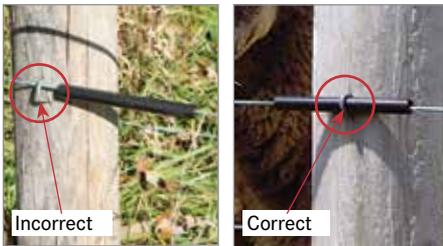


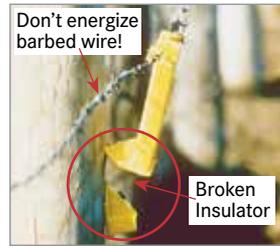
Common Fencing Mistakes

Insulator/Conductor Mistakes



Most common tube insulator error

This SupaTube has slid sideways out from under the staple—allowing the post to leak energy to the soil when it's wet from dew or rain. While HT wires need to be allowed to “move” inside a staple, the opposite is true of tube insulators. This is one reason we prefer ring insulators and rarely use tube insulators.



Insulator was too weak to withstand the up and down strain from the wire. Also, energized barbed wire—a serious risk.

Too weak to take up/down strain

Years ago almost all insulators were weak and badly designed. Now only 50% are not up to the task (it varies by brand).

Buy the best (not necessarily the most expensive) that have plenty of plastic in them. Stick to white or black ones (more likely to have UV resistance—but even the right color is not a guarantee).



Pay attention to the little things

This insulator was installed upside down—which allowed the tape to drop out of it.



Broken strands

Deer and livestock can break insulators and conductors. It is essential to repair them immediately.

This rope was easily repaired with a RopeLink.

Energizer and Battery Errors

Buying an energizer or battery that's too weak or too small

When most folks first experiment with electric fencing, they have limited ideas about its possibilities. So they limit their investment in the energizer.

But if it works (and it does if done properly), most folks then extend the fence and then extend it further, etc.

In a short time the longer fence is too long and grass-covered for the small energizer to keep fully energized.

The same is true of batteries. The 12 amp-hr battery (right) discharges quickly when paired with this energizer without a solar panel. Use a larger battery (80 or 100 amp-hr) if not using a solar panel.



Believing the “miles of fence” claims

Even politicians aren't as misleading as many energizer claims.

So why do many manufacturers still emphasize miles? Because other manufacturers do it. They fear that, if they don't include a “miles” claim, a customer will not buy their product.

For 35 years, Premier has refused to make such inaccurate claims.

Not enough earth (ground) rods

It's hard for the less experienced to believe that 6 ft of ground rod(s) may be needed for a 2 joule unit—and 18 ft for a 6 joule unit.

Extra ground rods increase the size of the energy “collection field” of the earth terminal. This, in turn, usually increases the potential size of the pulse.

Use galvanized ground rods (rust is an insulator). Connect them properly with stainless steel clamps.

Allowing bare copper wires to touch steel wires or ground rods

If you do, corrosion by electrolysis will occur. **Result?** Poor contact and a weaker pulse. It's best not to use bare copper materials at all in electric fences. (Tinned copper is not a problem. The tin coating prevents any electrolysis.)

Most common DC battery error

Not keeping the battery charge level high enough. When a deep-cycle lead acid battery is drawn below a 40% charge, it is less able to **ever** be fully recharged.

Batteries with reduced charge levels may freeze in extremely cold weather. It pays to check the energizer batteries often—*particularly during the cold of winter*—to make sure your energizer and fence are working.

Solar Panel Errors



Not keeping the panel clean

Dirt/dust/debris/snow stop panels from recharging batteries.

Solution? Clean the panels.

Solar panels not facing the sun

A solar panel won't function at its full potential if it's not **fully facing the sun's rays** (perpendicular to the sun at midday) **for the maximum number of hours.**

Depending on the time of year and your geographical location, the energizer's solar panel angle should change from nearly flat in the summer to nearly vertical in the winter to maximize sun exposure.

Common Fencing Mistakes

Grounding out on metal or wood

When netting touches a building (or any grounded object) it can leak energy away, particularly if the building or post is metal. To avoid this, install the net 2"-3" away from the building. This will still keep out predators because the conductors are also wrapped around the end posts of the netting.



Common voltmeter mistakes

1. Not buying a good one.
I know we sell 5-light testers—but a true digital voltmeter is more accurate and informative.
2. Not using it.
Many folks wait for animals to tell them (by escaping) when the fence voltage is too low.
3. Allowing your tester or voltmeter to shock you.

Don't grab the ground probe while the tester is still on the fence (see right).

When you've finished testing the fence, remove tester from the electrified wire first. Then, and only then, pull the ground probe out of the soil. **And do not pull out the ground probe by its wire.**



Too few cut-out switches

Cut-out switches allow you to disconnect sections of fence without turning off the entire fence.

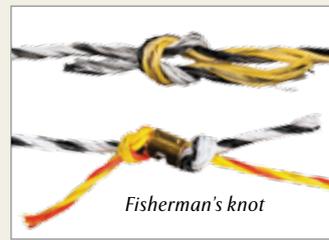
When looking for shorts in the fence, cut-out switches allow you to quickly determine which length of fence contains the problem.



Energized wires too close to barbed wire

An animal (or human) caught by the barbs could receive multiple shocks before getting away. This can kill.

To reduce risk, fences should be either all barbed and not energized or all smooth strands with energized offsets.



Fisherman's knot

Poor knots

Square knots for electroplastic conductors (twine, rope, polywire) often make poor electrical contact.

A fisherman's knot is more reliable. Adding a brass ferrule (included in net repair kits) in the center enables excellent electrical contact.



Exposing the public to "hot" fences

Always put warning signs on energized wires so visitors know they will "hurt."

Place all conductive wires on the *inside* of permanent fences so "outsiders" can't readily make contact with them.

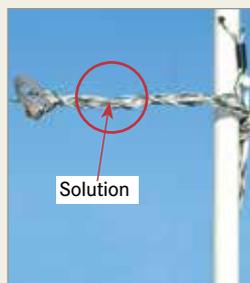
Too busy to check the fence

Though some fence designs are easier to maintain than others, problems increase and effectiveness declines without routine checking.

Once animals lose their fear (by electrified fences losing their pain-giving effect), it takes considerable extra time and effort to retrain them.

Problem:
Allowing clips to come in contact with grounded wires and posts.

Solution:
Wrap the clip back around an electrified strand on the netting to hold it in place.



Post Mistakes

Driving staples that hold HT smooth wires tight against the post

High-tensile wires need to be free to move. This enables the total length of wire to expand and contract as temperatures change and when animals or tree limbs hit the fence.



Spacing line posts in permanent fences too far apart

Those who suggest long spacing distances are describing straight HT smooth-wire fences in flat open country (not hilly country).

Much closer spacings are necessary for uneven terrain and irregular fence lines.

Common Mistakes with Netting



A common error

Allowing the lowest live strand to be caught by post's metal ground spike.

Result—a direct short through the energized strand to the metal spike and into the soil. Voltage will be very low. Animals will escape and you will be frustrated!

(left) Energized wire caught by steel spike. This creates an immediate "dead short" in the fence.

Too much green vegetation

When touching live strands, grass will drain the energy out of an electric fence.

3 Solutions: 1) Move the fence, then mow; 2) kill the grass with herbicide; 3) graze/trim the grass under offset wires.



Spraying PermaNet to reduce grass contact—

Without herbicides weeds can render netting useless by midsummer in areas with rapid grass growth. The bottom photo shows how this fence line looked 2 weeks after spraying.



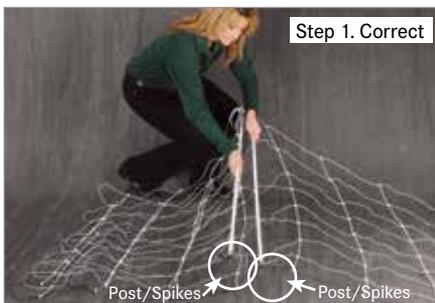
(above) To reduce green grass contact we spray a narrow strip of herbicide along netting fence lines.

How to remove/store netting



Two ways to make handling netting difficult instead of easy.

1. *(above left)* Even if you've first folded the net correctly (as in step 1 below), you can still make net "handling" difficult if you roll up the net beginning with the posts. This buries inside the black tie strings and risks entangling net with post spikes.
2. *(above right)* Rolling the net from one end to the other as you would roll a carpet. It's hard work and takes a long time—both to roll and eventually unroll.



Folding then rolling up the net the correct way...

Step 1. First fold the net by picking it up sequentially by the posts. The netting naturally folds into sections as you do this. Keep the posts together in a bundle in your hands.

Step 2. Lay the folds neatly on the ground. *Starting at the end opposite the posts, roll the folded net toward the posts.* When this is done, use the exposed end-post tie strings to secure it as a roll.

YouTube

"How-To" video on installing and properly storing net, see website.

H Brace Mistakes



Cross brace is too short and set too high—allowing end post to be pulled out of the ground by the tension of the wire fence

Common design errors

- **Angles formed by horizontal bar, end post and brace wire are wrong.** Result? The end post lifts up as you see above. Solutions? Either lower the brace bar or use a longer cross bar (10 ft or more). We now use an 8 ft long post as a brace bar as the horizontal but we set it only 36" above the soil. The brace wire attaches at the same 36" point.
- **End post too small and/or not buried deep enough.** For fences 3 to 4 ft tall, use 8" diameter end posts. Drive or set them 4 ft deep.
- **Using floating braces.** Regrettably we tried this design. They all ultimately failed.
- **Live wires touching brace wires.** When this occurs as it does when posts move (like those shown above have done), contact will occur and the fence will short out.

Other concerns

Electrified fences in contact with waterers

When this occurs the waterer may shock you or your livestock. An electrified tank of water is a hazard to both animals and humans.

Poor choice of fence

Using fences that don't match your species/climate. Example: HT fences with 2 to 3 strands may work for sheep in the damp Northwest US, but they are not effective for sheep in the Midwest when feed is short.

Inadequately training animals to the fence

Animals may run through electric fences. This is more common with energized steel wire fences—because livestock may have previously encountered nonenergized wire fences that did not cause pain.

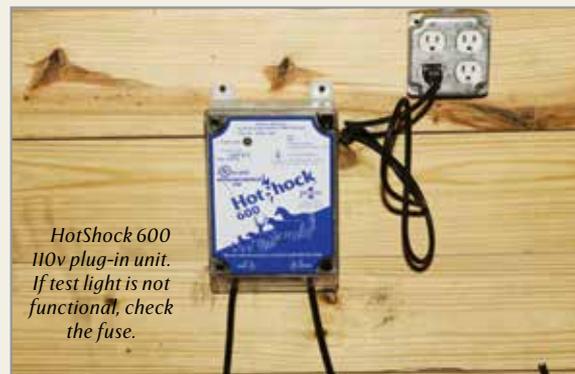
That's why it's best to build a short training fence inside a pen next to a physical barrier fence. If it's steel wire, add ribbons to the energized wire for visibility. Attract them to the "hot" wire with hay or grain.

Troubleshooting Electric Fences

Is it the energizer or the fence that's the problem?

1. To check—turn off the energizer.
2. Then disconnect the wires going to the fence and ground rod system.
3. Turn the energizer back on.
4. Then measure the voltage on the energizer between the 2 terminals (fence and earth) with a digital fence voltmeter or other fence testing device. Touch one end to the "–" earth terminal and the other end to the "+" fence terminal.
5. If the tester reads under 4000v, the energizer (or possibly the battery if it's a battery energizer) is the problem.
6. If the tester reads more than 4000 volts, the energizer is working properly and the fence is the problem.

If energizer is at fault...



110 volt plug-in unit

1. Check that the 110v outlet is "live" with a test light.
2. If the test light works and the energizer does not, call Premier. We are happy to help and will act quickly.

DC battery unit

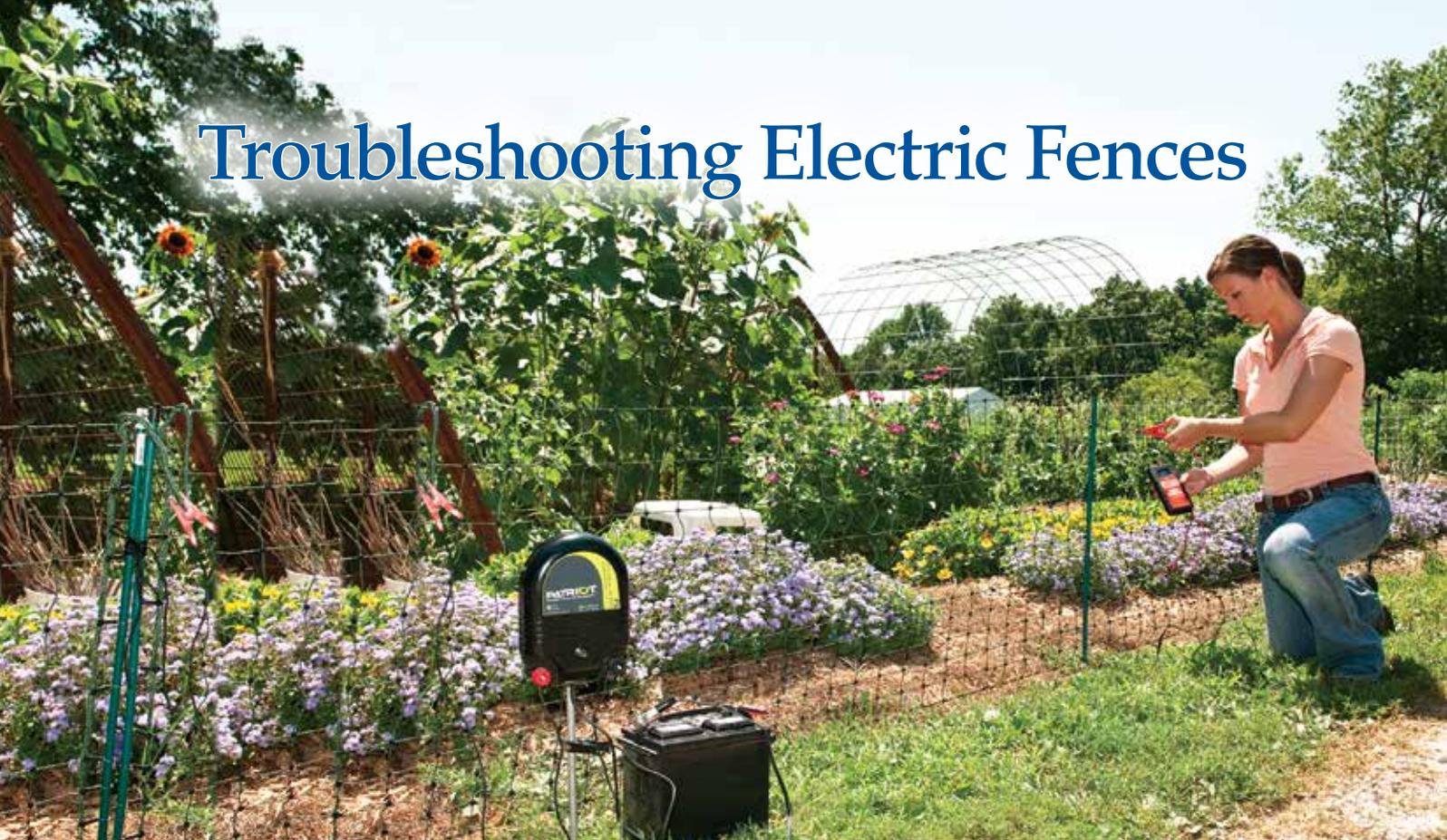
First determine whether it's the battery or the energizer that's not working.

1. If it's a 12v energizer, carry it to a nearby vehicle. Attach the input cords carefully to the vehicle's battery.
2. If the energizer works, then the energizer's battery needs to be recharged or replaced.
3. If the energizer does not work when attached to a vehicle battery, then you should call Premier about the unit.

Energizer testing mistakes

- Some testers require batteries. If the tester's battery is low, no reading or a misreading (sharp contrast in consecutive pulse voltage) will occur.
- Fault finders are unable to test fence energizers.
- If a battery energizer's light is pulsing but less than 3000v is measured across the terminals, check the battery charge level (with a digital battery tester). Energizers with undercharged batteries may produce an insufficient pulse.

Troubleshooting Electric Fences



If the fence is at fault...

How to find the fault(s)

First, re-attach the fence and ground wires to the energizer and turn it on. Then, you must walk or ride along the fence looking for situations that are reducing the voltage.

1. If you have a Fault Finder, use it. The arrow will tell you which direction the energy is flowing (leaking). Follow the fence from the energizer outward. Move in the direction of the arrow, testing as you go until you arrive at the problem.



Note: Fault Finders can tell which section of net is at fault if you touch it to the clips where 2 nets join. But they are not able to locate the exact location within a net because energy flows in multiple directions within a net.

2. If you don't have a Fault Finder (and do have a voltmeter or fence tester): Walk or drive along the fence.

a. Netting—look for:

- The lowest live strand against a post's metal spike near the soil.
- Damaged or broken strands touching the soil.
- Netting touching a wire fence or steel post.



b. HT wire, twine or rope fences—look for:

- Damaged or broken insulators.
- Any point where an energized wire touches the soil, a steel or wood post or a nonenergized wire. Separate them.
- Branches lying on the fence, forcing wires together (*at right*). Remove them.

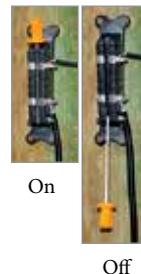


- c. Listen for snapping sounds as you walk along a fence. These occur when a conductor is close to a grounded wire, stake, tree or large green weed.

d. Separate the fence into parts by turning off switches—

if it's an HT permanent wire fence, or by disconnecting portions of electric netting.

Then progressively reconnect it, checking voltage as you do so. When the voltage suddenly drops, you've found the area with the problem.



Fence testing mistakes

- Standard multimeters are not able to test fences (fence voltage is too high). Use a fence voltmeter.
- If receiving an inconsistent fence reading, check voltmeter's battery.

"Insulated" animals

Animals/predators standing on dry soil or snow may not receive an adequate shock even when the fence is properly energized.

Why? Dry soil and dry snow act as insulators...to reduce the ability of the energizer's electric pulse to pass through an animal.

If this is the case—Pos/Neg fence connection systems or wide-impedance energizers are better adapted for such situations.