

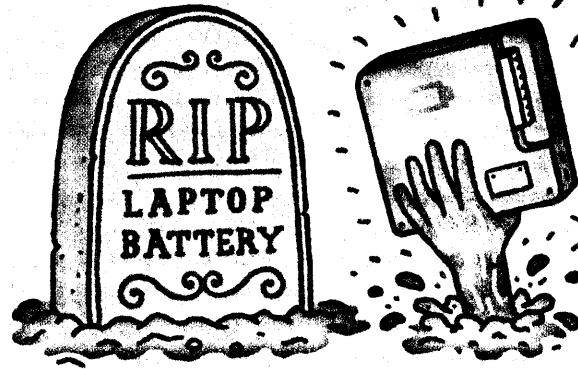
Breathe New Life Into Your Laptop's Battery

With these tips, you can keep your aging battery working for years (and for hours between charges).

EVENTUALLY AND unavoidably, laptop batteries die. And they don't obey Moore's Law: Next year's batteries are unlikely to last twice as long as this year's. Battery technology may improve a bit over time, but don't expect major battery breakthroughs in the near future.

Proper care can delay the inevitable. With luck, your battery could last until you need to replace your aging notebook (perhaps with a laptop that has longer battery life). I've also included a few tips on keeping the battery going longer between charges, so you can work longer without AC power.

Don't Run It Down
Squeezing every drop of juice out of a lithium ion battery (the type used in



today's laptops) strains and weakens it. Doing this just once or twice won't kill the battery, but the cumulative effect of frequently emptying your notebook's battery will be to shorten its life span. (For the one exception to this rule, see "Heal a Sick Battery" on the next page.)

The good news is, you probably can't run down the battery, anyway—at least not without going to a lot of trouble. Most modern laptop models are designed to shut down before the battery is completely exhaust-

ed; in fact, both Vista and Windows 7 come with a setting created expressly for this purpose. To see it, click *Start*, type *power*, and select *Power Options*. Click any one of the 'Change plan settings' links, and then click the *Change advanced power settings* link. In the resulting dialog box, scroll down to and expand the *Battery* option, and then expand *Critical battery level*. The setting you see there will probably be about 5 percent, which is a good place to leave it.

For its part, Windows XP offers no such native setting, although your laptop might carry a vendor-supplied tool that does the same job.

Myth: You should never recharge your battery all the way.

Considerable controversy surrounds this issue, and I have interviewed experts both in favor and opposed. But I've come down on the side of recharging a notebook's battery all the way. The advantages of leaving home armed with a fully charged battery—you can use your PC longer without AC power—are worth the slight risk of doing damage.

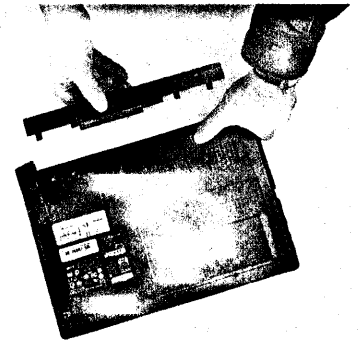
Keep It Cool

Heat breaks down the battery and reduces its overall life. When you use your laptop, make sure that the vents are unblocked. Never work with the laptop on pillows or cushions. If possible, put it on a raised stand that permits plenty of airflow.

Also, clean the vents every so often with a can of compressed air; you can buy one for a few dollars at any computer store. Be sure to follow the directions on the can, and do this only when the notebook is turned off.

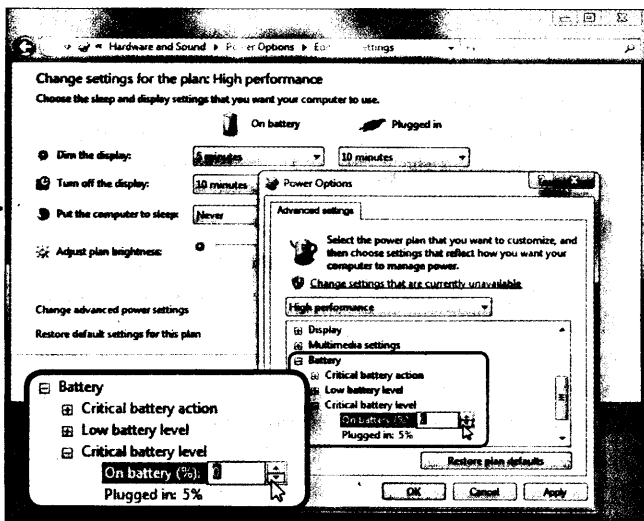
Give It a Rest

If you're going to be working exclusively on AC power for a week or more, remove the laptop's battery first.



Otherwise, you'll wear out the battery—constantly charging and discharging it—at a time when you don't need to use it at all. You'll also heat the battery up (see "Keep It Cool" above).

You don't want it to be too empty when you take it out. An unused battery loses power over time, and you don't want all the power to drain away, so make sure the battery is at least half-charged when you remove it. >>



MOST LAPTOPS PROBABLY won't permit you to set their critical battery level at 0 percent—and you shouldn't attempt to do so.

Here's How

Never remove the battery while the PC is on, or even in standby or sleep mode; doing so will crash your system and possibly damage the hardware. Even inserting a battery into a running laptop can harm the system. Remove or reinsert the battery only when the laptop is completely off or hibernating.

If you've never removed your laptop's battery, consult its documentation. (If you don't have that, you can probably find the details online.) The instructions typically involve turning the laptop upside-down and holding a button while you slide the battery out.

Don't allow the battery to go too long without exercise or to run out of juice entirely. If you go without the battery for more than two months, put it in the PC and use it for several hours, and then remove it again. Also, before you take the laptop on the road, reinsert the battery and let it charge for a few hours before you unplug the machine. Allow the battery time to obtain a full charge before you remove the AC power.

Heal a Sick Battery

Myth: *You can rejuvenate a worn-out battery.*

This isn't the case, strictly speaking. You can't make degraded lithium hold more electrons than it does now. But if the battery is running out unexpectedly fast, or if your laptop is having trouble figuring out how much power it has left, you may be able to fix the battery's "gas gauge" so that it gives you

a more accurate reading.

If you suspect that the battery can't determine whether it's charged or not, run it through a couple of cycles: Drain it, recharge it to 100 percent, and then repeat.

How do you drain the battery? Don't bother with the settings described in "Don't Run It Down" on the previous page. Altering them isn't safe (since you might forget to change them back), they may not be getting an accurate reading, and they quite possibly won't let you set the critical battery level to 0 percent. (If they did, Windows would likely crash.)

Instead, unplug the AC

until it shuts off. This can take some time (45 minutes on my laptop); setup uses a lot less power than Windows does. Once the laptop is off, plug in the AC power, and then wait a few hours before rebooting to Windows and confirming that you have a full recharge. Repeat the process once or twice.

With some luck and proper care, your battery will still be useful when you're looking for a new laptop.

Extend a Battery's Life Between Charges

The tips I've outlined above should lengthen the amount of time before you need to

ternal mouse or other device. And finally, mute the notebook's sound system; this not only saves power but also avoids annoying everyone else in the café.

Avoid multimedia: Save hefty chores such as photo editing and watching videos for when your system has AC power. If you must listen to music, use your iPod (or a similar dedicated device).

Know when to sleep and when to hibernate: You need to think about when you want to save power by sending your laptop into Standby or Sleep mode, and when you want to hibernate it.

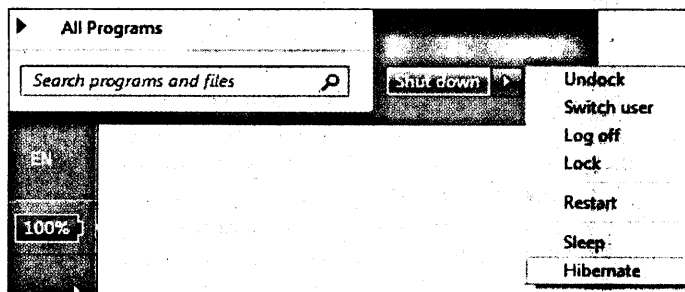
There is a difference. XP's Standby mode and Vista and Windows 7's Sleep mode keep your PC on, using some power, but less of it than in normal use. Hibernate saves the PC's state to the hard drive, and then shuts it off entirely so that the system uses no power.

Regrettably, Windows takes much longer—sometimes minutes—to enter and leave hibernation. And during those minutes, the battery is draining heavily and you can't work.

Windows XP's Standby mode isn't really all that efficient. If you know that your XP laptop will be inactive for more than about half an hour, hibernate it. Otherwise, use Standby.

Vista and Windows 7 do a much better job with their Sleep mode. Don't bother hibernating your notebook unless you think that you'll be going more than 2 or 3 hours without using it.

—Lincoln Spector



THE SLEEP AND Hibernate modes affect a laptop's power usage differently.

power and keep your laptop running (you can work on it if you like) until it automatically hibernates. Then reboot the PC and go directly to the system setup program. I can't tell you how to find your way there; each computer is different. Turn on the PC and look for a message that says something like 'Press the X key for setup.' Immediately press the designated key.

Getting the timing right may take a couple of tries. If the PC doesn't have enough power to boot, plug in AC until you're at the setup program, and then unplug it.

Leave the notebook on

replace your laptop's battery. On a day-to-day basis, however, you should be far more concerned with another type of battery life: how long you can keep your laptop running without AC power. You may know most of the following tips already, but it never hurts to refresh (or recharge) your memory.

Dim your screen: Your laptop's backlight uses a lot of juice. Keep it as dim yet readable as you comfortably can.

Shut off unneeded hardware: Turn off Bluetooth. If you're not using the Internet, turn off the laptop's Wi-Fi receiver, as well. Don't use an ex-