

Maintenance Inspections

Operating Non-Solid and Solid Aluminum Electrolytic Capacitors

Explanatory Notes

1. Before periodic inspections, disconnect the main power supply of the device, discharge any electricity by applying a resistor of approximately 1k(Ω) across the terminals of the capacitors, and then remove the capacitors from the device for testing. Please note the following when handling capacitors:
 - Insufficient discharge may cause an electrical shock.
 - Do not use a metallic tool, such as a wrench, for shorting the terminals when discharging the capacitor.
 - Shorting the terminals may cause sparks and an electrical shock strong enough to affect the human body and cause a more serious accident.
 - Confirm the polarity of the capacitor before performing other tests by using a volt-ohm meter or similar measuring device. Avoid mechanical stress on the lead wires or terminals when performing tests.
 - Wear gloves for the inspections. Capacitors may be hot or have been recharged spontaneously by the recovery voltage phenomenon.
2. Replace capacitors that have reached the end of their service life. Make sure the replacement capacitors have the correct performance ratings and polarity originally specified for the circuit design. If any one of the replaced capacitors is series or parallel-connected, replace all the capacitors for the reasons stated in section 3.
3. When replacing all the old capacitors that have been connected in series or parallel, use capacitors with the same ratings as the old ones, and make sure that their leakage current and capacitance values are equalized. When the leakage current and capacitance values among capacitors are different, the imbalance of the voltages/currents across the capacitors may cause overvoltage/current and damage one or more of the capacitors.
4. If there is electrolyte residue on the PC board, clean the board with an alcohol-dampened cloth before mounting new capacitors. Since the electrolyte is a conductive liquid, it may erode or short circuit the copper traces.

Precaution

1. Make periodic inspections of capacitors that have been used in devices for industrial applications. The following items should be checked for the periodic inspections:
 - Significant damage in appearance: venting, electrolyte leakage, etc.
 - Electrical characteristics: leakage current, capacitance, $\tan \delta$ and other specified characteristics in the product literature.
2. If damaged or electrically deteriorated capacitors are found, replace them according to the specified procedures.