

# Erection Procedure for Power Transformer



*Erection of power transformer (by Entel Energoprojekt in Abu Dhabi Distribution Company, 33KV & 11KV Network for Ghuzlan Island)*

This technical article deals with [transformers](#) and *their installation* so we restrict ourselves here to the procedures associated with their [commissioning](#). Transformers should be inspected for internal or external damage, particularly if they have been dropped or tipped over.

**This should include such items as:**

1. Drain valves, selector switches,
2. Conservator tanks,
3. [Buchholz relays](#) and
4. Winding temperature indicators.

All transformers must be tested for [winding insulation resistance](#) and the readings confirmed as acceptable.

However **HV D.C. tests** on a cable connected transformer cannot be done because the windings of the transformer short out the d.c test set.

If between-core tests are required on transformer feeder cables after installation **then a link box must be provided to disconnect the cable from the transformer windings**. If transformer covers are taken off to achieve internal disconnection the tools used must be clean and secured externally by white tape so that they may be recovered if inadvertently dropped.

All nuts and washers must be **accounted** for and all operatives should be asked to empty their pockets while working over the open tank.

Waterproof covers should be provided **during the period when the transformer tank is open**. If it is not possible to disconnect the cables after jointing they must be tested beforehand. This means that the jointing and testing programme must be carefully planned to avoid leaving cable ends unsealed for long periods.

**Transformer diagrams** should be inspected and the phasing diagram confirmed as correct. Also before energising, the voltage selector must be set on the **appropriate tapping** having regard to the voltage level of the system.

Transformers which are to operate in parallel must be set on the same tapping and they should be checked as having the same impedance. Voltage selectors should be locked in their set position and if they are of the 'off-circuit' type they must not be adjusted without the supply being first switched off. Earthing arrangements for the tank and the neutral or other system earthing must be confirmed and completed before testing and commissioning.

Where special tests for losses, ratio, phase angle or winding resistances are specified the assistance of the manufacturer should be sought.

**The following points should be checked on the particular type of transformer as appropriate:**

## Oil immersed naturally cooled (ON)



*Erection of oil immersed transformer*

Ensure that the **oil level is adequate** and that **breather tubes are clear**. Commission **silica gel units** by removing the airtight seals from the cannisters and **filling the oil sealing-well to the correct level with transformer oil**.

The **colour of the silica gel** must be checked and the filling changed if it shows dampness (red for wet, blue for dry).

## Dry-type transformers



*Erection of dry-type power transformer*

As [dry-type transformers](#) are more susceptible to external damage they must be carefully handled and stored on site.

They must also be kept in a ***dry, warm atmosphere*** until they are put in service, ***to prevent ingress of moisture.***

***Satisfactory insulation tests*** are imperative before commissioning. Because they are wholly dependent on surface radiation and air convection for cooling, they must be checked for any accumulation of dust or dirt which can block the air ducts and reduce the flow of air. Cleanliness is essential, particularly where the connection leads leave the windings and at the terminal supports. Damp dust leads to tracking and causes expensive damage.

It is particularly important to check such transformers for dust in package substations which may escape the notice of commissioning staff.

***Resource:*** *Handbook of Electrical Installation Practice – Eur Ing Geoffrey Stokes* ([Get it from Amazon](#))

Source:

<http://electrical-engineering-portal.com/erection-procedure-for-power-transformer>