

**The common procedure / steps to be followed for all types of distribution transformer repairs / replacement (Both Minor & Major Repairs):**

1. The Section Officer has to inspect the spot and ascertain the distribution transformer failure by conducting the insulation resistance (IR) test. If the failure is confirmed, report the same to the Assistant Executive Engineer (AEE) of the Sub-Division and upload the Annexure – 1 in DTLMS.
2. The Sub-Division AEE has to declare the failure and obtain the PGRS docket number under “F” category (automatically generated).
3. The Sub-Division AEE has to update whether the failure of transformer is after guarantee period (AGP) or within guarantee period (WGP).
  - (i) If the failure of distribution transformer is AGP or not covered under guarantee period of repairer and if the name plate details are not available, then the AEE of C, O & M Division shall arrange to issue Serial Number as per prevailing Corporate Order No. BESCOM/BC-31/2078/06-07 Bangalore dated 02.12.2010.
  - (ii) If the failure of distribution transformer is WGP, then WGP Analysis report as per Annexure-4 is to be uploaded. Further if failure is due to Bad workmanship or the failure of repaired coil, the repairer has to collect the DTR within 7 days and repair and return within 15 days at free of cost.
  - (iii) Further, joint inspection (Comprising of Section Officer, Assistant Executive Engineer of Sub-Division, Assistant Executive Engineer of Division Office, Assistant Executive Engineer of MT Division and Firm's representative) is to be carried to determine the quantum of repairs whether Minor or Major. If the repairs found to be Minor then Annexure -2 is to be uploaded and for Major repairs Annexure -2 & 3 are to be uploaded.

**The procedure / steps to be followed for Minor repairs:**

1. The following probable repairs are considered as minor repairs and any repair activity other than these repairs shall be considered as Major repairs to the distribution transformers like replacement of single coil / multi coils. It shall not be construed that all these repairs have to be carried out under Minor repairs.
  - i. HT coil rectification – Other than coil replacement
  - ii. LT coil rectification – Other than coil replacement
  - iii. Replacement of gasket
  - iv. Replacement of LV bushing with metal parts
  - v. Replacement of HV bushing
  - vi. Replacement of HV bushing with metal parts
  - vii. Labour charges dismantling, Assembling, Soldering, Brazing Delta Connection, Tanking, Tightening of bolts & nuts etc.,
  - viii. Replacement of Brass Nuts
  - ix. Oil Reclamation charges
  - x. Topping of oil
  - xi. Testing charges
  - xii. Any other minor repair – Other than coil/core replacement
2. The Section Officer (SO) shall prepare the estimate for Minor repairs and submit to Sub-Division for according approval.
3. Assistant Engineer Technical (AET) of Sub-Division, scrutiny the estimate, if the estimate is correct and complies with all the requirement, then AE(T) recommends for sanctioning the estimate otherwise recommends for returning the estimate with observations.
4. Based on the recommendation AEE, C,O & M Sub-Division either sanction the estimate or return to Section Officer for attending the observations.
5. As per the manual of delegation of financial powers, if the cost of the minor repair estimate is less than amount delegated to the AEE C, O & M Sub Division, then the estimated will be sanctioned at Sub-Division and submitted to the Executive Engineer (EE) C, O & M Division to accord award.
6. Once the estimate is sanctioned, Work Order (WO) is auto generated and Assistant Engineer (Technical) forward the Work Order to Assistant Accounts Officer (AAO) for certification of Budget and after certification of Budget, the Assistant Accounts Officer shall submit the Work Order for approval and AEE, C, O & M Sub Division accord approval to the Work Order. The AEE, C, O & M Sub Division submits the sanctioned Work Order to Executive Engineer, C, O & M Division for award.



7. Assistant Engineer (Technical) Division Office scrutiny estimate/Work Order and submits for award and Assistant Executive Engineer, Division Office verify and recommend for award.
8. Accounts Officer (I/A), Division Office verify and certify
9. Executive Engineer, C, O & M Division approves award.
10. After repairs, Section Officer receives the repaired good transformer and update in the DTLMS for having commissioned / keeping it in Transformer Bank.
11. As per the manual of delegation of financial powers, if the cost of the minor repair estimate exceeds the amount delegated to the AEE, C, O & M Sub Division, then after step 3, based on the recommendation of Assistant Engineer (Technical), AEE, C, O & M Sub-Division either submit to Executive Engineer, C, O & M Division to accord sanction to the estimate or return to Section Officer for attending the observations.
12. Assistant Engineer (Technical), C, O & M Division Office scrutiny estimate and submits for sanction / return with observations.
13. Assistant Executive Engineer, C, O & M Division Office verify and recommend for sanctioning / return with observations. Based on the recommendation Executive Engineer, C, O & M Division either sanction the estimate or return to Assistant Executive Engineer, C, O & M Sub Division for attending the observations.
14. Once the estimate is sanctioned, Work Order (WO) is auto generated and AET submit the Work Order to AEE, C, O & M Division Office for sanction and in turn forwarded to AAO and Accounts Officer of Division Office for certification of Budget and after certification of Budget, the Accounts Officer shall submit the Work Order for approval and Executive Engineer, C, O & M Division Office accord approval to the Work Order.
15. Assistant Engineer (Technical), C, O & M Division Office submits for award, AEE, C, O & M Division Office verify and recommend for award and AO (I/A), Division Office verify and certify for award and the Executive Engineer, C, O & M Division Office approves award.
16. Estimates / work order sanctioning etc., shall not be withheld at any of the stage for any reasons including budget, however the payment to the respective agency shall be made based on the sanctioned budget allocated to respective division. Further, other than above, if any observations / reasons are noticed, the same shall be recorded and either returned back or forwarded with observation for taking appropriate decision

**The procedure/steps to be followed for replacement of failed DTRs in case of Major repairs:**

1. The Section Officer (SO) shall prepare the estimate for replacement of failed DTR and submit to Sub-Division for according approval.
2. Assistant Engineer Technical (AET) of Sub-Division, scrutiny the estimate, if the estimate is correct and complies with all the requirement, then AET recommends for sanctioning the estimate otherwise recommends for returning the estimate with observations.
3. Based on the recommendation AEE, C, O & M Sub-Division either submit to EE, C, O&M Division to accord sanction to the estimate or return to Section Officer for attending the observations.
4. Assistant Engineer (Technical), C, O & M Division Office scrutiny estimate and submits for sanction / return with observations.
5. AEE, Division Office verify and recommend for sanctioning / return with observations. Based on the recommendation EE, C, O & M Division either sanction the estimate or return to AEE, C, O & M Sub Division for attending the observations.
6. Once the estimate is sanctioned, Work Orders (WO) for Commissioning estimate, De-Commissioning estimate and Credit estimate are auto generated and AET submit the Work Orders to AEE, C, O & M Division Office for sanction and in turn forwarded to AAO and AO of Division Office for certification of Budget. After certification of Budget, the AO shall submit the Work Order for approval and EE, C, O & M Division accord approval to the Work Orders.
7. AET, Division Office submit for award, AEE, C, O & M Division Office verify and recommend for award and AO (I/A), Division Office verify and certify for award. EE, C, O & M Division approves award.
8. Section Officer rises indent – Indent get auto generated, AEE, Sub Division approve the indent, AEE, C, O & M Division Office/Store Officer approve the indent to issue the DTR.
9. Store Keeper issues DTR and invoice is auto generated.
10. Section Officer draws DTR, replace and reports DTR commissioning (RI auto generated with Work Order) and return the failed DTR to Stores.
11. AEE, Sub Division countersign the RI and AEE, C, O & M Division Office approves RI for acceptance. Store Keeper receives the failed DTR and acknowledgement is auto generated.
12. Section Officer submits CR, which is auto generated.
13. AEE, Sub Division submits CR to EE, C, O & M Division and EE, C, O & M Division forward the CR to AO for needful action, AO, Division Office in turn forward to Senior Assistant, Division Office for needful action and to



Senior Assistant, Division Office scrutiny and submits to AAO, Division Office for acceptance / return with observations. AAO & AO, Division Office submits for acceptance / return with observations. Based on recommendations, EE, C, O & M Division communicate acceptance of CR or return to Section Officer with observations. On acceptance of CR, Section Officer gets CR acceptance notification.

14. Estimates / work order sanctioning etc., shall not be withheld at any of the stage for any reasons including budget, however the payment to the respective agency shall be made based on the sanctioned budget allocated to respective division. Further, other than above, if any observations / reasons are noticed, the same shall be recorded and either returned back or forwarded with observation for taking appropriate decision.

**The procedure / steps to be followed for Major repairs:**

1. The Section Officer (SO) shall prepare the estimate for Major repairs and submit to Sub-Division for according approval.
2. Assistant Engineer Technical (AET) of Sub-Division, scrutiny the estimate, if the estimate is correct and complies with all the requirement, then AET recommends for sanctioning the estimate otherwise recommends for returning the estimate with observations.
3. Based on the recommendation AEE, C, O & M Sub-Division either submit to Executive Engineer, C, O & M Division to accord sanction to the estimate or return to Section Officer for attending the observations.
4. Assistant Engineer (Technical), C, O & M Division Office scrutiny estimate and submits for sanction / return with observations.
5. AEE, C, O & M Division Office verify and recommend for sanctioning / return with observations. Based on the recommendation EE, C, O & M Division Office either sanction the estimate or return to AEE, C, O & M Sub Division for attending the observations.
6. Once the estimate is sanctioned, Work Order (WO) is auto generated and Assistant Engineer (Technical) submit the Work Order to Assistant Executive Engineer, C, O & M Division Office for sanction and in turn forwarded to AAO and AO of Division Office for certification of Budget and after certification of Budget, the Account Officer shall submit the Work Order for approval and EE, C, O & M Division accord approval to the Work Order and Submit to Circle Office for award.
7. Assistant Executive Engineer, C, O & M Circle Office scrutiny estimate/Work Order and submits for award and Executive Engineer, Circle Office verify and recommend for award.
8. AO (I/A), Circle Office/Zonal Office verify and certify for award.
9. AEE, C, O & M Circle Office consolidate and make a batch of 25 or 50Nos of failed distribution transformers and submits for award. EE, C, O & M Circle Office verify and recommends for award. (RI auto generated with Work Order in the replacement estimate)
10. SEE, C, O & M Circle approves award.
11. AEE, C, O & M Division Office/Store Officer, directs Store Keeper to submit the list of DTR details as per award.
12. Store Keeper submits DTR details to accord approval to issue DTRs to the repairer and AEE, C, O & M Division Office verify and accord approval to issue DTRs to the repairer and Store Keeper issues failed DTRs to the repairer and Invoices are auto generated.

13. AEE, C, O & M Division Office to ensure that repairer made request for transil oil within 5 days from award. AET, C, O & M Division Office / Store Keeper made request for issue of Transil Oil as per requirement and AEE, C, O & M Division Office accord approval to issue Transil Oil within 5 days from the date of request by repairer.
14. Store Keeper issues Transil Oil to the repairer.
15. AEE, C, O & M Division Office request AEE, MT for witnessing the testing of repaired DTRs and AEE, MT witness the testing and upload the test reports. Further, AEE, MT has to analyze the test results and recommends for scrapping of core if loss levels are beyond limits.
16. Store Keeper receives the repair good transformer and update in the DTLMS.
17. Section Officer return the Scrap oil to store against the respective work orders. AEE, C, O & M Division Office to examine that whether Scrap oil is returned to store or not, whether the repair good DTRs are returned within the delivery schedule or not and take appropriate decisions and recommends for Bill processing.
18. Estimates / work order sanctioning etc., shall not be withheld at any of the stage for any reasons including budget, however the payment to the respective agency shall be made based on the sanctioned budget allocated to respective division. Further, other than above, if any observations / reasons are noticed, the same shall be recorded and either returned back or forwarded with observation for taking appropriate decision.

