



An Extended Guide · No. 1242

What Is an Inverter Generator?

Clean, quiet backup
power, in plain English

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Hello, and welcome

If the lights have ever flickered out during an Ohio storm and left you wondering how to keep the refrigerator cold and the phones charged, an inverter generator might be exactly the friend you're looking for — and this guide explains it all in plain English.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. I've spent more than 30 years helping folks get comfortable with their technology — patiently, in plain language, and at their own pace. Think of this guide as me sitting at your kitchen table, walking through it with you one step at a time.

In these pages we'll cover what an inverter generator actually is, why folks like them, what they can and can't run, how to stay safe, and how they work whether you live in town or out in the country on a well. No jargon, no sales pitch — just what you need to know.

You do not have to read this all at once, and you certainly don't have to memorize it. Skip to whatever you need, keep it handy, and know that a real person is only a phone call away.

★ How to use this guide

Each page stands on its own. Read one, take what's useful, and come back for the next when you're ready. If a step ever feels fuzzy, that's on my writing — not on you — and you can always call me at (330) 200-8042.

So what is an inverter generator?

In one sentence: it's a portable generator that makes especially clean, steady electricity while running quieter and using less fuel than the old kind.

A generator is simply a small engine bolted to a device that turns spinning into electricity. You put in fuel, it runs, and you get power out of the outlets on the front. That part is the same for every generator ever made.

The word **inverter** describes a clever bit of electronics inside. Instead of sending the engine's rough power straight to the outlets, an inverter unit does an extra step: it smooths that power out into a clean, even wave, very close to the electricity that comes from the wall in your house.

That's the whole idea. Everything people love about these units — the quiet, the clean power, the good fuel economy — comes from that one extra step. The rest of this guide is just what it means for you.

✓ You don't need to understand the electronics

You'll never have to think about the inner workings to use one safely and happily — no more than you think about the engine when you drive to the store. I just want you to know why these are different, so you can decide if one is right for you.

Why people say the power is "clean"

"Clean power" is the number-one reason folks choose an inverter generator. Here's what it really means.

Electricity from the wall flows in a smooth, regular wave. Sensitive modern gadgets — TVs, computers, tablets, medical devices — expect that smooth wave and can be fussy if they don't get it.

An old-fashioned generator puts out rougher, choppy power with little spikes in it. For a work light or a drill that doesn't matter one bit. But for a nice television or a laptop, that rougher power can, over time, cause trouble.

An inverter generator rebuilds its power into that same smooth wave you get from the wall. Engineers measure how smooth it is and inverter units score very well — clean enough that the makers are comfortable recommending them for delicate electronics. In plain terms: you can plug in your good TV or computer without worry.

★ The clean-power difference in one line

If you mainly want backup for the fridge, some lights, your phones, the internet, and the television, clean power is a real and practical reason to choose an inverter unit. It's the difference I point most customers to first.

Why they're quieter and sip less fuel

The second big reason people love these: they're far more peaceful, and a tank of fuel lasts longer.

A regular generator runs its engine flat-out the entire time, whether you're powering the whole house or a single lamp. That's why they're so loud, and why they drink fuel.

An inverter generator is smarter. Because of that clean-power electronics, it can let the engine **speed up and slow down** to match exactly how much power you're using. Running just a few lights? The engine idles down to a soft hum. This is usually a switch labeled **eco** or **economy** mode.

The payoff is a generator quiet enough to talk over, kind to your neighbors, and easy on fuel — which matters a lot when a storm has the gas stations closed and you're stretching what's in the tank.

✓ One time to switch eco mode off

When you're about to start something with a motor — a refrigerator or a pump — flip eco mode off for a moment so the generator has its full muscle ready for the surge, then switch it back on. More on that in the sizing guide.

What an inverter generator is wonderful for

These units earn their keep in a handful of very practical ways.

- **Keeping the essentials going in an outage** — the refrigerator and freezer, a few lights, your phones, the Wi-Fi, and the television. For most homes that's the real job.
- **Running sensitive electronics without worry** — computers, TVs, and even a CPAP machine, thanks to that clean power.
- **Camping and RVs** — quiet enough for a campground, light enough to lift, and clean enough for everything inside the rig.
- **Tailgating and gatherings** — power for the game, the food, and the music without drowning out the party.
- **Job sites and hobbies** — clean, portable power wherever there's no outlet.

Notice the theme: **portable, clean, and quiet**. If those three words describe what you need, an inverter generator is very likely your answer.

What they're not the best at (the honest part)

No tool is perfect, and I'd rather you know the trade-offs before you spend a dime.

They cost more. For the same wattage, an inverter unit generally costs more than a plain open-frame generator. You're paying for the quiet and the clean power — worth it for many folks, but it's real money.

The small, quiet ones are lower-powered. The featherweight units everyone pictures are terrific for electronics and a fridge, but they can't run big 240-volt loads like central air or most well pumps. For those you need a larger inverter unit (they exist) or a different approach.

They're still generators. They burn fuel, they need oil changes and a little care, and — most important — they make carbon monoxide and must run outdoors. We'll cover all of that.

! If you want to power the whole house

Backing up an entire home, central air, or a 240-volt well pump is a bigger project that usually means a larger unit and a licensed electrician to wire in a transfer switch. It's very doable — it's just a different conversation, and I'm glad to help you plan it.

Inverter vs. the old-fashioned generator

When people picture a "generator," they usually picture the big, loud, open-frame kind. Here's the quick contrast.

	Inverter unit	Conventional unit
Noise	Quiet, adjusts to load	Loud, runs flat-out
Power quality	Clean and smooth	Rougher
Fuel use	Thrifty at low load	Steady, thirstier
Weight	Often lighter/portable	Often heavier
Cost per watt	Higher	Lower
Big 240V loads	Larger units only	More common

Neither is "better" for everyone. If you want quiet, clean, grab-and-go power for the essentials, the inverter wins. If you need the most raw watts for the least money and don't mind the noise, a conventional unit can make sense. There's a whole guide in this series comparing the two head to head.

A quick tour of the unit

Don't let the buttons and outlets fool you — there are only a handful of things to know.

- **The outlets** — regular household plugs on the front, where you plug in your cords. Bigger units add special round twist-lock outlets for heavier jobs.
- **The start control** — a pull cord, a key, or a button, depending on the model. Some have a remote or even a phone app.
- **The eco / economy switch** — turns on that quiet, fuel-saving mode we talked about.
- **The fuel cap and gauge** — where the gasoline goes and how you check the level.
- **The oil fill** — generators need oil like a lawn mower; we'll cover checking it.
- **The indicator lights** — friendly little lamps for "running fine," "low on oil," and "overloaded."

That's genuinely the whole machine. Once you've run it once, it feels as familiar as starting the lawn mower.

What clean power means for your things

Let's make "clean power" concrete with the gear you actually own.

Your television and computer will run just as they do on wall power — no flicker, no fuss. That peace of mind is exactly what you're paying the little extra for.

Phones and tablets charge normally. In an outage, keeping everyone's phone topped up and the internet router running is often the thing families are most grateful for.

A CPAP machine is a common and important one. Inverter power is the right, gentle kind for it — though for overnight use there's a smarter setup involving a battery indoors, which gets its own guide. If someone in the home relies on a medical device, please read that one.

! Medical devices deserve a real plan

If anyone in your home depends on oxygen or another life-sustaining device, a generator is only part of the answer. Please build a written outage plan with your doctor and equipment supplier, and register with your power company's medical list. I'll happily help you set up the equipment side.

If you live in town: city and suburb

Most of my customers here in town — in Kent, Ravenna, Streetsboro, Aurora — are on city water and city power, and their needs from a generator look a certain way.

In a typical house in town, an outage means you want to keep the **refrigerator and freezer** cold, a few **lights** on, the **furnace blower** or a fan running, and the **phones, internet, and TV** going so you're not cut off. A small-to-midsize inverter generator handles that lineup beautifully.

Because you're on city water, you don't have the well-pump worry that country folks do — so you can often get by with a smaller, quieter, more affordable unit. That's good news for your wallet and your neighbors' ears.

Speaking of neighbors: in a close neighborhood, the quiet of an inverter unit is a real gift. Set it in the driveway or back patio — always 20 feet from windows and doors, yours and theirs — run it in eco mode, and point the exhaust away from the houses.

! Apartments and condos are a special case

If you're in an apartment or condo with no safe outdoor spot well away from windows, a fuel generator usually isn't practical — and running one on a balcony or in a garage is dangerous. A quiet battery "power station" that charges from the wall is often the better tool for keeping phones, a lamp, and a CPAP going. I can help you weigh it.

If you're in the country on a well

Out in the townships — Atwater, Rootstown, Deerfield, Palmyra — many of my customers are on a private well and a septic system, and that changes the picture in one big way: when the power's out, so is your water.

That's the part people don't think about until it happens. No power means the well pump can't push water to the house — no faucets, no showers, no flushing without hauling water. So for country homes, backing up the **well pump** is often the whole reason to buy a generator.

! The honest truth about well pumps

Most home well pumps run on 240 volts, and the small, quiet inverter generators most folks picture put out only 120 volts — so they cannot run the pump at all. For a well you need a larger inverter unit with a 120/240-volt outlet, sized to your pump, and a proper way to connect it. Pairing two little units together does not fix this — two 120-volt units still only make 120 volts. I'll help you get the right size, and bring in a licensed electrician for the hookup.

So what CAN a small, quiet inverter generator do for a country home? Quite a lot: the **refrigerator and freezer** (a real blessing if you keep a garden's worth of food put up), **lights, phones and internet**, a **space heater or fan**, and medical devices. For the well itself, you'll want to size up to a larger 120/240-volt inverter unit — which is its own guide in this series.

A smart country habit no matter what you buy: keep a few days of **drinking water** stored, and fill a bathtub when a big storm is coming so you can flush. A generator that can't start the pump still can't make water.

The safety talk: carbon monoxide

Because an inverter generator burns fuel, it comes with one serious safety rule that never bends. This page is the most important one in the whole guide.

Every generator that burns gasoline or propane makes carbon monoxide, or "CO" — a gas you cannot see or smell. It is the one real danger with a generator, and it is completely avoidable. More people are hurt by running a generator in the wrong place than by anything else, so please read this page twice.

Outside only — no exceptions

Never run a generator indoors, and that includes the garage, the basement, a shed, a carport, or a covered porch — even with the door up or a window open. CO pools and seeps into the house. The only safe place is outdoors, in the open air.

At least 20 feet away, exhaust pointed away

Set the generator at least 20 feet from the house, and turn it so the exhaust blows **away** from any door, window, or vent. Don't tuck it against the wall to hide it or keep it dry — give it room to breathe and let the fumes drift off.

Alarms are your safety net

Put working carbon-monoxide alarms on every level of your home and near the bedrooms, and use ones with a battery backup so they work when the power is out. Test them now, before storm season, not during it.

How big a one do you need?

This is the question everyone asks, and the honest answer is "it depends on what you want to run." Here's the thinking in brief.

Everything electrical is rated in **watts**. To size a generator, you add up the watts of the things you want to run at the same time, then leave some headroom on top.

There's one wrinkle: things with a motor — a refrigerator, a pump, a furnace fan — need a big **gulp** of extra power for the first second when they kick on, more than they use while running. You size the generator to handle the biggest of those start-up gulps, not just the steady running total.

For most homes wanting the fridge, lights, phones, internet, and a TV, a modest inverter generator does the job. Add a well pump or central air and you step up to a larger unit. Getting this right is worth a phone call — and there's a full sizing guide in this series.

✓ A simple way to start

Walk your home and jot down the few things you'd truly want in an outage. That short list — not "everything" — is what we size around. Most folks are surprised how little they actually need.

What do they run on?

Most inverter generators burn ordinary gasoline, but you have choices worth knowing about.

Gasoline is the common one — easy to find and powerful. The catch is that gas goes stale in a few months, so it needs a little care in storage (a splash of fuel stabilizer and rotating your supply).

Propane — the same tanks as your grill — is another option on many units. It stores for years without going bad, burns cleaner, and is handy to keep on the shelf for emergencies. It gives a touch less power than gas and can be sluggish to start in bitter cold.

Dual-fuel units run on either one, which is a lovely safety net: if the gas stations are dry after a storm, you switch to a propane tank and keep going. Each of these gets a fuller treatment later in the series.

✓ For once-in-a-while backup, many like propane

If your generator will mostly sit and wait for outages, propane's long shelf life saves you the worry of stale gas. For frequent use — camping most weekends — gasoline is simpler. A dual-fuel unit lets you have it both ways.

What to look for when you buy

When you're standing in the aisle or scrolling a website, these are the things that actually matter.

- **Enough watts for your list** — sized to what you want to run, with a little headroom. Bigger isn't always better; it's heavier and thirstier.
- **A carbon-monoxide shutoff** — a built-in sensor that kills the engine if CO builds up. Worth having; look for a safety-standard label.
- **The right outlets** — regular household plugs for sure, and a 120/240-volt twist-lock outlet if you'll ever back up a well pump or a home circuit.
- **Parallel-ready** — if you might want to add a second matching unit later to make more power, buy one that allows it.
- **Weight and wheels** — can you actually move it? Wheels and a handle matter more than folks expect.
- **A trusted brand and warranty** — buy from a real store, not a stranger online, so help is there if you need it.

There's a full buyer's-checklist guide in this series if you'd like to dig in — or just call me and we'll narrow it down together in ten minutes.

Getting started the first time

A brand-new generator needs a few minutes of setup before its first run. Nothing hard — just don't skip it.

- **Add oil.** Most units ship with no oil in them. Running one dry will ruin it, so fill it to the mark with the oil the manual calls for before you ever start it.
- **Add fresh fuel.** Fill the tank with fresh gasoline (or hook up a propane tank).
- **Set it outside, 20 feet out.** Always — even for that first test start.
- **Start it and let it settle.** Follow the manual's start steps, let it warm up a moment, then plug things in.

That's it for a first run. There's a step-by-step "your first start" guide in this series that walks through every knob, if you'd like your hand held the first time — no shame in that at all.

★ Let's do the first start together

First starts are one of my favorite house calls. I'll fill the oil, walk you through the choke and the pull, and make sure you feel confident doing it yourself next time. Just call (330) 200-8042.

A little care keeps it ready

The saddest generator is the one that won't start during the storm because it sat untouched for two years. A few easy habits prevent that.

Run it now and then. Once a month or so, start it up and let it run for fifteen or twenty minutes with something plugged in. That keeps the fuel fresh in the lines, the battery charged, and any gremlins from settling in.

Mind the fuel. Gasoline that sits goes stale and gums things up. Use stabilizer, rotate your supply, or run the unit on propane, which keeps for years.

Check the oil before you run it, and change it on the schedule in the manual — much like a lawn mower. There's a full maintenance guide in this series.

✓ Put it on the calendar

Pick an easy day — say, the first Saturday of the month — to run the generator for fifteen minutes. Tie it to something you already do, like paying a bill, so it becomes a habit you don't forget.

What about those battery "power stations"?

You may have seen big batteries sold as "portable power stations." They're cousins to the inverter generator, and worth understanding.

A power station is a large rechargeable battery in a box with outlets. It makes the same clean power, but it's **silent** and gives off **no exhaust**, so it can sit right on your kitchen counter and run indoors. You charge it from the wall, the car, or solar panels.

The trade-off is that a battery only holds so much before it needs recharging — wonderful for phones, a lamp, or a CPAP overnight, but it can't run the fridge for three days the way a fueled generator can.

Many folks end up with **both**: a quiet battery indoors for overnight essentials, and an inverter generator outside for the bigger, longer jobs and to recharge the battery. It's a lovely one-two punch, especially where outages run long.

Common worries, gently put to rest

Folks often hesitate over a generator for reasons that turn out to be smaller than they feared. Let's clear a few.

Q: Will it wreck my TV or computer?

No — clean inverter power is gentle on electronics. That's the whole point of choosing an inverter unit.

Q: Is it hard to start and run?

It's about as involved as a lawn mower. Fill it, start it, plug in. I'll walk you through the first time if you'd like.

Q: Isn't it terribly loud?

The old ones are. An inverter unit in eco mode is quiet enough to hold a conversation next to — one of the best reasons to pick one.

Q: Do I need to be handy?

Not at all. If you can run a mower and follow a checklist, you can run a generator safely. And you've got me on call.

How I can help

A generator is one of those purchases where a little friendly guidance saves you money and worry — and that's exactly the sort of thing I do for folks around Portage County.

I'm Bill, and I run Bill's Home Tech right here in Portage County. I'm a tech-help person, not a power company and not a pushy salesman — I help folks pick the right gear, set it up, and feel confident using it. With generators, that means helping you choose a unit that fits your home and your budget, showing you how to run it safely, and getting your internet, TV, and devices happily back on once the power's flowing.

For the parts that involve your home's wiring — a 240-volt well pump, a whole-home transfer switch — I'm not a licensed electrician, so I'll coordinate with one and handle the rest. You get one friendly point of contact for the whole project.

Three easy ways to get help

- **An in-home visit** — a flat \$99 first visit. I come to you, here in Portage County, and every visit is 30-day come-back-free.
- **Remote help** — a flat \$49 screen-share, up to two hours, for the things I can sort out without coming over (it's free for Support Plan members).
- **A Support Plan** — \$39 a month for folks who'd like me on call all year.

Your simple readiness checklist

Tear this page out and stick it inside a cabinet door. When the sky turns green, you'll be glad it's there.

- ☐ Generator is fueled (fresh gas with stabilizer, or a full propane tank).
- ☐ Oil checked and topped to the mark.
- ☐ A safe outdoor spot picked out — at least 20 feet from the house, exhaust pointing away.
- ☐ Heavy-duty outdoor extension cords on hand, rated for the load.
- ☐ Working carbon-monoxide alarms inside, with fresh batteries.
- ☐ You've started it in the last month, so you know it runs.
- ☐ A short list of what you'll plug in, in priority order.
- ☐ For well homes: a few days of drinking water stored.

Eight little check marks stand between you and a very comfortable outage. Not bad.

The short version

If you remember nothing else from this guide, remember these:

- An inverter generator makes clean, quiet, fuel-thrifty power — great for electronics and for keeping the essentials going in an outage.
- The small quiet ones can't run big 240-volt loads like most well pumps; that takes a larger unit and usually an electrician.
- Run it outside only, at least 20 feet from the house, exhaust away, with working CO alarms indoors. This rule never bends.
- In town you can often go smaller; on a well, plan for the pump and keep water stored.
- A little monthly care keeps it ready — and I'm a phone call away.

The Inverter Generator at a Glance

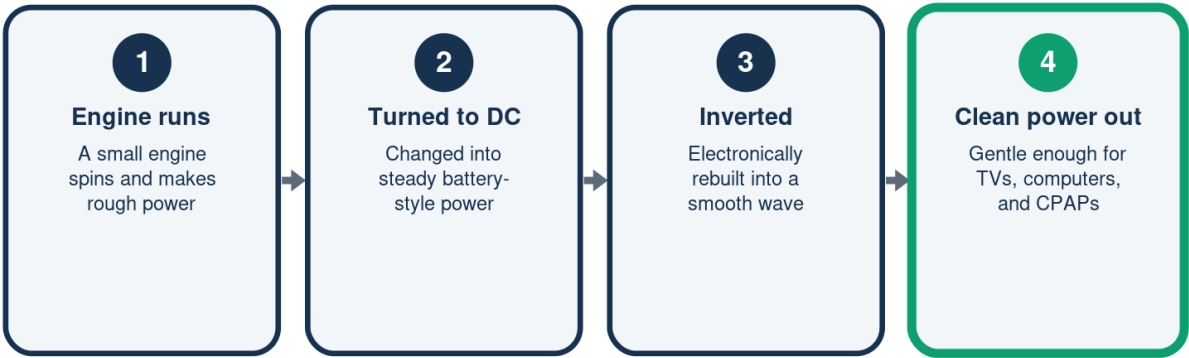
The plain-English version

The short answer		Why it matters
What it is	A portable generator	with clean, smooth power
Best for	Electronics & outages	Fridge, lights, phones, TV
Noise	Quiet in eco mode	Talk right next to it
The catch	Costs more per watt	Small ones skip 240V
Big rule	Run it outside only	20 feet from the house

Clean, quiet, portable power for the essentials — with carbon monoxide the one rule that never bends.

How It Makes Clean Power

The extra step that smooths it out



That one extra 'inverter' step is the whole difference.

Inverter vs. Conventional

Two kinds of portable generator

	Inverter unit	Conventional unit
Noise	Quiet, adjusts	Loud, flat-out
Power	Clean & smooth	Rougher
Fuel use	Thrifty	Thirstier
Weight	Often lighter	Often heavier
Cost/watt	Higher	Lower

Quiet, clean, grab-and-go vs. the most raw watts for the money.

Is an Inverter Generator Right for You?

Start with what you want to power

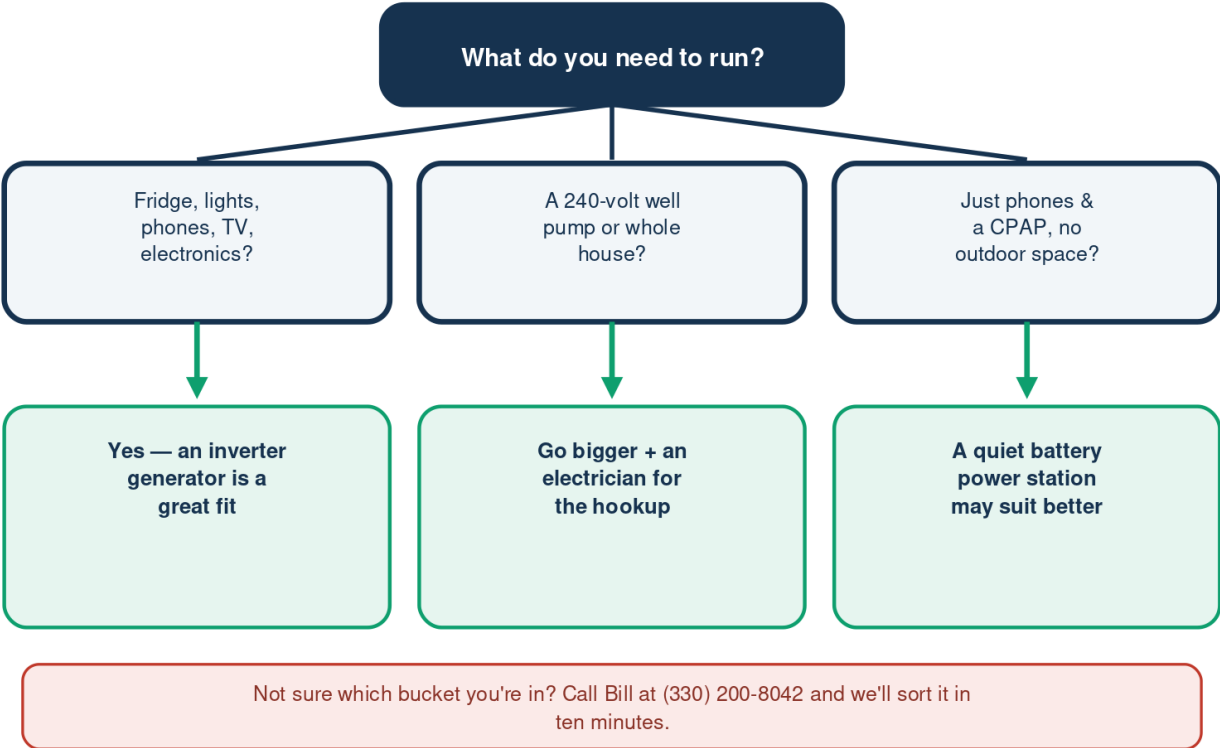


Illustration - a schematic, not to scale. Your setup may differ.



Need a Real Person?

You do not have to remember all of it.
You just have to remember you can call.
Friendly, in-home tech help — I come to you.

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If you are not 100% happy with a visit, I will
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— Bill

Prefer help without a visit?

Bill can screen-share and fix many things remotely — a flat \$49, free for Support Plan members.



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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