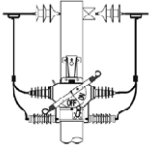


DISTRIBUTION COMMISSIONING TEST SHEET – LOAD BREAK SWITCH/SECTIONALISER
HPC-4DL-07-0013-2014



This commissioning test sheet covers the checking, testing and commissioning of all replacement or new installations of load break switch (LBS)/Sectionalizer before energisation.

NOTE: Tests must be carried out after the installation, alteration or repair and before putting back to service.
SAFETY: At all times maintain suitable clearance to all other electrical equipment and verify planned escape routes.
 In preparation for the tests, wherever possible, disconnect the conductors from the equipment on both sides and make the area safe.

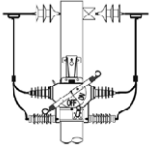
DATE:		Project No.		Name of Officer	
Load Break Switch Location:					

1. LOAD BREAK SWITCH/SECTIONALISER DESCRIPTION

Rated Voltage	kV	Label/GIS ID code	Stock code	Serial Number	
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2. VISUAL INSPECTION AND SAFETY CHECK

Inspect the following: <ul style="list-style-type: none"> • Structure • Control Cabinet • Antenna • Earth connections 	1	Check that the installation complies with the distribution construction standards and applicable design drawings.	<input type="checkbox"/>		
	2	Check that Public Safety has been considered (e.g. cabinets secured and locked, trip hazards removed, anti-climbing devices applied where applicable).	<input type="checkbox"/>		
	3	Check the supply to the load break switch, that it is switched off and isolated (this includes the auxiliary power supply to control box).	<input type="checkbox"/>		
	4	Confirm that the load break switch is de-energised (with approved testing device).	<input type="checkbox"/>		
	5	Ensure that the earth system is complete, undamaged and bonded to earth points (LBS and control cabinet).	<input type="checkbox"/>		
	6	Check that the nearest conductive material is at least one (1) metre away from the earth system (take a photo if possible)	Measured distance	m	<input type="checkbox"/>
	7	Load break switch voltage rating matches system voltage: RL27 for 11 & 22 kV; RL38 for 33 kV			<input type="checkbox"/>
	8	Check that the anti-climbing guards and danger plate are fitted and correctly numbered			<input type="checkbox"/>
	9	Check that the antenna surge diverter is fitted at the base of the control box (if applicable).			<input type="checkbox"/>
	10	Check that the antenna is aligned to the correct bearing (applicable to radio comms only) and installed correctly (with elements vertical and drain hole down). Antenna pole brackets with open slotted fixing holes are not permitted (if applicable).			<input type="checkbox"/>
	11	Check that auxiliary power supply cable (2.5 mm) has been connected correctly and has suitable surge diverter applied.			<input type="checkbox"/>
	12	Check the control unit and batteries for signs of damage.			<input type="checkbox"/>
	13	Attach switch instruction/information including logbook to inside of control unit.			<input type="checkbox"/>
	14	All labels fitted and numbered correctly			<input type="checkbox"/>



3. EARTH RESISTANCE TEST

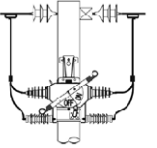
1	Test earth resistance using one of the following DCT's and record value in 3.4.	<input type="checkbox"/>
2	New earth stake, use HPC-4DL-07-0038-2017 DCT- Earth Testing of Distribution Poles, to test the earth.	<input type="checkbox"/>
3	Existing earth stake, use HPC-4DL-07-0037-2017 DCT- Earth Testing of Altered Systems, to test the earth.	<input type="checkbox"/>
4	Previous test value if known = _____ Ω Measured value = _____ Ω Value acceptable Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Measured value would be acceptable if below 30 Ohms or a value between 0.8 and 1.2 which is obtained when dividing the Measured value by the Previous test value. Note: If previous test value is not known a value less than or equal to, 30 Ohms is acceptable.	<input type="checkbox"/>
5	Earth stake resistance above 30 Ohms or outside of an acceptable value must be communicated to the formal leader or Asset manager.	<input type="checkbox"/>

4. INSULATION RESISTANCE AND CONTINUITY TEST

Type Test	Contact Position	Test Connection	Expected Results	Test Results
Insulation resistance test: Use a 5 kV insulation resistance tester. Measure resistance after 1 minute	Closed position (check indicator position to confirm)	Red (I) phase to white (II) phase	>100 MΩ	MΩ
		Red (I) phase to blue (III) phase	>100 MΩ	MΩ
		White (II) phase to blue (III) phase	>100 MΩ	MΩ
		Red (I) phase to tank	>100 MΩ	MΩ
		White (II) phase to tank	>100 MΩ	MΩ
		Blue (III) phase to tank	>100 MΩ	MΩ
	Open position (check indicator position to confirm)	Red (I) phase to red (X) phase	>100 MΩ	MΩ
		White (II) phase to white (XX) phase	>100 MΩ	MΩ
		Blue (III) phase to blue (XXX) phase	>100 MΩ	MΩ
Continuity test: Use and insulation resistance tester.	Closed position (check indicator position to confirm)	Red (I) phase to red (X) phase	0 Ω	Ω
		White (II) phase to white (XX) phase	0 Ω	Ω

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		Blue (III) phase to blue (XXX) phase	0 Ω	Ω
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Confirm load break switch has been discharged after each test.

5. ENERGISATION

Ensure that all working earths and programmed earths are removed (if applicable)

<p>Conduct a phase-out test under HPCC switching schedules if the conductors on both sides of the switch are energised from different feeders. Use appropriate phasing devices to ensure that phases on the left side of the switch are in phase with those on the right side of the switch.</p>	Connections		Phase-out Test Results	
	Red to	Red	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
		White	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
		Blue	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
	White to	Red	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
		White	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
		Blue	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
	Blue to	Red	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
		White	In phase <input type="checkbox"/> yes <input type="checkbox"/> no	
Blue		In phase <input type="checkbox"/> yes <input type="checkbox"/> no		

Ensure that the switch is in the correct position (open closed) as per the switching program or network configuration.

Energise the switch as per the switching program and/or network configuration.

Remove all bypass jumpers (if applicable).

Disable or disconnect the trip and close coils, comms device (radio etc...).

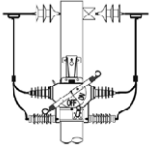
Energise the control box and conduct an insulation/polarity test on the 240 V supply and the 240 V surge arrester.

Ensure that the control unit indication matches the switches status.

Check for any signs of abnormality.



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6. HANDOVER OF RESPONSIBILITY FOR THE COMPLETION OF SECTIONS 1 TO 5

I hereby certify that sections 1 to 5 have been completed with satisfactory results and transfer control to the commissioning officer.

Commissioning Officer: _____ Pay Number: _____
Signature: _____ Date: DD/MM/YY Time: HH:MM

1. Lock the control unit doors using two approved (NMK2) Western Power 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 HPCC of the status of the switch.
4. Ensure that the work area is left tidy with no hazards to the public.
5. Hand over responsibility to the Field Services for the commissioning of alarms and remote controls.

7. ALARM AND CONTROL TESTING

The Field Services Officer shall conduct test of the alarms and control appropriate for the unit.

I hereby certify that alarm and control testing been completed with satisfactory results. This equipment is ready to be **SAFELY** energised.

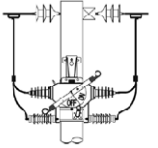
Field Services Officer: _____ Pay Number: _____
Signature: _____ Date: DD/MM/YY Time: HH:MM

Notes:

Not applicable – control box not fitted with LBS / Sectionaliser



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This commissioning test sheet covers the checking, testing and commissioning of all replacement or new installations of load break switch (LBS)/Sectionaliser before energisation.

8. OPERATIONAL HANDOVER

The commissioning officer must ensure that all checks are completed and the test results comply with the minimum standards.

I hereby certify that all sections have been completed with satisfactory results and transfer responsibility to the network operating authority. This equipment is ready to be **SAFELY** energised.

Commissioning Officer: _____ Pay Number: _____
Signature: _____ Date: DD/MM/YY Time: HH:MM

1. Ensure the work area is left tidy with no hazards to the public.
2. Hand over responsibility to the operating authority.
3. Return this sheet to the project/working file as a record of commissioning and as a document required for the Handover Certificate.