

Chart for commissioning, in-service, after system fault and after internal fault

Maintenance Test			Liquid filled free breathing Power Transformer			
	Article	Name	¹ Commissioning	² In-Service	³ After protection trip due to system fault	⁴ After protection trip due to internal fault
Main Tank						
Dry gas filled	Annex D	Dew Point	Rec	N/A	N/A	N/A
		Tank Pressure	Opt	Opt	Opt	Ree AN
	6.6.2	Vacuum	Rec	Opt	Opt	Rec
Measurements must be made with fluid in transformer tank	6.3	Oil Quality Tests and DGA ⁵	Rec	Rec	AN	Rec
	Annex E	Furan Test	Opt	Opt ⁵	Opt	Rec
	6.2.6	Insulation Resistance	Rec	AN	AN	Rec
	6.5.2	Core Ground Test	Rec	AN	AN	Rec
	6.1.3	Excitation Current	Rec	AN	AN	Rec
	6.1.4	Leakage Reactance (Impedance)	Rec	AN	AN	Rec
	6.1.2.2	Turns Ratio (all DETC taps)	Rec	AN	AN	Rec
	6.1.6 Annex A	PF/ Tan-Delta	Rec	AN	AN	Rec
	Annex F	Frequency Response	Ree Opt	AN	AN	Ree AN
	6.2.1	Winding Resistance(after FRA) demag	Ree Opt	AN	AN	Ree AN
	Annex C	Infrared	N/A	Rec	N/A	N/A
	Annex G	Dielectric Frequency Response	Opt	AN	AN	Opt
	6.1.7	Induced Voltage	Opt	AN	Opt	Opt
6.2.8	Partial Discharge	Opt	AN	Opt	Opt	
Bushing						
		Continuity and phasing	Rec	N/A	N/A	Rec
	6.2.4	PF/ Tan-Delta	Rec	AN	AN	Rec
	Annex C	Infrared	N/A	Rec	N/A	N/A
		Contact Resistance	Opt	N/A	N/A	Opt
Load Tap Changer						
	6.3	Oil Quality Tests & DGA for LTC on all DETC	Rec	Rec	AN	Rec
		Motor Current Signature Analysis for LTC	Rec	AN	AN	Rec
		Contact continuity for LTC	Rec	AN	AN	Rec
		Infrared for LTC	N/A	Rec	N/A	N/A
		Vibration and Acoustic Measurement for LTC	Opt	Opt	Opt	Opt
		Dynamic Voltage Testing for LTC	Opt	Opt	Opt	Opt
Ancillary Equipment						
		Gauges calibration	Rec	Rec	Opt	Rec
		Gas Pressure Relay Calibration	Rec	Rec	Opt	Rec
		Pressure Relief Vent	Rec	Rec	Opt	Rec
	6.6.3.1	Cooling Fan Controls	Rec	Rec	Opt	Rec
	6.6.5	Cooling Pump Controls	Rec	Rec	Opt	Rec
		Bushing CTs	Rec	AN	AN	AN
		Arresters	Opt	Opt	Opt	Opt

Rec = Recommended

AN = As Needed based on the Rec Test results

Opt = Optional based on the As Needed test results

N/A = Not applicable

¹Newly installed or repaired units prior to energization

²Condition-based maintenance practice – Oil quality, DGA and Furan Tests shall be carried out at a regular interval and necessity of all other tests shall depend on the assessed condition for free breathing power and distribution transformers. For hermetically sealed distribution transformers the first round of tests after commissioning shall be time based and thereafter the frequency shall depend on the assessed condition.

³After tripping of transformer due to system faults such as overcurrent.

⁴After tripping of transformer due to internal faults such as differential tripping (before repair).

5 Furan Testing Recommended for GSU and units operated above nameplate.