

Re: Repairing Lightning Damaged Tv's

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From: Sunny (*sunny_at_nospam.net*)

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w_tom wrote:

- > *Protection is always possible. Ham radio operators in the*
- > *early 1900s would suffer damage. They disconnected the*
- > *antenna. Still suffered damage. They placed antenna lead*
- > *into a mason jar. Still suffered damage. They earthing the*
- > *incoming antenna wire. Damage stopped happening.*
- >
- > *Damage occurs whenever the direct strike finds a path to*
- > *earth ground inside building via the appliance. Incoming on*
- > *antenna wire. Outgoing via speaker wires to earth ground via*
- > *concrete floor or by being draped on adjacent baseboard heat.*
- > *Your situation may vary.*

I personally installed the electric service at my cottage 20 years ago, in accordance with all Canadian electrical codes in effect at the time. IIRC, earthing involved banging two 8' rods into the ground several feet apart and connecting them to the neutral bus-bar inside the fuse panel, and also running a cable from the same bus-bar to the cold water plumbing. The phone company installed the phone service, which enters the building beside the electric meter, but I don't know if/how they effected earthing. The only other incoming wire is from the TV antenna, on the opposite side of the building, which currently has no earthing.

I would be grateful if you could explain, in laymans terms, what further steps I could take to protect my cottage electrical equipment from lightning strikes – since unplugging doesn't work.

I have no reason to doubt your assertion that protection is always possible, but I am having some difficulty translating your advice into practice.

Thanks,

Sunny

>

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- > *But this we have always understood. Protection works when*
- > *all incoming wires are earthed to a single point ground. That*
- > *means all utility wires must enter building at same location.*
- > *That means the single point earth ground must be the best*
- > *earthing for that building.*
- >
- > *Your phone already makes that earthing connection using a*
- > *'whole house' protector inside the premise interface box.*
- > *Phone cannot work if earthed directly. So a protector makes*
- > *the temporary earthing connection; earthing wire only during a*
- > *surge. Your cable needs no protector. But cable needs*
- > *connection to protection. Cable connects directly to the*
- > *single point earth ground before entering building to earth*
- > *incoming transients.*
- >
- > *Earthing is why effective protection works. The single*
- > *point earth ground. And yet 30 years after the transistor is*
- > *ubiquitous, we still don't build new buildings as if the*
- > *transistor exists.*
- >
- > *AC electric routinely enters without connection to earth*
- > *ground. Again, this utility requires a 'whole house'*
- > *protector such as from Home Depot (Intermatic IG1240RC). And*
- > *– of course – your building's single point earth ground may*
- > *not yet exist. Older buildings often had no single point*
- > *ground. The building owner may need to upgrade or exceed*
- > *earthing requirements of the current National Electrical Code.*
- >
- > *No earth ground means no effective protection. The naive*
- > *assume nothing can protect from lightning even though it is*
- > *done annually in virtually every town. Remember the lessons*
- > *from early ham radio operators. Earthing is still necessary*
- > *to avoid damage. Protection is only as effective as its earth*
- > *ground.*
- >
- > *Sunny wrote:*
- >
- >> *w_tom wrote:*
- >>
- >>>...
- >>> *Protectors are effective when they make the 'less than 10*
- >>> *foot' connection to earth ground. Called 'whole house' type*
- >>> *protectors. That is what a utility installed protector does*
- >>> *IF your building has been wired to post 1990 code requirements*
- >>> *for earthing. A utility typically does not even check that*
- >>> *your earthing exists. Household earthing being the*
- >>> *homeowner's responsibility; not utilities. No earth ground*
- >>> *means no effective protection even from that utility provided*
- >>> *protector that typically costs a very expensive \$5 per month.*
- >>>...
- >>> *Bottom line: a protector is only as effective as its earth*

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>>>ground. Something that plug-in protectors fear you might
>>>learn and avoid mentioning.
>>
>>
>>Unplugging is unreliable even when the human is available and
>>paying attention. I recently lost an expensive stereo and TV due
>>to a direct hit about 20 feet from my cottage. The equipment was
>>unplugged prior to the strike, but I didn't think to disconnect
>>the speaker cables and antenna...
>>
>>An extension cord lying disconnected on the ground outside
>>writhed like a snake and now has neat holes burnt through the
>>outer casing at exactly 27" intervals.
>>
>>I doubt protection is possible under those circumstances – but I
>>did catch 3 nice sized Northern Pike for dinner with my bare
>>hands as they floated past the dock, stunned :-)