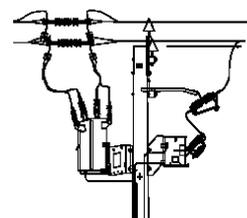


DISTRIBUTION COMMISSIONING FORM (DCF) 4.3 – Nu-Lec Pole Mounted Automatic Control Recloser



Purpose: This form covers the testing and commissioning of all replacements or new installations of Nulec pole mounted automatic reclosers before energisation.

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

Address/Pole No.			
Work Package No.		SPIDAWeb Pick ID:	

1. Pre-Installation Checks

Earth resistance test and LBS nameplate	Ensure that the earth resistance test (DCF 4.1) has been completed with acceptable results (<30 Ω) prior to commissioning.	
	Ensure that switch rating matches the system voltage. Note: Three-phase reclosers with internal voltage transformers (identified by three nameplates) can only be removed under an electrical access permit; an insulation resistance test between V1 and W1 is not applicable.	

2. Insulation Resistance (single phase)

Test Type	Bushings	Test Results	Acceptable Results
With the recloser in the OFF position, use a 5 kV insulation resistance tester. Measure the resistance after 1 minute of testing.	Between contacts X & I	MΩ	Not <100 MΩ
	Short-circuit all bushings and test simultaneously to tank	MΩ	

3. Insulation Resistance (three phase)

Test Type	Bushings	Test Results	Acceptable Results
With the recloser in the OFF position, use a 5 kV insulation resistance tester. Measure the resistance after 1 minute of testing.	Supply side	U1 red to V1 white	MΩ
		V1 white to W1 blue	MΩ
		W1 blue to U1 red	MΩ
	Load side	U2 red to V2 white	MΩ
		V2 white to W2 blue	MΩ
		W2 blue to U2 red	MΩ
	Between contacts	U1 red to U2 red	MΩ
		V1 white to V2 white	MΩ
		W1 blue to W2 blue	MΩ
	Short-circuit all bushings and test simultaneously to tank.	Bushings to tank	MΩ
Note: When a Nulec pole-mounted automatic control recloser is closed, the insulation resistance between contacts of the same phase (U1-U2, V1 – V2 and W1-W2) should be zero.			

4. Installation

Recloser	Check the recloser for damage, tank, bushings, cracks in boots and excessive dirt.	
	For relocated reclosers, all the HV boots must be removed, cleaned and repacked with silicon grease. Ensure the boots are filled fully with silicon grease and that no air gaps or moisture are present.	
	Ensure the bushing palms and the lugs have the correct torque: Three-phase [Palms x 70 Nm Lugs x (1 hole 60 Nm) (2 holes 44 Nm)] Single-phase [Lug x (1 hole 30 Nm)].	
	Check that all the HV lightning arresters have bird caps fitted and are tightened correctly.	
Structure	Check that the construction complies with the distribution construction standards and applicable design drawings.	
	Check that the anti-climbing guards and danger plate are fitted and correctly numbered.	
	Check that all the connections (including the recloser and control cabinet) are properly connected and bonded to earth.	
	Check the maximum separation between the down earth and the recloser umbilical cable.	
	Check that the pole is labelled correctly.	
Control cabinet	Ensure the 240 V white thermal plastic sheath is continuous up to the circuit breaker and stripped minimally to terminate the active and neutral conductors. Install or run the 240 V thermal plastic sheath cable behind the gear tray (without a conduit). The earth in the thermal plastic sheath cable can be cut as it need not be connected.	
	Check that the antenna surge diverter is fitted at the base of the control box.	
Antenna	Check that the antenna is aligned to the correct bearing (applicable radio comms only) and installed correctly (with elements vertical and drain hole down). Antenna pole brackets with open slotted fixing holes are not permitted.	

5. Energisation

Structure	Where an automatic control recloser can be connected to the distribution network, phase out under Network Operations switching schedules at a HV point such as a pole-top switch.	
	Ensure that the switch is in the correct position (open or closed) as per the switching program or network configuration.	
	Energise the switchgear as per the switching program and network configuration.	
	Remove all bypass jumpers (if applicable).	
	Disable/disconnect the trip and close coils and the communication device (radio, etc.).	
	For testing purposes, use an effective earthed reference point spaced more than 2 meters from any electrically conductive object embedded in the ground. Energise the control box and conduct a polarity test on the 240 V supply.	
	Check and ensure that the control unit indication matches the switchgear status.	
	Check for any signs of abnormality.	

6. Handover of Responsibility for the Completion of Items 1-5

I hereby certify that items 1 to 5 have been completed with the above results and transfer control to the network operating authority.			
Commissioned by		NAC	
Signature		Date & Time	

1. Lock the control unit doors using two approved (NMK2) padlocks. NK6 padlocks must not be reused.
2. Attach an "Out Of Service (Warning)" tag to the padlock on the front of the control cabinet.
3. Inform Network Operations of the status of the switchgear.
4. Ensure the work area is left tidy with no hazards to the public.
5. Hand over responsibility to the Field Services (Primary Response Group) for the commissioning of alarms and remote controls.

7. Alarm and Control Testing

Setting the controller	Secondary Distribution Network Access Request number:	
	Ensure that the correct controller firmware is used.	
	Ensure that all the indications from the controller are normal.	
	Ensure that all the required settings have been installed.	
Perform the following tests in coordination with NOCC:	Name of the Network Operations controller assisting the commissioning:	
	Enable/connect the communication device (radio, etc.).	
	Check that all the alarms and controls tested to Network Operations have been successful.	
	Phase fault, earth fault and sensitive earth fault detection settings have been recorded by the network controller.	
	Ensure the analogues (I, V, kW & kVAR) have been recorded by the network controller.	
	Enable/connect the trip, close coils and check operation.	
Remove the "Out Of Service (Warning)" tag from the padlock on the front of the control cabinet.		

8. 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		NAC	
Signature		Date & Time	

1. Ensure the work area is left tidy with no hazards to the public.
2. Hand over responsibility to Network Operations.
3. Return this form to the project file folder and file as a record of commissioning.
4. After the on-site project officer signs off on this DCF, send a scanned copy to the relevant manager: the construction manager (for work performed by Western Power employees); the service manager (for contractors).