BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1681

Maintaining a Lead-Acid or AGM Battery

Simple upkeep that keeps it going

Tech Made Simple — Service Made Personal

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! Read this first — a few battery-safety basics

A battery stores a lot of energy in a small package, so a few plain habits keep everyone safe — no matter the chemistry. Charge with the charger made for that exact battery, on a hard, non-flammable surface, and never charge one that is swollen, cracked, leaking, hot, or wet. Keep batteries away from open flame, sparks, and high heat, and give a lead-acid battery plenty of fresh air while it charges, because it can give off explosive hydrogen gas. Never puncture, crush, short the two terminals together, or throw a battery in a fire. Around lead-acid batteries wear eye protection — the acid inside can burn skin and eyes. And when any battery finally wears out, it does not belong in the household trash: batteries are recycled at the right drop-off, never thrown away. The reassuring part is that the LiFePO4 chemistry — also written LFP — inside most of today's power stations and backup batteries is one of the safest and most stable there is. Most of this upkeep is simple and low-risk, but always wear eye protection and keep flame and sparks well away while you work, because a charging flooded battery gives off explosive hydrogen gas and the acid inside can burn skin and eyes.

Keeping a lead-acid battery healthy

A lead-acid battery — the heavy kind you'll find in most cars and in plenty of backup setups — can serve you faithfully for years, as long as you give it a little regular care. The good news is that the care is simple, and I'll walk you through every bit of it.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. A steady part of what I do is help folks look after the batteries they already own. Lead-acid batteries, in particular, reward a few easy habits with a long life — and skip those habits, and they quietly wear out early.

There are two kinds of lead-acid battery, and they ask for slightly different care. The old flooded kind needs its water checked now and then; the sealed kind (called AGM or gel) does not. This guide covers both, plus the handful of habits every lead-acid battery shares. I'll keep it plain, and there's no test at the end.

★ No job here is too small to ask about

If you'd rather not fuss with acid and terminals yourself, that's completely fine — it's exactly the sort of thing I help with. Call or text me at (330) 200-8042 and we'll sort it out together.

The whole guide, on one page

If you remember nothing else, these are the habits that keep a lead-acid battery alive and well.

- ❑ Keep it charged — a lead-acid battery left sitting empty slowly ruins itself.
- ❑ If it's the flooded kind, check the water now and then and top up with distilled water only.
- ❑ If it's sealed (AGM or gel), there's no watering — but it still wants the right charger and clean terminals.
- ❑ Keep the terminals clean and tight, and the top clean and dry.
- ❑ Charge where there's fresh air, and wear eye protection around a flooded battery.
- ❑ In the off-season, a maintainer keeps it topped up so it's ready when you need it.

> **✔ You don't have to memorize this**
> Skim it once so nothing's a surprise, then keep the guide on the shelf and come back to a page when you actually need it.

The two kinds of lead-acid battery

They're the same chemistry inside, but how they're built changes how much care they ask of you.

Flooded — the classic, with liquid inside

A flooded battery has its acid as a free liquid you can actually reach, behind caps on the top. That's the kind that needs its water level checked and topped up, and it must charge where there's fresh air, because it gives off explosive hydrogen gas while charging. It's the most hands-on of the two — but nothing here is hard.

Sealed — AGM and gel, no watering

AGM (absorbed glass mat) and gel batteries are sealed shut. The acid is held in a mat or a thick gel, so there's nothing to spill and nothing to water. Makers call these 'maintenance-free,' and for the watering part, that's true. They still want the right charger and clean terminals, though — more on that shortly.

Which kind do you have?

Before you care for a battery, it helps to know which sort it is. A quick look usually tells you.

The surest way is to read the label — it will often say 'AGM,' 'gel,' 'sealed,' or 'maintenance-free,' or, on a flooded battery, something about checking the fluid. When the label's worn off, the top gives it away.

- **Removable caps or covers on top?** That's almost always a flooded battery you can water.
- **A flat, sealed top with no caps?** That's AGM or gel — leave it sealed.
- **Labeled 'AGM,' 'gel,' 'sealed,' or 'maintenance-free'?** No watering needed.
- **Not sure?** Don't pry anything open — treat it as sealed and check the maker's information.

> **✔ When in doubt, don't force it**
> Never pry the top off a sealed battery to peek inside. If you can't tell what you have, the maker's label or website will — and so will I.

Watering a flooded battery

This is the one real chore a flooded battery asks of you, and it's easy once you've done it once.

Over time, a flooded battery slowly loses water, and the plates inside need to stay covered to work and to last. So every so often you check the level and top it up. Two rules matter most: use distilled water only, and top up after charging, not before.

- ❑ Charge the battery first, then check the level — the liquid rises as it charges.
- ❑ Put on eye protection and work in a ventilated spot.
- ❑ Open the caps and look: the liquid should just cover the plates.
- ❑ Top up with distilled water only, until the plates are covered — never overfill.
- ❑ Wipe up any spills, close the caps, and you're done.

> **! Distilled water only, and never overfill**
> Tap water leaves behind minerals that shorten a battery's life, so use distilled. And filling above the mark makes acid overflow when the battery charges — messy and corrosive. Just cover the plates, no more.

Fresh air, and protect your eyes

A flooded lead-acid battery deserves a little respect while it charges. Two simple precautions cover it.

While charging, a flooded battery gives off hydrogen gas, which is explosive. That's not a reason to be afraid of it — it's a reason to charge it where there's fresh air and to keep flame, sparks, and cigarettes well away. A garage with the door cracked, or a ventilated corner, is plenty.

The acid inside can also burn skin and eyes, so wear eye protection and gloves whenever you're watering, cleaning, or moving a flooded battery. If any acid touches skin, rinse with plenty of water; if it reaches your eyes, rinse and get medical help.

> **! Give a charging flooded battery air**
> Charge in a ventilated spot, never a sealed closet, and keep flame and sparks away — no smoking nearby. And never let a metal tool touch both terminals at once; that spark, around hydrogen, is exactly what you're avoiding.

Keep it charged — never leave it empty

If there's a single habit that saves lead-acid batteries, it's this one.

A lead-acid battery hates sitting empty. When it's left discharged, a hardening called sulfation builds up inside and quietly ruins it — sometimes for good. The fix is simple: keep it charged. After you use it, recharge it before long, and don't store it drained.

Every lead-acid battery also loses a little charge just sitting there, month after month, even when nothing's connected. So a battery you don't use often still needs an occasional top-up charge to stay healthy. Our storage guide covers the off-season routine in full; here, just remember the rule — a lead-acid battery lives longest kept full.

> **! A drained lead-acid battery can ruin itself**
> Leave one sitting empty for weeks or months and you may not be able to bring it back. If you'll store a lead-acid battery, store it charged, and keep it that way.

Cleaning corrosion off the terminals

That white or bluish crust on the terminals isn't just ugly — it weakens the connection and should be cleaned off.

Corrosion builds up where the cables meet the battery, and it gets in the way of good, strong contact. Cleaning it is a simple kitchen-cupboard job. I'll keep this short here, because our terminals-and-cables guide walks through it in full, including the safe order for disconnecting the cables.

- ❑ Disconnect the cables first — the negative one first, then the positive.
- ❑ Mix a little baking soda with water into a paste.
- ❑ Brush it onto the crusty spots; it will fizz and loosen the corrosion.
- ❑ Rinse with a little clean water, then dry everything thoroughly.
- ❑ Reconnect (positive first, negative last), then add a light protectant or dielectric grease.

> **✔ A dab of protection keeps it away**
> After cleaning, a light coat of dielectric grease, or a felt battery washer on the terminals, slows corrosion from coming back. Our terminals-and-cables guide has the details.

Tight connections and a clean, dry top

Two small things make a surprising difference: snug cables and a clean battery top.

A loose connection makes weak, flickery power and can even get hot. So once the terminals are clean, make sure the cable clamps are snug — firm, not forced. Check them now and then, because they can loosen over time.

The top of the battery matters too. Dust, moisture, and a film of grime across the top can slowly drain a battery and invite corrosion. A wipe with a dry cloth now and then keeps it clean and dry, which keeps it healthy.

> **✔ Snug, not cranked**
> Terminal connections want to be firm and secure, but you don't need to wrench them with all your might — over-tightening can damage a terminal. Snug is the goal.

Store it up off damp concrete

You may have heard that concrete drains a battery. The truth is a little different — but there's still a good reason to use a shelf.

The old tale that a battery sitting on a concrete floor will drain itself isn't really true of a modern battery on a clean, dry surface. So don't lose sleep over it. What is true is that a cold, damp concrete floor can lead to condensation and corrosion on and around the battery over time.

So the sensible habit is to set a stored battery on a board, a shelf, or a scrap of wood — up off the bare, damp floor. It keeps the bottom dry and the terminals cleaner, and it makes the battery easier to lift when you need it.

> **✔ A scrap of plywood does the trick**
> You don't need anything fancy — a piece of wood or a low shelf is plenty to keep a battery up off a damp floor.

A maintainer for the off-season

If a battery sits unused for a season — a mower, a boat, an RV, a backup you rarely touch — a maintainer is its best friend.

A maintainer (also called a tender) is a small, smart charger you leave connected. It tops the battery up just enough to keep it full, then eases off, so the battery never sits drained and never gets overcharged. For a lead-acid battery that hates being empty, that's exactly what you want over a long off-season.

- It keeps a stored lead-acid battery full, which is how lead-acid lives longest.
- A good, automatic one is made to be left connected — it floats gently instead of cooking the battery.
- It saves you from hauling the battery out to charge it every few weeks.
- It's not the same as a cheap trickle charger left on forever, which can overcharge.

> **✔ Match it to the chemistry**
> Use a maintainer meant for your battery — many have a setting for AGM or gel. Our charging guide explains chargers and maintainers in more detail.

Sealed batteries: easy, but not no-care

AGM and gel batteries skip the watering, but they still like a few of the same habits.

'Maintenance-free' really means 'no watering' — and that's a genuine relief. But a sealed battery still wears out early if it's left empty, charged with the wrong charger, or run with crusty terminals. So the charged-up, clean-terminals, right-charger habits still apply.

- No watering — never try to open a sealed battery to add water.
- Still keep it charged, and don't store it empty.
- Still keep the terminals clean and tight.
- Gel batteries in particular dislike being overcharged, so the right charger matters.
- A maintainer with an AGM or gel setting is ideal for the off-season.

> **✔ Sealed means leave it sealed**
> If a battery has no caps, it's not meant to be opened. Adding water or prying at it does harm, not good.

Two kinds of homes, two sets of needs

The care habits are the same everywhere, but where you live shapes how many lead-acid batteries you're tending and how easy it is to keep them up.

If you live in town or the suburbs

In town or the suburbs, outages tend to be short, so a lead-acid battery here is often a car battery, a small backup, or a mower or garden-tool battery you tend a few times a year.

- Fewer batteries to look after, and a heated garage keeps them at a kinder temperature.
- An auto-parts store for distilled water, a maintainer, or a replacement is usually close by.
- You can bring a battery indoors to charge in a ventilated spot between uses.
- Recycling drop-offs are nearby when a battery finally wears out.

If you are out in the country on a well

Out in the country, folks often keep several lead-acid batteries working — a tractor, an RV, a boat, lawn equipment, and a backup or two — and when the power's out and the well pump stops, a healthy backup battery matters even more.

- More batteries means a maintainer (or a few) really pays off, so none sit forgotten and empty.
- Barns and outbuildings swing hot and cold, and heat especially ages a battery — store them somewhere milder when you can.
- Keep distilled water, a wire brush, and baking soda on hand, since the store is a longer drive.
- A lead-acid backup you rely on during a long outage deserves a check before every storm season.

> **★ Tending a shelf full of batteries?**
> If you've got a barn or garage with several batteries to keep up, I'm glad to help you set up a simple routine — and a maintainer or two — so nothing dies of neglect. Call (330) 200-8042.

A simple upkeep routine

You don't need a strict schedule — just a rhythm. Here's a rough one that keeps a lead-acid battery happy.

How often	What to do
Every so often	Check that terminals are clean and cables snug; wipe the top dry.
Flooded, now and then	Check the water level after charging; top up with distilled if low.
After each use	Recharge before long — don't leave it sitting drained.
Off-season	Keep it on a maintainer, up off a damp floor, somewhere not too hot or cold.
Before a season you rely on it	Charge fully and, if you can, have it tested.

Tape a version of this inside a cabinet door where you keep your battery gear. A glance now and then beats trying to hold it all in your head.

The right charger for lead-acid

The charger you use matters as much as how often you charge. A good one does the thinking for you.

Lead-acid and lithium want to be charged differently, so use a charger made for lead-acid, or one with a lead-acid (and AGM or gel) setting. A modern, multi-stage 'smart' charger fills the battery, then eases back to a gentle top-up — far kinder than a cheap charger left running full-blast.

- Match the charger to the chemistry — lead-acid, and the right setting for AGM or gel.
- A smart, multi-stage charger is gentler and safer than a plain trickle charger.
- Charge in a ventilated spot, on a hard, non-flammable surface.
- Don't overcharge a flooded battery — it boils off the water you just topped up.

> **! Don't leave a dumb charger on forever**
> A quality automatic charger or maintainer is made to stay connected. A cheap, non-automatic one is not — left on, it can overcharge and cook a battery dry. When in doubt, unplug it once it's full. Our charging guide goes deeper.

A few things worth keeping on hand

None of this is expensive or hard to find, and having it ready makes upkeep a five-minute job.

- ❑ Eye protection and gloves for working around a flooded battery.
- ❑ A jug of distilled water (for flooded batteries only).
- ❑ Baking soda and an old brush for cleaning corrosion.
- ❑ Dielectric grease or felt terminal washers to slow corrosion.
- ❑ A smart charger and, for the off-season, a maintainer.
- ❑ A board or low shelf to keep a stored battery off a damp floor.

> **✔ Keep it together in one bin**
> A small tote with these odds and ends, kept where your batteries live, turns 'I'll get to it' into a quick, easy habit.

Common upkeep mistakes

Most lead-acid batteries that die early were done in by one of these, and every one is avoidable.

- **Letting it sit empty** — the surest way to ruin a lead-acid battery.
- **Topping up with tap water** instead of distilled, or overfilling.
- **Charging a flooded battery in a closed space** with no fresh air.
- **Ignoring crusty terminals** until the connection goes weak.
- **Leaving a cheap charger on for weeks**, quietly overcharging it.
- **Storing it on a cold, damp floor** instead of up on a board.

> **! Almost every one is a habit, not bad luck**
> The flip side of that list is good news: get these few habits right and a lead-acid battery will give you honest service for a long time.

When upkeep isn't enough

Good care stretches a battery's life, but no battery lasts forever. Here's when to stop nursing one along.

Sometimes a battery is simply worn out or damaged, and no amount of watering or cleaning will bring it back. Trust the signs, and don't keep fighting a battery that's telling you it's done.

- It won't hold a charge, or reads low even right after charging.
- It runs down far faster than it used to.
- The case is cracked or leaking, or a terminal is badly corroded or loose in the case.
- It gets hot, or bulges — stop using it and keep it away from anything that burns.
- It's simply old — many years of service is a good run.

> **✔ Then recycle it — never the trash**
> A worn-out lead-acid battery is valuable and highly recyclable. Take it to an auto-parts store or recycling center; our disposal guide and our signs-of-a-failing-battery guide cover both the how and the when.

Common Questions

The questions I hear most about keeping a lead-acid battery healthy.

Q: How often should I check a flooded battery's water?

Now and then — more often in hot weather and with heavy use, less if it mostly sits. Peek after charging; if the plates are getting uncovered, top up with distilled water. The maker's label will suggest a rhythm.

Q: Can I use tap water in a pinch?

It's best not to. Tap water carries minerals that build up and shorten the battery's life. Keep a jug of distilled water with your battery gear so you're never tempted — it's inexpensive and lasts a long time.

Q: Do AGM and gel batteries need any maintenance?

No watering — that part's genuinely maintenance-free. But they still want the right charger, clean and tight terminals, and to be kept charged rather than stored empty. Sealed doesn't mean you can forget about it entirely.

Q: Is it really bad to store a battery on the concrete floor?

The old 'concrete drains it' tale isn't true of a modern battery on a clean, dry surface. The real issue is a damp floor causing corrosion over time — so setting it on a board or shelf is still the smart move.

Q: Should I leave my battery on the charger all winter?

On a quality maintainer or automatic charger made to float, yes — that's ideal for a lead-acid battery over the off-season. On a cheap, non-automatic charger, no — it can overcharge. When unsure, use a proper maintainer or unplug once it's full.

> **★ Still have a question I didn't cover?**
> That's what I'm here for. Call or text (330) 200-8042 and ask away — there's no such thing as a silly battery question.

Your lead-acid upkeep checklist

Here's the whole guide as a short list you can keep on the shelf.

- ❑ Keep it charged; never store it empty.
- ❑ Flooded only: check the water after charging; top up with distilled, never overfill.
- ❑ Wear eye protection and charge where there's fresh air.
- ❑ Keep terminals clean and snug; keep the top clean and dry.
- ❑ Store it up off a damp floor, somewhere not too hot or cold.
- ❑ Use the right charger, and a maintainer for the off-season.
- ❑ When it's truly worn out, recycle it — never the trash.

> **✔ Tape this inside a cabinet door**
> A printed copy where you keep your battery gear is worth a dozen memorized facts.

Where this guide fits

Upkeep is one piece of the bigger picture. Here's where the neighboring guides pick up.

- For the safe order of disconnecting cables and dealing with corrosion in depth, see our terminals-and-cables guide.
- For putting a battery away for a season — charge level, temperature, and checks — see our storage guide.
- For chargers, smart chargers, and maintainers, see our charging guide.
- For telling when a battery is truly failing, see our signs-of-a-failing-battery guide.
- For recycling a worn-out battery the right way, see our disposal guide.
- For how lead-acid stacks up against AGM and LiFePO4, see our comparison guide.

You don't have to read them all, and you don't have to read them in order — just follow whatever question is on your mind today.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made keeping a lead-acid or AGM battery healthy feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat $99, and for the parts that don't need me on-site I can often help right on your screen for $49. Every visit comes with a 30-day, come-back-free guarantee. I don't do licensed electrical work or open up sealed battery packs myself — for anything hardwired, or for panel work, I'll help you line up a trustworthy local pro.

> **★ Bill's Home Tech — real help, close to home**
> Call or text me at (330) 200-8042, or visit BillsHomeTech.com. Serving Atwater and all of Portage County. 30+ years of patient, plain-English tech help — and if you're ever not 100% happy with a visit, I'll make it right or refund it. That's a promise. — Bill

Flooded vs Sealed Lead-Acid

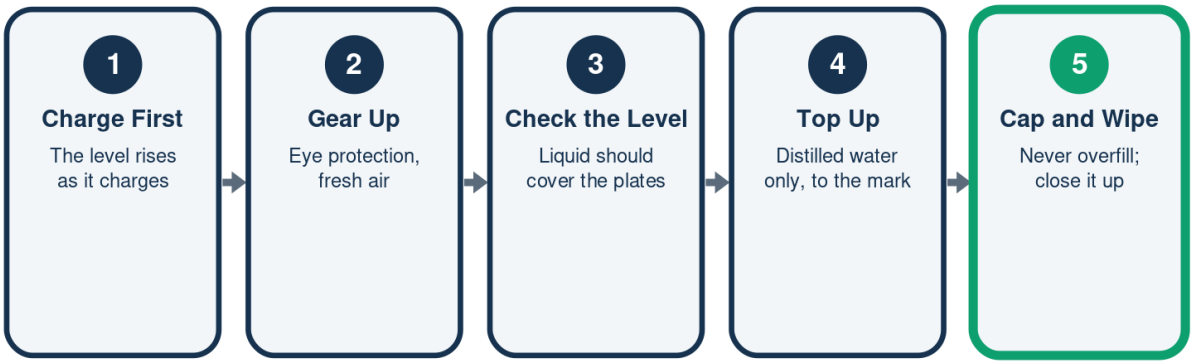
Same chemistry, different care

	Flooded	Sealed (AGM/gel)
Watering	Top up distilled	None — sealed
Ventilation	Yes, hydrogen	Less to vent
Terminals	Keep clean	Keep clean
Store charged	Yes	Yes
Handling	Can spill	Spill-proof

Both are lead-acid — keep both charged and clean.

Watering a Flooded Battery

Only for the kind with caps you can open



Sealed batteries skip this entirely — no watering.

Lead-Acid Upkeep at a Glance

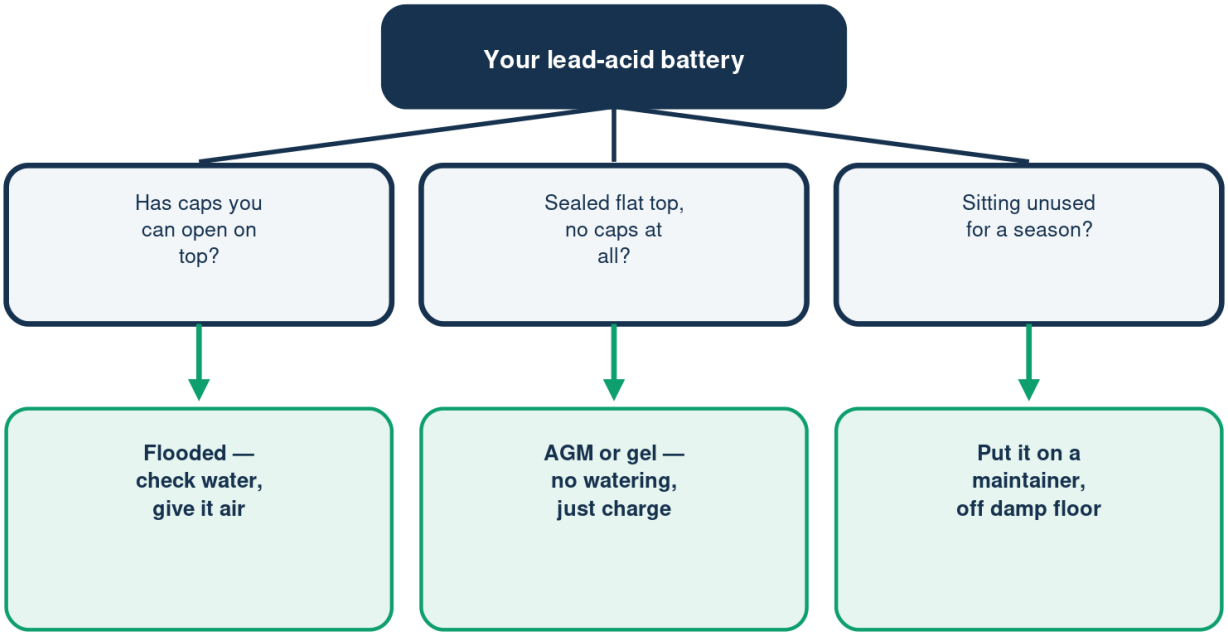
The habits every lead-acid battery wants

	Do this	So that
Charge	Keep it full	It won't sulfate
Water (flooded)	Distilled only	Plates stay wet
Terminals	Clean and snug	Good contact
Store	On a board/shelf	No damp, no rust
Off-season	Use a maintainer	Ready to go

A few easy habits, and it serves you for years.

What Care Does Your Battery Need?

Start with which kind you have



Cracked, leaking, or bulging? Stop — recycle it, don't nurse it.

Illustration - a schematic, not to scale. Your setup may differ.

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A Note From Bill

A quick note from Bill.

I write these guides to make home tech a little less frustrating, and I do my best to keep every step accurate and up to date. Still, every home, device, and setup is a bit different, so I can't promise a guide will match yours exactly or fix your particular problem. These guides are for general information only — they're not professional, legal, or financial advice, and they don't replace your device's own manual or the manufacturer's instructions. Please go slow, use your own good judgment, and use everything here at your own risk. If a step involves electrical wiring, a gas appliance, a water heater, plumbing, or climbing a ladder — or if anything just doesn't feel safe — please stop and call a licensed professional (or give me a call at 330-200-8042). Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that comes from using these guides. Thanks for reading, and stay safe out there.

— Bill

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