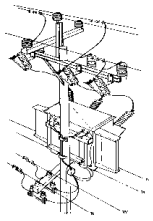
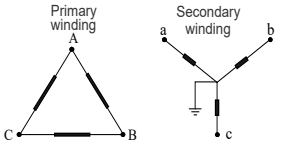
DISTRIBUTION COMMISSIONING FORM (DCF) 3.4 – Three phase pole mounted transformer commissioning



Purpose: This instruction covers the testing and commissioning of all replacements or new installations of three-phase pole-mounted distribution transformers up to 315 kVA before energisation. For more information refer to the *Distribution Commissioning Forms Guideline (EDM 34137510)*

Notes: The following tests and checks must be carried out after installation and before the transformer is put into service.



Address/Pole No.		**Work Package No.**	
Manuf. Serial No.		**SPIDAWeb Pick ID:**	

1. Pre-Installation Checks

Complete these checks and tests before connection.	Test before the HV and LV and N-E connections are made. Ensure that the 'Disconnected earth electrode' earth resistance test (DCF 4.1) has been completed with acceptable results (<30 Ω) prior to commissioning.				
Test	Test Connection	Test Voltage	Resistance	Expected Results	
Insulation resistance test on the transformer winding (Short circuit all winding terminals of the source of the same voltage level together.)	Primary/HV to tank	2.5 kV	Ω	>1 GΩ	
	Primary/HV to secondary/LV	1 kV	Ω	>100 MΩ	
	Secondary/LV to tank	1 kV	Ω	>100 MΩ	

2. Installation and Construction Checks

Inspect the following: • rating plate • tap setting • tank and bushings • oil level • wiring Installation • neutral connection • N-E connections	Transformer matches system voltage.	☐
	Transformer tap is at the position as per network planning (new installations) or as per the tap switch position in item 3 of the decommissioning work instruction (for replacement transformers).	☐
	Transformer bushings and tank in good condition (no oil leaks).	☐
	Oil level satisfactory (if visible).	☐
	Transformer installed as per construction standards and applicable design drawings. Perform transformer connections.	☐
	Neutral connected and earthed and N-E link connected.	☐
	All SPIDAWeb labels fitted and numbered correctly as per SPIDAWeb sheet.	☐
	LV lead connections to the transformer LV bushings are correct as per construction standards (as per manufactures for new connection) or phase indicator tags (recommissioning).	☐

3. Energisation of Transformer without Load

• Check that the transformer LV is not connected to the LV network. • Check the HV fuse rating before energising the transformer HV. • Conduct the voltage and phase rotation test once the transformer is energised.	Open all LV fuse ways, including the transformer disconnector.				☐
	Check if HV fuses are correct. Record the fuse rating: A				☐
	Energise the transformer HV as per the HV switching program (and check for abnormal noise). Record the switching program number:				☐
	Conduct a voltage and phase rotation test on the LV side of the transformer, preferably at the LV disconnectors or fuse-way, and record the results below.				☐
	R to N V	W to N V	B to N V	Phase-to-neutral voltages (226–254 V)	
	R to W V	W to B V	B to R V	Phase-to-phase voltages (390–440 V)	
	Phase rotation test (123/ABC/RWB)		Phase rotation test result:		

4. Phase Out Test

Phase out at points of interconnection between other transformers to ensure interconnections can be made. Expected results are given. **Record test results**	Conduct the phase-out test: • If the LV conductors are energised from an interconnected transformer, conduct the phase-out test at the new transformer's LV disconnector or fuse box. • If the LV conductors are not energised, proceed to item 5 (ENERGISATION OF THE NETWORK WITH LOAD) and conduct the phase-out test on normally open points where it can be interconnected from another transformer.				
		R	W	B	N
	R	0	415	415	240
	W	415	0	415	240
	B	415	415	0	240
	N	240	240	240	0

5. Connecting the Transformer to the network

• Carry out the LV switching program and return the LV network to its original operating configuration. • Perform a voltage test to recheck the voltage.	If applicable, ensure all short-circuiting equipment is removed from the LV network.				☐
	If applicable, check that the LV fuses are correct. Record the fuse rating: A				☐
	Energise the LV circuit in accordance with the LV switching schedule. Record the switching schedule number:				☐
	Ensure that the LV network is returned to its normal operating configuration. If applicable, ensure that the LV circuits are not interconnected with any other transformers and are supplied only from the supply transformer.				☐
	Conduct a voltage test on the LV disconnector or fuse box of the new transformer to ascertain that the transformer supply is within statutory limits during load conditions and record the results below.				☐
	R to N V	W to N V	B to N V	Phase-to-neutral voltages (226–254 V)	
	R to W V	W to B V	B to R V	Phase-to-phase voltages (390–440 V)	
	Conduct a service connection test on all installations where the service connections have been disturbed.				

6. Handover of Responsibility

I hereby certify that all items have been completed with satisfactory results and transfer control to the network operating authority.			
Commissioned by		BNA	
Signature		Date & Time	

1. Ensure the work area is left tidy with no hazards to the public.
2. Hand over responsibility to the operating authority.
3. The completed form must be returned to the project file/work pack.