Power Transformer Pre-Commissioning Checklist

S.No	Description	Observation	Remarks
A	**Confirm the following tests are carried out and results are satisfactorily**		
1	Voltage Ratio Test.		
2	OLTC continuity check.		
3	Exciting current measurement.		
4	Short circuit test		
5	Magnetic balance test		
6	Tan δ and capacitance measurement of transformer windings and bushings		
8	Testing of vector groups (in the case of a lead connection on site)		
9	Insulation Resistance and PI value		
10	BDV and moisture content of oil in main tank and OLTC		
11	Protection testing of 110kV CTs		
12	Testing of HV LV Neutral CTs		
13	Testing of a) Over current & E/f protection relays b) Differential relay c) HV & LV REF relays d) Master trip relay and other aux. relays e) Indication meters f) Annunciation g) All protection and annunciation schemes		

	including Trip circuit supervisions		
B	**Following shall be checked and confirmed**		
	Oil samples from main tank and OLTC passed BDV requirement		
1	Test-tap Bushing taps are completely tightened.		
2	Bushing surface are cleaned		
3	Oil-level in the main conservator is up to the mark		
4	Oil-level in the OLTC conservator and in the main conservator is up to the mark.		
5	Oil level in the HV bushings are checked		
6	Colour of oil in the HV bushings		
7	Air released from all LV, LV neutral & HV neutral bushings		
8	Shut-off valves on both sides of Buchholz-relay are opened and closed the bye-pass valve of the buchholz relay		
9	All Air-release plugs/valves is closed		
10	Arrow-head in the Buchholz-relay points towards the conservator		
11	Checked the LOCK/SERVICE selector of Buchholz relay (main tank) is in SERVICE		
12	Checked the LOCK/SERVICE selector of Buchholz relay (OLTC) is in SERVICE		

13	O S R/ Buchholz relay of the OLTC shut-off valve is open.		
14	Colour of the silica gel in the OLTC breather is blue		
15	Oil-Bowl in the Main breather is filled with oil		
16	Colour of the Silica Gel in the Main-Breather is blue		
17	OSR Arrow-head points towards the conservator		
18	Trapped air has been released from radiators, Buchholz Relay, Plain porcelain bushings etc.		
19	Oil is filled in the OTI & WTI Pockets		
20	Explosion-Vent diaphragms (if any) are intact		
21	Oil doesn't leak anywhere.		
22	Oil-filling cap on the main conservator is duly fitted		
23	All sampling Drain and Fitter valves are closed		
24	All the Radiator valves (Top and Bottom) are open		
25	Tank is earthed		
26	Neutral-terminal is duly earthed (Incase of solid earthing system)		
35	Rollers are locked (If any)		
36	Rails are earthed		
37	Core grounding is OK (if grounded externally)		
38	CT Secondary terminal if not wired, are shorted and earthed		

39	Alarm, Trip, Cooler actuation contacts of OTI&WTI are set		
40	External connections are duly tightened		
41	Checked working of fans in manual and auto mode		
42	Checked operation of STANDBY fan on failure of group fans		
43	Checked the operation of the concerned aux. relays, tripped the 86 relay, and indicated on the relevant windows on the functioning of: a) WT trip (by shorting) b) OT trip (by shorting) c) PRV (main trip) (by operating the lever) d) PRV OLTC trip (by operating the lever) e) Buchholz , main trip (by shorting) f) OSR trip (by shorting) g) WT trip (by rotating the disc of WTI) h) OT trip (by rotating the disc of OTI) i) Buchholz , main trip (by draining oil) j) OSR trip (by draining oil)		
44	Checked operation of concerned aux. relays and annunciations on the concerned windows on the operation of a) OT alarm (by rotating the disc of OTI)		

	b) WT alarm (by rotating the disc of WTI) c) Buchholz alarm (Main) (by shorting) d) OSR alarm (OLTC- if wired) (by shorting) e) MOG alarm by shorting f) Buchholz alarm (Main) (by draining the oil) g) OSR alarm (OLTC- if wired) (by draining the oil) h) Fan failure alarm		
45	Operational checks on OLTC Lubricated the mechanism as required Checked the raising of TC on raising command and lowering of TC on lowering command		
46	Checked the MANUAL operation of TC Checked the LOCAL electrical operation of TC Checked the REMOTE electrical operation of TC Checked the interlock on Upper limit and lower limit Checked the non electrical operation of TC, when operating handle is inserted. Confirmed the TAP indication positions on the RTCC panels (01 to 11) for lowering and raising Checked the functioning of "EMERGENCY" push button on RTCC panel		

C	Checks on CB		
1	Checked the LOCAL/ REMOTE closing of CB		
2	Checked the LOCAL/ REMOTE tripping of CB through TC1		
3	Checked the LOCAL/ REMOTE tripping of CB through TC2		
4	Checked the Protection tripping of CB through TC1		
5	Checked the Protection tripping of CB through TC2		
6	Checked the Post close TC supervision of TC1		
7	Checked the Post close TC supervision of TC2		
8	Checked the Pre close TC supervision of TC1		
9	Checked the Pre close TC supervision of TC2		
10	Checked the operation of anti pumping relay		
11	Checked the non-operation of CB (closure, tripping via TC1, TC2) during lockout condition.		
12	Checked the spring fail alarm		
13	Verified the actual trip of the CB during the functioning of the 86 relay.		
14	Checked OPEN & CLOSE timings of the CB		
15	HV test on CB		
16	Measurement of contact resistance		

D	Protection Checks		
1	Checked the operation of 86 relay on the operation of Over current, earth fault, differential, HV REF , LV REF etc by current injection		
2	Checked HV side 86 to LV CB inter tripping (directly to LV CB trip coil)		
3	Checked LV REF to HV 86 inter tripping		
4	Checked the proper operation of the both CBs during intertripping from HV to LV and LV to HV		
5	Checked semaphore indications for CB and isolator closures and openings		
6	DC fail annunciation		
7	AC fail annunciation		
8	Checked all indication meters such as ammeters, voltmeters, MW, MVAr etc		
9	Testing of TOD meter		

E	Defect List		
1			
2			
3			

Site Engineer **Commissioning Engineer**

(Name & Signature with Date) **(Name & Signature with Date)**