

January 11, 2021 LeeCARES Net Training: Anderson Power Pole Failure

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This is KI5ABB. Tonight's training is on Anderson power pole failures.

During my last training I experienced a radio failure before I could finish my talk. This was an exceptionally good learning experience for me in planning ahead to have alternatives available for a backup. Unfortunately, my current budget is not cooperating with my wish list...

My initial diagnosis was that my radio was overheating. After diagnosing my equipment, I found that an Anderson power pole on my main power supply feed was shorting out and overheating, thereby disconnecting the power to my radio.

I have found that several factors have contributed to my consternation. The first being on a minimal budget and buying the cheap knockoffs instead of the Powerwerx brand connectors. The second was using whatever crimpers I had available and lastly, not checking the connections properly before putting them into service. Here is some of what I have learned along the way.

The quality of assembly can greatly affect the performance of any connector. Extreme care should be used during assembly. If crimped, the proper crimp tool and the proper pin should be used.

Poorly assembled connectors can lead to a high resistance joint which can result in overheating of the connector or failure over time from movement or vibration.

There are two common problems with the Anderson style connector. One is the pin being incorrectly installed in the housing. Typically, this is caused by pin deformation from an incorrect or improperly used crimp tool. The other is the crimp quality caused from an incorrect or improperly used crimp tool.

Always make sure to crimp Andersons parallel. If the resultant rectangular crimped shape is not parallel with the tab of the connector, you can have (sometimes even intermittent) issues.

This is one of the benefits of using the official Powerwerx Tri-Crimp. It has a slot for the tab end of the connector which ensures that the crimp is within a few degrees of square with the tab, square enough to allow proper insertion in any case.

Inspect the pin after crimping to verify that the crimp looks good and the pin is not deformed. When the pin is inserted into the housing, verify that it locks into the housing as designed and there are no external forces pushing or moving the pin out of its designed location within the housing. After assembling the connector, you should do a pull-test on each crimp/connector immediately after it is done to make certain the crimp is secure. A dab of solder can be added to further secure the connection.

What we do not want to see is a solder cup crushed down with VISE grips, an Anderson crushed down with pliers, an Anderson crimped with a crimper from AutoZone, or an Anderson made for 16ga stuffed with a 12ga wire. A lot of connector failures can be attributed to one of the above exaggerations.

In the future, I will be much more meticulous when assembling my connectors and pay closer attention to maintaining the integrity of the connector shape to ensure the best connection possible.

This concludes tonight's training. This KI5ABB. Back to Net Control.