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### **Notice Regarding Electrolytic Capacitors**

Unico drives, like others, use electrolytic capacitors for energy storage. There are some important matters to consider with electrolytic capacitors.

#### Life

In operation, the typical life of these capacitors is about 7 to 10 years. At that time, it is recommended that all capacitors on a given DC bus be changed at one time. This includes capacitors in all drives, auxiliary capacitor banks, and the charging or regen unit. We do not recommend partial changes, as this has been shown to cause more severe problems because of improper sharing between old and new capacitors.

The recommended method of replacing these is to send these in. Our repair department can arrange a "rush" repair to minimize downtime. This also provides an opportunity to install important updates and address other common age related issues like corrosion at connection points.

However, we do realize that with some systems it may be difficult to send the units in. If that is the case, Unico can supply the parts for an on - site change out. The customer can then decide if they would like to change these themselves or have Unico on site for this change.

#### Forming

Capacitors that remain idle as they would in storage need to be "reformed" if they have been sitting more than one year. The ideal process for this is to charge capacitors slowly (typically with a variable transformer) and allowing them to rest with power applied for at least one hour before running drives. As most our customers do not have access to a variable transformer, and alternate method is acceptable. Power should be applied as normal, but the drive should be allowed to remain idle for at least one hour. After that it is recommended that drives be run at reduced speed and current for the first few hours.

#### NVRAM Chips

Unico drives also use NVRAM chips to store non volatile memory. These typically last about 8 to 10 years so it is not a bad idea to change these out at the same time as electrolytic capacitors. For more on this matter, please see the separate bulletin on this.