

Fencing/Energizer Trouble Shooting

Do the following checks first...

- A. Determine if the fault is with the fence or the energizer...
1. To do this, turn off the energizer (by the switch or by unplugging it from the wall socket). Disconnect the wires from the fence and ground rod.
 2. Turn the energizer back on. Measure the voltage between the 2 terminals (fence and earth) on the energizer with a digital fence voltmeter or other fence testing device.
 3. If the tester reads less than 4000 volts, the energizer (or possibly the battery if it's a battery unit) is the problem.
 4. If more than 4000 volts, the fence is the problem and the energizer is working just fine.



Instead of one large fence with one large unit, Premier's fences are divided and powered with two smaller units. They're both mounted in our barn at a site that we walk by daily.

- B. If the energizer is at fault and it's a 110 volt plug-in unit...
1. Check that the 110v outlet is "live" by using a plug-in drill or test light.
 2. If the test light works and the energizer does not, call Premier ASAP.
- C. If the energizer is faulty and it's a battery unit you need to learn if the battery or the energizer is the problem...
1. If it's a 12 volt energizer carry the unit to a nearby vehicle. Attach the input cords carefully to the vehicle's battery.
 2. If the energizer now works, then your fencer's battery needs to be recharged or replaced.
 3. If the energizer does not work, then you should call Premier re. repairs.
- D. If the fence is at fault, then you must find the fault(s) and fix them. Here's how to start this process...
1. If you have a fault finder you can simply touch the fence with the Fault Finder at various points along the

electric fence(s). The Fault Finder will tell you at each point which direction to go in to locate the problem. Move in that direction testing as you go and you will arrive at the problem.

2. If you lack a Fault Finder...
 - a. Walk or drive along the fence looking for any point in which the energized wires touch the soil, a steel post or a steel wire. On HT wire fences, check the wires at braces to see if they are touching a hot wire. On netting, look for a hot wire touching the metal stake at the bottom of the plastic posts. Also look for damaged insulators.
 - b. If the fence can be separated into several parts (by switches or by disconnecting parts of it), you can locate the problem by beginning at the far end and then progressively turn off or disconnect the sections of fence. When the voltage on the remaining fence rises sharply, you've located the section(s) that's causing the problems.
 - c. The alternative to (b.) is to begin at the fencer and progressively turn on sections of the fence. When the voltage suddenly drops you can assume that the problem is in the section most recently connected.



Using a Fault Finder to check a fence. Fault finders are very useful because they indicate which direction to look for problems. But their voltage readings are less consistent than digital voltmeters. Also, they are not able to check an energizer disconnected from a fence.

Installation errors...



Most electric fence problems are due to lack of attention to detail. Insulator was installed upside down which allowed the narrow tape to drop out of the insulator. Will result in leakage on wet mornings. Some insulator designs prevent this from occurring.



Illustrates 2 errors.
1) The user was insulating barbed wire which is a serious safety risk.
2) This farm store insulator was too weak to withstand the up and down pressure/impacts. Most users do not appreciate the strains that occur in the field.



Installation error—allowing an energized wire (second wire from the bottom) to be caught by the metal ground spike. Result—a direct short from energizer through the fence to the spike and into the soil. Voltage is low or nonexistent. Animals will escape.

A Few Final Fence Notes

- Lightning strikes can cause energizer failure. So even if you don't check voltage levels daily, always do so after a storm.
- Always check and repair flood gaps after rainstorms.
- High winds can "drop" trees and limbs across fences (even wire physical barrier fences) and cause them to fail. So drive/walk/ride your fences as soon as you can.
- Never crowd animals (with dogs, ATV's or horses or sticks) against a fence unless it's designed to take this without harm to the fence and the animals.
- All fences, be they permanent or temporary, are animal behavior control devices. Their value at improving animal husbandry is no better than the person who uses them.
- For fences to provide optimum value, knowledge of soil, grass and animals is also needed. The "magic" occurs when one can use, integrate and work with all three. This is a journey without an end.

To Reduce Risk and Liability...

Reduction Methods/Options

Remember the following:

- *Never touch an electric fence wire with your head or upper torso (see photo below right).*
- *Never allow anyone else to touch a modern electric fence. It is not a game!*
- *Instruct all visitors & children to never do so.*

1. For reasons not fully understood, contact with the spine and head is much worse than contact with hands, arms or legs.
2. Most experts agree that **smaller energizers are inherently a little safer than large ones** (as long as animal control is not put at risk). So always use smaller energizers (measured in output of joules) on fences near children and untrained adults. To do so, change either the fence design or your management to reduce the weed-to-wire contact.
3. **Never connect 2 energizers to one wire** at the same time.
4. **Make the fence as visible as possible to both humans and animals.** How? By using conductors and posts that can be readily seen both day and night, and against both light and dark backgrounds. That's why Premier has focused for so long on white/black conductors—to provide contrast. Most other fence outlets worldwide are now following our lead.
5. **Never energize barbed wire.** Animals can become entangled.
6. With high-joule energizers, reduce the peak available energy on wires near children or untrained adults with a 500-ohm resistor.
7. **Hang warning signs** on the fence at critical areas where children or untrained adults will encounter it (see inset photo at the right).
8. **Where practical, do not energize wires less than 12 in. above the soil.** Why? To allow humans that might contact a wire enough space to fall away (by gravity) from any energized wires.
9. Ensure that **all energized wires are on the inside of your boundary fence** (ensuring that anyone who touches them without your permission is a trespasser). For boundary fences, you can achieve this with internal energized offset wires.
10. The shock from electric fences can panic animals that may in turn crash into fences (or people), resulting in injury to

one or both. Horses have been known to rear and throw their rider—resulting in injuries to both.

To reduce this risk:

- a. **Build only nonelectric fences along horse trails, around livestock corrals and surrounding feedlots.**
 - b. Reduce the available volts and joules on fences that enclose very small areas (e.g., night enclosures), thus reducing panic and stress.
11. **Consider using HoriSmart fence energizers.** Why? Because, as we've also noted elsewhere in this booklet, HoriSmart units include unique circuitry that measures the ever-changing "drain" from a fence (due to weeds & moisture) and from that, limits the energizer's output to only enough to stop animals. This is especially valuable if:
- a. Your fence, or part of it, will be near the public or uninformed visitors (trails, schools, bridledpaths, etc). Fences of this type inherently have a greater liability potential.
 - b. Your fence will be used in the winter when there is no weed load—and the potential energy available to any touching the fence is much more than is needed to deter animals.
 - c. Your fence will be exposed to high green-weed loads in the spring/summer and therefore needs to an energizer with high joule outputs.

HoriSmart
Energizer



Are electric fences a serious safety risk to humans?

Because touching an electric fence leaves a vivid and painful memory and the voltages are also high, most assume that the risk to life and limb must also be high.

But consider that hundreds of thousands of people are "exposed" to electric fences every day throughout the developed world—**yet electric fences cause less than one human death per year worldwide.**

Compare that to the annual injuries and deaths that occur from exposure to tractors, skid loaders, ladders, PTO shafts, bales, mowers, combines, bulls, stallions, etc.

This is not to suggest that there is no risk. There is. And with risk, there is also liability to the fence owners.



(above) This photo illustrates what **NOT** to do! Never place your head near an electrified wire. Accidental head or neck contact can occur when pushing a voltage probe into the soil or when checking voltage. Be very careful when you do so to avoid head-to-wire contact!