UFS Corporation
330 North 400 East
Valparaiso, IN 46383-9704 USA
PH: 219-464-2027 FAX: 219-464-8646
www.ufsc.com
email: service@ufsc.com

Service Reference

Topic: High Voltage, or Fluctuating Voltage Condition

Please read carefully before performing work or unpacking any further

Required Materials

- See below…

Required Tools

- Flashlight

High voltage is a problem condition that exists either for a very short period of time or maybe since start up. In some cases there may be another ED system that is able to operate at a lower voltage, but with mostly the same load and paint characteristics. In some cases, the voltage readout varies without any direct change by the operator.

On the other hand, if there has been a gradual increase in the required voltage, say over the period of months or years, then these instructions may not be too helpful. A good analogy to use, as a guide, is to follow the current and analyze each potential for resistance and determine if it has increased or not.

Please read all the instructions listed below to familiarize yourself with the project before attempting to perform any of the work.

Intermittent voltage changes

1. Check to make sure the DC rectifier is not set to operate a 'constant current', where the voltage is increased up or down in order to keep the current at a constant level.
2. Does the DC rectifier have a current limiter? If so is the voltage being reduced in order to limit current?
3. Is sufficient AC current being delivered to the DC rectifier from the sub station?
4. Is it time to perform a PM on the DC rectifier control system?
5. Verify the voltage meters are functioning properly.
6. Is there an electrical component that is heating up unusually, which may cause a poor connection? When it is allowed to cool down the connection is restored and the voltage can be lowered.

High voltage condition

1. Check all the items shown above.
2. Look at cabling between DC rectifier and the bus bar system inside the ED enclosure. Are there loose joints? Look for signs of heat stress. Remember electrical components hat up as parts go through the ED system and cool off during line strips when no parts are being painted.
3. Look at the connections between the bus bar system and the Membrane Electrode Cells and Bare Electrodes. Are the joints tight and free of corrosion?
4. Make sure the Membrane Electrode Cells are full of electrolyte fluid at all times. If the Cells are only half full then there should be a pronounced ED film build on the bottom

side of the ware. Is there evidence of biological growth in the electrolyte?

5. Consider the following ED paint parameters; conductivity (is less than before), temperature (is less than before), % solids (is less than before), and wet film resistivity (is more than before). Generally, if there has been a significant change in one of these parameters, then the voltage will probably remain high until the condition that caused the parameter to change is gone from the ED bath.
6. Is there a change in the zinc phosphate crystal (usually more) growth that results in less surface conductivity?
7. Is there a change in the surface conductivity of the metal substrate?
8. Are the ware hangers dirty, or have poor electrical contacts?
9. How do the ware hangers contact the grounding shoes? Is there sufficient contact force?
10. Check the cabling between the grounding bus bar and the DC rectifier.

For more information see the original manual that came with the equipment or else call UFS at the phone number shown above.