Power Precision

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

Table M.4.2

Disconnect and Circuit Switchers

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 level, months		
	Disconnect switches	Circuit interrupter switches	Minimal Frequency	Good electrical practice	Optimized program for critical or severe-duty applications
Exercising (open/close operation only)	X	X	60	36	12
Visually inspect switch alignment while manually opening and closing the switch	X	X	60	36	12
Infrared thermography while the equipment is in service and carrying load	X	X	36	12	12
Verify that the nameplate data match the applicable drawings and studies	X	X	60	36	12
Perform visual inspection	X	X	60	12	12
Check to ensure that the ground bus is securely connected to the main ground bus or grid	X	X	60	36	12
Check all hardware for loose connections; check for missing hardware, pins, clips, phase barriers, ect.	X	X	60	36	12
Check the phase barriers, phase to phase and phase to ground, to ensure that clearances (in accordance with CSA C22.2 No. 31) are not compromised	X	X	60	36	12
Inspect insulators for cracks	X	X	60	36	12
Verify that the breaker/cell anti-condensation heater is working	X	X	60	36	12
Inspect the drive linkage and operating assembly for proper lubrication	X	X	60	36	12
Compare fuse data to the single-line diagram (SLD)	X	X	60	36	12
Check the clamping force of the fuseholders with the fuses in the holders to ensure that the fuses are solidly held in place	X	X	60	36	12
Check that the door cannot be opened with the switch in the closed position	X	X	60	36	12
With the door open, ensure that the switch cannot be closed	X	X	60	36	12
Ensure Kirk® key operation	X	X	60	36	12
Requiring specialized training, equipment, and safety precautions					
Measure contact/pole resistance	X	X	60	36	12
Trip testing using the shunt trip device	X	X	60	36	12
Measure insulation resistance (megger) for 1 min (bolt-in)	X	X	60	36	12
Measure insulation resistance (megger) for 1 min (draw-out)	X	X	60	36	12
Measure contact/pole resistance	X	X	60	36	12
Verify connection tightness (line and load side)	X	X	60	36	12
Remove arc chutes and inspect them	X	X	60	36	12
Power factor or dissipation factor tests (line and load side)	X	X	60	36	12
Clean and dust to allow heat dissipation and prevent tracking	X	X	60	36	12
AC hi-pot testing across poles and between phases/ground	X	X	60	36	12
Inspect for signs of corona, tracking, or thermal damage	X	X	60	36	12
Opportunities					
Standardize breaker types and sizes					

(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) Older switches can contain asbestos arc chutes, which require special handling procedures.
(b) Switches can contain stored energy, which can harm workers when the switches are operated.
(c) If test data differ significantly from recommended values for equipment of similar make, remove the equipment from service.
(d) Opening and closing operations cause loud noises. Hearing protection should be worn.
(3) The information shown above is based on: CSA Z463-18 Guideline on Maintenance of Electrical System and is not necessarily identical to the source.