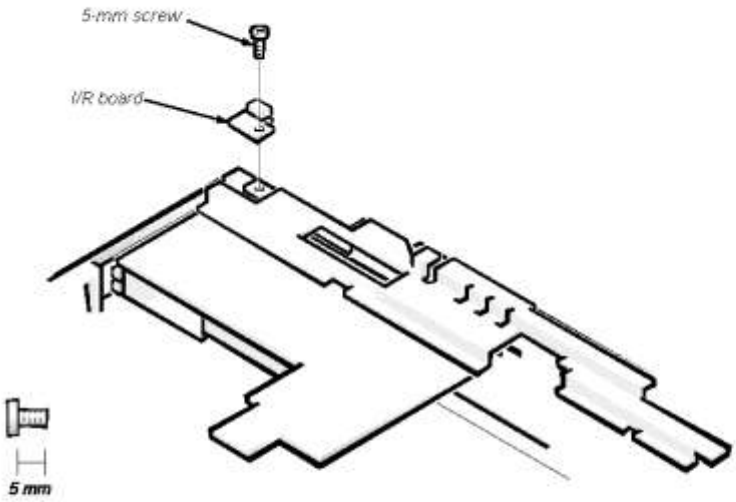


Figure 4–32. I/R Board Removal

1. **Remove the palmrest assembly.**
2. **Remove the 5-mm screw securing the I/R board to the system board assembly.**
3. **Lift the I/R board straight up from the system board assembly.**

LAPTOP CHIPLEVEL

Computer runs with three main concepts.

1. Post: power on self test.
2. Bios: basic input out put system.
3. Os: operating system.

Post: it will be check each and every component is connected properly .if connected then all are working or not. Small beep sounds when post completed successfully.
Bios: 1.flat bios
2. Square bios
3.8 pin bios
Uses & requirements of bios:

1. Reorganization of hard disc, DVD, Cd, floppy drive, CPU and primary memory ram.

2. Booting priority purpose; booting is a process of transferring bootable files from secondary memory (HD, DVD to primary memory (ram).

3. Security purpose.

Bootstrap founder is located in bios is used for searching the bootable files if bootable files are found in DVD then it will goes to DVD (rom /ram)or if bootable files are found in c:/>drive then it will goes to HD(hard disc) .

Security priority: security password restricts change in bios & os

Entering bios steps:

Manufactures of bios: 1.award max 8 opt 2.ami 3.pheonix 4.uni boar 8 opt
Enter bios setup:
1. Setup & always
2. Set supervisor password
3. Enter& then confirm password (twice need to enter password)
4. Select advanced option
5. Security priority setup
6. Always/system
7. F10 saves & exit.

Password forgot: to reset nil password –remove cmos-battery –start system (computer)-then fix battery if not solved then reverse the polarity(+ -) of battery start then shutdown –fix battery with correct polarity by this it should be done about reset to no password .

Os types:

1. Computer user interface (cui)

Use: UNIX, dos

2. Graphical user interface (GUI)

Use: windows, vista

Voltages in laptops: power adaptor input voltage 210v-230v ac bios main +3.3v bios clock signal 1.5v to 1.8 v

Ram main voltages: +3.3 v (most) to +2.5v (flow)

Ram clock signal voltage: +1.8v to + 1.5 v

Ram pins of laptop: laptop ram pins; 120,144 and 172 pins DDR (desktop 128 pins).

SOUTH BRIDGE & NORTH BRIDGE +5V

CPU voltage: dual core 1.75v or 1.5 v (1.5 v or 1.7 v) other CPU.

Monitor voltage: logical card 9v, LCD's circuit board (logic card) input is 9v.

Inverter converts dc to ac as required for display tube light (top side one and another at bottom) it is input 19v -9v (dc).

Output 110v-150v (ac) inverter voltages as required for led latest tft, LCD

Keyboard (pad) & mouse pad voltage + 5v required.

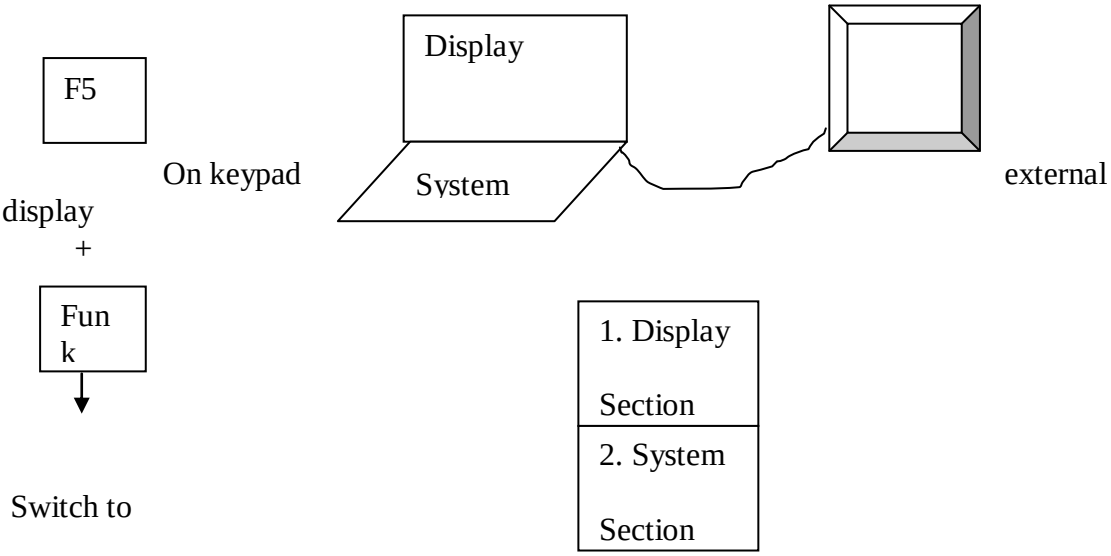
Laptop manufacturers / brands

BRANDS	MODEL	VOLTAGE DC
FUJITSU (AMP)	ST5000	16V, 3.75A
IBM	THINK PAD	16V, 3.0 A
MAC BOOK	PRO	18.5 V
HP	PAVELION	18.5V,3.4 A
COMPAQ	PRESARIO	18.5V,3.4 A
ACER	TRAVEL MATE	18.5V,3.4 2A
HCL	NOTE BOOK ME	18.5V,3.4 A
GATE WAY		18.5V
SONY	VNO	19.5V,3.42 A
DELL	XPS	19.5V,3.42 A
LENOVA	Y500	19.5V,3.42 A

TOSHIBA SATELLITE 19.5V,3.42 A

PACCARD BEL 19V

LAPTOP DIVED INTO TWO SECTIONS



Display problems:/trouble shooting

1. Dull/dim display 2. No display 3. Color patch 4. Color lines 5. Brightness &contrast problem 6. Half display 7. Color missing

System side problems

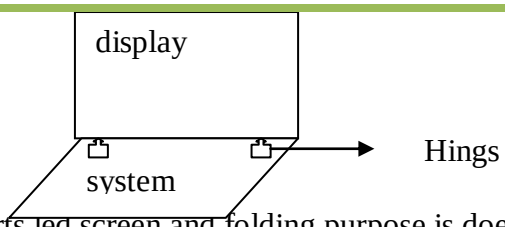
1. No display
2. No power
3. Hanging shutdown problem
4. Over heating
5. i/o section problem
6. booting problem

Display section

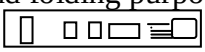
Interval parts of display (display interval parts) screens:

1. LCD: liquid crystal display (high resolution) normal technology.
2. TFT: thin film transistor (bright) non technology.
3. LED: light emitting diode (latest) new extra bright technology.

Hinges:



It supports led screen and folding purpose is doe.



INVERTER CIRCUIT : device fixed inside the display led to glow the tube (lamp) tube requires ac system has dc hence an inverter converts dc to ac.

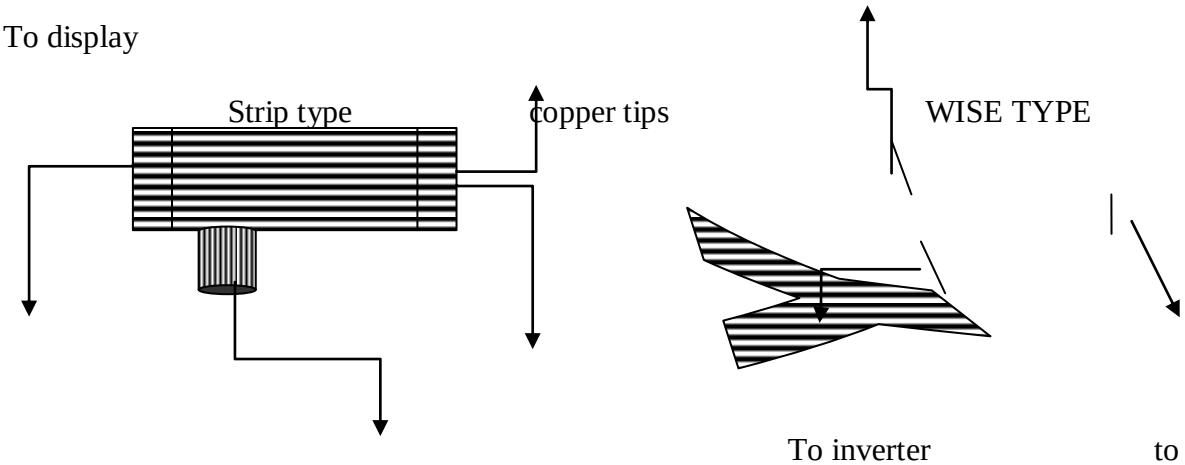
Logic card: system sends data to the display (led) screen logic card converters and display on screen.

DISPLAY DATA CABLES:

1. Strip type (old)

2. Wise type (new)

To display



Display sid System side

Connection connection

Fix to inverter circuit

LCD's interval components: CCFL-cold cathode fluorescent tamp (lamp)

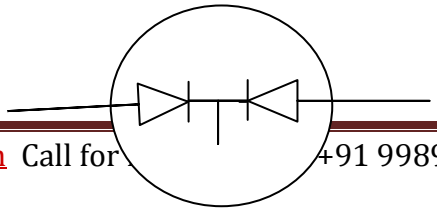
Interval layers:

1. White sheet layer (reflects white light)
2. Pixel layer (adjust the pixel)
3. Normal sheets (to control the brightness & contrast)

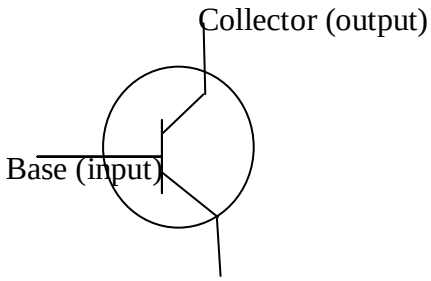
Aluminum coated layer: used to reflect the pi  side liquid layer make the focus on the display.

ELECTRONICS:  (fuse)

Transistor 'v' or 'q'



+ +



Use:

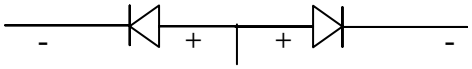
1. Oscillator: an electronic device which converts dc to ac it generates frequency.

2. Amplifier: it increases the strength of weak signals.

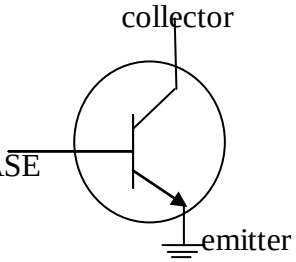
3. Switch: on/off (1 on / 0 off)

TRANSISTOR TYPES:

1. NPN – transistor (90% of transistor are used in NPN)



N P N

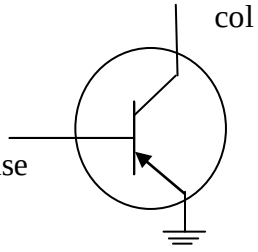


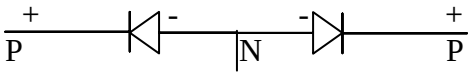
(-= N,+ + = P ,- - = N)

lector

1. PNP – transistor(10%is used)

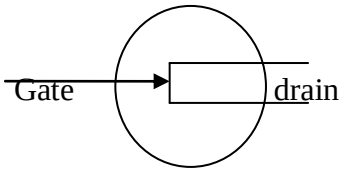
col





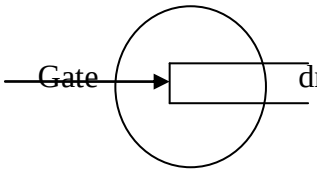
P N P emitter (+ - = P,- - = N, + = P)

3. FET-(Field effect transistors)



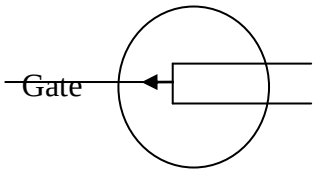
source

3.1 N CHANNEL FET



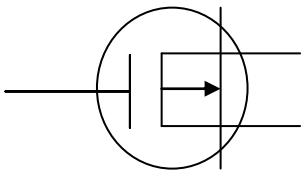
source

3.2 P CHANNEL FET

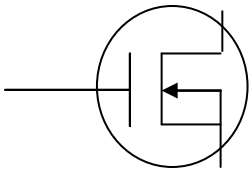


Source

3.3 MOS FET



3.4 J FET

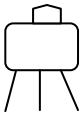


TRANSISTOR MATERIAL TYPES:

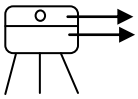
1. Silicon transistor

2. http://laptoprepaircourse.in

2. Germanium transistor



3. Power transistor



Checking:

Base emitter collector

Identify Base First → value >1000 → value < (1000) hundreds

Base to emitter ---------- more value (>1000)

Base to collector---------less value (>1000) hundreds

COIL OR INDUCTOR 'L':

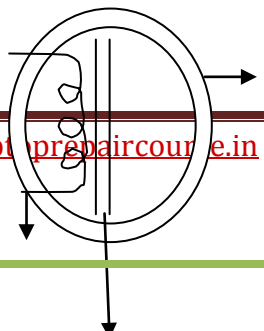
Unit of measure: Henry henneries

A coil used to introduce inductance into a circuit is called inductor.

INDUCTANCE: opposition to the flow of ac or changing dc caused by magnetic fields surrounding the conductor.

When current (I) flows in a conductor, magnetic fields 9lines of flux),radiate out & encircle it energy in magnetic field generates a voltage in any conductor they more cross.

Back to inductor:



Emf electro magnetic field

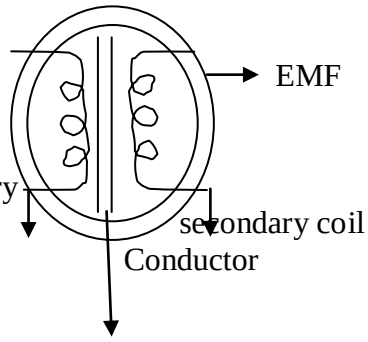
Coil **http://laptoprepaircourse.in**

Conductor current flows

1.it generates the voltage

2.it also generates EMF

Transformer‘t’:

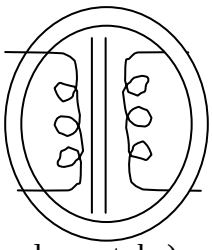


1. It transfers the voltage from one coil to the other coil

2. It also generates emf.

Transformer types:

1. Step-up lot – line output transformer



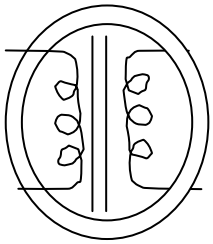
More numbers of coils at secondary compary to primary.

230 v above 1K

Use: crt (cathode ray tube) monitor or TV

Purpose: it increases the voltage.

2. Step –down transformer



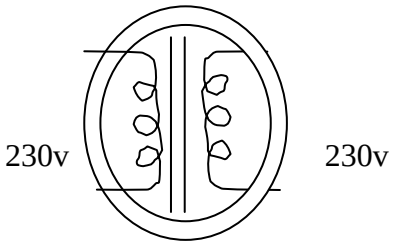
Less number of coils at secondary compare to primary.

230 below 110v dc

Use: smps battery adaptor

Purpose: it decreases the voltage.

3. Driver transformer:



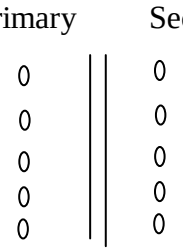
Use: Stabilizer, ups

Purpose: to keep the voltage constant.

Transformer checking at backside

Primary+ primary =buzzer

Secondary + secondary=buzzer



Primary + secondary = no buzzer

DIGITAL ELECTRONICS:

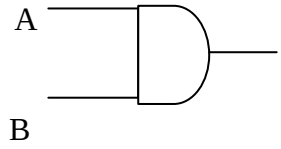
Logic gates for integrated circuit:

Binary form:1.0 (ones or zeros)1-high,0-low

1 .Basic gates: AND ,OR ,NOT

2. Universal gates : NAND,NOR,EXCLUSIVE OR

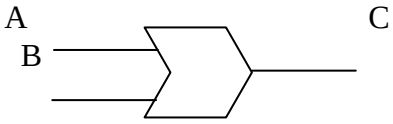
And gate:(most used and gate ,one of the and names a&b. input A,B value then C will be out put value.



INPUTS		OUTPUT
A	B	C
0	0	0

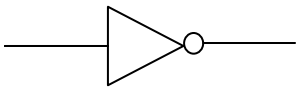
0	1	0
1	0	0
1	1	1

Or gate:



INPUTS		OUT PUTS
A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

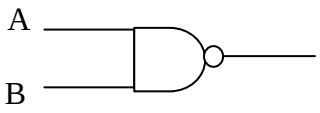
Not gate:



(only one ‘a’ input)

INPUTS	OUTPUTS
A	B
0	1
1	0

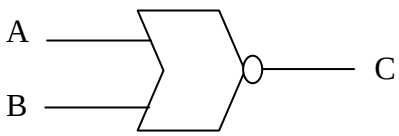
Nand gate:



(not and)

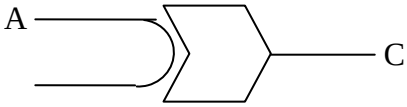
INPUTS		OUTPUT
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

N or gate:



INPUTS		OUTPUTS
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

EXCLUSIVE OR GATE:
Only one of its input should have voltage = 1
Ex: a logic /voltage 1 ,b logic /v 0 = c1



A

voltage (v) 1,B voltage 1 =c out put 0

B A ,0,

B , 0 = C , 0

INPUTS OUTPUTS A , 0,

B , 1 = C , 1

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

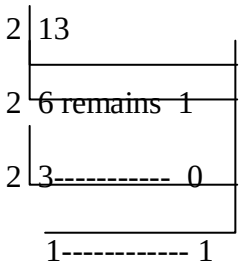
NUMBERING SYSTEM:0,1,2,3,4,5,6,7,8,9,a-11,b-12,c-13,d-14,e-15,f-16
1. Binary 2(0 t0 1)$_2$
2. Octal 8(0 to 7)$_8$
3. Decimal 10(0 to 9)$_{10}$
4. Hexa decimal 16(0 to f)$_{16}$

CONVERSIONS: binary –decimal &vice verse

Decimal –binary:

Q: you have 13 its decimal find binary?

A: decimal 13 $_{10}$ binary is base two



steps:2x6 =12 , 13-12 =1

2x3=6 , 6-6=0

2x1=2 , 3-2=1

LHM

Left hand method

$13_{10}= 1101_2$

A:1101

Binary to decimal:

Q: binary 1101 find decimal?

A: binary 1101_2 and decimal base 10

1 1 0 1

2^3 2^2 2^1 2^0 base 2 binary starts from 0, 20

RHM –right hand method

base bin base bin base bin base bin

$(2^0 \text{ x } 1^1) + (2^1 \text{ x } 0^1) + (2^2 \text{ x } 1^1) + (2^3 \text{ x } 1^1)$

$2^0=(0 \text{ x } 1) + 2^1=(2 \text{ x } 0) + 2^2 =(4 \text{ x } 1) + 2^3 = (8 \text{ x } 1)$

(1 x 1) + (2 x 0) + (4 x 1) + (8 x 1)

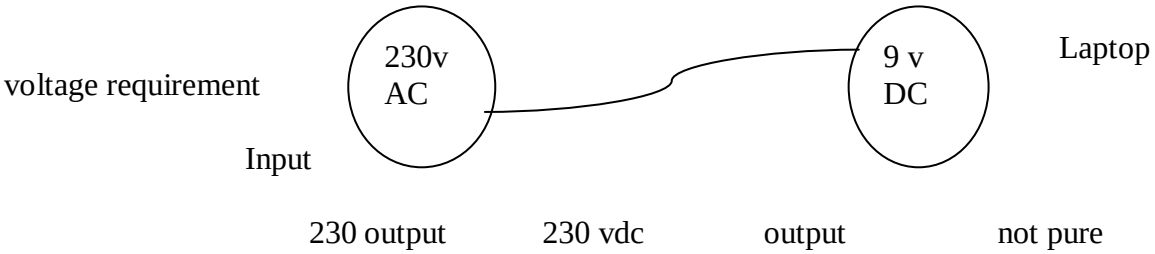
1 + 0 + 4 + 8 =13

A: 13

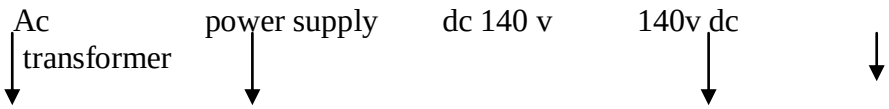
ADAPTOR:

Block diagram and how it works.

Adaptor the circuiting required to support a particular device input power (voltage) supplied 230 v ac generates output 19v dc power (voltage) supplied.

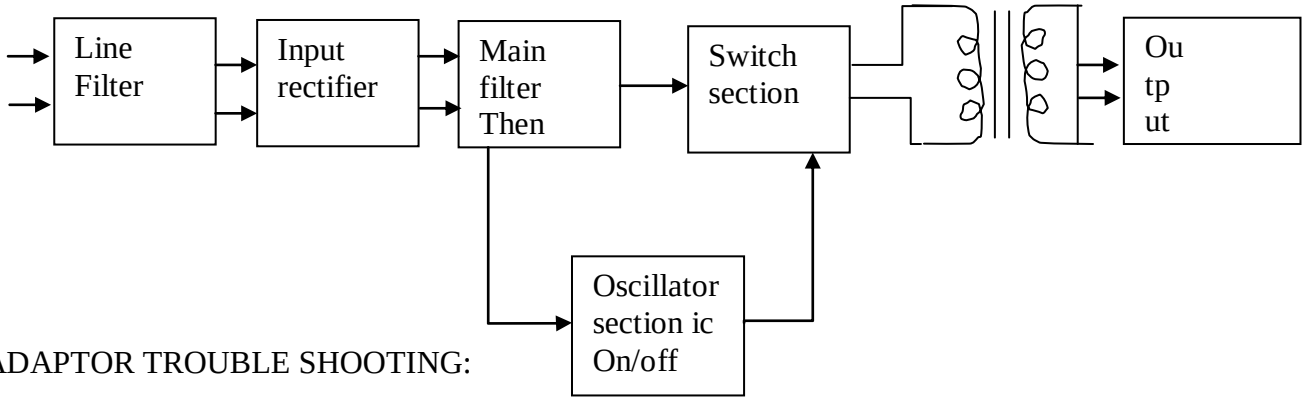


step down



Input ac

230 ac



ADAPTOR TROUBLE SHOOTING:

No output (check with out power)

1. Check fuse (5 or 3 amp)
2. Negative side picrofarad (pf) (like as fuse)
3. Line filter
4. Bridge rectifier nv –no value ,one side value other side nothing
5. Main filter big capacitor

6. Next check ,1/2 or ¼ watt resistors closed ash value 0.5 if buzzard then resistor show dead shot not working

7. zener diode one side value the other side nothing

8. Resistors uses oscillator ice 8 pins

   8.1. Blackish shade

   8.2. Over heating

   8.3. Breaking

   8.4. Bulging (an outward curve)

   8.5. Burning

9. Switch transistor (STR) swq

10. Output side diode 'D'

11. Output side transistors 'q' or 'v'

12. Output side filter

13. Need to check the transformers 't'they always good.

INVERTER CIRCUIT:

Converts dc – ac high voltage (90v-130 v ac high voltage)

Display side problem:

Dim OR dull display

Increasing process of 19 v dc (low voltage) to 118 v ac (high voltage)

Bios setup before windows xp screen –key (del) branded laptops (f2) or (f10) changes store (saved) in cmos battery HD hard disc doesn't work check power cable .IDE interface (old) or esata (new) jumper setting on HD .then HD working or not .

creasing the process of 19 v dc (low voltage) to 94 v ac (pure)(high voltage)

Inverter circuit trouble shooting .dull / dim display identify problem at ccfl or first check inverter circuit then CCFL (lamp)

1. Check fuse 90 % of problem is of fuse .1.4 amp near the input connector type of fuse

   Glass type fuse 1.3 green color 1.4 white color

2. Check switching transistor

3. Check 8 pins voltage

4. Check oscillator ice near the capacitors and resistors

5. Check switching transistors

6. Check transformers input voltages on top two legs they should have same v.

7. Third leg is for oscillator / switching signals.

'

Display logic card problems:

1. No display or white display
2. Color patches
3. Color missing
4. Color lines
5. Brightness & contrast
6. Half display

Display trouble shooting:

These all are prove to cable problem. Hence check the cable.

Connector:

Ex: logic card side plans are not working due to rust or the two sides of cable is not working CLEAN it with isoprofile solution or Eraser (rubber)

Check cable working or not

Use multimeter turn to buzzer mode .check at two sides to make sure the connectivity is ok then cable connection is perfect.

Trouble shooting:

1. White display or no display
2. Power section problem
   - 2.1. Check fuse 1.4 amp
   - 2.2. Check the coil
   - 2.3. Check 8 pins IC
   - 2.4. Check transistor
   - 2.5. Check voltage ice burning
3. Color missing ,color patches
   - 3.1. Check resistance pack, dry soldering
4. Brightness and contrast problem
   - 4.1. Power section capacitor problem
   - 4.2. Dry soldering all components even though problem not solved LCD is weak, replace it.
5. Half display
   - 5.1. Check buffer ICE burning /over heating
   - 5.2. Check buffer ICE near capacitor
   - 5.3. Adjust the preset even the problem is not solved, replace LCD.

SYSTEM SIDE:

Power supply (ps)

Input 19v ps, laptop is no power problem

1. Check adapter
2. Check power connector 60-70% problems arises ,this 1st check 19v ps is coming or not is pcb if not problem is with power connector interval pin are expanded replace new connector.
3. PCB power is coming but laptop has no power

    3.1. Check 3AMP fuse start from before fuse to end
    3.2. Next check power switch(sw)
    3.3. SW is not working internally drop 1-2 drops of isoprofile solution & pass sw 10-15 times. if problem not solved replace is n
    3.4. Check voltage near power connection

-voltage ac overheating or burning ,no power problem

-check controlling IC overheating or burning ,no power

-remove SMDIC & replace with new ,problem solved.

SYSTEMSIDE NEXT PROBLEM:

Display is not coming.

1 All check primary level RAM clean the tips with isoprofile or eraser
2 Remove all external device i.e. CD ROM,HD,LAD card ,battery PCMCI cards
3 No display, remove panels & check the outside of display only the logic card.

No display:

1. RAM section

2. Power section

3. Charging section

4. Bios section

Above line: mother board, logic card divided in some section

PROCESSOR:

No display:

1. Processor is not heating, the processor regulator voltage=1.34v if voltage is 1.34v then processor is working else not processor section;

Processor trouble shooting:

1 Check the main fuse 1st
2 Maximum check 8 pins IC's burning
3 Voltage burning
4 Check coil (indicator)
5 Polarized capacitors
6 Ohm resistors fuse
7 Non polarized capacitors

Linux red hat 5.0 version class: venal steps:

Install or upgrade graphical mode press <enter>key –CD/DVD check skip-HDB1, HDB2 to 4(drivers with c,d,e,f)/not drive has OS –create default layout for moment swap folder should be 2x ram size.

RANDOM ACCESS MEMORY (RAM):

Voltages :

1 Main voltage 3.3v(for all laptops)
2 Reset voltage 1.8 v (all)
3 Data voltage
4 0.9 v

No display problems:

Check main voltage at pin # 199-----3.3v

Check reset voltage at pin # 65------1.8v

Check data voltage at pin #1, 2, 3, 4

Trouble shooting:

1 Check fuse
2 Check coil inductor
3 Dry solder capacitors
4 Check two 8 pin ICE's
5 Voltage & ice burning
6 Controlling ice near coils & polarized capacitors (pc)
7 Check capacitors & resistors packs
8 Dry solder the RAM socket pins.

CHARGING SECTION-BATTERY:

Battery requirement voltages:

Battery charging voltages: 3.8 v and 5 v

Battery to system running voltages: 12v, 13v,14v

Problems:

Battery is not charging –remove battery, insert new/working battery .when battery is charged/working. Problems is the battery if battery is not working /charging –problem is the circuit board battery to system OS not working –battery is fine ,but system isn't working problem is circuit board(mother board ,logic card as to called)

Trouble shooting:

1. 1st check main fuse
2. Next check 8 pins ic
3. Capacitors
4. Check charging ice
5. Check output coils
6. Dry solder the charging connector

Trouble shooting:

1. 1st check fuse(green one)
2. Check 8 pins ic
3. Check voltage ic burnings
4. Check controlling ice
5. Check power switch voltage.

DVD drive:
Components:

Spindle motor	-	used to rotate the DVD
Lens motor	-	used to move the lens up & down
Sensor	-	act as switch (like as switch) on /off
Lens	-	used for read and write (from /to DVD)
Lens assembling	-	to support the lens
Tray	-	used to insert /remove the DVD holds in drive
Strip	-	used for power &data transfer
On/off	-	switch
Tray exit button	-	used for inserting/removing the DVD
Logic card	-	either data transfer between DVD &system

Trouble shooting:

Not reading/writing:

1 Use isoprofile on bud to clean the lens
2 Check sensor
3 Check logic card power switch
4 Check spindle motor
5 Lenses motor
6 Check logic output resistors
7 Check power &data strip even though if the problem is not solved replace the lense

No power:

1 Check fuse in logic card
2 Check transistors
3 Check voltage ice burning & its strips

Drive is not detecting:

1 Check drive input connector
2 Use isoprofile to clean the connector
3 Check strip
4 Check resistor pack
5 Dry solder the logic card connector

CONCAVE LENSE,PRISM:

Voltages: lense unit 3.3v, spindle motor 5v, lense motor 5v

Bios basic input /output system: built in software that determines what a computer can do

Without accessing programs from disc; contains all the code required to control

The keyboard, display screen, disc drives, etc

Cmos complementary mortal oxide semiconductor: use both nmos (negative polarity)

And Cmos (positive polarity) circuits& requires loss power than chips using Just one type of transistor.

Bios –main voltage is 3.3v

Bios are of three types (types of bios chips)

1 Horizontal bios: total pins 40 to 27^{th} pin has 3.3 v and 21^{st} pin has 2.5 v (21^{st} pin2.5v&27^{th} pin 3.3v)
2 Square bios: total pins 30 29^{th} pin 3.3v &28^{th} pin 1.7v-1.8v
3 Eight –pin bios total pins 8 ,4pins should have only one main voltage 3.3 v.4 pins must should show 3.3v (any 4 pins)

Trouble shooting:

1 Booting problem
2 Display problem

3 System password forgotten
4 Keyboard &mouse not functioning
5 Bios setting problem
6 Error message
7 Cpu problem (fan)
8 Hanging & shutdown problem
9 Bios wires problem

Bios manufacturers :sst wing bond

Bios programmers: ambi bios, award bios, phoenix bios

I/O SECTION:

I/O input/output:any operation ,program ,or device whose purpose is to enter data into a computer (cpu) or to extract data from a computer(cpu).

Components connected to I/O section:

Lan card ,sound cad ,finger print reader ,webcam,wifi (wire less internet network).TV capture card and the external devices :key pad ,mouse pad ,hard disc (hdd).digital video disc(DVD) +rw(rewritable)drive peripheral component interconnect (pci) least is a 64 bit bus –slot ,usb-universal serial bus

Trouble shooting key –pad:

Condition key-pad not functioning
1 Software level check bios –key-pad to be enable /disable
2 Connect working key –pad /board as external to USB and check
3 If above is done ,remove and replace with new key pad
4 If external key pad doesn't work ,problem at mother board (mb)
5 Dry –solder ,keypad connector
6 Check capacitor and resistor packs –now problem is solved 90% no problem with SMDC if replace SMDC IC

Ts mouse pad: condition not functioning
1 Sw level check bios –setup –internal touch –pad enable/disable
2 Check 5v power supply must
3 Check strip (cable)if problem not solved then problem is in mother board (mb)
4 Reverse &replace the touch –pad with new one

LOCAL AREA NETWORK S(LAN) RJ 45 JACK

Rj 45 jack has 8pins

Trouble shooting:

LAN/internet isn't connected

1. Check capacitors and resistors
2. Dry solder all components
3. Check LAN IC burning /overheating
4. Replace Rj 45 jack with new one –problem is solved.

SOUND CARD TS:
Trouble shooting:

Condition: sound output is not coming

1. Check sound card drivers
2. Connect to external speakers and check if sound comes then speakers problem else mother board problem for mb problem
3. Check resistors &capacitors
4. Sound ice problem replace with new one external speakers & MIC not functioning disturbance &noise as well
5. Dry –solder resistor &capacitor
6. Replace the jacks with new one

USB –card reader –web cam –finger printer reader –TV capture
Usb trouble shooting:

Condition USB not functioning:

1. Max problem is at resistor pack
2. Then check +5v must power supply
3. If 8 pin ice is not working .take jumper cable and connect with any +5v to usb power supply
4. Replace with new one.

WEB CAM:

Conditioning not functioning:

1. Check driver –my computer-device manager
2. Strip /cable check
3. Check connector & dry solder it, if problem is not solved check with working camera ,still camera is not working then problem with IOIC if available replace it else not repairable leave it.

WIFI:

Condition not detected:

1. Check driver
2. Clean wifi card with eraser or is profile solution
3. To connect wifi press (fn) +(f2) keys
4. Replace with card new

http://laptoprepaircourse.in

- Two power management modes—suspend mode (or standby mode in Windows 98) and suspend-to-disk mode—that help you conserve battery power.
- Automatic thermal management that slows the microprocessor or starts a small fan when necessary.
- An infrared port compatible with IrDA 1.1 (Fast IR) and 1.0 standards, and a USB connector that supports stand-alone and hub devices.
- A PC Card slot with two connectors that support 5-V and 3.3-V PC Cards.
- A BIOS that resides in flash memory and that can be upgraded by diskette if required.
- A PS/2-compatible touch pad with full mouse functionality.
- Hardware and software support for the Dell Latitude C/Port Advanced Port Replicator (APR) and Latitude C/Dock Expansion Station.

For a complete list of system features, see "Technical Specifications" found later in this chapter.

Physical Description

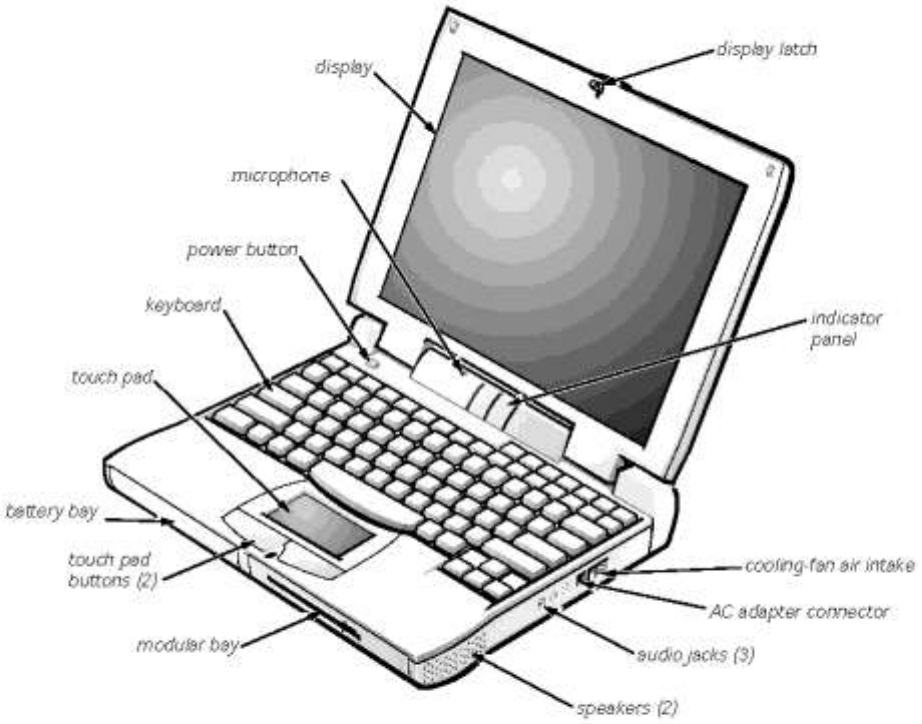


Figure 1-1. Front View of the Computer

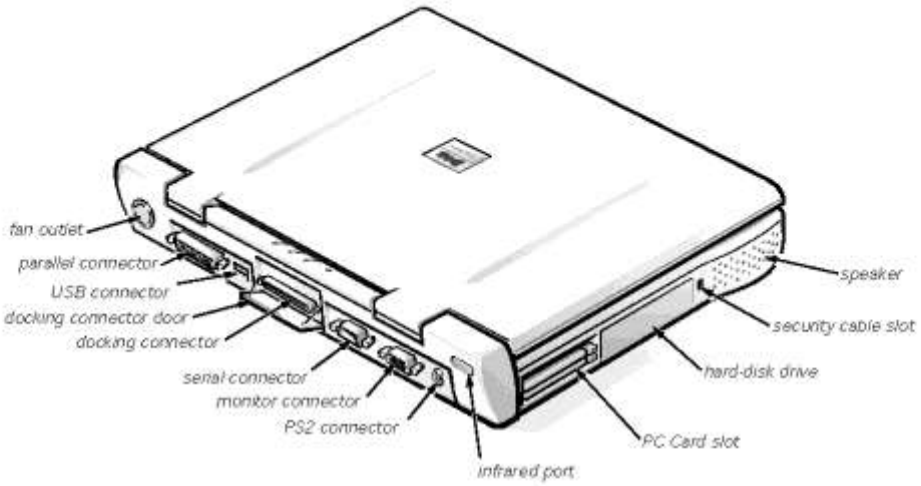


Figure 1-2. Back View of the Computer

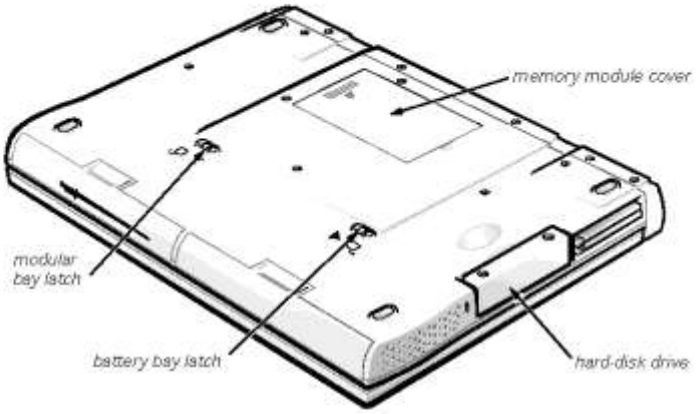


Figure 1-3. Bottom View of the Computer

Indicator Panel

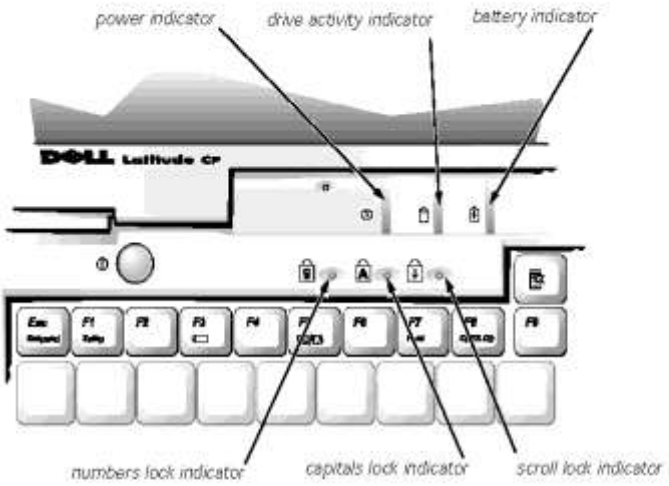


Figure 1-4. Indicator Panel

The Latitude CP or CPi computer has three indicators on the display assembly's indicator panel and three on the keyboard assembly. The following subsections describe the functions of these indicators.

Power Indicator

The power indicator is a green LED. After the computer is turned on, the power indicator lights up constantly to indicate that the computer is receiving stable power. If the power indicator is off, the computer is either in suspend mode (or standby mode for Windows 98), suspend-to-disk mode, or off.

Drive Activity Indicator

The drive activity indicator is a green LED. The indicator lights up when data is being transferred to or from the hard-disk drive, or to or from a diskette drive, CD-ROM drive, or other device installed in the modular bay.

Battery Indicator

The battery indicator displays the following conditions:

- The indicator turns green while the AC adapter is fast-charging. During the normal charging cycle, the indicator remains on without blinking. After the battery is fully charged, the battery indicator blinks green to indicate that the AC adapter is providing a maintenance (trickle) charge to keep the battery at full capacity.

9. Remove the main battery assembly from the battery bay.

Slide the battery bay latch away from the center of the computer. Then slide the battery out of the battery bay (see Figure 4-2).

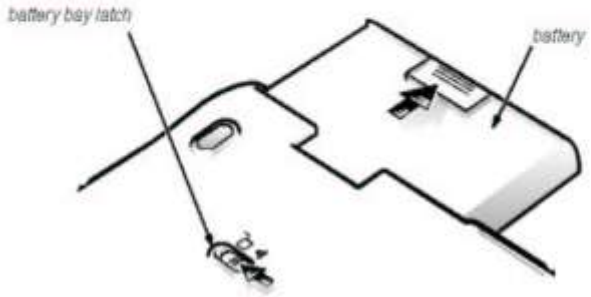


Figure 4-2. Main Battery Assembly Removal

10. Remove the hard-disk drive assembly (see "Hard-Disk Drive Assembly" found later in this chapter).

Screw Identification and Tightening

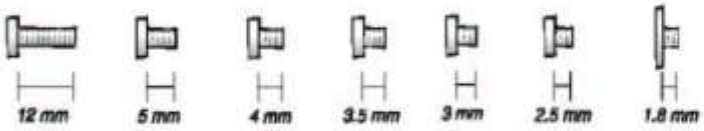


Figure 4-3. Screw Identification

CAUTION: When reinstalling a screw, it is essential that a screw of the correct length be used. Otherwise, hardware damage could result. Make sure that the screw is properly aligned with its corresponding hole, and avoid overtightening.

The illustrations in the following removal procedures provide the correct screw length as part of the screw's label. A graphic for that length screw is also included in the illustration. Match the actual screw to the graphic in the illustration to check for correct length.

ZIF Connectors

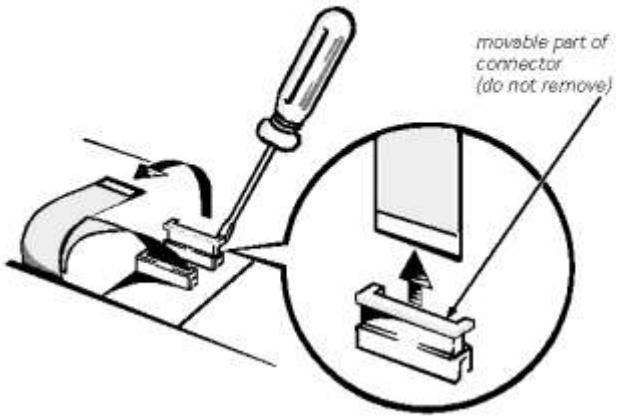


Figure 4-4. Disconnecting an Interface Cable

Some of the computer's interface connectors are zero insertion force (ZIF) connectors. These connectors are not removable, but they must be released to disconnect a cable from them

CAUTION: The ZIF connectors are fragile. To avoid damage, do not apply too much pressure to the movable part of the connector.

To disconnect an interface cable from a ZIF connector, follow these steps:

1. **Insert a small flat-blade screwdriver under the movable part of the connector.**
2. **Pull gently upward on the movable part of the connector until it releases the interface cable.**
3. **Grasp the interface cable and pull it out of the connector.**

To reconnect an interface cable to a ZIF connector, follow these steps:

1. **Use a small flat-blade screwdriver to open the movable part of the ZIF connector.**
2. **Orient the end of the interface cable with the ZIF connector, and insert the end of the cable into the connector.**
3. **While holding the cable in place, close the ZIF connector.**

   To ensure a firm connection, make sure the ZIF connector is completely closed.

Removing Field-Replaceable Parts and Assemblies

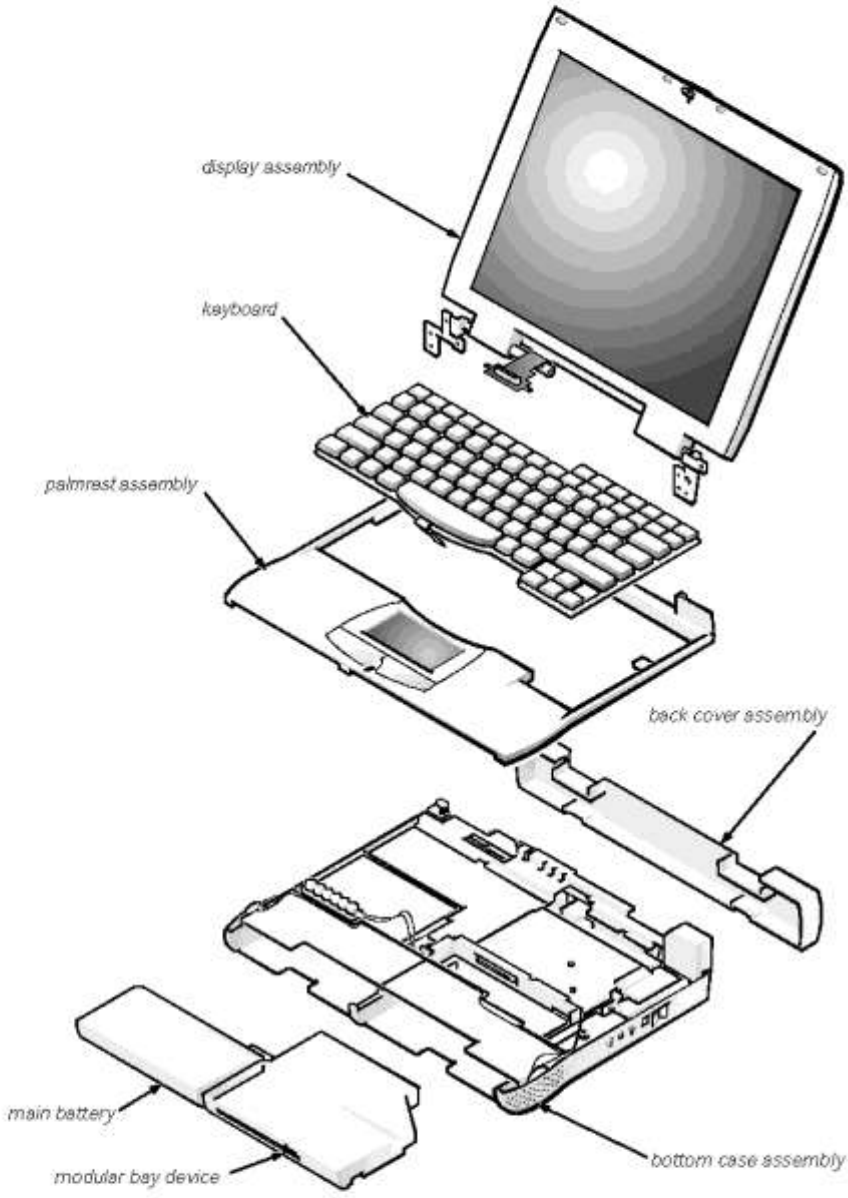


Figure 4-5. Exploded View—Computer

The following subsections provide instructions for removing and replacing field-replaceable parts and assemblies.

Hard-Disk Drive Assembly

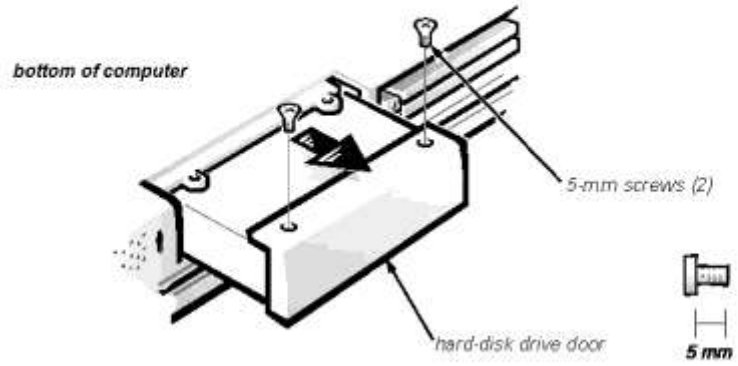


Figure 4-6. Hard-Disk Drive Assembly Removal

1. **Turn the computer over, and remove the two 5-mm screws from the hard-disk drive door.**

   The drive is on the left side of the computer.

CAUTION: The hard-disk drive is very sensitive to shock. Handle the assembly by its edges (do not squeeze the top of the hard-disk drive case), and avoid dropping it.

2. **Grasp the drive door and pull the drive out of the computer.**

Memory Module Cover

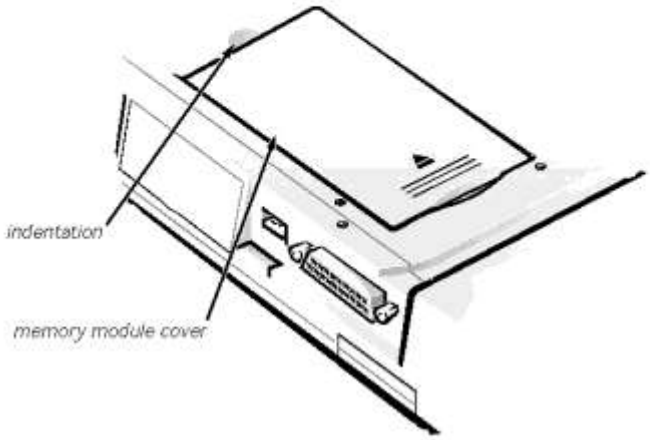


Figure 4-7. Memory Module Cover Removal

CAUTION: Make sure the work surface is clean to prevent scratching the computer cover.

1. **Close the display, and turn the computer upside down on a flat work surface.**

2. **Release the memory module cover.**

   Insert a fingertip in the indentation in the bottom case assembly and lift the cover slightly; then slide the cover in the direction indicated by the arrow on the cover.

Memory Modules

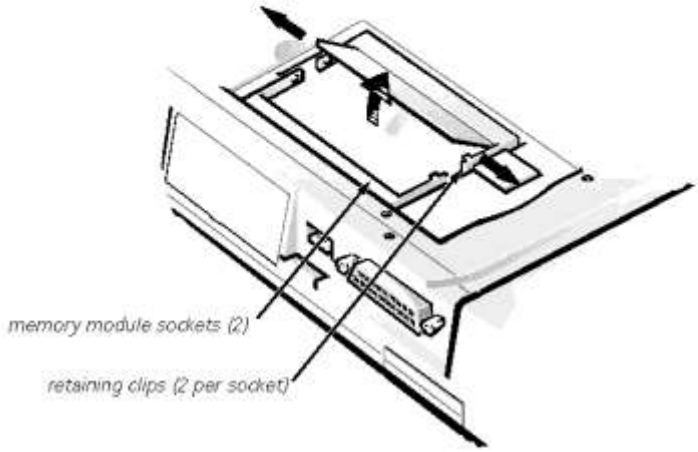


Figure 4-8. Memory Module Removal

1. **Remove the memory module cover.**
2. **To avoid possible damage to the memory module from ESD, ground yourself by touching the metal surface of an I/O connector on the computer's back panel.**
3. **To release a memory module from its socket, gently push outward on each of the memory module's two metal retaining clips.**

   The memory module should rotate upward out of its retaining clips.
4. **Lift the memory module out of its socket.**

Memory modules can be installed only one way. Do not attempt to force the memory module into the socket. Align the notch near the center of the memory module with the corresponding key in the memory module socket.

Keyboard Assembly

To remove the keyboard assembly, follow these steps:

CAUTION: Make sure the work surface is clean to prevent scratching the computer cover.

1. **Close the display assembly, and turn the computer upside down on a flat work surface (see Figure 4–9).**

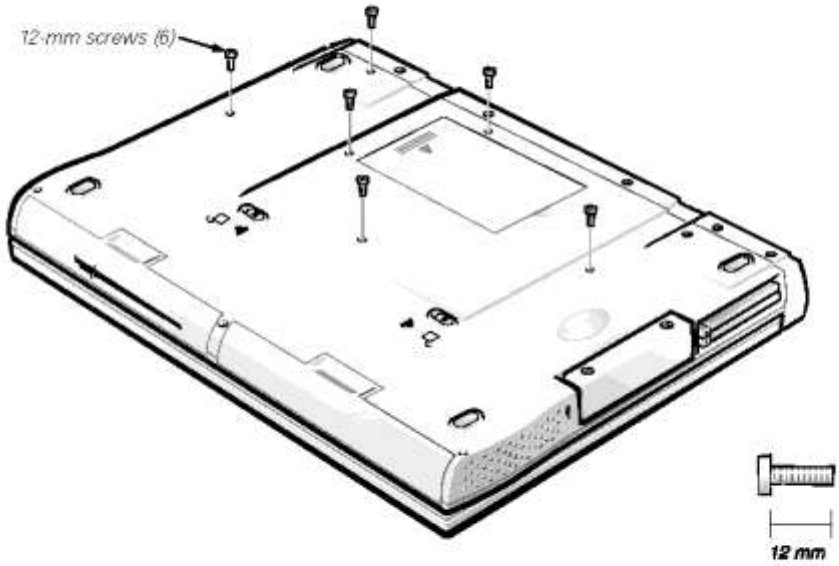


Figure 4–9. Removing the Keyboard Assembly Screws

2. **Remove the six 12-mm screws securing the keyboard to the computer.**
3. **Turn the computer right-side up and open the display.**

CAUTION: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

4. **Release the keyboard from the palmrest assembly:**

   a. Carefully deflect the palmrest (next to the blank key below the <Shift> key) away from the center of the keyboard, until the tab on the palmrest's inner edge disengages from the keyboard. The keyboard should raise up slightly.

   b. Insert a fingernail or a small flat-bladed screwdriver under the scalloped edge of the blank key (see Figure 4-10), and lift the right edge of the keyboard.

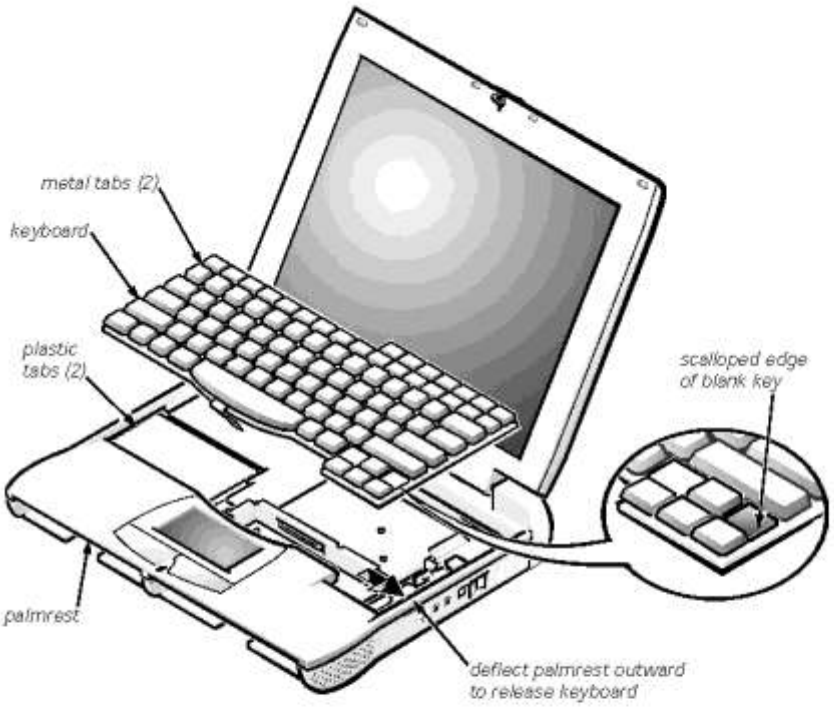


Figure 4-10. Keyboard Assembly Removal

5. **Once the keyboard is fully released from the palmrest, place the keyboard upside down over the touch pad.**
6. **Disconnect the keyboard cable from connector KB1 on the system board.**
7. **Remove the keyboard assembly.**

Follow these steps when replacing the keyboard assembly:

1. **Connect the keyboard cable to connector KB1 on the system board.**
2. **Fit the left edge of the keyboard into place, making sure the two small metal tabs on the keyboard fit under the corresponding plastic tabs on the palmrest's inner edge.**
3. **Lower the right edge of the keyboard into place, and press on the blank key below the <Shift> key until the tab on the palmrest's inner edge engages the keyboard with an audible "click."**
4. **Check that the keyboard is correctly installed. The keys should be flush with the left and right surfaces of the palmrest.**
5. **Reinstall the six 12-mm screws.**

Back Cover Assembly

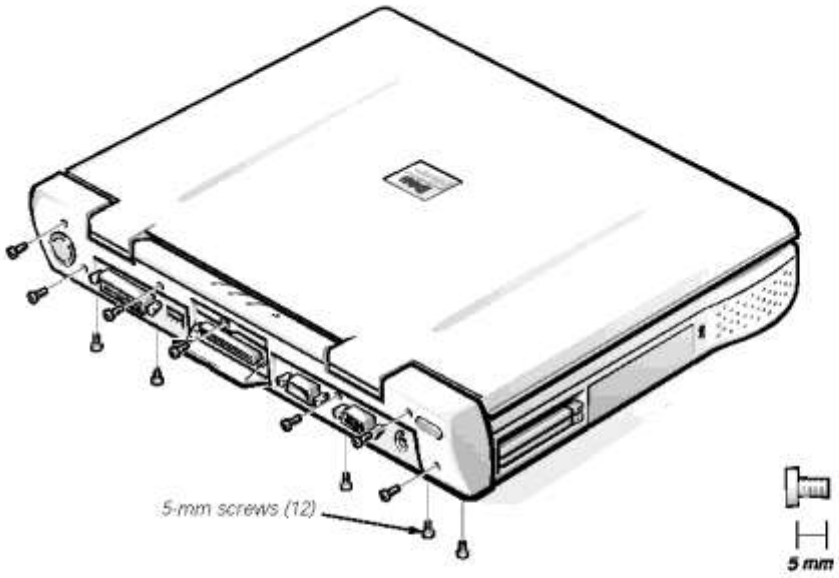


Figure 4-11. Back Cover Assembly Removal

1. **Close the display.**
2. **Remove the twelve 5-mm screws securing the back cover:**
   - Five screws on the underside of the back cover
   - One screw behind the docking connector door
   - Six screws on the face of the back cover
3. **Close the docking connector door.**
4. **Remove the back cover assembly.**

   Grasp the right end of the back cover assembly firmly, and unsnap it from the computer. Then disengage the left end of the back cover assembly.

Palmrest Assembly

The palmrest assembly consists of the touch pad and the palmrest.

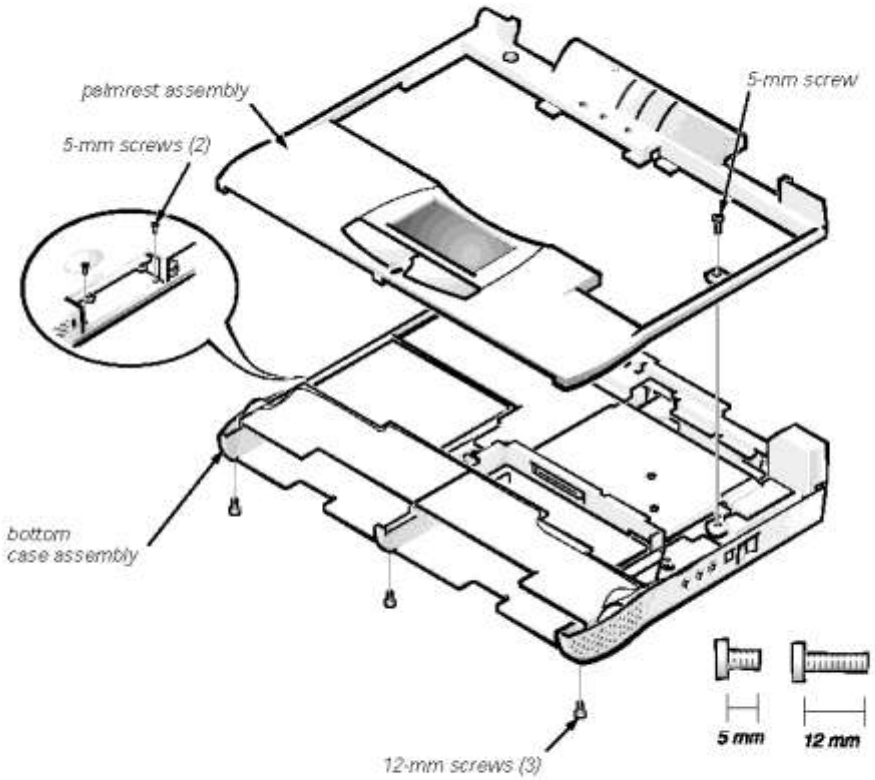


Figure 4-12. Palmrest Assembly Removal

1. **Remove the keyboard.**
2. **Disconnect the touch-pad cable from ZIF connector JP2 on the system board.**
3. **Remove the back cover assembly.**
4. **Remove the following screws securing the palmrest to the computer:**
   - One 5-mm screw inside the computer, adjacent to the thermal cooling assembly
   - Two 5-mm screws inside the upper edge of the hard-disk drive bay (you must remove the hard-disk drive to access these screws)
   - Three 12-mm screws underneath the front edge of the computer

Touch-Pad Interface Module

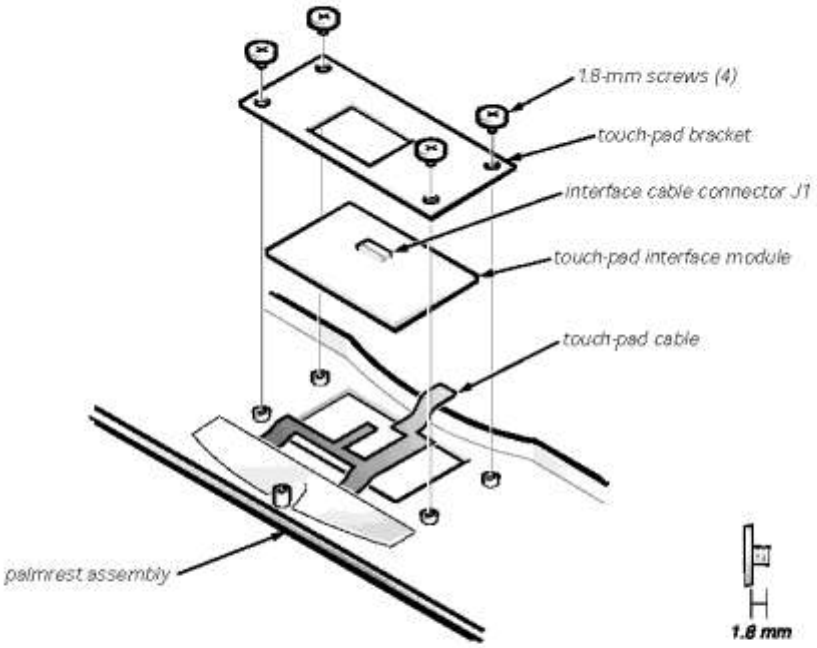


Figure 4-13. Touch-Pad Interface Module Removal

1. **Remove the palmrest assembly.**
2. **Turn the palmrest assembly upside down on a flat work surface.**
3. **Remove the four 1.8-mm screws securing the touch-pad bracket.**
4. **Carefully disconnect the touch-pad cable from ZIF connector J1 on the touch-pad interface module.**

   To release the ZIF connector latch, use a fingernail to lift up the central portion of the black plastic latch.
5. **Remove the touch-pad interface module from the palmrest.**

Display Assembly Components

For removal purposes, the display assembly consists of the following components:

- Display assembly bezel
- LCD panel
- LCD inverter board
- LCD inverter board shield (13.3-inch display only)
- Display-assembly interface cable
- Display assembly latch
- Display assembly top-cover assembly
- Display assembly hinges
- Display assembly right bracket (12.1-inch display only)

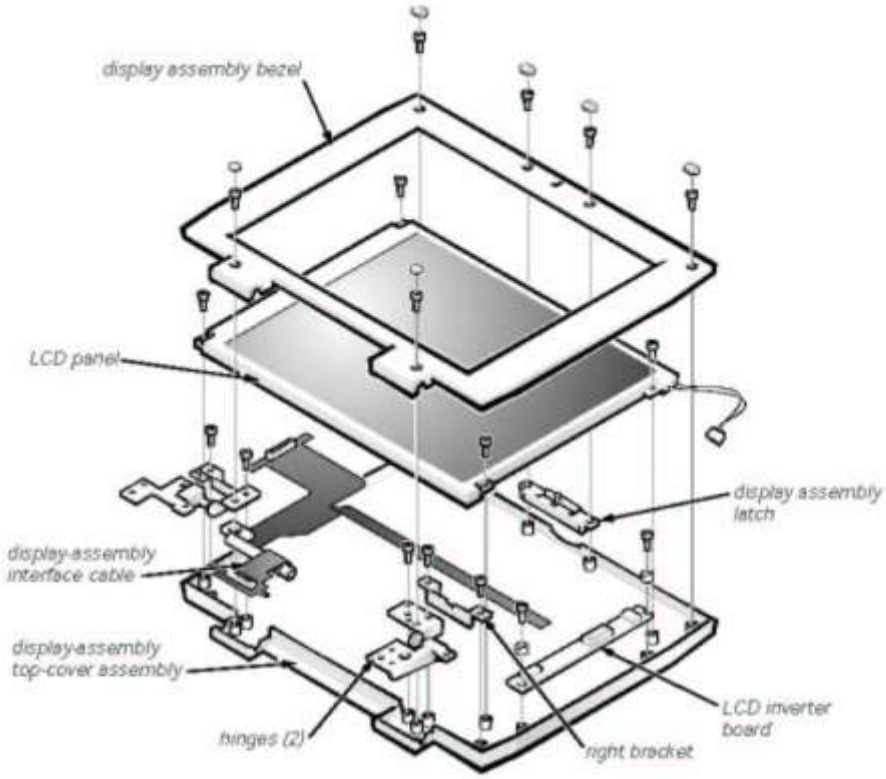


Figure 4-14. Exploded View—Display Assembly (12.1-Inch Display Shown)

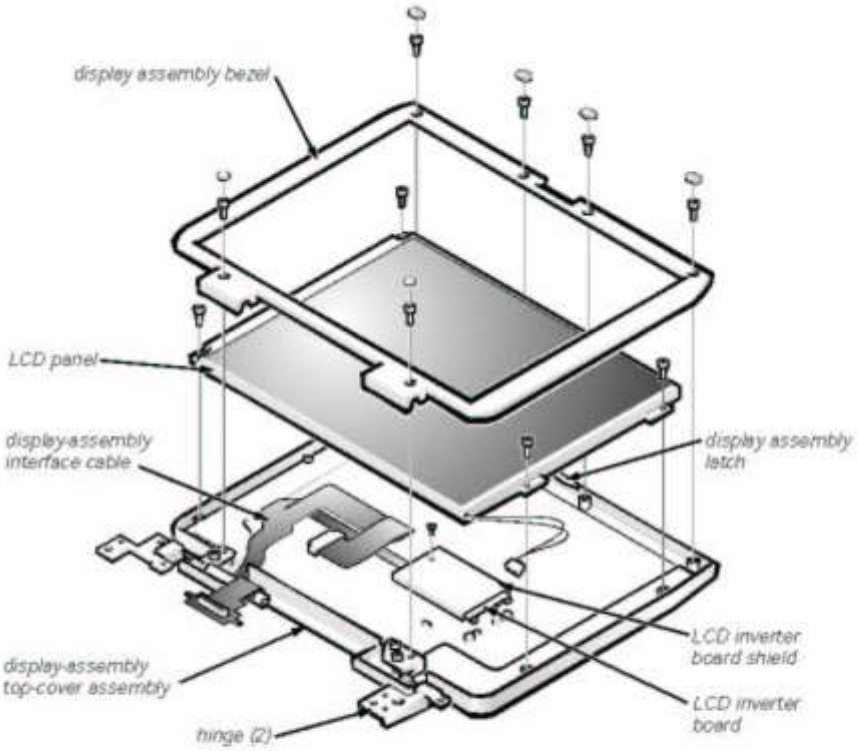


Figure 4-15. Exploded View—Display Assembly (13.3-Inch Display Shown)

Display Assembly

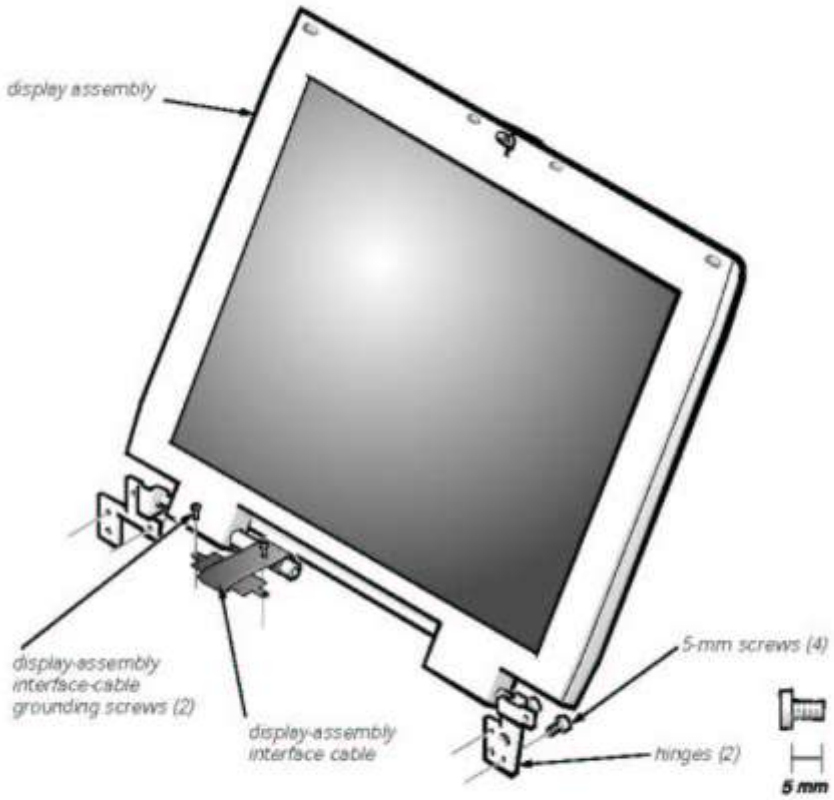


Figure 4-16. Display Assembly Removal

1. **Remove the palmrest assembly.**
2. **Remove the two 5-mm interface-cable grounding screws from the display-assembly interface cable.**
3. **Disconnect the display-assembly interface cable from connector JP1 on the system board.**

   Grasp the grounding tabs and pull the connector straight up from the system board.
4. **Close the display, being careful not to damage the display interface cable.**

Display Assembly Bezel

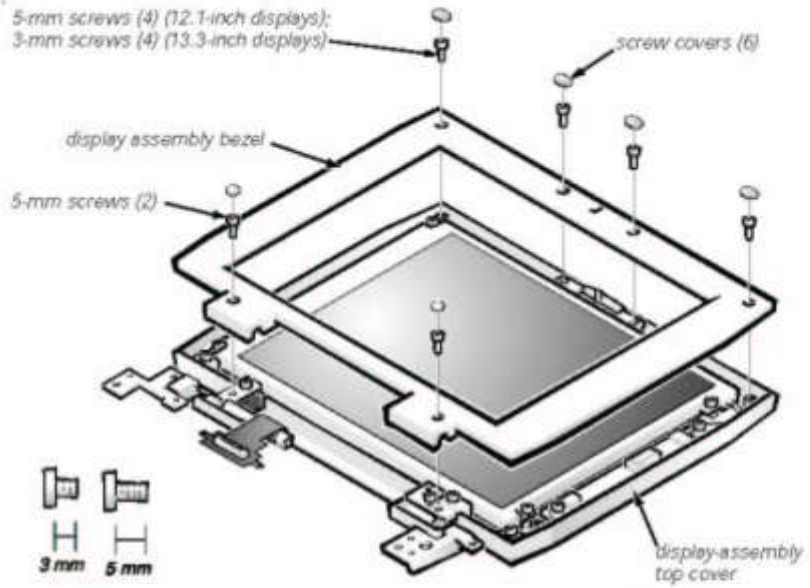


Figure 4–17. Display Assembly Bezel Removal (12.1-Inch Display Shown)

1. **Use a scribe to carefully pry the screw covers out of the six screw holes in the bezel.**

2. **Remove the six screws from the bezel.**

   On 12.1-inch displays, all six screws are 5-mm screws. On 13.3-inch displays, the four upper screws are 3-mm screws, while the lower two screws are 5-mm in length.

3. **Separate the bezel from the display-assembly top cover.**

   If removing the bezel from a 12.1-inch display — The bezel is secured by snaps around all four of its edges. Insert your fingertips between the bezel and the LCD panel, and lift upward on the bezel to release the hidden snaps. Avoid pressing on the surface of the LCD panel.

   If removing the bezel from a 13.3-inch display — The bezel is secured by snaps along its lower edge, and hooks along its right and left edges.

   a. Insert your fingertips between the lower edge of the bezel and the LCD panel, and lift upward on the bezel to release the hidden snaps.

   b. Lift the lower right corner of the bezel slightly, and then slide the bezel off of the display assembly until the hooks on the right and left edges release from the display-assembly top cover.

LCD Panel

The following subsections describe how to remove an LCD panel.

12.1-Inch LCD Displays

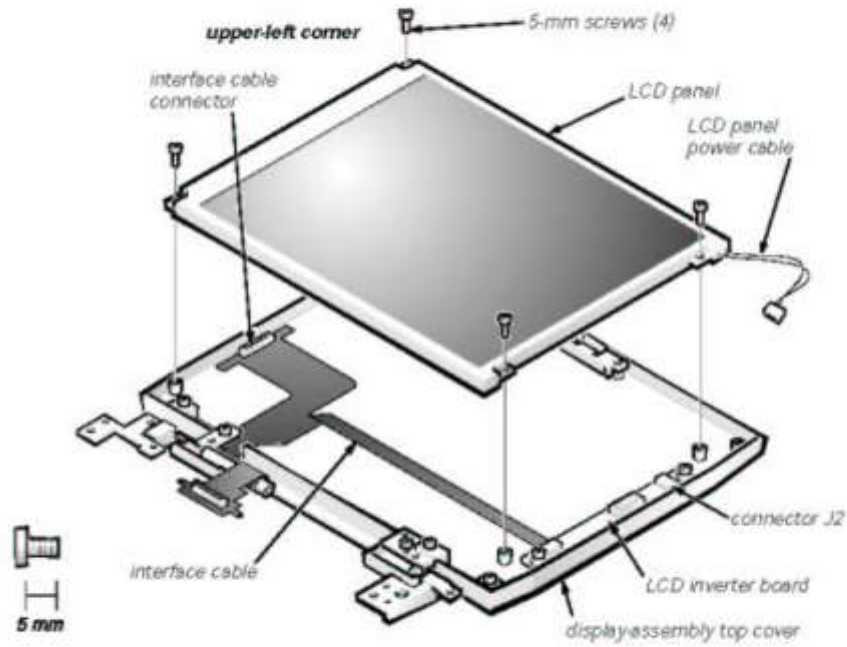


Figure 4-18. LCD Panel Removal (12.1-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the four silver 5-mm screws at the corners of the LCD panel.**
3. **Disconnect the LCD panel power cable from connector J2 on the LCD inverter board.**
4. **Lift the left edge of the LCD panel far enough to gain access to the the display-assembly interface cable connector on the underside of the LCD panel.**
5. **Using the two pull-tabs, disconnect the display-assembly interface cable from the LCD interface connector on the underside of the LCD panel.**

CAUTION: When replacing the STN LCD panel on the Latitude CP M233SD, you must replace the screws at the four corners of the LCD panel in the following order or the panel may be damaged: first, reinstall the upper-right screw; second, reinstall the lower-left screw; third, reinstall the lower-right screw; and fourth, reinstall the upper left-screw.

NOTE: When replacing the LCD panel, ensure that the tabs on the display-assembly EMI shield fit over the four LCD panel mounting bosses. (This is necessary for adequate grounding of the LCD panel.)

13.3-Inch LCD Displays

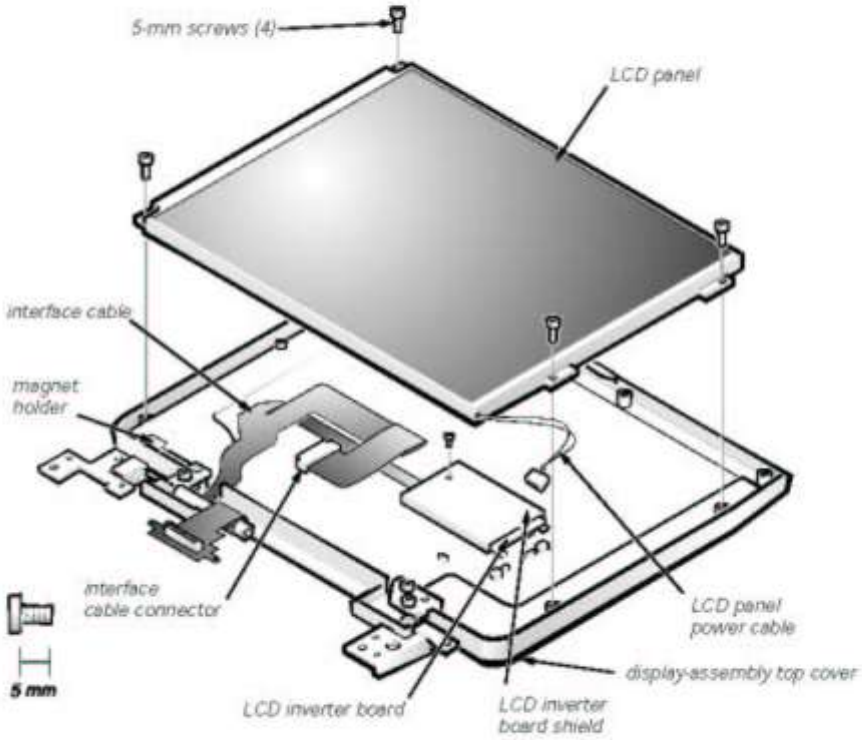


Figure 4-19. LCD Panel Removal (13.3-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the four silver 5-mm screws at the corners of the LCD panel.**
3. **Lift the upper edge of the LCD panel and pivot the panel up to gain access to the LCD inverter board in the display-assembly top cover.**
4. **Remove the screw securing the LCD inverter board to the display-assembly top cover.**
5. **Lift the LCD inverter board and inverter board shield far enough to disconnect the LCD panel power cable.**

LCD Inverter Board

The following subsections describe how to remove an LCD inverter board from a 12.1-inch or 13.3-inch LCD display.

12.1-Inch LCD Display

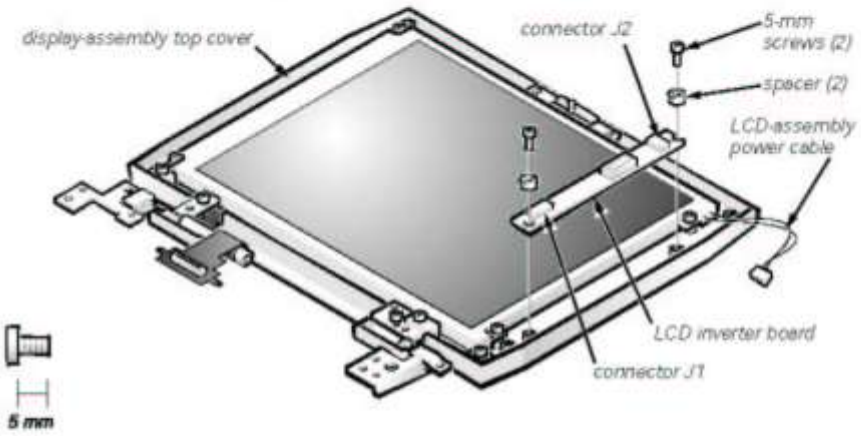


Figure 4-21. LCD Inverter Board Removal (12.1-Inch Display)

1. **Remove the display assembly bezel.**
2. **Disconnect the LCD-assembly power cable from connector J2 on the LCD inverter board.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Remove the two silver 5-mm screws and plastic spacers securing the LCD inverter board.**

   Note the placement of the EMI shield over the lower screw boss, and the routing of the LCD-panel power cable around the upper screw boss.

5. **Lift the LCD inverter board out of the display-assembly top cover.**

NOTE: When installing the inverter board, connect the LCD interface cable to the board prior to securing the board in the display-assembly top cover. After installing the inverter board, ensure that the LCD-panel power cable is routed around the plastic screw bosses in the display-assembly top cover.

13.3-Inch LCD Display

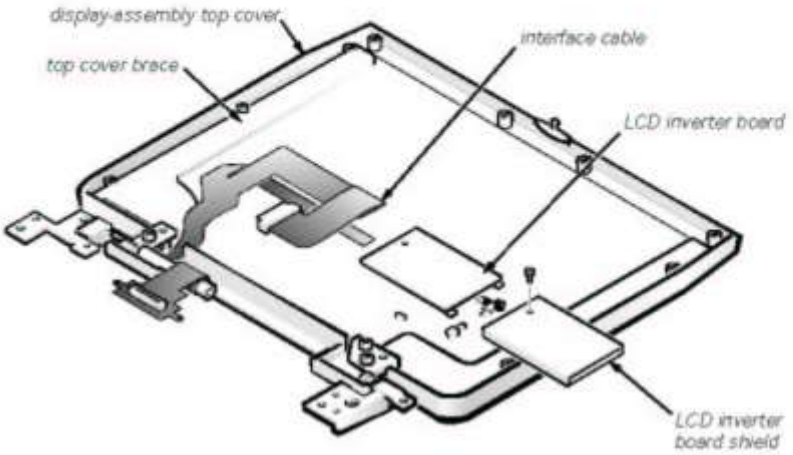


Figure 4-22. LCD Inverter Board Removal (13.3-Inch Display)

1. **Remove the display assembly bezel.**
2. **Remove the LCD panel.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Slide the LCD inverter board out of the LCD inverter board shield.**

NOTE: Replace the LCD inverter board in the shield so that the components on the board face towards the display-assembly top cover.

Display-Assembly Interface Cable

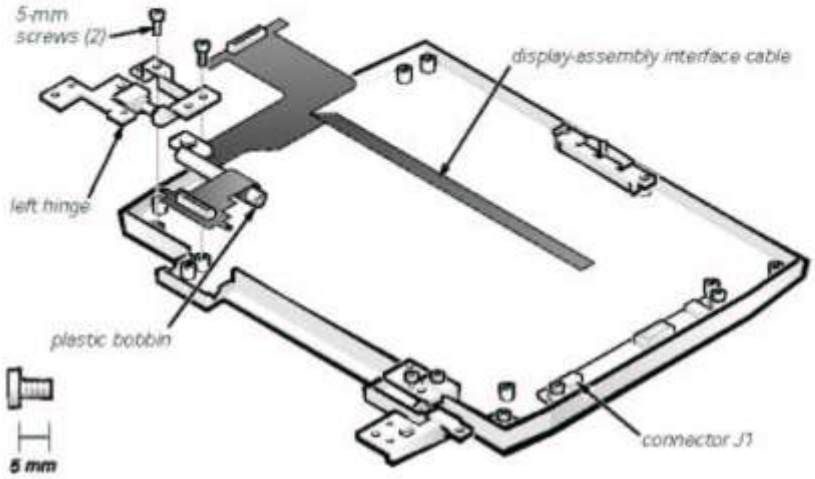


Figure 4-23. Display-Assembly Interface Cable Removal (12.1-Inch Display Shown)

1. **Remove the display assembly.**
2. **Remove the LCD panel.**
3. **Disconnect the display-assembly interface cable from ZIF connector J1 on the LCD inverter board.**
4. **Remove the two 5-mm screws securing the left hinge, and then remove the hinge from the display-assembly top cover.**
5. **If you are removing the display-assembly interface cable from a 13.3-inch display, remove the left top-cover brace from the display-assembly top cover (see Figure 4-22).**

   To remove the top cover brace, remove the 3-mm screw securing it.
6. **Lift the display-assembly interface cable out of the display-assembly top cover.**

NOTE: When replacing the display assembly, reinstall the screws securing the left hinge at the locations marked on the hinge by arrows. Ensure that the display-assembly interface cable wraps once around the plastic bobbin before connecting the cable to the system board.

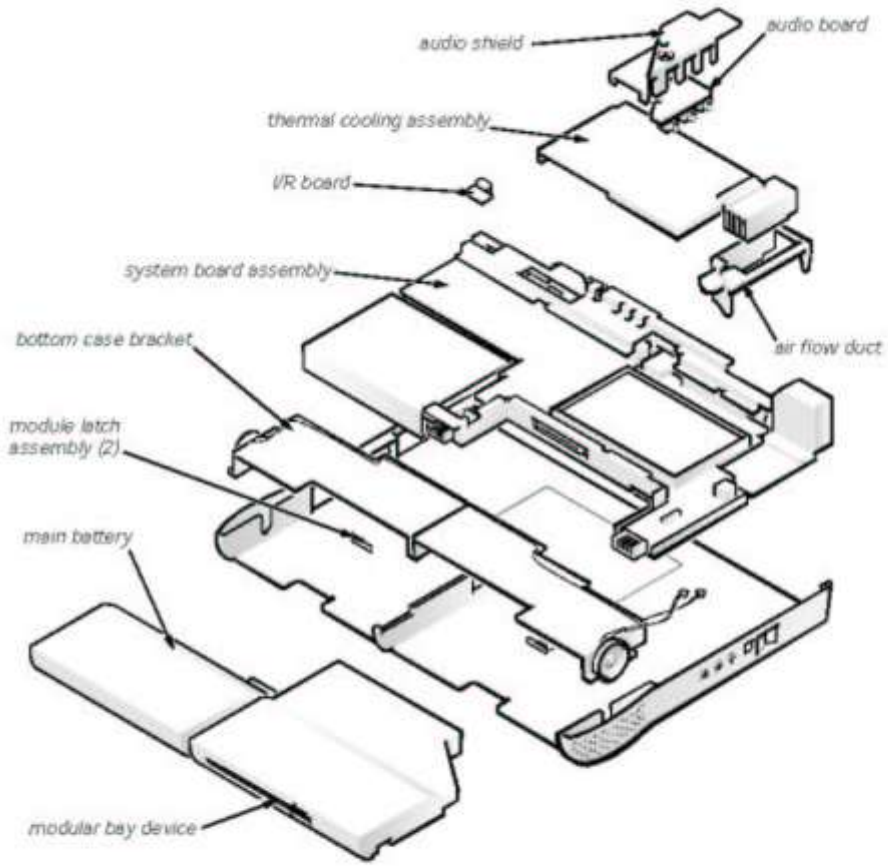


Figure 4-24. Bottom Case Assembly

Audio Board

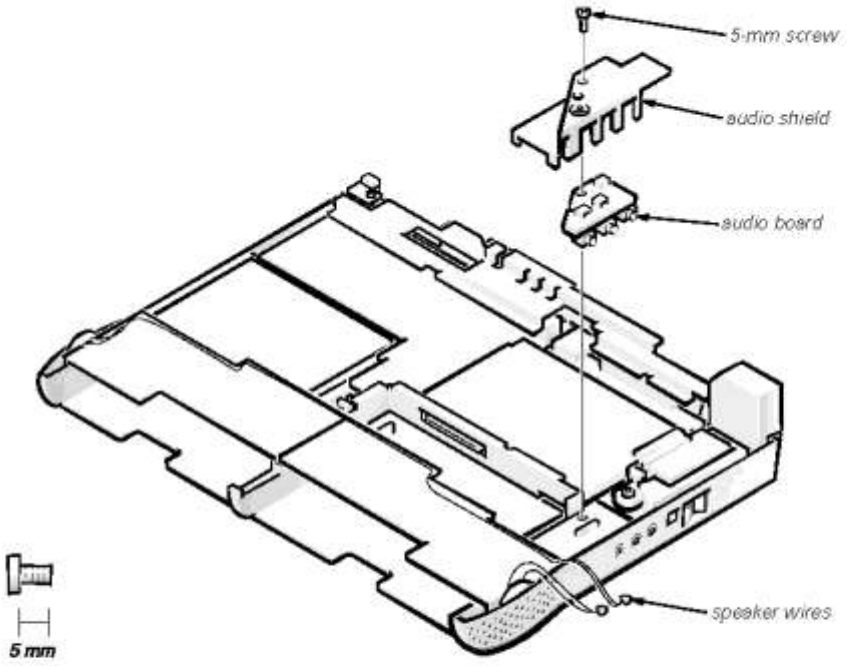


Figure 4-26. Audio Board Removal

1. **Remove the palmrest assembly.**
2. **Remove the 5-mm screw securing the audio board shield.**
3. **Remove the audio board shield.**
4. **Disconnect the speaker wires and microphone wires from their connectors on the audio board.**

   The connectors are fragile—do not pull on the wires to disconnect them.

5. **Remove the audio board from the bottom case.**

NOTE: When replacing the audio shield, ensure that the audio shield is properly seated to prevent it from cutting into the speaker wires or interfering with devices installed in the modular bay. (You can check this by temporarily installing a device in the modular bay prior to reinstalling the palmrest assembly.)

Bottom Case Bracket

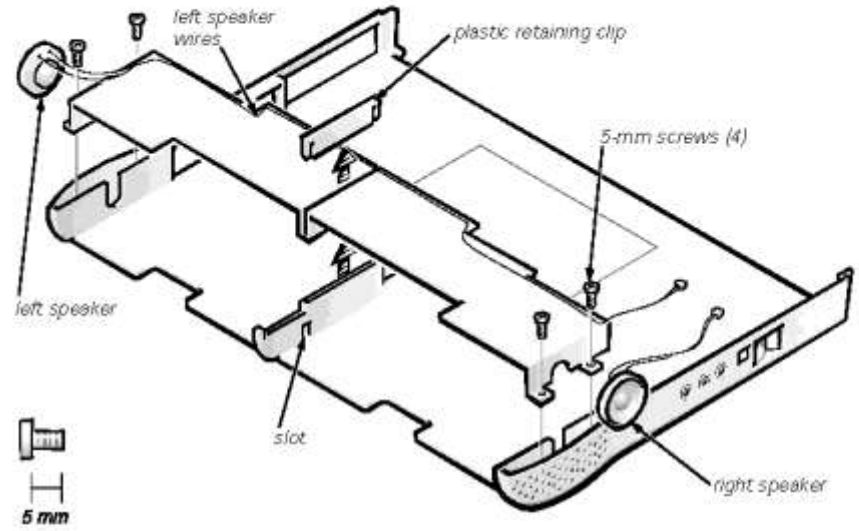


Figure 4-27. Bottom Case Bracket Removal

1. **Remove the palmrest assembly.**
2. **Remove the audio board shield.**
3. **Disconnect the speaker wires from connectors JP1 and JP2 on the audio board.**

   The connectors are fragile—do not pull on the speaker wires to disconnect them.
4. **Remove the two 5-mm screws at each end of the bottom case bracket.**
5. **Insert the end of a small flat-bladed screwdriver into the slot in the vertical support in the center of the bottom case, and disengage the plastic retaining clip.**
6. **Lift the bottom case bracket from the computer.**

NOTE: When replacing the bottom case bracket, follow these guidelines to prevent damage to the speaker wires:

- *Orient each speaker in the bottom case so that its wires are facing upwards.*
- *Route the speaker wires under their respective retaining clips on the bottom case bracket.*

Module Latch Assemblies

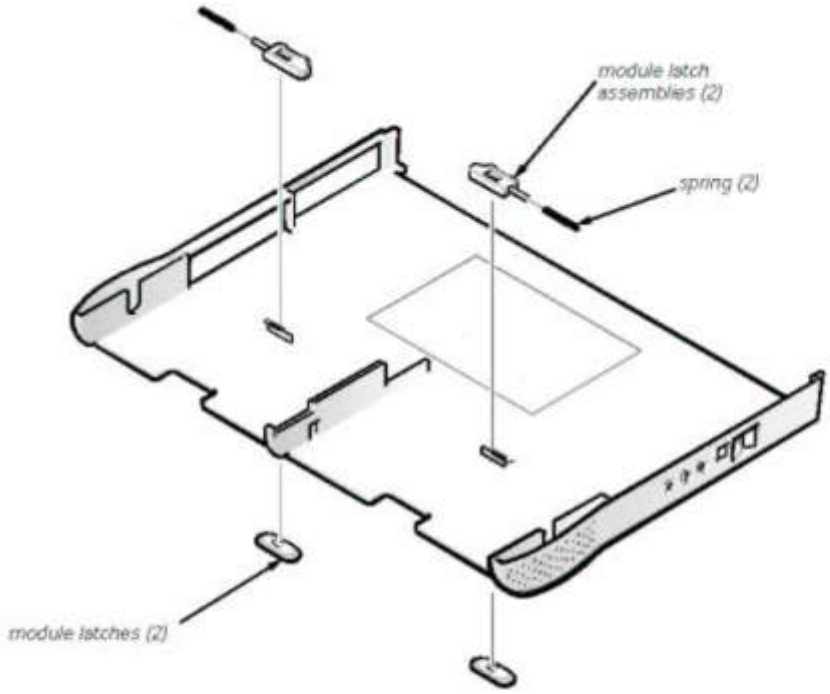


Figure 4-28. Module Latch Assemblies Removal

1. **Remove the bottom case bracket.**
2. **Remove the left latch from the outside of the bottom case by unsnapping the slider-spring assembly.**

   Keep pressure applied to the slider-spring assembly while unsnapping the latch to prevent the slider-spring assembly from coming loose from the case. If the slider-spring assembly does come loose from the case:

   a. Carefully reinsert the spring onto the plunger on the slider, and reinstall the slider-spring assembly into the holding features on the inside of the case.

   b. Ensure that the plunger is inserted in its respective hole, that the side of the slider with the two bumps is facing the rear of the case, and that the surface with the wear ribs is facing the bottom of the case (see Figure 4-29).

3. **Snap in the new latch from the bottom of the base, making certain its snap features are fully engaged in the slider.**
4. **Ensure that the newly installed latch moves smoothly and freely when pushed and released.**

5. **Repeat steps 1–4 for the right latch.**

6. **On the base plastic, find the molded label "P.N. ASSY 89501"; then, using a permanent marker, write "A01" to the right of "89501."**

   This revision mark indicates that the latch rework is complete.

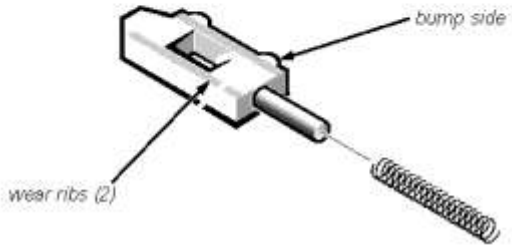


Figure 4-29. Left Slider

Speakers

1. **Remove the bottom case bracket.**

2. **If you are replacing the left speaker, carefully remove the speaker wires from the retaining clips along the bracket's edges.**

3. **Remove the speaker from the bottom case bracket.**

NOTES: When replacing the speaker, follow these guidelines to prevent damage to the speaker wires:

- *Orient the speaker in the bottom case so that the speaker wires are facing upwards.*
- *Route the speaker wires under their retaining clips on the bottom case bracket.*

System Board Assembly

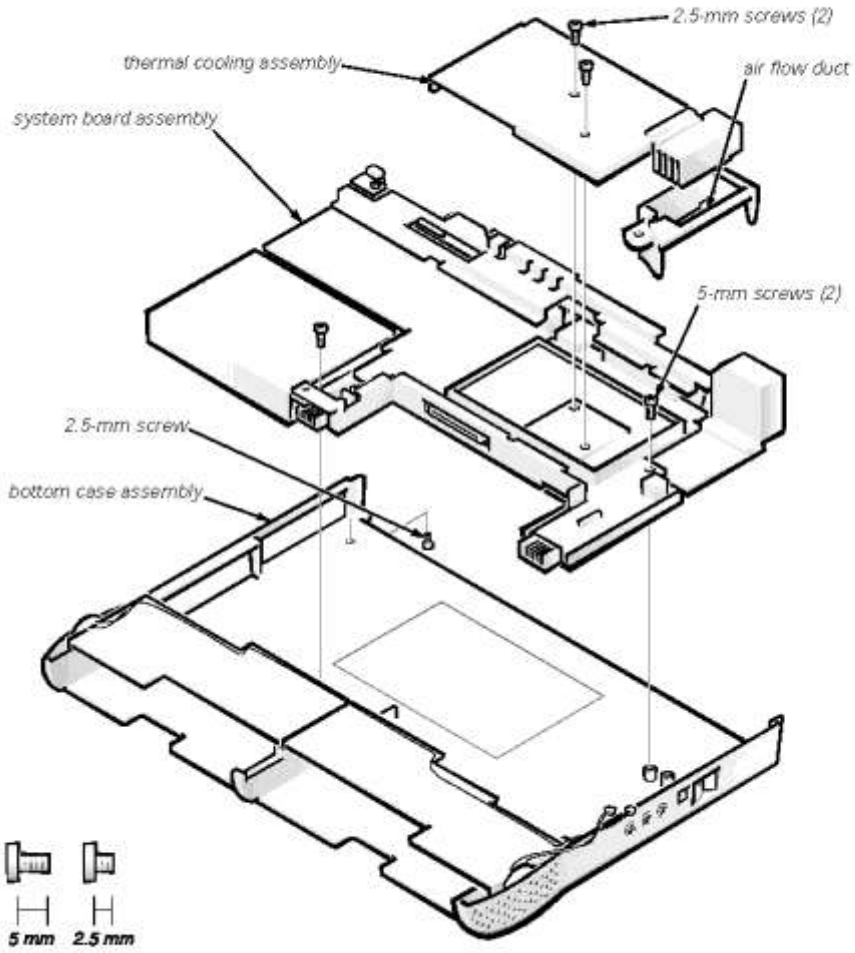


Figure 4-30. System Board Assembly Removal

The system board's BIOS chip contains the system service tag number, which is also visible on a bar-code label on the bottom of the computer. The replacement kit for the system board assembly includes a diskette that provides a utility for transferring the service tag number to the replacement system board assembly.

1. **Remove the palmrest assembly.**
2. **Remove the LCD display assembly.**
3. **Remove the audio board.**
4. **Remove the two 2.5-mm screws securing the thermal cooling subassembly to the microprocessor module.**

CAUTION: To ensure maximum cooling for the microprocessor, do not touch the heat transfer areas on the thermal cooling assembly. The oils in your skin reduce the heat transfer capability of the thermal pads.

5. **Remove the thermal cooling subassembly from the microprocessor module.**
6. **Remove the air flow duct.**
7. **Verify that the PC Card ejectors do not extend from the PC Card bay.**
8. **Remove the 2.5-mm screw from the center of the computer's left rear foot.**
9. **Remove the following two screws from the system board assembly (see Figure 4-30):**
   - The 5-mm screw near the reserve-battery cable connector
   - The 5-mm screw near the microprocessor module
10. **Lift the system board assembly out of the bottom case assembly.**

Be sure and transfer the memory module(s) to the replacement system board assembly. If you are replacing the thermal cooling assembly with a new one, remove any lining present on the thermal pad before installing the new thermal cooling assembly.

After replacing the system board assembly, be sure to enter the system's service tag number into the BIOS of the replacement system board assembly. Insert the diskette that accompanied the replacement system board assembly into the diskette drive, and turn on the computer. Follow the instructions on the display screen.

Exhaust Fan

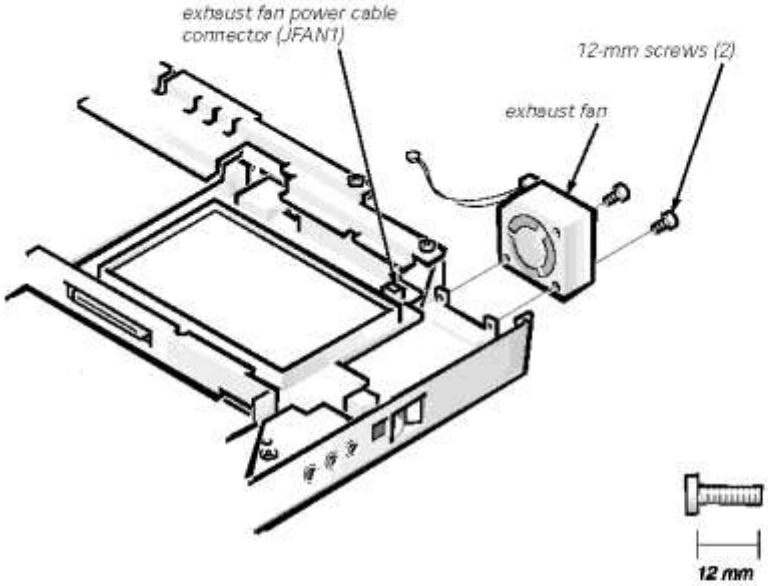


Figure 4-31. Exhaust Fan Removal

1. **Remove the palmrest assembly.**
2. **Disconnect the exhaust fan power cable from connector JFAN1 on the system board.**
3. **Remove the two 12-mm screws securing the exhaust fan, and then remove the exhaust fan.**

NOTE: When replacing the exhaust fan, orient the fan such that the fan label faces outward and the power cable is at the upper right corner of the fan (when viewed from the back of the computer). (This will prevent the fan wires from being pinched when you reassemble the computer.) Make sure that the wires are routed below the upper EMI shield.

I/R Board

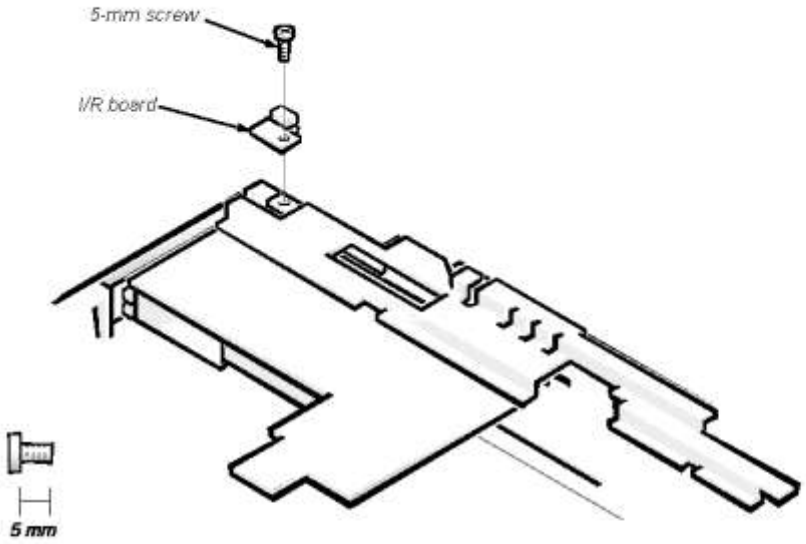


Figure 4-32. I/R Board Removal

1. **Remove the palmrest assembly.**
2. **Remove the 5-mm screw securing the I/R board to the system board assembly.**
3. **Lift the I/R board straight up from the system board assembly.**

LAPTOP CHIPLEVEL

Computer runs with three main concepts.

4. Post: power on self test.
5. Bios: basic input out put system.
6. Os: operating system.

Post: it will be check each and every component is connected properly .if connected then all are working or not. Small beep sounds when post completed successfully.
Bios: 1.flat bios
2. Square bios
3.8 pin bios
Uses & requirements of bios:

1. Reorganization of hard disc, DVD, Cd, floppy drive, CPU and primary memory ram.

2. Booting priority purpose; booting is a process of transferring bootable files from secondary memory (HD, DVD to primary memory (ram).

3. Security purpose.

Bootstrap founder is located in bios is used for searching the bootable files if bootable files are found in DVD then it will goes to DVD (rom /ram)or if bootable files are found in c:/>drive then it will goes to HD(hard disc) .

Security priority: security password restricts change in bios & os

Entering bios steps:

Manufactures of bios: 1.award max 8 opt 2.ami 3.pheonix 4.uni boar 8 opt
Enter bios setup:
8. Setup & always
9. Set supervisor password
10. Enter& then confirm password (twice need to enter password)
11. Select advanced option
12. Security priority setup
13. Always/system
14. F10 saves & exit.

Password forgot: to reset nil password –remove cmos-battery –start system (computer)-then fix battery if not solved then reverse the polarity(+ -) of battery start then shutdown –fix battery with correct polarity by this it should be done about reset to no password .

Os types:

1. Computer user interface (cui)

Use: UNIX, dos

2. Graphical user interface (GUI)

Use: windows, vista

Voltages in laptops: power adaptor input voltage 210v-230v ac bios main +3.3v bios clock signal 1.5v to 1.8 v

Ram main voltages: +3.3 v (most) to +2.5v (flow)

Ram clock signal voltage: +1.8v to + 1.5 v

Ram pins of laptop: laptop ram pins; 120,144 and 172 pins DDR (desktop 128 pins).

SOUTH BRIDGE & NORTH BRIDGE +5V

CPU voltage: dual core 1.75v or 1.5 v (1.5 v or 1.7 v) other CPU.

Monitor voltage: logical card 9v, LCD's circuit board (logic card) input is 9v.

Inverter converts dc to ac as required for display tube light (top side one and another at bottom) it is input 19v -9v (dc).

Output 110v-150v (ac) inverter voltages as required for led latest tft, LCD

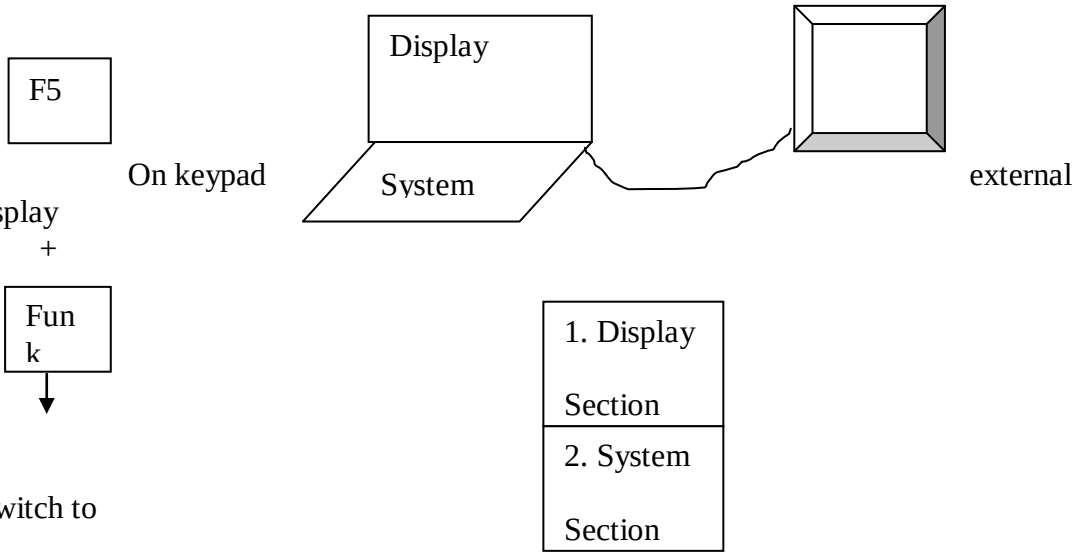
Keyboard (pad) & mouse pad voltage + 5v required.

Laptop manufacturers / brands

BRANDS	MODEL	VOLTAGE DC
FUJITSU (AMP)	ST5000	16V, 3.75A
IBM	THINK PAD	16V, 3.0 A
MAC BOOK	PRO	18.5 V
HP	PAVELION	18.5V,3.4 A
COMPAQ	PRESARIO	18.5V,3.4 A
ACER	TRAVEL MATE	18.5V,3.4 2A
HCL	NOTE BOOK ME	18.5V,3.4 A
GATE WAY		18.5V
SONY	VNO	19.5V,3.42 A

DELL	XPS	19.5V,3.42 A
LENOVA	Y500	19.5V,3.42 A
TOSHIBA	SATELLITE	19.5V,3.42 A
PACCARD BEL		19V

LAPTOP DIVED INTO TWO SECTIONS



Display problems:/trouble shooting

1. Dull/dim display 2. No display 3. Color patch 4. Color lines 5. Brightness &contrast problem 6. Half display 7. Color missing

System side problems

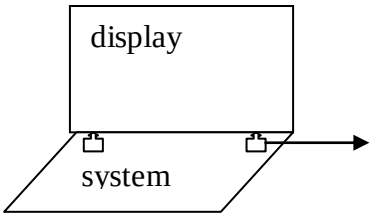
7. No display
8. No power
9. Hanging shutdown problem
10. Over heating
11. i/o section problem
12. booting problem

Display section

Interval parts of display (display interval parts) screens:

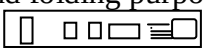
4. LCD: liquid crystal display (high resolution) normal technology.
5. TFT: thin film transistor (bright) non technology.
6. LED: light emitting diode (latest) new extra bright technology.

Hinges:



Hings

It supports led screen and folding purpose is doe.



INVERTER CIRCUIT : device fixed inside the display led to glow the tube (lamp) tube requires ac system has dc hence an inverter converts dc to ac.

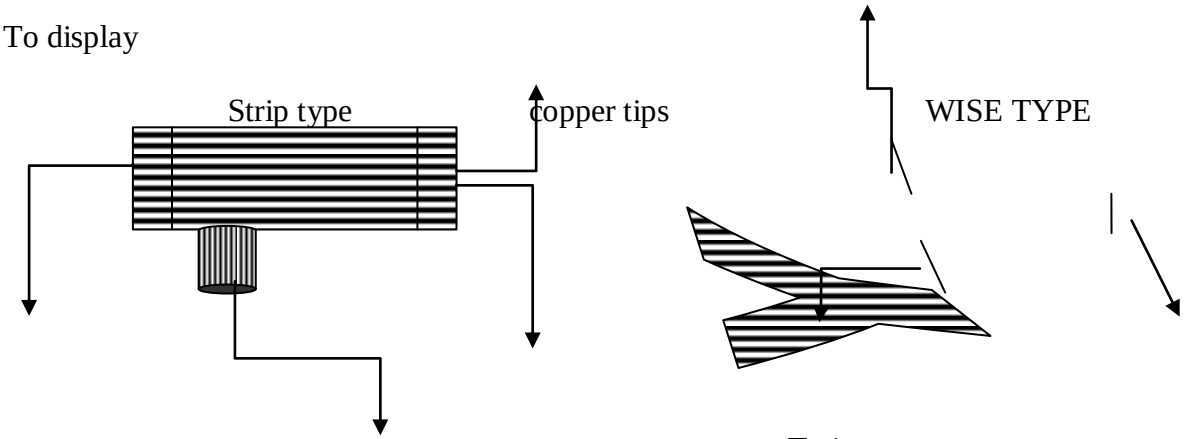
Logic card: system sends data to the display (led) screen logic card converters and display on screen.

DISPLAY DATA CABLES:

1. Strip type (old)

2. Wise type (new)

To display



Display sid System side

Connection connection

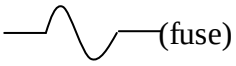
Fix to inverter circuit

LCD's interval components: CCFL-cold cathode fluorescent tamp (lamp)

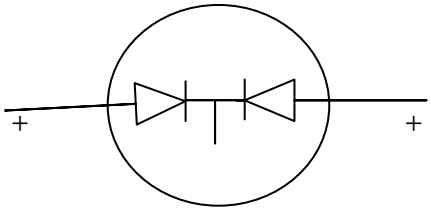
Interval layers:

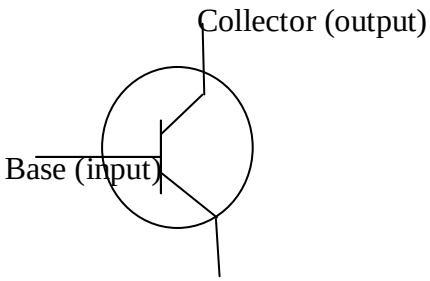
4. White sheet layer (reflects white light)
5. Pixel layer (adjust the pixel)
6. Normal sheets (to control the brightness & contrast)

Aluminum coated layer: used to reflect the pi side liquid layer make the focus on the display.

ELECTRONICS:  (fuse)

Transistor ‘v’ or ‘q’





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Use:

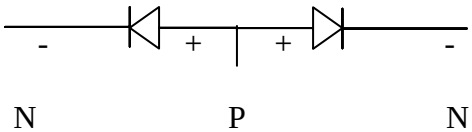
1. Oscillator: an electronic device which converts dc to ac it generates frequency.

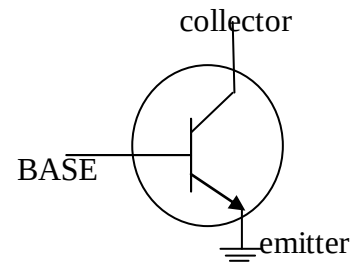
2. Amplifier: it increases the strength of weak signals.

3. Switch: on/off (1 on / 0 off)

TRANSISTOR TYPES:

1. NPN – transistor (90% of transistor are used in NPN)



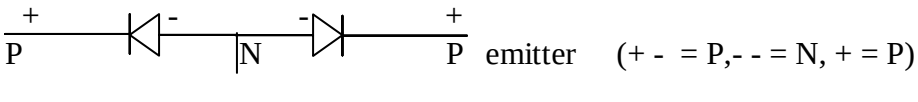


(-= N,+ + = P ,- - = N)

col

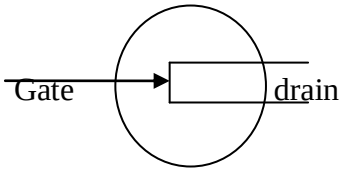
lector

2. PNP – transistor(10%is used)



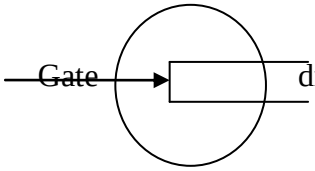
emitter (+ - = P,- - = N, + = P)

3. FET-(Field effect transistors)



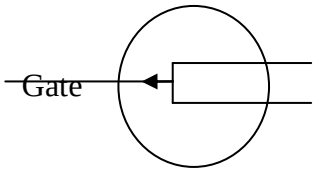
source

3.1 N CHANNEL FET



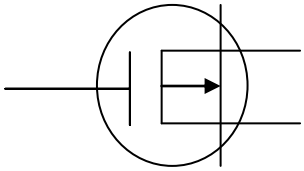
source

3.2 P CHANNEL FET

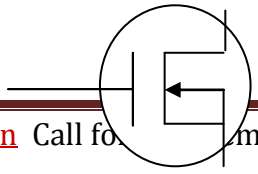


Source

3.3 MOS FET



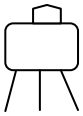
3.4 J FET



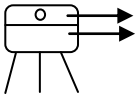
TRANSISTOR MATERIAL TYPES:

3. Silicon transistor

2. Germanium transistor



3. Power transistor



Checking:

Base → emitter → collector

Identify Base First → value >1000 → value < (1000) hundreds

Base to emitter ---------- more value (>1000)

Base to collector---------less value (>1000) hundreds

COIL OR INDUCTOR 'L':

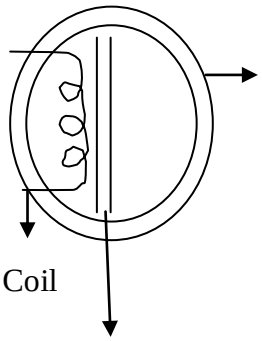
Unit of measure: Henry henneries

A coil used to introduce inductance into a circuit is called inductor.

INDUCTANCE: opposition to the flow of ac or changing dc caused by magnetic fields surrounding the conductor.

When current (I) flows in a conductor, magnetic fields 9lines of flux),radiate out & encircle it energy in magnetic field generates a voltage in any conductor they more cross.

Back to inductor:



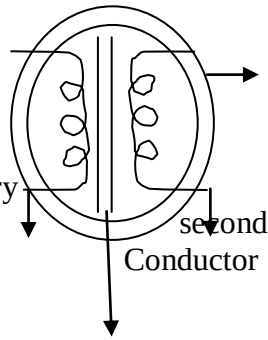
Emf electro magnetic field

Coil

Conductor current flows

1.it generates the voltage
2.it also generates EMF

Transformer‘t’:



EMF

Primary Coil

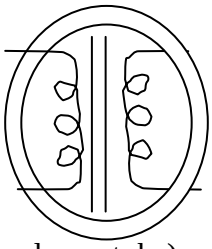
secondary coil

Conductor

1. It transfers the voltage from one coil to the other coil

2. It also generates emf.
Transformer types:

1. Step-up lot – line output transformer



More numbers of coils at secondary compary to primary.

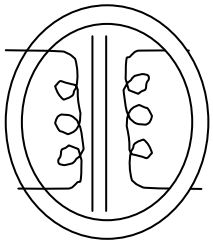
230 v

above 1K

Use: crt (cathode ray tube) monitor or TV

Purpose: it increases the voltage.

2. Step –down transformer



Less number of coils at secondary compare to primary.

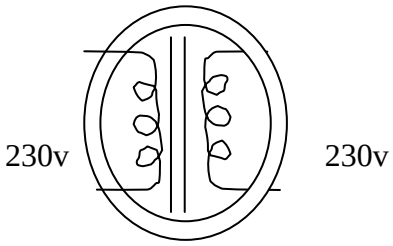
230

below 110v dc

Use: smps battery adaptor

Purpose: it decreases the voltage.

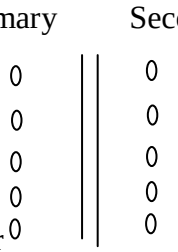
3. Driver transformer:



Use: Stabilizer, ups

Purpose: to keep the voltage constant.

Transformer checking at backside



Primary+ primary =buzzer

Secondary + secondary=buzzer

Primary + secondary = no buzzer

DIGITAL ELECTRONICS:

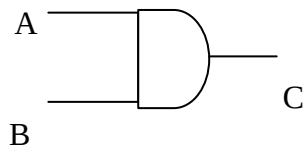
Logic gates for integrated circuit:

Binary form:1.0 (ones or zeros)1-high,0-low

1 .Basic gates: AND ,OR ,NOT

2. Universal gates : NAND,NOR,EXCLUSIVE OR

And gate:(most used and gate ,one of the and names a&b.

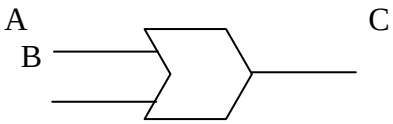


input A,B value then C will be out put value.

INPUTS OUTPUT

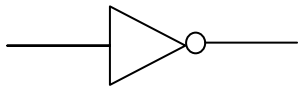
A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

Or gate:



INPUTS		OUT PUTS
A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

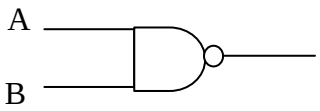
Not gate:



(only one ‘a’ input)

INPUTS	OUTPUTS
A	B
0	1
1	0

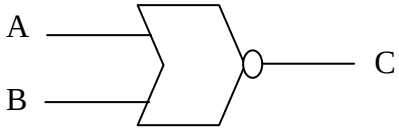
Nand gate:



(not and)

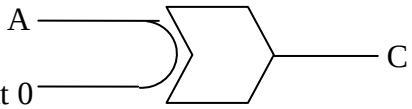
INPUTS		OUTPUT
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

N or gate:



INPUTS		OUTPUTS
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

EXCLUSIVE OR GATE:
Only one of its input should have voltage = 1
Ex: a logic /voltage 1 ,b logic /v 0 = c1



(v) 1,B voltage 1 =c out put 0 A voltage

A ,0,

B , 0 = C , 0

INPUTS OUTPUTS A , 0,

B , 1 = C , 1

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

NUMBERING SYSTEM:0,1,2,3,4,5,6,7,8,9,a-11,b-12,c-13,d-14,e-15,f-16
1. Binary 2(0 t0 1)$_2$
2. Octal 8(0 to 7)$_8$
3. Decimal 10(0 to 9)$_{10}$
4. Hexa decimal 16(0 to f)$_{16}$

CONVERSIONS: binary –decimal &vice verse

Decimal –binary:

Q: you have 13 its decimal find binary?

A: decimal 13 $_{10}$ binary is base two

2 13 steps:2x6 =12 , 13-12 =1

2 6 remains 1 2x3=6 , 6-6=0

2 3---------- 0 2x1=2 , 3-2=1

1---------- 1

LHM

Left hand method

$13_{10}= 1101_2$

A:1101

Binary to decimal:

Q: binary 1101 find decimal?

A: binary 1101_2 and decimal base 10

1 1 0 1

2^3 2^2 2^1 2^0 base 2 binary starts from 0, 20

←

RHM –right hand method

base bin base bin base bin base bin

$(2^0 \text{ x } 1^1) + (2^1 \text{ x } 0^1) + (2^2 \text{ x } 1^1) + (2^3 \text{ x } 1^1)$

$2^0=(0 \text{ x } 1) + 2^1=(2 \text{ x } 0) + 2^2 =(4 \text{ x } 1) + 2^3 = (8 \text{ x } 1)$

(1 x 1) + (2 x 0) + (4 x 1) + (8 x 1)

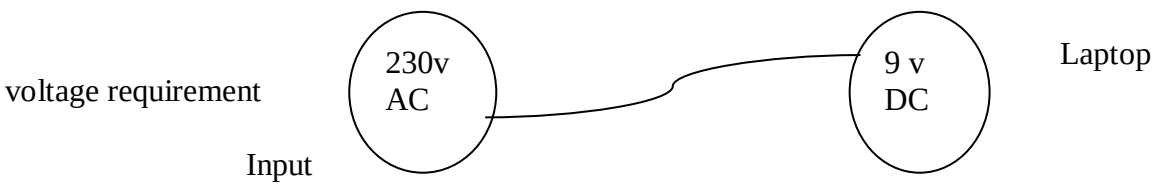
1 + 0 + 4 + 8 =13

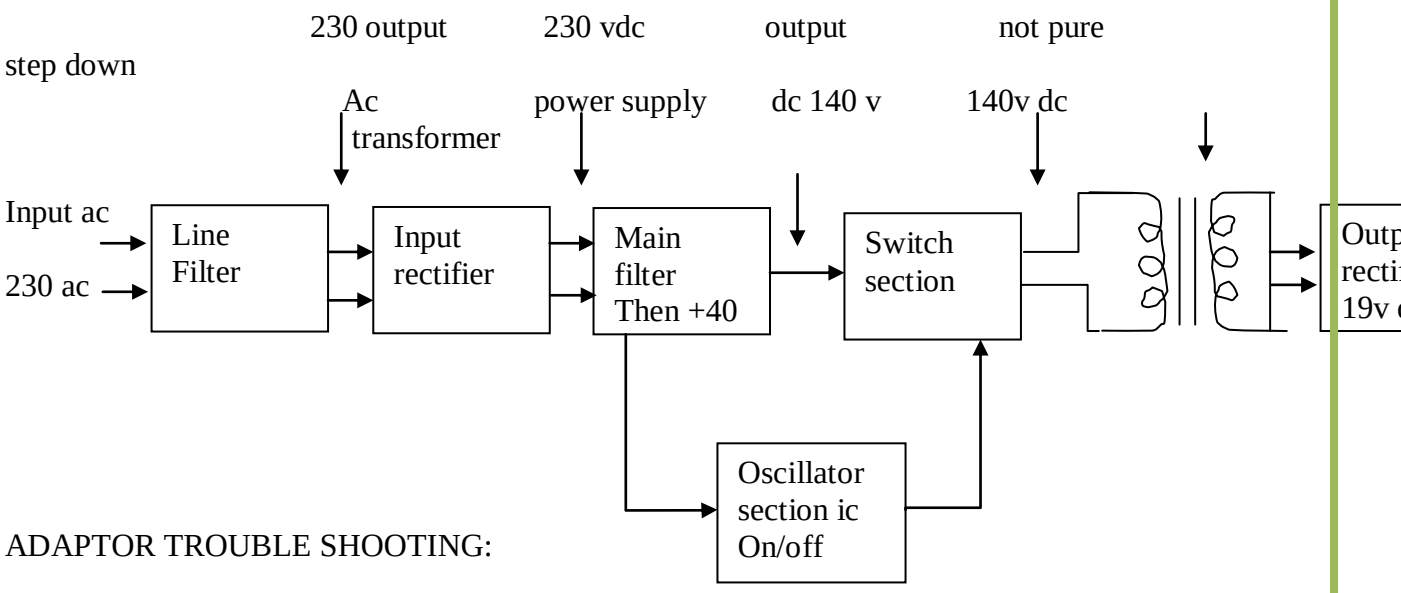
A: 13

ADAPTOR:

Block diagram and how it works.

Adaptor the circuiting required to support a particular device input power (voltage) supplied 230 v ac generates output 19v dc power (voltage) supplied.





ADAPTOR TROUBLE SHOOTING:

No output (check with out power)

6. Check fuse (5 or 3 amp)
7. Negative side picrofarad (pf) (like as fuse)
8. Line filter
9. Bridge rectifier nv –no value ,one side value other side nothing
10. Main filter big capacitor

6. Next check ,1/2 or ¼ watt resistors closed ash value 0.5 if buzzard then resistor show dead shot not working

7. zener diode one side value the other side nothing

8. Resistors uses oscillator ice 8 pins

8.1. Blackish shade

8.2. Over heating

8.3. Breaking

8.4. Bulging (an outward curve)

8.5. Burning

9. Switch transistor (STR) swq

10. Output side diode 'D'

11. Output side transistors 'q' or 'v'

12. Output side filter

13. Need to check the transformers ‘t’they always good.

INVERTER CIRCUIT:

Converts dc – ac high voltage (90v-130 v ac high voltage)

Display side problem:

Dim OR dull display

Increasing process of 19 v dc (low voltage) to 118 v ac (high voltage)

Bios setup before windows xp screen –key (del) branded laptops (f2) or (f10) changes store (saved) in cmos battery HD hard disc doesn’t work check power cable .IDE interface (old) or esata (new) jumper setting on HD .then HD working or not .

creasing the process of 19 v dc (low voltage) to 94 v ac (pure)(high voltage)

Inverter circuit trouble shooting .dull / dim display identify problem at ccfl or first check inverter circuit then CCFL (lamp)

2. Check fuse 90 % of problem is of fuse .1.4 amp near the input connector type of fuse

Glass type fuse 1.3 green color 1.4 white color

2. Check switching transistor

3. Check 8 pins voltage

4. Check oscillator ice near the capacitors and resistors

5. Check switching transistors

6. Check transformers input voltages on top two legs they should have same v.

7. Third leg is for oscillator / switching signals.

Display logic card problems:

7. No display or white display
8. Color patches
9. Color missing
10. Color lines
11. Brightness & contrast
12. Half display

Display trouble shooting:

These all are prove to cable problem. Hence check the cable.

Connector:

Ex: logic card side plans are not working due to rust or the two sides of cable is not working CLEAN it with isoprofile solution or Eraser (rubber)

Check cable working or not

Use multimeter turn to buzzer mode .check at two sides to make sure the connectivity is ok then cable connection is perfect.

Trouble shooting:

6. White display or no display
7. Power section problem
   - 7.1. Check fuse 1.4 amp
   - 7.2. Check the coil
   - 7.3. Check 8 pins IC
   - 7.4. Check transistor
   - 7.5. Check voltage ice burning
8. Color missing ,color patches
   - 8.1. Check resistance pack, dry soldering
9. Brightness and contrast problem
   - 9.1. Power section capacitor problem
   - 9.2. Dry soldering all components even though problem not solved LCD is weak, replace it.
10. Half display
    - 10.1. Check buffer ICE burning /over heating
    - 10.2. Check buffer ICE near capacitor
    - 10.3. Adjust the preset even the problem is not solved, replace LCD.

SYSTEM SIDE:

Power supply (ps)

Input 19v ps, laptop is no power problem

4. Check adapter
5. Check power connector 60-70% problems arises ,this 1st check 19v ps is coming or not is pcb if not problem is with power connector interval pin are expanded replace new connector.
6. PCB power is coming but laptop has no power

   - 6.1. Check 3AMP fuse start from before fuse to end
   - 6.2. Next check power switch(sw)
   - 6.3. SW is not working internally drop 1-2 drops of isoprofile solution & pass sw 10-15 times. if problem not solved replace is n
   - 6.4. Check voltage near power connection

-voltage ac overheating or burning ,no power problem

-check controlling IC overheating or burning ,no power

-remove SMDIC & replace with new ,problem solved.
SYSTEMSIDE NEXT PROBLEM:
Display is not coming.

4 All check primary level RAM clean the tips with isoprofile or eraser
5 Remove all external device i.e. CD ROM,HD,LAD card ,battery PCMCI cards
6 No display, remove panels & check the outside of display only the logic card.

No display:

1. RAM section

2. Power section

3. Charging section

4. Bios section

Above line: mother board, logic card divided in some section

PROCESSOR:

No display:

1. Processor is not heating, the processor regulator voltage=1.34v if voltage is 1.34v then processor is working else not processor section;

Processor trouble shooting:

8 Check the main fuse 1st
9 Maximum check 8 pins IC's burning
10 Voltage burning
11 Check coil (indicator)
12 Polarized capacitors
13 Ohm resistors fuse
14 Non polarized capacitors

Linux red hat 5.0 version class: venal steps:

Install or upgrade graphical mode press <enter>key –CD/DVD check skip-HDB1, HDB2 to 4(drivers with c,d,e,f)/not drive has OS –create default layout for moment swap folder should be 2x ram size.

RANDOM ACCESS MEMORY (RAM):

Voltages :

5 Main voltage 3.3v(for all laptops)
6 Reset voltage 1.8 v (all)
7 Data voltage

8 0.9 v

No display problems:

Check main voltage at pin # 199-----3.3v

Check reset voltage at pin # 65------1.8v

Check data voltage at pin #1, 2, 3, 4

Trouble shooting:

9 Check fuse
10 Check coil inductor
11 Dry solder capacitors
12 Check two 8 pin ICE's
13 Voltage & ice burning
14 Controlling ice near coils & polarized capacitors (pc)
15 Check capacitors & resistors packs
16 Dry solder the RAM socket pins.

CHARGING SECTION-BATTERY:

Battery requirement voltages:

Battery charging voltages: 3.8 v and 5 v

Battery to system running voltages: 12v, 13v,14v

Problems:

Battery is not charging –remove battery, insert new/working battery .when battery is charged/working. Problems is the battery if battery is not working /charging –problem is the circuit board battery to system OS not working –battery is fine ,but system isn't working problem is circuit board(mother board ,logic card as to called)

Trouble shooting:

7 1st check main fuse
8 Next check 8 pins ic
9 Capacitors
10 Check charging ice
11 Check output coils
12 Dry solder the charging connector

Trouble shooting:

6 1st check fuse(green one)
7 Check 8 pins ic
8 Check voltage ic burnings
9 Check controlling ice
10 Check power switch voltage.

DVD drive:
Components:

Spindle motor	-	used to rotate the DVD
Lens motor	-	used to move the lens up & down
Sensor	-	act as switch (like as switch) on /off
Lens	-	used for read and write (from /to DVD)
Lens assembling	-	to support the lens
Tray	-	used to insert /remove the DVD holds in drive
Strip	-	used for power &data transfer
On/off	-	switch
Tray exit button	-	used for inserting/removing the DVD
Logic card	-	either data transfer between DVD &system

Trouble shooting:

Not reading/writing:

8 Use isoprofile on bud to clean the lens
9 Check sensor
10 Check logic card power switch
11 Check spindle motor
12 Lenses motor
13 Check logic output resistors
14 Check power &data strip even though if the problem is not solved replace the lense

No power:

4 Check fuse in logic card
5 Check transistors
6 Check voltage ice burning & its strips

Drive is not detecting:

6 Check drive input connector
7 Use isoprofile to clean the connector
8 Check strip
9 Check resistor pack

10 Dry solder the logic card connector

CONCAVE LENSE,PRISM:

Voltages: lense unit 3.3v, spindle motor 5v, lense motor 5v

Bios basic input /output system: built in software that determines what a computer can do

Without accessing programs from disc; contains all the code required to control

The keyboard, display screen, disc drives, etc

Cmos complementary mortal oxide semiconductor: use both nmos (negative polarity)

And Cmos (positive polarity) circuits& requires loss power than chips using Just one type of transistor.

Bios –main voltage is 3.3v

Bios are of three types (types of bios chips)

4 Horizontal bios: total pins 40 to 27th pin has 3.3 v and 21st pin has 2.5 v (21st pin2.5v&27th pin 3.3v)
5 Square bios: total pins 30 29th pin 3.3v &28th pin 1.7v-1.8v
6 Eight –pin bios total pins 8 ,4pins should have only one main voltage 3.3 v.4 pins must should show 3.3v (any 4 pins)

Trouble shooting:

10 Booting problem
11 Display problem
12 System password forgotten
13 Keyboard &mouse not functioning
14 Bios setting problem
15 Error message
16 Cpu problem (fan)
17 Hanging & shutdown problem
18 Bios wires problem

Bios manufacturers :sst wing bond

Bios programmers: ambi bios, award bios, phoenix bios

I/O SECTION:

I/O input/output:any operation ,program ,or device whose purpose is to enter data into a computer (cpu) or to extract data from a computer(cpu).

Components connected to I/O section:

Lan card ,sound cad ,finger print reader ,webcam,wifi (wire less internet network).TV capture card and the external devices :key pad ,mouse pad ,hard disc (hdd).digital video disc(DVD) +rw(rewritable)drive peripheral component interconnect (pci) least is a 64 bit bus –slot ,usb-universal serial bus

Trouble shooting key –pad:

Condition key-pad not functioning

7 Software level check bios –key-pad to be enable /disable
8 Connect working key –pad /board as external to USB and check
9 If above is done ,remove and replace with new key pad
10 If external key pad doesn't work ,problem at mother board (mb)
11 Dry –solder ,keypad connector
12 Check capacitor and resistor packs –now problem is solved 90% no problem with SMDC if replace SMDC IC

Ts mouse pad: condition not functioning

5 Sw level check bios –setup –internal touch –pad enable/disable
6 Check 5v power supply must
7 Check strip (cable)if problem not solved then problem is in mother board (mb)
8 Reverse &replace the touch –pad with new one

LOCAL AREA NETWORK S(LAN) RJ 45 JACK

Rj 45 jack has 8pins

Trouble shooting:

LAN/internet isn't connected

5 Check capacitors and resistors
6 Dry solder all components
7 Check LAN IC burning /overheating
8 Replace Rj 45 jack with new one –problem is solved.

SOUND CARD TS:
Trouble shooting:

Condition: sound output is not coming

7 Check sound card drivers
8 Connect to external speakers and check if sound comes then speakers problem else mother board problem for mb problem
9 Check resistors &capacitors
10 Sound ice problem replace with new one external speakers & MIC not functioning disturbance &noise as well
11 Dry –solder resistor &capacitor
12 Replace the jacks with new one

USB –card reader –web cam –finger printer reader –TV capture

Usb trouble shooting:

Condition USB not functioning:

5 Max problem is at resistor pack
6 Then check +5v must power supply
7 If 8 pin ice is not working .take jumper cable and connect with any +5v to usb power supply
8 Replace with new one.

WEB CAM:

Conditioning not functioning:

4 Check driver –my computer-device manager
5 Strip /cable check
6 Check connector & dry solder it, if problem is not solved check with working camera ,still camera is not working then problem with IOIC if available replace it else not repairable leave it.

WIFI:

Condition not detected:

5 Check driver
6 Clean wifi card with eraser or is profile solution
7 To connect wifi press (fn) +(f2) keys
8 Replace with card new

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