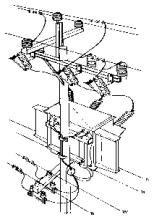
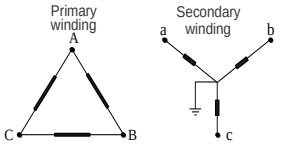
DISTRIBUTION COMMISSIONING FORM (DCF) 3.4 – Three phase pole mounted transformer commissioning



Purpose: This form covers the testing and commissioning of all replacements or new installations of three-phase pole-mounted distribution transformers up to 315 kVA.

For more information refer to the *Distribution Commissioning Manual*.

Note: The following tests and checks must be performed using test instruments within their calibration date and performed before the transformer is put into service.



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

1. Pre-Installation On-Site Checks

Complete these checks and tests before connection.	Test before the HV and LV and N-E connections are made. For new installations, 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	
Short circuit all winding terminals of the same voltage level together. Insulation resistance test on the transformer winding (Test for 1 minute).	Primary/HV to tank	2.5 kV	Ω	>1000 MΩ	
	Primary/HV to secondary/LV	1 kV	Ω	>100 MΩ	
	Secondary/LV to tank	1 kV	Ω	>100 MΩ	
Insulation tests performed on site by:	Name			BNA	
	Signature		Date and time		
Note: Energise the transformer on the same day as the insulation tests, if not possible test again before energising.					

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 labels fitted and numbered correctly as per labelling standard and confirmed against SPIDAWeb.	
	LV connections to the transformer LV bushings are correct as per construction standards 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 disconnectors, including the transformer disconnector. Confirm no short-circuits on LV side of transformer.				
	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 FSDO, 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. Connecting the Transformer to the network

• Follow the LV switching program and return the LV network to its normal state. • Confirm voltages are within statutory limits.	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.				

5. Phase Out Test results (Where applicable)

Conduct a phase-out test (Nominal voltages listed)	Test across the LV open point to confirm that interconnections can be made safely. **LV open point ID:**			
	R	W	B	N
R	(0V) V	(415V) V	(415V) V	(240V) V
W	(415V) V	(0V) V	(415V) V	(240V) V
B	(415V) V	(415V) V	(0V) V	(240V) V
N	(240V) V	(240V) V	(240V) V	(0V) V

Conduct a phase-out test (Nominal voltages listed)	Test across the LV open point to confirm that interconnections can be made safely. **LV open point ID:**			
	R	W	B	N
R	(0V) V	(415V) V	(415V) V	(240V) V
W	(415V) V	(0V) V	(415V) V	(240V) V
B	(415V) V	(415V) V	(0V) V	(240V) V
N	(240V) V	(240V) V	(240V) V	(0V) V

Conduct a phase-out test (Nominal voltages listed)	Test across the LV open point to confirm that interconnections can be made safely. **LV open point ID:**			
	R	W	B	N
R	(0V) V	(415V) V	(415V) V	(240V) V
W	(415V) V	(0V) V	(415V) V	(240V) V
B	(415V) V	(415V) V	(0V) V	(240V) V
N	(240V) V	(240V) V	(240V) V	(0V) V

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	

Notes: Bolts and screws in all electrical connections across the Western Power network must be properly tightened. All lug crimps confirmed intact visually or with a pull test.

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.