

BHEL JHANSI, TRE DEPARTMENT**ANNEXURE-A****GENERAL REQUIREMEN
FOR IN TANK ON LOAD TAP CHANGER****1. OLTC AUX. SUPPLY REQUIREMENT**

- (a) ON LOAD TAP CHANGER MOTOR : 415V,3PH,50Hz.AC
 (b) ON LOAD TAP CHANGER CONTROL : 110V,1PH,50Hz.AC
 (DRIVED FROM 415 THROUGH AN
 AUX. TRANSFORMER OF 415/55-0-55V,500 VA
 RATING TO BE PROVIDED INSIDE THE OLTC
 LOCAL DRIVE UNIT BY THE OLTC
 MANUFACTURER.)
 (c) THERMOSTATIC CONTROL : 240V,1PH,50Hz,AC.
 HEATING AND LIGHTING

2. OLTC CONTROL REQUIREMENT:

- a. LOCAL MECHENICAL MANUAL (CRANKE DEVICE)
- b. LOCAL ELECTRICAL MANUAL
- c. REMOTE ELECTRICAL MANUAL
- d. REMOTE AUTO
- e. PARALLEL TRANSFORMER OPERATION.

High speed on load changing gear with number of step as specified on the data sheet shall be provided and mounted on the transformer. The OLTC gear shall have diverter resistance and the current diverting contacts shall be housed in a separate oil chamber segregated from the main tank of the transformer. The contacts shall be accessible for inspection and their tips shall be replaceable.

OLTC oil chamber shall have oil filling, drain and sampling facility. It shall be provided with Oil level indicator, connection orifice, PRV as per requirement given in individual work order at the time of placing purchase order.

OLTC wherever called for shall be suitable for bidirectional power flow.

OLTC shall be provided with local and remote controls.

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2.1 LOCAL CONTROL

a) Manual-Mechanical Control

The cranking device for operation of the OLTC gear shall be removable. The mechanism shall be complete with normal accessories including at least the following: -

- A mechanical tap position (Rated tap voltage shall be marked on the diagram plate)
 - Mechanical operation counter.
 - Mechanical stop to prevent over cranking of the mechanism beyond extreme tap position
- ### b) Electrical Control circuit shall incorporate the following:
- i) Local/remote manual electrical operation.
 - ii) Device to ensure a positive and full completion of tap change once it is initiated even if there is loss of power.
 - iii) An interlock to cut-off electrical control automatically upon recourse being taken to Manual mechanical control in emergency
 - iv) Electrical interlock to cut-off a counter impulse for a reverse tap change, being initiated during a progressive tap change and until the mechanism comes to rest and resets circuits for afresh operation.
- ### v) All auxiliaries and devices for electrical control of OLTC gear should be housed in a Weather-proof cabinet mounted on the transformer and shall include:
- Local tap position indicator
 - 5digit operation counter
 - Cubicle lighting
 - Thermostatically controlled space heater
 - Miniature circuit breaker with magnetic and thermal overload devices for controlling the incoming supply to the OLTC motor.
 - Padlocking arrangement for the hinged cabinet door.
 - Removable plate with cable gland.
 - Inside tag with control scheme indelibly marked.

3. **POTENTIAL FREE CONTACTS FOR FOLLOWINGS:**

- | | |
|--|-------|
| (a) OLTC MOTOR PROTECTIVE SWITCH TRIP- | 2NO |
| (b) OLTC REACHED AT LOWEST POSITION- | 2No. |
| (c) OLTC REACHED AT HIGHEST POSITION- | 2No |
| (d) TAP CHANGE IN PROGRESS- | 2No. |
| (e) OLTC CONTROL SUPPLY 110V AC FAIL- | 2 No. |
| (f) OLTC CONTROL ON LOCAL & REMOTE- | 2No. |

SINGLE PHASE PREVENTER WITH PHASE REVERSE INTERLOCK FACILITY *

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4. RADIAL SWITCH & CCU REQUIREMENT:

6 NOS. RADIAL SWITCHES SHOULD BE PROVIDED AS PER FOLLOWING DETAILS.

- I) 1 NO. MBB SWITCH WITH 1000+/-1%OHM PER STEP RESISTANCE ASSEMBLY FOR REMOTE TAP POSITION INDICATOR.
- II) 1 NO. MBB SWITCH WITH RESISTANCE ASSEMBLY FOR 2No. 4-20mA DC OUTPUT THROUGH CCU MOUNTED IN OLTC MOTOR DRIVE UNIT FOR TPI.
- III) 1 NO. MBB SWITCH FOR PARALLEL OPERATION.
- IV) 1 NO. MBB SWITCH CONTACTS FOR SUPERVISORY CONTROL, WHICH WILL USE FOR REMOTE INDICATION OF EACH AND INDIVIDUAL TAP POSITION BY HARD WIRED. .
- V) 1 NO. MBB SWITCH CONTACTS FOR TPI FOR UPPER/ LOWER LIMIT REACHED.
- VI) 1 NO. MBB SWITCH CONTACTS FOR PASSAGE OF MID POINTS.

5. PAINTING

EXTERIOR: PAINT THICKNESS 70 TO 100 MICRON.

PAINT DETAILS & SHADE: AT THE TIME OF ORDER PLACEMENT (AS PER WORK ORDER)

6 .ACCESSORIES TO BE SUPPLIED LOOSE:

- a) OIL SURAGE RELAY WITH PIPE ELBOWS FOR OSR, SUCTION WITH EACH OLTC, BEVEL GEAR, DRIVE SHAFT, SHAFT GUARD FOR ALL SHAFT ALONG WITH OLTC MOTOR DRIVE UNIT.(THE HEAD VARIANT, SWIVELLING RANGE & CABINET HINGE WILL BE INFORM LATER ON CASE TO CASE BASIS .
- b) MANUAL OPERATING HANDLE.

7. OTHER ACCESSORIES IF REQUIRED IN WORK ORDER

- a) . OLTC PRV
- b) . TIE IN RESISTOR

8. WIRING OF LOCAL MOTOR DRIVE UNIT:

THE WIRING OF LOCAL MOTOR DRIVE UNIT TO BE WIRED AS PER OUR SCHEMATIC DRG. WHICH SHALL BE FURNISHED AFTER AWARD OF CONTRACT FOR OUR APPROVAL.

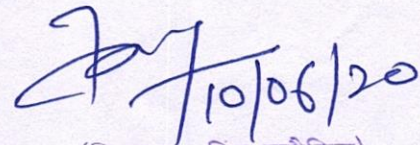
9. TESTING OF OLTC:

9.1 ALL ROUTINE TEST REQUIRED AS PER IS/IEC (FREE OF COST)

9.2 TYPE TEST CHARGES (IF REQUIRED TO BE DONE ON INDIVIDUAL OLTC).

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- 9.3 SPECIAL TEST REQUIRED –
- a) OLTC MOTOR CURRENT SIGNATURE TEST-
 - b) VACCUM HELIUM AND GAS LEAK TEST.
 - c) IP-55 TEST ON OLTC MDU.
10. **DOCUMENTS AND DRAWINGS REQUIRED WITH OFFER:**
- (a) ALL TYPE REPORTS AS PER LATEST REVISION OF IEC 60214.
 - (b) OVERALL DIMENSION DRG. OF OLTC. OLTC MOUNTNG ARRANGEMENT, OSR, BEVEL GEAR, HEAD VARIANT, OGA OF MOTOR DRIVE UNIT, SHAFTS ARRANGEMENT.
 - (c) PHASE DIAGRAM OF OLTC.
11. **AFTER AWARD OF CONTRACT:**
- (a) FINAL LOCAL DRIVE UNIT WIRING DIAGRAM DRG. 3 NOS. OF ZEROX PRINT IN OUR TITLE BLOCK FORMAT.
 - (b) MAKE AND TYPE OF ALL EQUIPMENTS ALONG WITH THEIR OVERALL DIMENSIONS AND ELECTGRICAL CONNECTION DIAGRAM.
12. **WITH CONSIGNMENT:**
- (a) INSTALLATION, OPERATION AND MAINTENANCE OF MANUAL IN TEN COPIES WITH EACH OLTC.
 - (b) TESTS CERTIFICATE IN TRIPLICATE.



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