According to the battery discharge graph from the data sheet and the testing performed in lab, the system should last around 90 minutes. However, when tested with full load, our system only lasts around 40-45 minutes. This could be caused by the inverter constantly restarting every 3 minutes, but that does not seem to be the most likely reason. One possibility is that the battery itself is overused and therefore discharges faster than expected. This would explain the shorter run time, but not the inverter failure. The most likely possibility is that the VAC itself is requiring more wattage than specified in the data sheet. This would cause the inverter to fail because it would not be rated for that amount of continuous wattage, and it also explains why the run time is so much shorter than expected.

Our pure sine wave, 1000w inverter was chosen based on the suggested 10-20% allowance, drawing 824w at 7.2A according to the data sheet. This should have given enough allowance for the continuous wattage draw as well as peak wattage, since the inverter can handle up to a peak of 2000w. However, this does not agree with testing, since the inverter seems to fail every 3 minutes and restart the VAC. This lines up with the possibility of the VAC drawing more power than the datasheets suggests, which would also explain the system’s short run time.