

ELECTRICITY DEPARTMENT

(GOVERNMENT OF GOA)

DISTRIBUTION TRANSFORMER

SERVICE - BOOK

SOME DO-NOTS ABOUT THE DISTRIBUTION TRANSFORMERS

- (i) Never allow transformer to be overloaded more than 5 to 10%
- (ii) Always avoid unbalance loading on phases.
- (iii) Never use fuses higher than the prescribed rates on HT and LT sides. The prescribed ratings of the fuses for HT and LT are given below.

	HT (11KV)	LT	
Transformer Capacity	Size of HG Fuse in amps.	Size of TC Fuse wire in SWG	Size of TC Fuse wire in SWG upto 100. A
25 kVA	1	38	21
50 kVA	2.5	33	18 or 2 of 20
63 K VA	3	33	2 of 20
100 k VA	5	32	140 amps HRC
160 k VA	7.5	30	225 amps HRC
200 k VA	10 A	26	280 amps HRC

- (iv) Earthing connections should never be done in loose manner, simply twisting of GI wires would be dangerous. The earthing connections should as far as possible be done by using continuous wire or by providing suitable connectors. It should be ensured that these connections are tightened rigidly.
- (v) Never keep the breather pipe open or exposed.
- (vi) Never charge the transformer with voltage more than primary voltage rating.
- (vii) Do not ignore safety rules during maintenance work of distribution transformers.

Location Code	Year of Issue	Manufg. Company	Origin (Area stores)
Item Code			

TRANSFORMER SERVICE-BOOK

1. This transformer service book shall be issued with new transformer from store and shall move with transformer. It is therefore necessary that whenever the transformer is shifted from one region to another the book shall also be transferred with due acknowledgements.
Transformer service books for existing transformer will be supplied by concerned division.
2. In case of failures/proposals for write off. Etc the book shall accompany the proposals.
3. The book should not normally be sent with any report unless specifically asked for. Only relevant extracts should accompany the reports.
4. An incorrect/false entries in the book will lead to attraction of strict disciplinary action.

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1. TRANSFORMER HISTORY SHEET

(A) TRANSFORMER NAME PLATE DETAILS

KVA TYPE OF COOLING.....ON

Name of Manufacturer _____ : % Impedance _____
 Primary Volts _____ Volts : Vector group _____
 Secondary _____ Volts. : Weight of Core _____
 Primary Current _____ Amps. : & Winding _____ kg.
 Secondary Current _____ Amps. : Weight of Oil _____ kg.
 Primary Phase _____ 3 : Oil in Litres _____ Ltrs
 : Total Weight _____ kg
 Secondary Phase _____ 3 : Maker's Serial } _____
 Number

YEAR OF MANUFACTURE

TAPPING

SI No of Tap Position	Percentage	PRIMARY	SECONDARY
1			
2			
3			
4			
5			
6			

Signature:-

Name:-

Assistant Ex. Engineer / Assistant Engineer

1. TRANSFORMER HISTORY SHEET

(B) PURCHASE / ISSUE DETAILS

- i) ORDER NO. AND DATE
- ii) DATE OF RECEIPT IN STORES
- iii) ISSUE INDENT NODate.....
- iv) GATE PASS NODate
- v) GUARANTEE PERIOD
- vi) DATE OF EXPIRY OF
GUARANTEE PERIOD
- vii) I.R. VALUES IN MEGAOHMS (ON RECEIPT AT STORES/AT THE TIME OF
ISSUE)

	<u>ON Receipt</u>	<u>At the time of issue</u>
a) HV terminals to Tank Body earth Terminal.
b) LV. Terminal to Tank body earth terminal
c) HV. Terminal to LV terminal
d) Ambient Temp. at the time of taking these values
e) Voltage rating of the megger usedVolts.	

Date:-

Signature:-
Name:-
Assistant Ex. Engineer /
Assistant Engineer of Stores:

1. TRANSFORMER HISTORY SHEET

© DETAILS OF MOVEMENT

S. No.	I	II	III	IV	V
1. S. No					
2. Shifted from					
3. Date of shifting					
4. Reason for Removal					
5. Received at					
6. Date of receipt					
CONDITION OF TRANSFORMER					
7. Physical					
8. Oil					
9. Electrical					
10. Dated/Signature of Receiving Officer					

Signature:-

Name:-

Assistant Ex. Engineer / Assistant Engineer

**4(b) DETAILS OF CHECKS AT CHANGED
PLACES OF INSTALLATION**

- 1. Name of sub-station
- Commissioning date
- 2. Place of installation village
- 3. Name of Distribution centre
- 4. Earth Resistance of sub-station
- 1.
- 2.
- 3.
- 5. Protection provided on
 - H.T DO/HG fuseamps
 - L.T ICTP Switch fuseamps
 -
 -
- 6. Lighting Protection (Lightning arrestors)
 - On H.T Yes / No. RatingkV.....kA
 - On L.T Yes / No. Rating.....kV.....Ka

Signature of Assistant Engineer /Junior Engineer

.....

Place.....

Date.....

2. TRANSFORMER FIRST INSPECTION REPORT

(These checkings should be personally done & recorded by the AE S.D II (Store))

1 (i) MAKE : _____

(ii) RATING : _____ KVA

(iii) SERIAL No. : _____

2. CHECK LIST FOR PHYSICAL DAMAGE TO

(External Parts)	Nature of Defect	Defect Corrected on
(i) Main Tank		
(ii) Cooling Tubes Detachable Radiators		
(iii) Conservator Tank		
(iv) Breather Attachment		
(v) Bushings		
(vi) Drain Valves / Filter Valves		
(vii) Explosion Vent		
(viii) Oil Level Indicator		
(ix) Tap Operating Handle/Wheel		
(x) Ratio Change Over Handle		

3. CHECK LIST FOR OIL LEAKAGE FOEM WELDED JOINTS:-

	Leakage Marked	Repaired On
(i) Main Tank		
(ii) Cooling tubes Radiators		
(iii) Flanges of (a) Drain Valve (b) Tap Changer Shaft © Explosion Vent		
(iv) Thermometer Pocket:		
(v) Air Release Plug &		
(vi) Conservator Tank		

CHECK LIST FOR DETERIORATION OF GASKETS OF

	Noted	Replaced on
Main Tank Cover		
HV / LV Bushings		
Drain Valve / Filter Valves		
Tap Changer Shaft		
Explosion Vent		
Joint between Main Tank & Conservator		
Flange of Breather Attachment &		
Breather Housing Cover		

Check

	Noted	Action taken by S.D.O.
Corrosion of Tank		
Corrosion of Conservator		

Name:

Signature of Assistant Engineer / Assistant Ex. Engineer Store

**3. INSULATION RESISTANCE VALUES AT THE TIME OF ISSUE TO THE
FIELD UNIT FOR INSTALLATION**

DATE: _____

(1) IR VALUE

HV to LV +E _____ M. ohr

LV to HV +E _____ M ohr

HV – LV _____ M. ohr

AT _____ °C WITH _____ 1000 VOLTS MEGGER

A.E / A.E.E. (Sub. Div)

A.E.E / A.E. Store

4 (a) FIRST INSTALLATION DETAILS

- 1. Name of sub-station
- Commissioning date
- 2. Place of installation village
- 3. Name of Distribution centre
- 4. Earth Resistance of sub-station
- /T/C
- 1.....
- 2.....
- 3.....

5. Protection provided on

- H.T. HG fuse
- L.T ICTP Switch fuse (main)
- First feeder fuse
- Second feeder fuse
- Third feeder fuse
- Fourth feeder fuse

6 Lightning Protection (Lightning arrestors)

On H.T Yes/No Rating _____ Kv _____Ka

Signature of AE/AEE/Junior Engineer

Place
Date

6. PREVENTIVE MAINTENANCE AND REMEDIAL ACTIONS TAKEN BY THE JUNIOR ENGINEER AND S.D.O.

Details of work carried out viz.

Sr. No.	Date	Topping of oil	Filtration of oil	Drying of transformers	Arresting oil leakage etc.	Changing of silica gel

Date: _____

Signature of AE/AEE/Junior Engineer

Place

Date

7. IMPORTANT OBSERVATIONS / INCIDENTS

Date	Event	Analysis / Remark

Signature of AE/AEE/Junior Engineer

Place

Date

8. INSPECTION REPORT

(In case of transformer failure) (as found condition)

1. Date of failure
2. Time of failure
3. Location at which failed
4. Operation being done at the time of failure
5. IR measurement after failure
- (H.V. + L.V.) to E - Temp °c
- HV to LV
- Continuity between phases:
 - H T
 - L T
6. Rating of fuses & their conditions
7. Explosion heat (if any)
- 8 a. Dielectric strength of oil
- b. Smell (if noticed)
- After opening the transformer tank
- 9 Condition of windings
 - Phase A a
 - Phase B b.....
 - Phase C c.....
- 10 Metallic pieces filling (if any) found within the tank
- 11 Displacement of windings (if any) noticed
- 12 Damage to leads (if any)
- 13 Damage to tap change circuit (if any)
- 14 Observations on items as at page 7 A1-A5

8. INSPECTION REPORT FAILED TRANSFORMERS