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Unico 2400 Drive Systems Preventative Maintenance Suggestions

Power Off Examination and Procedures

CAUTION! Unico drives have storage capacitors that can hold a charge for several minutes after power is removed. For safety, wait 5 to 10 minutes after power has been turned off and proper lock out and tag out procedure has been performed. Then, use a DVM to measure across the +B and -B leads to ensure that there is no remaining DC voltage in the units before attempting any maintenance. Persons performing these tasks should be experienced with high voltage equipment and proper lock out / tag out procedures.

1. Vacuum drive and other assemblies with power off.
2. Verify that connections on modules are tight with power off.
3. With power off, examine power connections to DSP modules, which are in the upper right hand corner.

Basic Checks with Power On

4. Apply power. Verify that all fans (if present) are operating and not blocked by dust.
5. Verify + / - 15 VDC and + 5 VDC on DSP board is no less than 15.00 V and that the + 5 VDC is no less than 5.00 VDC
6. On larger drives, there is a separate 15 V power supply for the gate driver supplies. These are located in the power section. These should measure between 15.8 VDC to 16.0 VDC. If they are lower, the supplies should be adjusted. The easiest method is to remove 3 phase high voltage to the charging unit and all drives, but allow 110 V power to remain. Then measure voltages on these supplies. If they are low a potentiometer on the supply should be adjusted to bring this voltage up.

Archiving

It is very important to have a back-up archive for each inverter or convertor. This is a file containing all the parameters in each device. The archive is initially taken on initial commissioning after the system is in running order. If changes in any set up are made, new archives should be uploaded and dated. These should be stored in a safe place.

The archives are taken using a cable kit such as the Unico # 714-070. This connects a common PC USB port to an inverter. In addition, a Unico program called PC TERM or UEDIT LITE is needed. PC TERM can be downloaded from the Unico web site at no charge at: <http://www.unicous.com/downloads> . Uedit Lite has some additional features and can be purchased by contacting a Unico Sales Office. Documents explaining how to archive 2400 drives and other Unico products can be found in our [Tech Help Document Page](#). For further assistance you can also contact our support team at: support@unicous.com.

Long Term Recommendations

1. After about 10 years the battery in the NVRAM chips on the UNICO DSP modules may lose their charge, and then stored parameters are lost. It is recommended that at this time the NVRAM chips be changed. Contact Unico to order the correct NVRAM chip for each inverter or convertor you have. They will need the UNICO SO number or part numbers for the DSP boards to get the correct chips. Prior to changing these chips, make absolutely sure all current set ups have been archived, available and up to date.
2. After about 8 to 10 years, the power electrolytic capacitors that are in the invertors, convertors, charging units, regen units, and additional capacitor banks will become depleted. At that time, we recommend changing them all. We do not recommend partial changes because this has caused serious premature failures due to poor voltage sharing between old and new.
3. After a number of years there have been reports of oxidation in power connectors causing intermittent failures. The power connectors on the upper right hand corner of the DSP modules have experienced the most issues. Besides doing a visual inspection, another method of identifying these oxidation issues is to measure the +/- 15 V and 5 V DC levels at the connector and the alternate on module test points. If there is a difference of more than about .01 V there may be an oxidation issue. The connection points can be cleaned with a product like Deoxit – or if bad enough the connectors can be changed.