

Electrical Equipment Maintenance Frequencies - Based on CSA Z463-18 Guideline on Maintenance of Electrical Systems

Table M.13

Power Factor Correction (PFC) Capacitors and Reactors

Legend:

x = a test or inspection should be performed
 y = factory testing should be performed
 - = factory testing not required
 n/s = not specified; testing frequency is at the discretion of user
 n/a = not applicable
 a/n = as needed

Maintenance activities	Type of equipment — Tests to be performed						Maintenance priority		
	Individual motor capacitors	Switchable capacitor banks	Liquid-filled capacitors >750V	Capacitor control devices	Dry-type reactors	Liquid filled reactors	Minimal Frequency	Good electrical practice	Optimized program for critical or severe-duty Applications
Inspect the capacitor for leaks, bulges, and discoloration	X	X	X				36	12	6
Verify that there is adequate ventilation (fans, filters, etc.)	X	X	X	X	X	X	36	12	6
Verify that the switchable PFC unit has reached its power factor (PF) target, and verify that setpoints have not changed		X		X			-	12	6
Manually increase and then lower the capacitance on switchable units		X		X			-	12	6
Infrared thermography while the equipment is in service and carrying load	X	X	X	X	X	X	12	6	3
Water-cooled thyristor heat sink — inspect and lubricate pumps and motors periodically		X					12	6	3
Replace water filters and deionizing cartridges		X					12	6	3
Requiring specialized training, equipment, and safety precautions									
Measure insulation resistance on each capacitor (from phase to ground only)	X	X	X				-	12	6
Measure capacitance of all terminal combinations (phase to phase only)	X	X	X				-	12	6
Measure the internal or external discharge resistor	X	X	X				-	12	6
Measure current on each phase of each capacitor (fuse check)	X	X	X				-	12	6
Clean the case, bushing, and connections	X	X	X		X	X	12	12	6
Tighten all power connections	X	X	X	X	X	X	12	12	6

- (1) Prior to testing ensure that all requirements for safe access to the equipment are met [e.g., permits, safety hazard and risk analysis]
 (2) The following safety concerns and precautions should be taken into consideration:
 (a) Residual voltages can persist longer than expected due to faulty discharge resistors.
 (b) Residual voltages cannot be detected using ac meters due to harmonics. Use only true rms meters to obtain accurate values when replacing a controller. The current transformer (CT) output must be shorted to prevent high voltages or a CT explosion.
 (c) Never open a CT connection without first verifying that current is not flowing through it.
 (3) The information shown above is based on: CSA Z463-18 Guideline on Maintenance of Electrical Systems and is not necessarily identical to the source.