Computer Repair with Diagnostic Flowcharts Free Download PDF

Eight flowcharts from published available through the FonerBooks.com website. The full revised eBook with [17 flowcharts and troubleshooting text is available for $9.95](#).

The linked website versions of the flowcharts are interactive, ie, click on the diamond decision symbols and the browser shows the relevant text. The linked flowcharts also include the text for each chapter. I had to remove the text from this eBook due to possible duplicate content issues with Google.
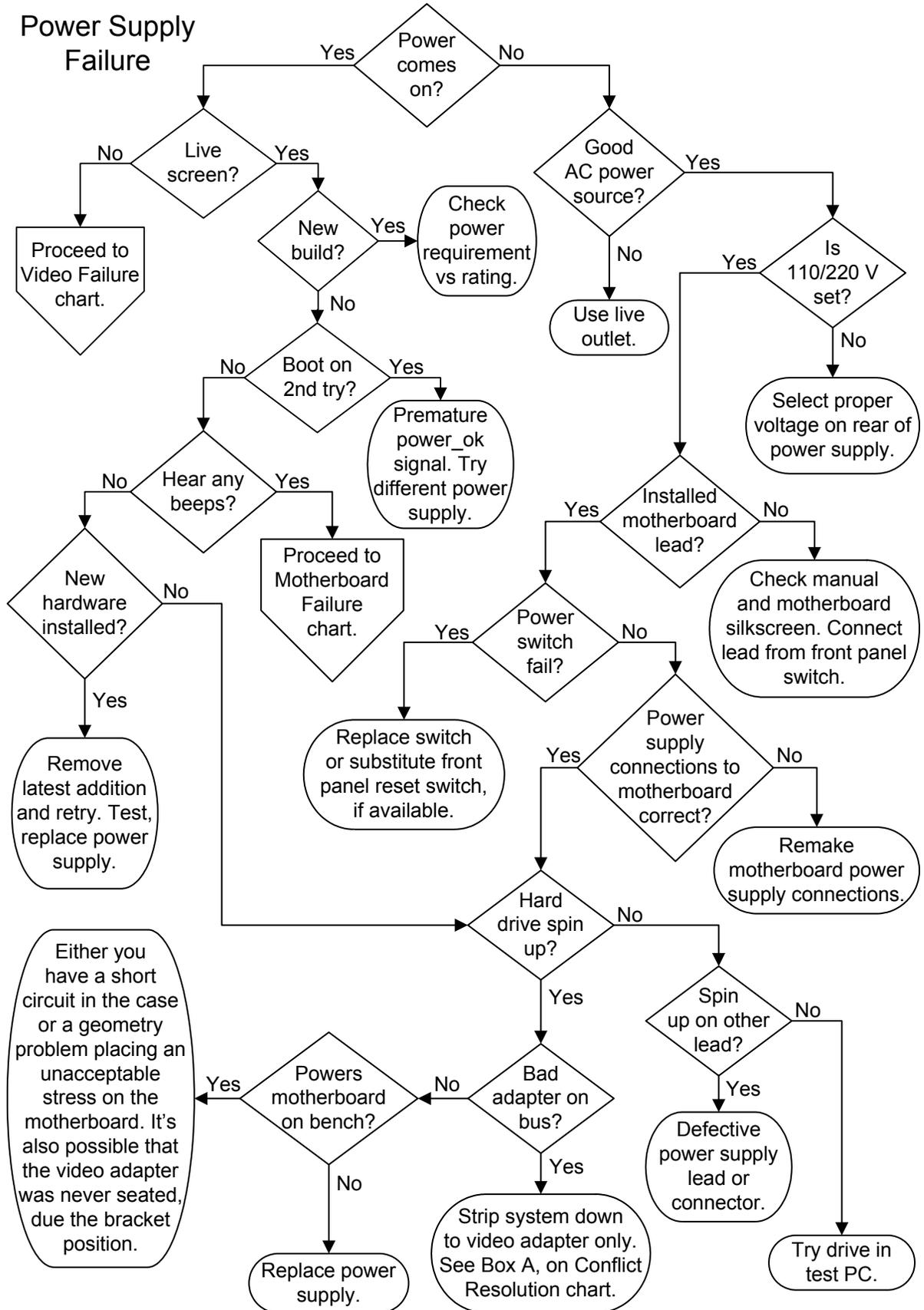
Six laptop troubleshooting flowcharts online at: www.daileyint.com/hmdpc/repair.htm

Flowcharts produced with Microsoft Visio Standard

Power Supply Failure

Power comes on?

- **Yes** →
  - **Live screen?**
    - **No** → Proceed to Video Failure chart.
    - **Yes** →
      - **New build?**
        - **Yes** → Check power requirement vs rating.
        - **No** →
          - **Boot on 2nd try?**
            - **Yes** → Premature power_ok signal. Try different power supply.
            - **No** →
              - **Hear any beeps?**
                - **Yes** → Proceed to Motherboard Failure chart.
                - **No** →
                  - **New hardware installed?**
                    - **Yes** → Remove latest addition and retry. Test, replace power supply.
                    - **No** → (to Hard drive spin up?)

- **No** →
  - **Good AC power source?**
    - **No** → Use live outlet.
    - **Yes** →
      - **Is 110/220 V set?**
        - **No** → Select proper voltage on rear of power supply.
        - **Yes** →
          - **Installed motherboard lead?**
            - **No** → Check manual and motherboard silkscreen. Connect lead from front panel switch.
            - **Yes** →
              - **Power switch fail?**
                - **Yes** → Replace switch or substitute front panel reset switch, if available.
                - **No** →
                  - **Power supply connections to motherboard correct?**
                    - **No** → Remake motherboard power supply connections.
                    - **Yes** →
                      - **Hard drive spin up?**
                        - **No** →
                          - **Spin up on other lead?**
                            - **Yes** → Defective power supply lead or connector.
                            - **No** → Try drive in test PC.
                        - **Yes** →
                          - **Bad adapter on bus?**
                            - **Yes** → Strip system down to video adapter only. See Box A, on Conflict Resolution chart.
                            - **No** →
                              - **Powers motherboard on bench?**
                                - **Yes** → Either you have a short circuit in the case or a geometry problem placing an unacceptable stress on the motherboard. It's also possible that the video adapter was never seated, due the bracket position.
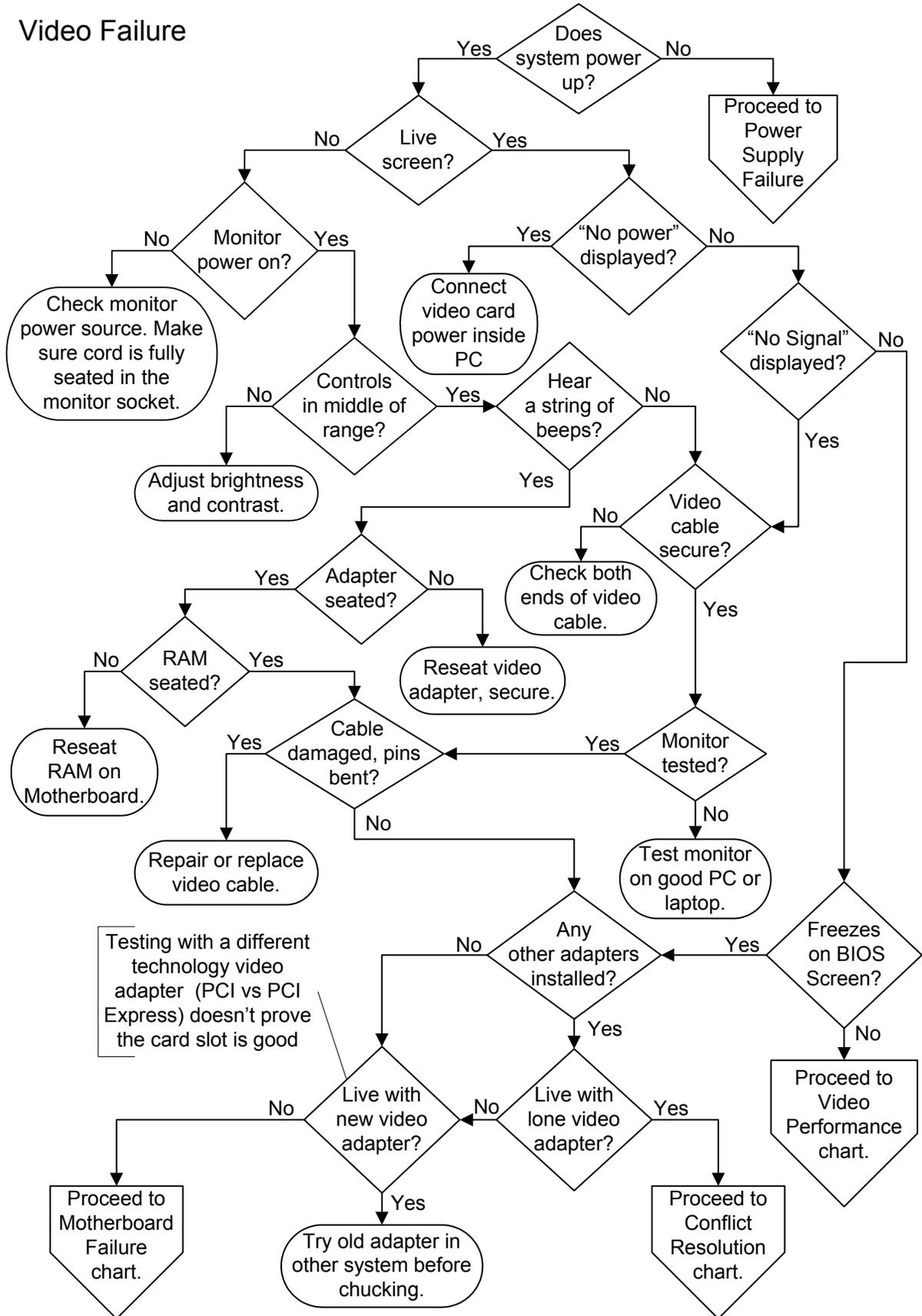   - **No** → Replace power supply.

You can open the interactive version of this flowchart in your browser on the fonerbooks.com website by clicking on the chapter heading below. The interactive version allows you to get the text for each decision symbol without paging ahead.

[Power Supply Failure](http://www.fonerbooks.com/power.htm)

Or cut and paste
http://www.fonerbooks.com/power.htm

Video Failure

Does system power up?
- Yes → Live screen?
- No → Proceed to Power Supply Failure

Live screen?
- No → Monitor power on?
- Yes → "No power" displayed?

Monitor power on?
- No → Check monitor power source. Make sure cord is fully seated in the monitor socket.
- Yes → Controls in middle of range?

Controls in middle of range?
- No → Adjust brightness and contrast.
- Yes → Hear a string of beeps?

"No power" displayed?
- Yes → Connect video card power inside PC
- No → "No Signal" displayed?

"No Signal" displayed?
- No →
- Yes → Video cable secure?

Hear a string of beeps?
- No → Video cable secure?
- Yes → Adapter seated?

Video cable secure?
- No → Check both ends of video cable.
- Yes → Monitor tested?

Adapter seated?
- Yes → RAM seated?
- No → Reseat video adapter, secure.

RAM seated?
- No → Reseat RAM on Motherboard.
- Yes → Cable damaged, pins bent?

Cable damaged, pins bent?
- Yes → Repair or replace video cable.
- No →

Monitor tested?
- Yes → Cable damaged, pins bent?
- No → Test monitor on good PC or laptop.

Any other adapters installed?
- No → Live with new video adapter?
- Yes → Live with lone video adapter?

Freezes on BIOS Screen?
- Yes → Any other adapters installed?
- No → Proceed to Video Performance chart.

Live with lone video adapter?
- No →
- Yes → Proceed to Conflict Resolution chart.

Live with new video adapter?
- No → Proceed to Motherboard Failure chart.
- Yes → Try old adapter in other system before chucking.

Testing with a different technology video adapter (PCI vs PCI Express) doesn't prove the card slot is good
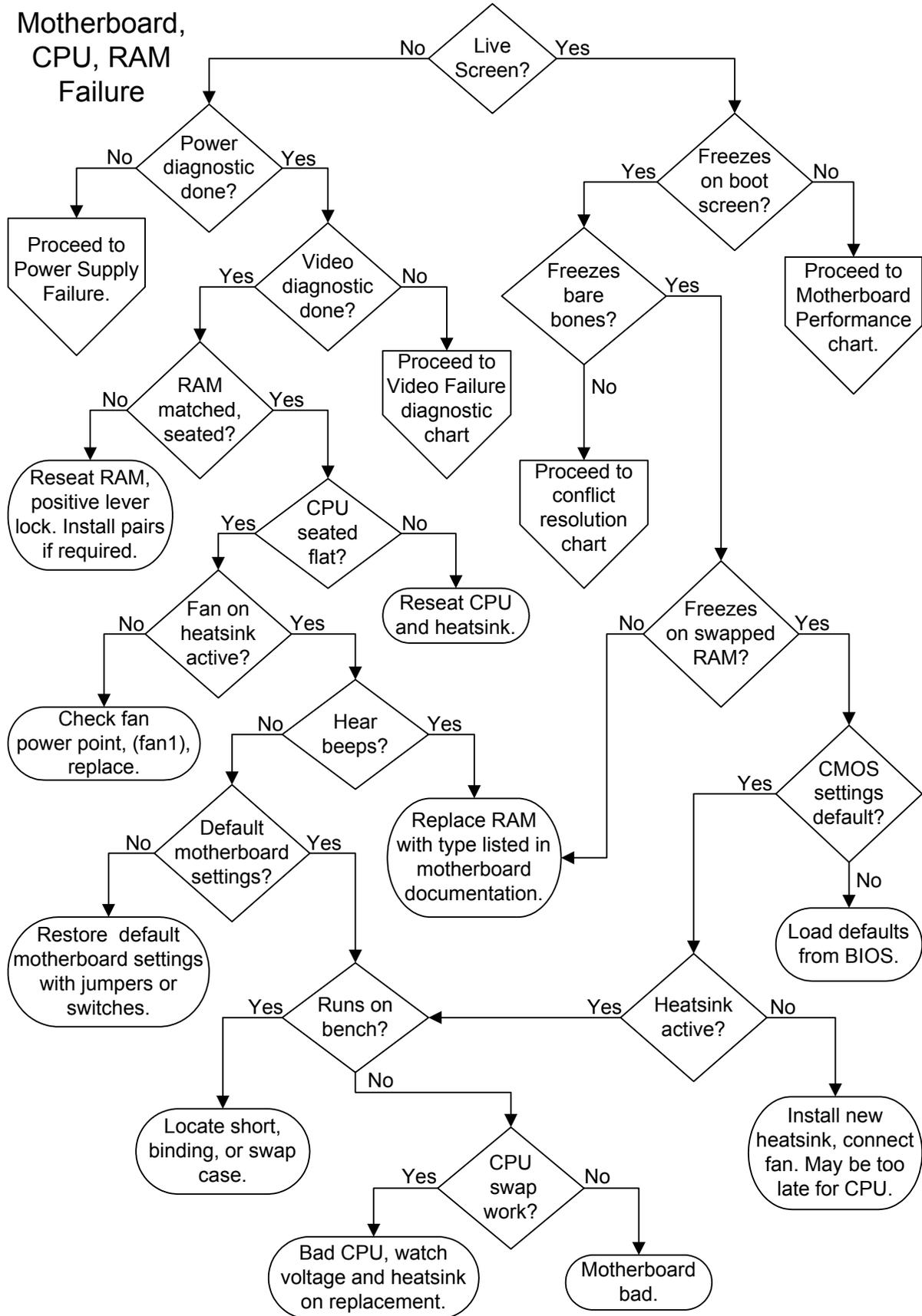
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[Video Failure](http://www.fonerbooks.com/video.htm)

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http://www.fonerbooks.com/video.htm

Motherboard, CPU, RAM Failure

Live Screen?
- No →
- Yes →

Power diagnostic done?
- No → Proceed to Power Supply Failure.
- Yes →

Video diagnostic done?
- Yes →
- No → Proceed to Video Failure diagnostic chart

RAM matched, seated?
- No → Reseat RAM, positive lever lock. Install pairs if required.
- Yes →

CPU seated flat?
- Yes →
- No → Reseat CPU and heatsink.

Fan on heatsink active?
- No → Check fan power point, (fan1), replace.
- Yes →

Hear beeps?
- No →
- Yes → Replace RAM with type listed in motherboard documentation.

Default motherboard settings?
- No → Restore default motherboard settings with jumpers or switches.
- Yes →

Runs on bench?
- Yes → Locate short, binding, or swap case.
- No →

CPU swap work?
- Yes → Bad CPU, watch voltage and heatsink on replacement.
- No → Motherboard bad.

Freezes on boot screen?
- Yes →
- No → Proceed to Motherboard Performance chart.

Freezes bare bones?
- Yes →
- No → Proceed to conflict resolution chart

Freezes on swapped RAM?
- No →
- Yes →

CMOS settings default?
- Yes →
- No → Load defaults from BIOS.

Heatsink active?
- Yes →
- No → Install new heatsink, connect fan. May be too late for CPU.
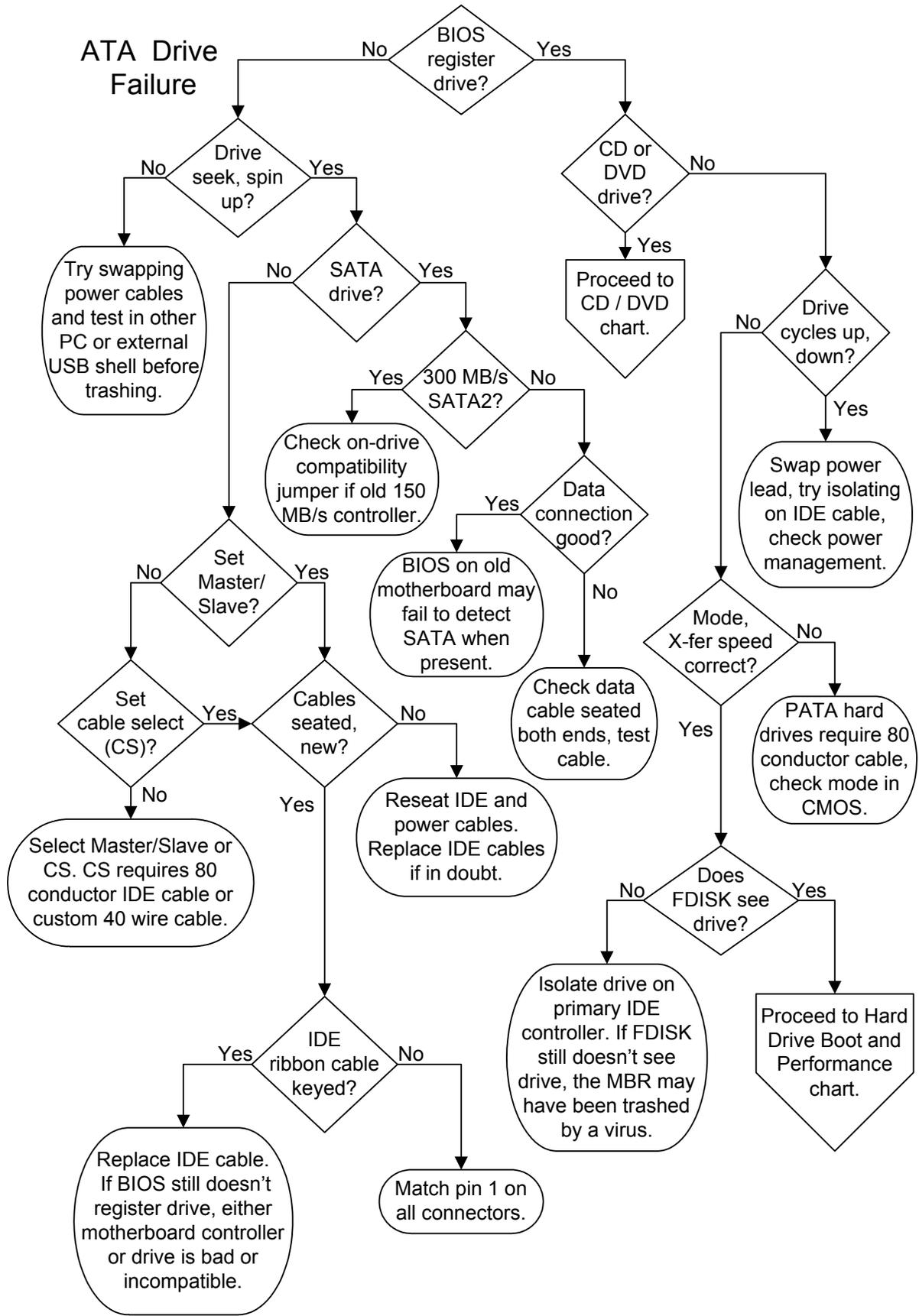
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[Motherboard, RAM, CPU Failure](http://www.fonerbooks.com/cpu_ram.htm)

Or copy and paste
http://www.fonerbooks.com/cpu_ram.htm

ATA Drive Failure

BIOS register drive?
- No →
- Yes →

No branch (Drive seek, spin up?):

Drive seek, spin up?
- No → Try swapping power cables and test in other PC or external USB shell before trashing.
- Yes →

SATA drive?
- No →
- Yes →

300 MB/s SATA2?
- Yes → Check on-drive compatibility jumper if old 150 MB/s controller.
- No →

Data connection good?
- Yes → BIOS on old motherboard may fail to detect SATA when present.
- No → Check data cable seated both ends, test cable.

Set Master/Slave?
- No →
- Yes →

Set cable select (CS)?
- Yes →
- No → Select Master/Slave or CS. CS requires 80 conductor IDE cable or custom 40 wire cable.

Cables seated, new?
- No → Reseat IDE and power cables. Replace IDE cables if in doubt.
- Yes →

IDE ribbon cable keyed?
- Yes → Replace IDE cable. If BIOS still doesn't register drive, either motherboard controller or drive is bad or incompatible.
- No → Match pin 1 on all connectors.

Yes branch (BIOS register drive? → Yes):

CD or DVD drive?
- Yes → Proceed to CD / DVD chart.
- No →

Drive cycles up, down?
- No →
- Yes → Swap power lead, try isolating on IDE cable, check power management.

Mode, X-fer speed correct?
- No → PATA hard drives require 80 conductor cable, check mode in CMOS.
- Yes →

Does FDISK see drive?
- No → Isolate drive on primary IDE controller. If FDISK still doesn't see drive, the MBR may have been trashed by a virus.
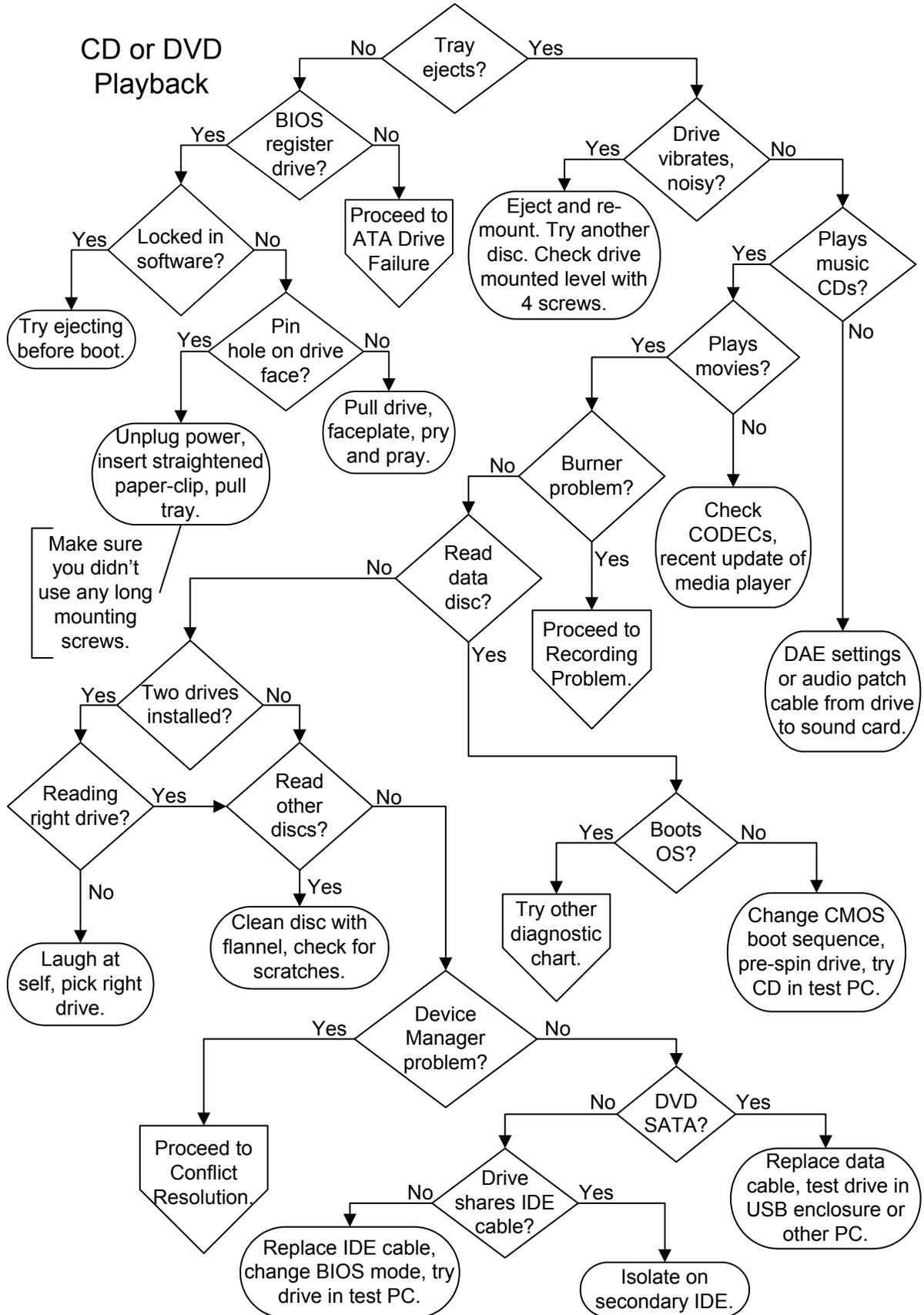- Yes → Proceed to Hard Drive Boot and Performance chart.

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[ATA Drive Failure](http://www.fonerbooks.com/ide_hd.htm)

Or copy and paste
http://www.fonerbooks.com/ide_hd.htm

CD or DVD Playback

Tray ejects?
- No → **BIOS register drive?**
  - Yes → **Locked in software?**
    - Yes → Try ejecting before boot.
    - No → **Pin hole on drive face?**
      - Yes → Unplug power, insert straightened paper-clip, pull tray.
        - Make sure you didn't use any long mounting screws.
      - No → Pull drive, faceplate, pry and pray.
  - No → Proceed to ATA Drive Failure
- Yes → **Drive vibrates, noisy?**
  - Yes → Eject and re-mount. Try another disc. Check drive mounted level with 4 screws.
  - No → **Plays music CDs?**
    - Yes → **Plays movies?**
      - Yes → **Burner problem?**
        - No → **Read data disc?**
        - Yes → Proceed to Recording Problem.
      - No → Check CODECs, recent update of media player
    - No → DAE settings or audio patch cable from drive to sound card.

Read data disc?
- No → **Two drives installed?**
  - Yes → **Reading right drive?**
    - Yes → **Read other discs?**
    - No → Laugh at self, pick right drive.
  - No → **Read other discs?**
    - No → (down)
    - Yes → Clean disc with flannel, check for scratches.
- Yes → **Boots OS?**
  - Yes → Try other diagnostic chart.
  - No → Change CMOS boot sequence, pre-spin drive, try CD in test PC.

Device Manager problem?
- Yes → Proceed to Conflict Resolution.
- No → **DVD SATA?**
  - No → **Drive shares IDE cable?**
    - No → Replace IDE cable, change BIOS mode, try drive in test PC.
    - Yes → Isolate on secondary IDE.
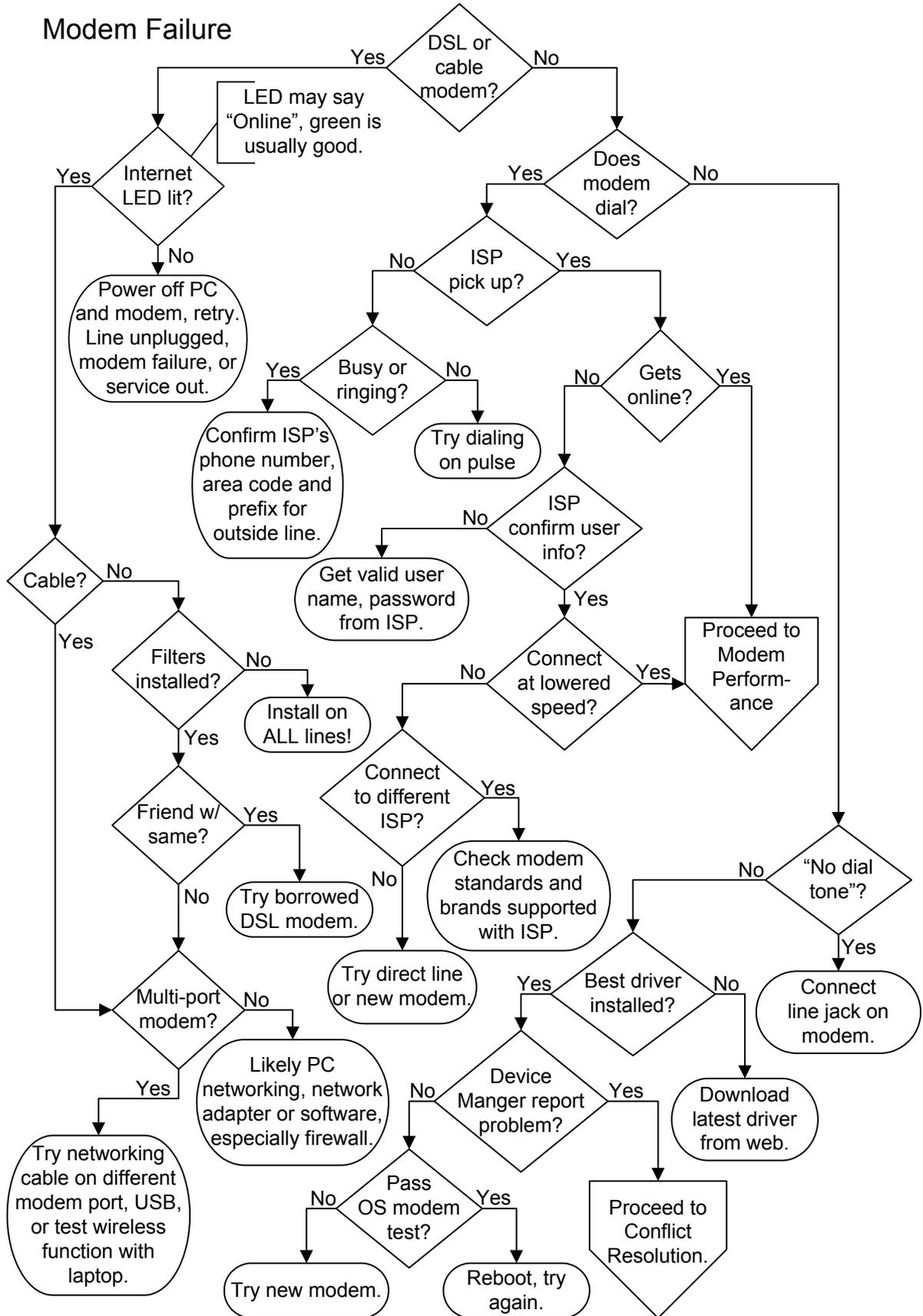 - Yes → Replace data cable, test drive in USB enclosure or other PC.

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CD or DVD Playback

Or copy and paste
http://www.fonerbooks.com/ide_cd.htm

Modem Failure

DSL or cable modem?
- Yes → (to Internet LED lit?)
- No → Does modem dial?

LED may say "Online", green is usually good.

Internet LED lit?
- Yes → (to Cable?)
- No → Power off PC and modem, retry. Line unplugged, modem failure, or service out.

Does modem dial?
- Yes → ISP pick up?
- No → (to "No dial tone"?)

ISP pick up?
- No → Busy or ringing?
- Yes → Gets online?

Busy or ringing?
- Yes → Confirm ISP's phone number, area code and prefix for outside line.
- No → Try dialing on pulse

Gets online?
- No → ISP confirm user info?
- Yes → Proceed to Modem Performance

ISP confirm user info?
- No → Get valid user name, password from ISP.
- Yes → Connect at lowered speed?

Connect at lowered speed?
- No → Connect to different ISP?
- Yes → Proceed to Modem Performance

Connect to different ISP?
- Yes → Check modem standards and brands supported with ISP.
- No → Try direct line or new modem.

Cable?
- No → Filters installed?
- Yes → (to Multi-port modem?)

Filters installed?
- No → Install on ALL lines!
- Yes → Friend w/ same?

Friend w/ same?
- Yes → Try borrowed DSL modem.
- No → Multi-port modem?

Multi-port modem?
- No → Likely PC networking, network adapter or software, especially firewall.
- Yes → Try networking cable on different modem port, USB, or test wireless function with laptop.

"No dial tone"?
- No → Best driver installed?
- Yes → Connect line jack on modem.

Best driver installed?
- Yes → Device Manger report problem?
- No → Download latest driver from web.

Device Manger report problem?
- No → Pass OS modem test?
- Yes → Proceed to Conflict Resolution.

Pass OS modem test?
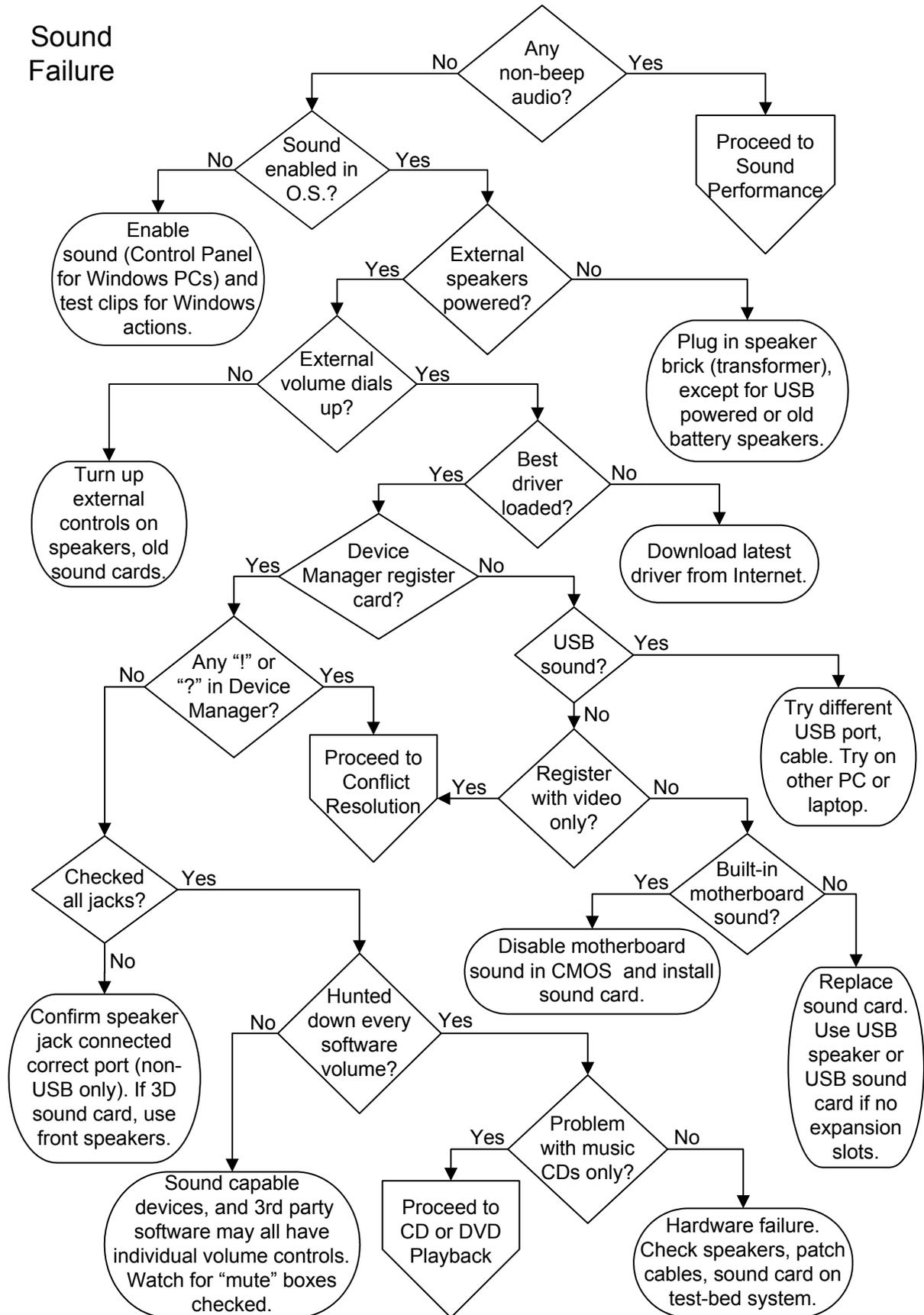- No → Try new modem.
- Yes → Reboot, try again.

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[Modem Failure](http://www.fonerbooks.com/modem.htm)

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http://www.fonerbooks.com/modem.htm

Sound Failure

Any non-beep audio?
- No → **Sound enabled in O.S.?**
- Yes → Proceed to Sound Performance

Sound enabled in O.S.?
- No → Enable sound (Control Panel for Windows PCs) and test clips for Windows actions.
- Yes → **External speakers powered?**

External speakers powered?
- Yes → **External volume dials up?**
- No → Plug in speaker brick (transformer), except for USB powered or old battery speakers.

External volume dials up?
- No → Turn up external controls on speakers, old sound cards.
- Yes → **Best driver loaded?**

Best driver loaded?
- Yes → **Device Manager register card?**
- No → Download latest driver from Internet.

Device Manager register card?
- Yes → **Any "!" or "?" in Device Manager?**
- No → **USB sound?**

Any "!" or "?" in Device Manager?
- No → **Checked all jacks?**
- Yes → Proceed to Conflict Resolution

USB sound?
- Yes → Try different USB port, cable. Try on other PC or laptop.
- No → **Register with video only?**

Register with video only?
- Yes → Proceed to Conflict Resolution
- No → **Built-in motherboard sound?**

Built-in motherboard sound?
- Yes → Disable motherboard sound in CMOS and install sound card.
- No → Replace sound card. Use USB speaker or USB sound card if no expansion slots.

Checked all jacks?
- Yes → **Hunted down every software volume?**
- No → Confirm speaker jack connected correct port (non-USB only). If 3D sound card, use front speakers.

Hunted down every software volume?
- No → Sound capable devices, and 3rd party software may all have individual volume controls. Watch for "mute" boxes checked.
- Yes → **Problem with music CDs only?**

Problem with music CDs only?
- Yes → Proceed to CD or DVD Playback
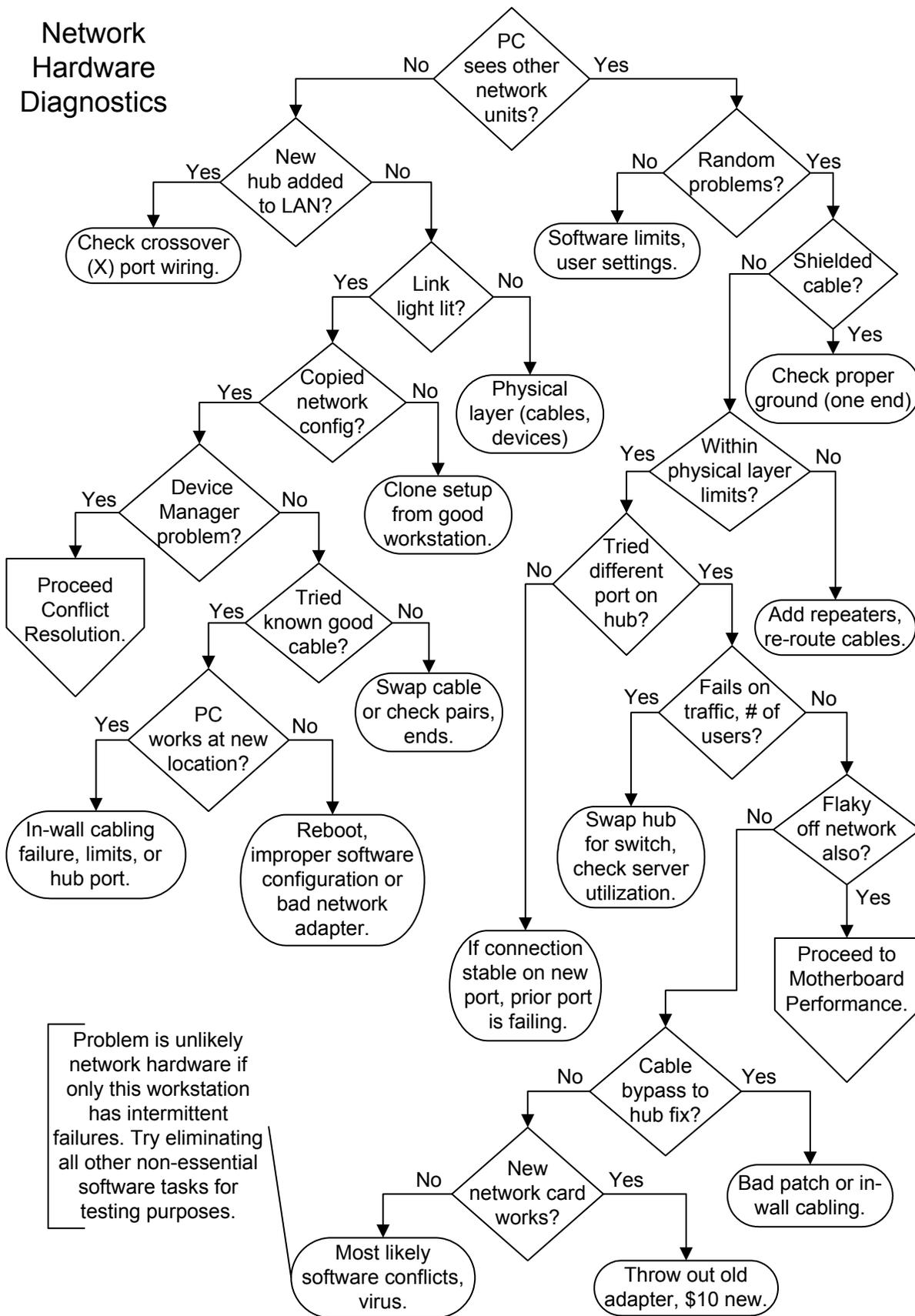- No → Hardware failure. Check speakers, patch cables, sound card on test-bed system.

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[Sound Failure](http://www.fonerbooks.com/sound.htm)

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Network Hardware Diagnostics

PC sees other network units?

- No → **New hub added to LAN?**
  - Yes → Check crossover (X) port wiring.
  - No → **Link light lit?**
    - Yes → **Copied network config?**
      - Yes → **Device Manager problem?**
        - Yes → Proceed Conflict Resolution.
        - No → **Tried known good cable?**
          - Yes → **PC works at new location?**
            - Yes → In-wall cabling failure, limits, or hub port.
            - No → Reboot, improper software configuration or bad network adapter.
          - No → Swap cable or check pairs, ends.
      - No → Clone setup from good workstation.
    - No → Physical layer (cables, devices)
- Yes → **Random problems?**
  - No → Software limits, user settings.
  - Yes → **Shielded cable?**
    - No → **Within physical layer limits?**
      - Yes → **Tried different port on hub?**
        - No → If connection stable on new port, prior port is failing.
        - Yes → **Fails on traffic, # of users?**
          - Yes → Swap hub for switch, check server utilization.
          - No → **Flaky off network also?**
            - No → **Cable bypass to hub fix?**
              - No → **New network card works?**
                - No → Most likely software conflicts, virus.
                - Yes → Throw out old adapter, $10 new.
              - Yes → Bad patch or in-wall cabling.
            - Yes → Proceed to Motherboard Performance.
      - No → Add repeaters, re-route cables.
    - Yes → Check proper ground (one end)

Problem is unlikely network hardware if only this workstation has intermittent failures. Try eliminating all other non-essential software tasks for testing purposes.

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Network Hardware Diagnostics

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