



AJMER VIDYUT VITRAN NIGAM LIMITED
Corporate Identification Number (CIN)-U40109RJ2000SG016482
Regd. Off. Vidyut Bhawan, Panchsheel Nagar, Makarwali Road, Ajmer-305004.
(Tel. 0145-2644529. Fax 0145 – 2644542 E-mail Semmajmer@gmail.com.)

SPECIFICATION FOR REPAIR OF FAILED/ DAMAGED 5 KVA TO 25 KVA SINGLE PHASE COPPER WOUND DISTRIBUTION TRANSFORMERS WITH M&P BOX AGAINST TENDER NOTICE NO: TN-1208

A	NIT No.	TN-1208
B	Cost of tender specifications	Rs. 2950 (Non-Refundable) (Two Thousand Nine Hundred Fifty Only)
C	Processing fee of RISL	Rs. 1180.00 (Non-Refundable) (One Thousand One Hundred Eighty Only)
D	Bid Security to be deposited with Tender	(i) General Bidder : Rs. 8.00 Lac (ii) Sick Unit : Rs. 04.00 Lac (iii) SSI Unit of Rajasthan : Rs. 2.00 Lac
E	Validity	120 days from the next date of opening of techno-commercial bid or 90 days from the next date of opening of Price bid whichever is later.
F	Base date for price variation	01.09.2018

IMPORTANT DATES

S.N.	Events	Date & Time	Location
1	Date of downloading of tender specifications	-	www.avvnl.com & http://eproc.rajasthan.gov.in
2	Deposit of cost of Tender Specifications, Processing fee & Bid Security	Up to 29.10.2018 (2:00 PM)	In the office of the Sr. Accounts Officer (EA & CASH), AVVNL, Panchsheel, Makarwali Road, Ajmer-305004
3	Last Date & time of submission of electronic bid	Up to 29.10.2018 (06:00 PM)	http://eproc.rajasthan.gov.in
4	Opening of Technical Bid	30.10.2018 (3:00 PM)	http://eproc.rajasthan.gov.in
5	Opening of Price Bid	To be intimated separately to the qualified bidders	http://eproc.rajasthan.gov.in

The Micro, Small & Medium Scale Industries of Rajasthan and sick industries, other than Small Scale Industries, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR) shall furnish self-attested documentary evidence duly attested by Notary to claim the above. The Bid Security amount may be given in the form of banker's Cheque or demand draft in favour of SR. AO (EA & Cash), AVVNL, Ajmer (payable at Ajmer) or Bank Guarantee, in specified format, of a scheduled bank in favour of Superintending Engineer (MM), AVVNL, Ajmer, up to stipulated date & time, and obtain a receipt/acknowledgement thereof. No other mode of deposit shall be accepted. **At time of depositing the Bid Security amount or Bank Guarantee, the bidder shall also furnish self attested and duly attested by Notary the documentary evidence of SSI unit of Rajasthan or of sick unit (as applicable) and also submit a letter for the offered quantity by them**

- 1) Wherever EMD and Security Bank Guarantee (SBG), are appearing in the ITB, GCC & other Bidding Documents, same are hereby replaced by BID SECURITY as above.

2) VENDOR REGISTRATION

The relaxation/ exemption given to the registered vendors of the Nigam in respect of EMD/ SBG, wherever appearing in the ITB, GCC & other Bidding documents, are hereby WITHDRAWN.

NOTE: Before filling up of the tender document, please read the complete specification.

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1. Tender documents will be made available on e-Tendering portal **www.eproc.rajasthan.gov.in & www.avvnl.com** for viewing. The bidders, in their own interest are requested to read very carefully the tender document before submitting the bid only through online on website **www.eproc.rajasthan.gov.in** up to the time & date as specified above. In case of any discrepancy found in the bidding documents downloaded from the website and appended with the bid (as a bid document) and the original copy of such document available in the office of Superintending Engineer (MM), Ajmer Discom, Ajmer then the copy available with Superintending Engineer (MM), Ajmer Discom, Ajmer will be considered as final document for all purposes.

2. The tender processing fees of Rs. 1,180/- (non-refundable) payable by Demand Draft in favour of **Managing Director, RISL (payable at Jaipur)** can be deposited in this office [i.e. SE (MM)]

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The **cost of tender specification i.e. Rs. 2950/-** (non-refundable) in Demand draft/ Banker's cheque in favour of the Sr. Accounts Officer (EA & CASH), AVVNL, Ajmer (payable at Ajmer) **can be deposited in the office of the Sr. Accounts Officer (EA & CASH), AVVNL, Panchsheel, Makarwali Road, Ajmer-305004.**

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The Bid Security amount (as applicable) to be paid by Demand Draft/Banker's Cheque in favour of Sr. Accounts Officer (EA & CASH), AVVNL, Ajmer (payable at Ajmer) **or** Bank Guarantee, in specified format, of a scheduled bank in favour of Superintending Engineer (MM), AVVNL, Ajmer, be deposited in the office of the Superintending Engineer (MM), AVVNL, Panchsheel, Makarwali Road, Ajmer-305004. **The Original AFFIDAVIT (as per Appendix-A) be submitted along with Bid Security.**

All above fees be accepted upto 2.00 p.m. upto one WORKING day prior to schedule date of opening of respective bid.

3. The bidders are required to upload the receipt of depositing all above payments along with their tender at the relevant place on the scheduled date & time otherwise their bids are liable to be rejected.

4. Eligible bidders should submit their bid well in advance instead of waiting till last date. AVVNL will not be responsible for non-submission of Bid due to any website related problems.

5. Offer shall be furnished in two parts & shall comply all provisions of Clause No. 1.02 Section-I (instruction to Bidders) and the Bid offer shall be furnished in the following manner:

i) First envelope/ cover containing proof of deposition of cost of Bid documents & Bid Security Amount as under:-

- a. **Content proof document of tender fee Rs. 1180/- payable to MD RISL, Jaipur.**
- b. **Content proof document of tender specification fee (i.e. Rs. 2950/-) deposited to Sr. Accounts officer (EA & Cash), AVVNL Ajmer.**
- c. **Content proof document of the Bid Security amount (as applicable) to be paid by Demand Draft/ Banker's Cheque in favour of Sr. Accounts Officer (EA & CASH), AVVNL, Ajmer (payable at Ajmer) **or** Bank Guarantee, in specified format, of a scheduled bank in favour of Superintending Engineer (MM), AVVNL, Ajmer. Receipt of the Original AFFIDAVIT (as per Appendix-A) be submitted along with Bid Security.**

ii) Second envelope/ cover for techno-commercial bid.

iii) Third envelope/ cover for price bid.

Cover– III Price Bid' should be clearly furnished on prescribed format to be uploaded online on website.

Note:- Envelope/ Cover III containing price bid will be kept unopened in the safe custody at the website RISL. It will be opened at a later date in respect of those bidders whose offers are found / adjudged technically and commercially acceptable. The date of opening of "Price Bid" shall be intimated to successful bidders in due course of time. In case of deviation from the stipulated clauses of bid specifications, price bid of the bidder will not be opened.

iv) **The bidder shall ensure that bid is furnished / submitted strictly in the manner detailed in the Specification.**

Note :-All eligible interested bidders are required to get enrolled on e-Tendering portal <http://www.eproc.rajasthan.gov.in/nicgep/app>.

Contact person (Authorized Bid Signatory)	Superintending Engineer (MM), AVVNL, Ajmer
Correspondence Address	VIDYUT BHAWAN, Makarwali Road, Panchsheel Nagar, Ajmer
Mobile No.	9414004258
Telephone	0145-2644529
Website & E-Mail:	1. Web.- www.avvnl.com
	2. E-mail:- Web:- http://risl.rajasthan.gov.in , Email:- info.risi@rajasthan.gov.in
<p>Address of RISL:- Rajcomp Info Services Limited (RISL) 1st Floor, YognaBhawan, TilakMarg, C-Scheme, Jaipur (Rajasthan) Phone:-0141-5103902, 4031900 Fax: - 0141-2228701 Web:-http://risl.rajasthan.gov.in, Email:-info.risl@rajasthan.gov.in</p>	

SECTION – III

TECHNICAL SPECIFICATION FOR REPAIR AND TESTING OF DAMAGED DISTRIBUTION TRANSFORMERS OF RATING FROM 5 KVA TO 25 KVA COPPER WOUND SINGLE PHASE AGAINST TN-1208

1. INTRODUCTION:

- 1.1 5 KVA to 25 KVA single phase Copper wound $11\sqrt{3}/0.230$ KV, DAMAGED DISTRIBUTION TRANSFORMERS are to be repaired.
- 1.2 These transformers shall be made available through various stores/sub-stores of Ajmer Vidyut Vitran Nigam Ltd. After satisfactory repairs and testing, the transformers may be used anywhere in Rajasthan.

2. SCOPE OF WORK :

- 2.1 This specification provides for assessment and estimation of damaged transformers to be repaired at repairing firm's/ contractor's works involving opening of transformer, detaining of core and coil assembly, cleaning and washing of dust and dirt from all parts including core, tank & cooling tubes (if **applicable**), retaking after assembly of all parts after replacement or repairing of the damaged parts, filling of required quantity of fresh/ new filtered transformer oil and painting, marking and testing as per ISS.
- 2.2 This specification also provides for supply and fixing/ fitting of parts requiring replacement such as HV/ LV leg coils, bushings & bushing rod, gaskets, breather, oil level gauge, M&P Unit, fresh transformer oil, cover bolts, screws, other sundry items etc. for all rating of transformers for their complete repairs of transformers.
- 2.3 After repairs, the transformer shall be subjected to all routine and acceptance tests as per IS-2026/1981 read with latest amendments. Whereas transformer oil used in repair of transformer(s) shall be tested for its dielectric strength in accordance with IS:335/1993 (latest amended). The transformer oil used shall be conforming to the requirements of aforesaid ISS.
- 2.4 Further the NIGAM reserves the right to conduct heat run test on any sample of the transformer(s) selected at random from repaired transformers of different rating in accordance with IS:2026/1981 (latest amended) at contractor's works for which Rs.1000.00 shall be payable extra along with service tax if applicable. The Nigam also reserves the right to get the transformer oil tested in any independent Govt. laboratory in accordance with IS:335/1993 (latest amended) at its own cost.
- 2.5 All the acceptance tests as specified in the technical specification shall be carried out in the presence of an authorized engineer/ officer of the Nigam in order to ensure that the repairs have been carried out satisfactorily and new transformer oil of proper quality has been filled in and the transformer can be used for efficient performance under the various operating and atmospheric conditions detailed elsewhere in this specification.
- 2.6 After satisfactory repairs and testing, the contractor shall have to deliver the transformers to the concerned store(s), through his own transport.

The facilities for labour & equipments etc. for loading/ unloading and handling of transformer(s) at the contractor's works for assessment of the repair work and at the time of receiving transformers and at the time of despatching transformers after satisfactory repairs and testing shall be arranged by the contractor at his cost and no extra charges shall be paid for this job. The to and fro transportation of damaged and repaired/ tested transformers shall also be on contractor's account.

3. REPAIR WORK:

- 3.1 The repair work shall involve opening of transformer's cover, de-tanking core and coil assembly, cleaning, washing of dust and dirt from all parts including core, tank and cooling tubes/ radiators (if applicable) etc., replacement of defective parts, assembly, retanking, filling fresh/ new filtered transformer oil, marking and painting and testing the repaired transformers for all the routine & acceptance tests as per IS-2026/1981 with latest amendments.
- 3.2 The repair of a damaged distribution transformer shall be carried out only twice after the expiry of original guarantee period irrespective of the fact that the repair of the transformer is economical on the subsequent occasions.
- 3.3 The damaged/ failed distribution transformers not having original name plate(s) of the manufacturer will not be repaired in any case.
- 3.4 The damaged transformer(s) prior to year '2004' make shall not be repaired or as amended time to time in future.
- 3.5 5 KVA to 25 KVA single phase $11\sqrt{3}/0.230$ KV Cu-wound distribution transformers are to be repaired.
- 3.6 The damaged transformer(s) whose core is missing/ damaged/ burnt/ rusted or tank/ radiator/ conservator (if applicable) is damaged severely shall not be repaired.
- 3.7 The transformers of old and obsolete designs shall also be not repaired.
- 3.8 The damaged wound core single phase transformer(s) whose L.V. leg coil found damaged/ burnt shall be repaired with HT coil

4. REPLACEMENT OF PARTS:

- 4.1 This will involve removal of all parts requiring replacement, thereafter fitting & fixing of new parts such as HV/ LV leg coils, M&P Unit, bushings, gaskets, breather, oil level gauge, cover bolts, plug, cap and screws, transformer oil etc. and making connections complete in all respect for satisfactory operations after repairs in normal working conditions.
- 4.2 All Oil drain and filter valves in transformers of rating up to 25 KVA wherever found existing shall be removed & tagged with continuously welded steel plate inside the tank. Repairer shall ensure by all means that no oil leakage take place from welded tagged portion. This is to avoid pilferage/ leakage of oil.
- 4.3 The following arrangements shall also be made in each rating of repaired transformer:
 - 1) Tank shall have permanent lugs for the lifting the Transformer body and there shall be facilities for lifting the core coil assembly separately.
 - 2) The Transformer shall be provided with two mounting lugs suitable for fixing the transformer to a single pole by means of 2 bolts of 20 mm diameter as per ANSIC 57.12.201988. Both mounting lugs shall be made of steel of min. 6 mm thickness. Jump proof arrangements shall be provided on upper mounting lugs and lips shall be provided on lower mounting lugs for proper mounting of transformer on the pole. Both mounting lugs faces shall be in one plane.
 - 3) Minimum & Maximum Oil level mark shall be embossed inside the tank. Nitrite/ neoprene rubber gaskets conforming to latest IS:4253 Part-II shall be provided between tank and top cover.
 - 4) Continuous welding of one inch length each should be provided at four places on ring (i.e. welding the clamping ring at top cover as well as with tank) and nut bolt of the ring

should be tag welded.

- 5) On each transformer stainless steel anti theft fastener of suitable size shall be provided for clamping rim to hold fast tank and tank cover. In case of flange provided on top cover 2 Nos. stainless steel anti theft fastener shall be used and in case of rim type tank top cover 1 No. anti theft fastener shall be used. **Alternatively Dome shaped side clamping type construction of clamping bolts with stopper washer with tack welding for antitheft purpose for top cover.**
- 6) HT bushing(s) mounting bolts shall be tag welded.
- 7) The following standard fittings shall be provided with each transformer.
 - a) Two Earthing Terminals.
 - b) Two lifting lugs.
 - c) Pressure relief device.
 - d) HV terminal connectors.
 - e) Top cover fixing clamps.
 - f) Bird guard or plasticised cover on live parts.
 - g) LV earthing arrangement.
 - h) Operating Mechanism of MCCB.
 - i) Signal Light.
 - j) Any other fitting necessary for satisfactory performance of the manufacturer.
- 7) **Mounting Arrangement for 5/10/16/25 KVA single phase transformers with pole will be as per drawing enclosed at Annexure-'B(1) and B(2) and Base angle arrangement as per Annexure-C for 25 KVA Single Phase Distribution Transformers. The mounting structure/ arrangement (including base angle for mounting 25 KVA single phase distribution transformers) shall be in the scope of supplier**

5. WINDINGS:

- 5.1 The damaged winding(s) requiring replacement shall be replaced by windings identical to the original one in respect of cross-section of conductor, number of turns, diameter of coils, insulation material etc. and that all coil assemblies of identical voltage rating shall be interchangeable so that field repairs of the windings can be made readily without special equipment. The coils should be odd layers & shall be supported between adjacent sections by insulation spacers and the barriers, bracings and other insulation used in the assembly of the windings and shall be arranged to ensure free circulation of the oil and reduce hot spots in the windings. Insulation of wire/ strip, inter layers between LV & HV winding and windings to earth shall be of class-A and section as utilized in the original transformers. In case it is found at any stage that proper size and type of material are not used then the contract will be canceled immediately.
- 5.2 Two layers of electrical grade insulation craft paper 2 mil thickness or one layer of min.4 mil thickness shall be used for inter-layer insulation both for HV & LV coils.
- 5.3 The insulation of the coil shall be treated with suitable insulating varnish or equivalent compound under vacuum impregnation to develop the full electrical strength of the windings. The assembled core and winding assembly shall be vacuum dried in vacuum chamber and suitably impregnated with insulating varnish before removal from the vacuum treating tank. The tenderer will specifically indicate, if he has got facilities and equipment for vacuum impregnation. Alternatively in place of vacuum impregnation, the core and coil assembly shall be fully dried out in 'Air Drying Oven' till the coils are shrunk to designed level and are completely dried, only then they will be impregnated in the transformer oil. All materials used in the insulation and assembly of the windings shall

be insoluble, non catalytic and chemically inactive in the hot transformer oil and shall not soften or otherwise be adversely affected under the operating conditions.

- 5.4 The winding(s) shall be compact and symmetrical about the centre line of the core and shall be formed on suitable synthetic resin bonded paper sheet grade-I/ type III/ elephantide sheet conforming to the requirement of BSS:1137/1949/IS:1271/58 and any amendment thereof and the size of sheets shall be identical to those used in the original transformers.
- 5.5 The conductor inner layer insulation shall be of suitable material conforming to relevant latest ISS and shall be of such sizes and material as provided in the original transformer. The leg coils shall be provided with oil ducts where-ever required.
- 5.6 The number of coils, resistance, number of turns and dimensions of complete leg coils shall be exactly the same as that of the leg coil of the original transformer, so that electrical and mechanical characteristics of the repaired transformer(s) shall remain the same as that of the original transformer.
- 5.7 LT Aluminium/ Copper lugs shall be clamped to LV bushing metal part by using nut, lock nut and washer.
- 5.8 The winding shall be clamped securely and placed so that they will not be displaced or deformed during short circuits. The conductors used in the coil structure shall be best suitable to the requirement and all permanent current carrying joints in the windings and the leads shall be brazed preferably and rigidly clamped.
- 5.9 IDENTIFICATION MARK ON NEW COIL:

In the process of repairing of transformers, the repairer(s) replace the coils with new material/ insulation. There is no visual facility to verify whether the coils are new or old. In order to verify and confirm that the repairer has replaced the old coil(s) by new one, the repairer shall insert a non-tearable polyester strip containing their company's name and month of manufacturing at least at two places in each HV and LV coil. This polyester strip shall not be removable even on pulling out the same. This will enable the Nigam to check and verify the exact number of coils newly prepared and replaced.

5.10 Bushings

- i) The bushing shall conform to IS: 2099/3347 as amended upto date. Bushings having the creepage distance suitable for highly polluted atmosphere and having type tested as per IS: 3347 and IS:2099 latest version shall only be accepted.
- ii) For HV, 12kV class bushings and for earth/ neutral of HV winding 1.1kV class bushing(s) shall be used and for LV, 1.1 kV class bushing(s) shall be used.
- iii) The terminal arrangement shall not require a separate oil chamber.
- iv) The HV bushing shall be mounted on top cover and LV bushing(s) shall be mounted on side wall of tank below top cover. The bushing rods and nuts shall be of brass.
- v) The HV bushings shall not have arcing horns.
- vi) HV bushing mounting bolt should be tag welded

For HV, live end should be brought out through 12kV bushing and the other end of HV, which is intended to be earth, shall be brought out on 1.1kV bushing (HV Neutral bushing). Provision shall be made for connecting the neutral HV terminal to local earth. The secondary (LV) winding shall be connected to LV bushings. The 12 KV HV bushing (live) shall be provided on top cover and the remaining three bushing(s) shall be provided on the sidewall of the tank and below top cover.

6.0 CORE LAMINATION (CRGO/ AMORPHOSE MATERIAL):

- 6.1. After cleaning dust and dirt from each leaf of laminations, the core shall be rigidly clamped and bolted to ensure adequate mechanical strength and to prevent vibrations during operation. The bolts used in the assembly of the core shall be suitably insulated and clamping structure shall be so constructed that eddy current will be minimum.
- 6.2 The core and the coil assembly shall be so fitted in the tank(s) that shifting may not occur and original clearance is maintained when the transformer is moved/ transported or during the short circuit conditions.

7.0 FREQUENCY:

The repaired transformers shall be suitable for continuous operation with a frequency variation of $\pm 3\%$ from normal frequency of 50 cycles per second without exceeding permissible temperature rise.

8.0 PARALLEL OPERATIONS:

The repaired transformers of the same capacity, type, voltage ratio and vector group shall be suitable for parallel operation.

9.0 NO LOAD VOLTAGE:

The No Load voltage ratio of the repaired transformers shall be same as that of the original transformer ($11\sqrt{3}/.240KV$) with tolerance of $\pm 1\%$.

10.0 HIGHEST SYSTEM VOLTAGE :

The highest system voltage shall be as 12 KV on HT side. The repaired transformer shall be suitable for continuous operation with this voltage on the HV side.

11.0 TRANSFORMER OIL:

- 11.1 The transformer oil will be drained out from the transformer before delivery to firm for repair by the concerned ACOS.
- 11.2 Fresh/ new EHV Grade transformer oil for filling in the repaired transformer(s) shall be provided by the repairer and the quantity of new transformer oil, as may be required to be filled in, shall be as per the quantity mentioned on the name plate of the transformer(s). The make of EHV grade transformer oil shall be either APAR/ SAVITA/ RAJ LUBRICANT/ LUBRICHEM, MUMBAI/ RAJ PETRO, MUMBAI/ PANAMA PETROCHEM, ANKALESHWAR/ TASHKANT OIL, MUMBAI/ RTS, Jaipur/ Keshari, New Delhi / Jupiter Chemical Ind., Jaipur/ Anamika Oil, Jaipur or any other equivalent make approved by the Nigam. The EHV grade transformer oil shall be duly filtered and tested and shall conform to the various technical parameters specified in IS:335/1993 (latest amended).
- 11.3 NIGAM can also provide transformer oil for filling in the repaired transformer depending upon the availability of the transformer oil in the store of the NIGAM. The transformer oil as may be supplied by NIGAM shall be filtered and tested before filling in the repair transformers. The filling of the oil in the transformer shall be done in the presence of Nigam representative.

12.0 METERING CUM PROTECTION (M&P) UNIT:

The 5 KVA to 25 KVA single phase transformers are to be provided with Metering Cum Protection (M&P) Unit as per the details annexed at **Annexure I (for 5 KVA single phase DT) and Annexure II (for 10/16/ 25 KVA single phase DT)**. The bidders are required to quote the rate of Metering Cum Protection (M&P) Unit in the scheduled price list. As this unit is not a part of the repair, the cost of the unit will not be included during calculation of viability of economic limit.

12.1 The single phase transformer shall have CSP features & Signal Light (LED Indicating Lamp).

13.0 **TESTS:**

13.1 All the repaired transformers prior to despatch shall be subjected to all routine & acceptance tests as per IS:2026/1981 & IS:1180 read with latest amendments as detailed below :

- a) Measurement of winding resistance.
- b) Measurement of Impedance voltage, short circuit impedance and load loss.
- c) Measurement of voltage ratio and check of voltage vector relationship.
- d) Measurement of No load loss and no load current at normal voltage.
- e) Measurement of Insulation resistance.
- f) Induced over voltage withstand test.
- g) Separate source voltage withstand test for HV & LV.
- h) Checking of dielectric strength of transformer oil.
- i) Checking of repair work in confirmation to the joint inspection report and approved estimates and this technical specification (Section-III)
- j) Checking of manufacturer's test certificates & Invoices for new transformer oil/ copper/ bushings etc.

The tenderers must have requisite testing facilities and it should be clearly indicated/ mentioned in the tender offer.

13.2 The fresh/ new transformer oil from offered lot of repaired transformers and also from storage tank from which oil has been used shall also be tested for its dielectric strength in accordance with IS:335/1993 (latest amended upto date). The transformer oil used in repair of transformers shall comply with the requirement of this specification and it should conform to IS:335/1993 (Latest amended). The Nigam reserves the right to seal the samples of such transformer oil and get them tested at an independent laboratory at his own cost to ensure its conformity to the various requirements/ tests of IS:335/1993.

13.3 The no load and load loss shall be measured by the three watt-meters method (i.e. using three watt meters, three ammeters and three voltmeters of accuracy class 0.5 or better)

13.4 Common use of instrument among repairing agencies for repair/ testing work is not permitted. However, in exceptional cases with recorded reasons the inspecting officer may allow the other agency's instrument also.

13.5 The guaranteed no load loss and load loss for repaired distribution transformer(s) shall be as mentioned on the manufacturer's name plate provided on the transformer(s).

13.6 Tolerance in losses: The tolerance in NO LOAD and LOAD LOSS shall be permissible as below:

- i) No Load Loss : + 10% of the Losses mentioned in the name plate.
- ii) Load Loss : + 5% of the Losses mentioned in the name plate.

However to measure transformers losses in CTL without removing M&P Box the following tolerance in losses be given during measurement of total losses :

Rating in KVA	Voltage ratio in KV	Tolerance in Load losses (Watt) Max.
5 KVA	11/√ 3 /0.240	6.0
10 KVA	11/√ 3 /0.240	12.0
16 KVA	11/√ 3 /0.240	14.0
25 KVA	11/√ 3 /0.240	19.0

13.7 No load current : The No Load current (Magnetizing current) at normal voltage for various ratings shall be as given hereunder with +30% tolerance:

i) 5 KVA single phase:

a) At 100% rated voltage :- 2% of rated full load current.

ii) 10/16/25 KVA single phase:

a) At 100% rated voltage :- 1.5% of rated full load current.

13.8 The voltage ratio shall be subject to a tolerance of $\pm 1.0\%$.

13.9 If the values of the load loss, no load loss and voltage ratio of the repaired transformer(s) are beyond the limits, the transformer will be declared un-economical and the contractor shall be at his liberty to remove the coils/ parts and return the transformer to the respective consignee(s). However, no charges for repair of such transformer will be payable except for the charges fixed for uneconomical transformers. Transformers failed during inspection shall be identified by the contractor and intimated to the concerned ACOS before next joint inspection at their works for early lifting.

13.10 Insulation resistance of repaired transformers shall be measured with 2500 V/ higher voltage megger of standard make and dully calibrated. The minimum insulation resistance in mega ohms shall be as indicated in the table below :

----- Insulation resistance at deg C in mega ohms -----			
	20	30	40
11000 volts(HV) to earth	800	400	100
433 volts (LV) to earth	400	200	50
HV to LV	800	400	100

13.11 One transformer at random from the lot offered for inspection will be selected by the Inspecting Officer to verify physically the size of the conductor (refer Cl.34.00 of Section-III), weight of HV & LV leg coils, quantity of oil and quality of material used and workmanship, identification mark in shape of polyester strip carrying repairer's name and month of manufacturing in HV/ LV coils, name plate as provided on top channel of core-coil assembly etc. in conformation to joint inspection report/ approved estimates/ Technical Specification (Section-III). In case of finding reduced quantity/ weight of coil/ oil, the repair cost of transformers offered in that lot will be reduced accordingly in the same proportion and no extra payment towards loss will be paid to the contractor.

13.12 The Nigam reserves the right to inspect the works of the repairer during the process of repair for checking the repair work in confirmation to the joint inspection report and approved estimate(s) and also for the quality of workmanship and material used in repair.

14.0 MARKING & PROVIDING BLUE BAND ON REPAIRED TRANSFORMERS:

14.1 The repairer shall provide a non-detachable steel plate "A" of minimum 2.5 mm thickness on the body of the transformer which should be continuously welded. The under mentioned details on this name plate should be deeply engraved by the repairer on the repaired and tested transformer(s). No transformer shall be accepted without proper fixing of repair plate on the transformer.

"A"

1. Repaired by M/s -----
2. CRC No. AVVNL/ SE/ MM/ TN- /D. _____ Dt. _____
3. Rating _____ KVA Make _____ Trf. S. NO. _____ Store S. No. -----
4. Work order No.----- dated-----
5. Date of delivery/ despatch -----
6. Delivered at stores _____
7. Date of expiry of GP-----

14.2 In order to find out the balance guarantee period of transformer failed under Guarantee period the contractor shall provide another new plate "B" and shall emboss information as under:

- 1) Date of failure of transformer.....
- 2) Date of repair of transformer
- 3) Date of expiry of guarantee period after such repair....

The original name plate of transformer shall also be retained on the repaired transformer.

14.3 The repairer shall provide identification of repairer's name and Job No. (S. No.) by non-detachable steel plate/ punching on top channel of core coil assembly inside the transformer without any extra cost charge.

14.4 A 75 mm wide blue band of paint all around the transformer on all the transformers repaired first time shall be provided invariably approximately at the 3/4th of the height of transformer from bottom of tank for identification of the repaired transformer easily. The shades of this blue paint shall be canary blue colour of ISI No.5 shade No.309. This paint will also be provided after proper treatment of the surface of the transformer. For subsequent (2nd) repairs the colour band shall be kept Red. Rest of the procedure shall remain as above.

On every re-repair on guarantee repair failed transformers, an additional 75 mm wide blue band of respective color paint all around the transformer shall be provided at a distance of 50 mm from the first band.

Concerned ACOS will mention the status of previous repair before dispatch to the firm for repair. The inspecting officer will also verify it.

15.0 PRICES:

15.1 The tenderers are required to quote the premium on the prices as per price schedule (BOQ) appended for Copper wound transformers. The prices for items indicated in price schedule shall include assessment and estimation, labour and all other charges involved in repair, testing, handling, loading, unloading, storage, marking and giving safe delivery of the transformers at Nigam's store(s) after satisfactory repairs, testing and painting of transformers, filtration of transformer oil etc. The total repair charges of each rating of transformer will form the basis of rate contract for repair work. The rate contract shall not be for part of the repair works. However, the rate contract shall be operative for individual items of repair work as may be assessed at the time of estimation.

15.2 The rates including premium for the items I, II-1, II-2 & II-10 of "Schedule of prices" should be quoted variable as per formula enclosed at Schedule-III-A without ceiling based on prices of average LME settlement price of copper wire bars for one month prior, transformer oil conforming to IS:335-1993 supplied in drums and labour index as on first day of the preceding month of tender opening published in IEEMA circulars and for the rest of items of the price schedule unit rate quoted shall be on firm price basis and no price variation shall be allowed. For claiming payment of labour charges, leg coils, transformer

oil, the contractor shall certify that there is no negative price variation on the items I, II-1, II-2 & II-10 .

- 15.3 The bidders are advised to quote their own individual rates. It may please be noted that if the same rate is quoted by more than one bidder, suggestive of a cartel, then such offers may not be considered by the Nigam. It may please be noted that competitive rate quoted by each bidder may be one of the main criteria for quantity to be ordered on each successful bidder.
- 15.4 The rates on which rate contract has been awarded for repair of single phase transformers under CRC AVVNL TN-903 may be considered as basic rate (As mentioned in BOQ) and the percentage premium is being asked from the bidders in to repair the single phase transformers with new mounting arrangements.
- 15.5) (i) GST :** Goods service tax government levy on spare parts (Components/ oil & other accessories) for the transformers repaired, which if legally applicable shall be paid extra at actual on production of necessary documents .The prices shall be quoted (Levey on the rates to quoted) by the tenderer after accounting for the benefits of GST and any other type of benefits as may be availed by them in future due to any modification/ insertion of new financial rules by the government shall be passed on to the Nigam.
- (ii) However, tenderers must specify clearly the present rate of GST to be charged by them on the prices mentioned in their quotations. In case it is not applicable at present to the tenderer, a clear mention to this effect should be made in the tender offer. The limit of contract value may also be mentioned to the extend up to which duties will not be charged.

DELIVERY:

The joint inspection for preparation of estimates shall be arranged within a week's time from the delivery of the damaged transformers at the works of the firm and estimate(s) shall be furnished within a week there-after. The transformers shall be repaired and offered for inspection & testing within 30 days from the date of issue of the work order by the concerned Superintending Engineer of (O&M) circle or within ten days from the date of filling transformer oil, if oil is supplied by NIGAM, whichever is later. The transformers after repair are to be delivered by the contractor at respective Nigam's store(s) through his own transportation, hence for the purpose of penalty towards delay in repair shall be worked out with actual date of delivery of repaired transformers.

17.0 DELAY IN DELIVERY:

- 17.1 The repair work shall be completed within stipulated delivery period. If the contractor fails to repair and deliver the transformers after due repair within the specified delivery dates, the Superintending Engineer (O&M), shall be entitled to recover an amount (for the transformers, the repair of which have been delayed/ not repaired) @ Rs.45.00 per week or part thereof of each transformer subject to maximum limit of Rs.450.00 per transformer. The Nigam will also have the right to cancel the order and forfeit the security deposit/ safe custody amount and get the repair work done by some other contractor/ repairing firm at the cost, risk and responsibility of the defaulting contractor or to recover maximum penalty levied along with to & fro transportation cost in case of delay in repairs/ non-repairs of the transformers beyond one month.
- 17.2 The final recovery amount shall be calculated by the concerned ACOS, and be submitted to concerned Superintending Engineer (O&M), who in turn will intimate to Sr. Accounts Officer (CPC), Ajmer Vidyut Vitran Nigam Limited, Ajmer after getting the same checked/ vetted by the concerned Circle Accounts Officer.
- 17.3 The concerned ACOS will also intimate the recoveries of repairing charges of the transformers which failed during its guarantee period, to the Sr. Accounts Officer (CPC),

Ajmer Vidyut Vitran Nigam Limited, Ajmer with due approval of concerned Superintending Engineer (O&M) and under information to Superintending Engineer (MM).

18.0 SECURITY DEPOSIT:

The successful tenderer shall have to deposit in cash or to furnish a Bank Guarantee (B.G.) **Rs.25,000.00 for each circle** towards security deposit for faithful execution of rate contract. Alternatively the tenderer should get themselves registered in "A" Class category under vendors registration scheme with Ajmer Vidyut Vitran Nigam Limited as per clause 1.5.3 of General conditions of Contract.

SECURITY DEPOSIT FOR SAFE CUSTODY OF DISTRIBUTION TRANSFORMERS:

19.1 The successful tenderers shall be required to furnish Bank guarantee (BG) for Rs. Two (2.0) lac towards safe custody of every Forty (40) Nos. of damaged transformers of assorted ratings in favour of SE (MM), AVVNL, Ajmer. The BG shall be from any scheduled Bank & shall be furnished on the Rajasthan Govt. non-judicial stamp paper of worth Rs.100/- on prescribed proforma. At the initial stage, the bank guarantee shall be valid for a period of minimum one year with 6 months grace period. SCBG will be released after repair of all GP failed transformer and issue of NOC "No Objection Certificate" from concerned store/ ACOS.

19.2 The contractor shall not be delivered damaged/ failed transformers from NIGAM's stores for repairing till such time the contractor furnishes security towards safe custody of transformers as specified as above in clause 21.0.

20.0 GUARANTEE:

20.1 The repairer shall obtain receipted challans from the concerned ACOS/ Stores Superintendent in respect of repaired / un-economical transformers delivered in stores and shall be furnished with the repair bills directly to the Sr. Accounts Officer (CPC), AVVNL, Ajmer for payment.

21.2 10% amount of repair cost shall be with-held towards performance guarantee of the repaired transformers accordingly 90% payment of repair cost of each lot of transformers shall be made on delivery of repaired transformers. The balance 10% payment shall be released by The Sr. Accounts Officer (CPC), Ajmer Vidyut Vitran Nigam Limited, Ajmer under intimation to the Superintending Engineer(MM), Ajmer Vidyut Vitran Nigam Limited, Ajmer and concerned circle Superintending Engineer after receipt of a certificate about satisfactory performance of transformers for each lot delivered in a particular month after expiry of the performance guarantee period (G.P.), from concerned ACOS in the prescribed proforma. The above limit of 90% & 10% will be considered as 95% and 5% respectively for the old & established contractors i.e. who have executed at least three repair rate contracts in the past awarded by RSEB or AVVNL or executed three orders for supply of transformers successfully.

21.0 GUARANTEE:

21.1 While attending repairs of the transformers, the repairer(s) shall ensure that the guaranteed technical particulars and performance of the same are maintained for repaired transformers. Under no circumstances, the value of, losses and efficiency shall be altered from specified in this specification.

21.2 The bidder shall have to furnish guarantee and warranty for the satisfactory performance of repaired transformers for **24 (twenty Four)** working months from the date of despatch, for whole unit ir-respective of parts repaired/ replaced during repairing. Subsequent repairing of Guarantee Period failed transformer shall carry further guarantee for **six months** from the date of receipt of transformer, after such repairs or balance guarantee period whichever is later. Hence during the joint inspection, successful bidder shall

thoroughly check up each coil and each part of the unit in presence of Nigam's Engineer(s) while submitting the estimate(s) for repairs to concerned Superintending Engineer. No extra charges will be allowed for transformers failed within guarantee period even though damages are found other than repaired/ replaced parts. The defects noticed during the period of guarantee shall be attended on priority and the transformer shall be repaired free of cost within a period of 30 days after receiving the transformer at their works without any liability on the Nigam. Any delay beyond 30 days in repair/ rectification of transformer shall be subjected to penalty as applicable for delay in delivery and also further joint inspection of other deposited transformers will not be carried out till the repair of guarantee period failed transformers is completed. Only external physical inspection and acceptance test as detailed above will be carried out for the guarantee period failed transformer(s) and no internal inspection will be carried out by our inspecting office and sealed with numbered seals if cleared for despatch.

22.0 PRICE FALL CLAUSE:

22.1 The price(s) charged for the works executed and spare parts supplied under the contract by the contractor shall in no event exceed the lowest price at which the contractor execute the works and sells spare parts of identical description to any other person/ firm during the period of contract.

22.2 If at any time, during the said period, the contractor reduces the prices for such works or sells such spare parts to any other person at a price lower than the price chargeable under the contract, the contractor shall forthwith notify such reduction of price to the Nigam and the price payable under the contract for the works executed and spare parts supplied after the date of such reduction shall stand correspondingly reduced. The contractor shall furnish certificates in the following form to ensure compliance of provisions of this clause.

"I/ We certify that the works executed or spare parts supplied of description identical to the works executed or spares supplied to the Ajmer Vidyut Vitran Nigam Limited. under the rate contract No. AVVNL/ SE/ MM/ TN- have not been sold by me/ us during the period of supply/ during the period from to to any other person at the price lower than the price charged from Ajmer Vidyut Vitran Nigam Limited under rate contract."

23.0 PARALLEL CONTRACTS :

23.1 The Nigam reserves the right for entering into parallel rate contracts with other firms and to assign and specify the areas of operation of rate contracts.

24.0 PAYMENTS:

24.1 The payments shall be arranged by the Sr. Accounts Officer (CPC), AVVNL, Ajmer against presentation of bills for repair of transformers based on the joint inspection report and the estimates approved by the concerned Circle Superintending Engineer(O&M). The repair bill should be supported by receipted challans in token of receipt of repaired distribution transformers/ un-economical transformers by the concerned Assistant Controller of Stores/ Stores Superintendent and the documents as stated at clause 14. The applicable sales tax along with surcharge there upon and any other statutory duties/ taxes at the prevailing rates for the value of the scrap shall be charged at the time of arranging payment by the Sr. Accounts Officer (CPC), AVVNL, and shall be deposited by the later with the Govt. However, the contractor shall not get any payment in absence of completion of contractual formalities such as furnishing of bank guarantees towards security deposit and safe custody of transformer and also execution of contract agreement etc. 10% amount of the repair cost shall be with-held towards performance guarantee of the repaired transformers. Accordingly 90% payment shall be made on delivery of transformer and balance 10% will be released after expiry of total guarantee period of the transformer.

The above limit of 90% & 10% will be considered as 95% and 5% respectively for the old and established contractors who have executed at least three contracts successfully in past.

24.2 The concerned Asstt. Controller of Stores (ACOS) will furnish the satisfactory performance report to the Sr. Accounts Officer (CPC), AVVNL, Ajmer under intimation to the S.E. (O&M)/ SE(MM) for each lot of the transformers delivered in a particular month, after expiry of guarantee period and will certify that there is no transformer lying failed within guarantee period pending for repair & nothing is recoverable from the firm against this lot of transformers. On the basis of such certificate from ACOS, the balance payment withheld towards performance bank guarantee will be released by the Sr. Accounts Officer (CPC), AVVNL, Ajmer for that lot.

25.0 SUBMISSION OF BILLS:

25.1 The bills for repairs of transformers shall be supported by the following documents for arranging payments:

- a) Copy of joint inspection report duly signed by all concerned including Superintending Engineer (O&M) & Accounts Officer (O&M).
- b) Approved estimate/ work order of SE (O&M)
- c) Inspection and despatch clearance report of the Inspecting Officer.
- d) Received challans of the consignee for the receipt of repaired transformers. At the time of verification of the challans, the concerned ACOS will record a certificate that all the transformers declared uneconomical during joint inspection & further during final inspection have been deposited by the contractor for the said lot.
- e) Proof of payment of excise duty and sales tax as claimed extra in the bills is required along with the bills for repairs of transformers.
- f) Certificates that material/ spares mentioned in the bills have been actually fitted/ used on the transformers.

26.0 TRANSPORTATION/ CARRIAGE OF TRANSFORMERS:

Lifting (Loading and unloading) of failed/ damaged distribution transformers from concerned stores for repair and returned back the same after due repair or after assessment of uneconomical viability based on joint inspection shall be in the scope of the contractor. Similarly the responsibility for to and fro transportation of G.P. failed transformers shall also be on contractor's account.

27.0 ASSESSMENT/ ESTIMATION OF REPAIRS :

27.1 The joint inspection of the damaged transformers shall be carried out at the circle stores of AVVNL by two Asstt. Engineers, nominated by the Circle Superintending Engineer out of the Asst. Engineers available in his circle by rotation and authorized representative of the contractor to assess and work out the details of damaged parts to be replaced and repairs to be carried out on every individual transformer(s). In the event of any difficulty in arranging the joint inspection in the stores premises of Nigam the Superintending Engineer (O&M) at his discretion can ask the contractor to arrange the joint inspection at their works. However, the Joint inspection facilities for labour and equipments for handling etc. at the circle stores of Nigam shall be provided by the Nigam. Six copies of the estimate for repair and testing for every damaged transformer in prescribed proforma indicating its S. No., make, year of manufacture & rating, purchase order No. & date, TN No. etc. shall be prepared after joint inspection.

27.2 To expedite repair work of distribution transformers & smooth operation of Rate Contract, the transformers declared un-economical at the time of joint inspection/ during inspection by Inspecting Officers shall be returned back expeditiously by the contractor's.

27.3 All the six copies of the estimates shall be signed by the contractor's representative and the officers of the Nigam. All the facilities for labour and equipment etc. shall be provided by the contractor at their works free of charge.

27.4 The joint inspection reports shall clearly indicate whether particular item being provided is against replacement of defective/ damaged or missing parts.

27.5 HV LEG COILS:

27.5.1 In case of damage of any of the HV leg coil, the contractor must replace the HT leg coils of the damaged distribution transformers by new HV leg coils of similar quality of material, insulation and cross section, number of turns etc. as utilized in damaged transformers.

27.6. LV LEG COILS:

The damaged single phase transformer(s) whose one L.V. leg coil found damaged/ burnt shall be repaired with HT coil.

27.6.1 The weight of new leg coils (the new coils shall be identical to the old coils) to be charged in the estimate for repairs shall be same as that of the old healthy leg coils taken out from the damaged transformers. Bills for repair of transformers shall be prepared accordingly for actual weight of new finished coils only. No cost of variation in weight on positive side referred by the contractor will be allowed. A list of actual weights of new leg coils of each transformer shall be furnished by the contractor while offering for inspection.

27.7 After joint inspection for estimation the contractor shall retain one sample of healthy HV/ LV leg coils of each damaged transformer, duly tagged with details such as make, type, capacity, S. No. of transformer, weight of leg coil, name of circle etc. duly signed by the joint inspecting officer under their seal, till the time of inspection and testing by inspecting officer of Nigam for purpose of verification of the technical details of fresh leg coils used by the contractor in the repaired transformers.

28.0 APPROVAL OF ESTIMATE:

28.1 The joint inspection for preparation of estimate shall be arranged within a week's time from the date of delivery of the transformers at their works and the gross estimates in respect of the transformers as within the prescribed **economical limit of 50% (Fifty percent) of the fix latest store issue rate(s)** shall be prepared and furnished within one week thereafter and shall be approved by the concerned circle S. E. (O&M) within three days, before carrying out repairs by the firm.

Delay in submission of repair estimate beyond one week (7 days) after joint inspection shall be to the account of repairer and the scheduled delivery period for the repair shall be reduced by period of delay beyond 7 days from the date of joint inspection. **If the gross estimate for repairing of a transformer exceeds 50 % of the price of the fixed applicable store issue rates of new transformer** then it has to be declared uneconomical and returned to the concerned stores.

28.2 This limit of 50% based on work order rate shall be exclusive of cost and fixing of M&P Box charges and shall be arrived on the basis of actual value of repair estimate without accounting for credit of the likely sale proceeds of the scrap/ salvage of HV/ LV leg coils, metals parts, drain valve, HV / LV Bushing, transformer oil etc.

28.3 Besides above a few major short-comings enumerated here under shall also make the transformer un-economical and therefore, not to be repaired.

- i) missing/ damage of core.
- ii) rusting of core

iii) major damage of tank, radiator & conservator.

28.4 A lump sum charges Rs.150/- shall only be payable towards handling of such uneconomical transformers .

28.5 The joint internal inspection of damaged distribution transformers will be carried out by the authorized representative(s) of Nigam, nominated by concerned SE (O&M). Opening of transformer activity shall be commenced only in presence of Nigam's representative(s). If transformer shall be found opened before the arrival of representative of Nigam at the works of repairing agencies, then the estimate(s) shall not be approved for repairs of damaged transformers and further transformers shall not be allotted to the repairing agency. The following points are to be taken care of in preparation/ approval of estimates:

28.6.1 The estimate(s) be vetted/ checked/ signed by the Circle Accounts Wing as per rates and other terms & conditions of Rate Contract and a certificate be recorded to that effect.

28.6.2 Also a certificate be recorded by representative(s) of the Nigam nominated by concerned SE (O&M)/ SE (MM) for joint inspection that :

- i) the transformer found economical for repair as per provisions of the rate contract order.
- ii) the transformer to be repaired is beyond original guarantee period of supply.

28.6.3 Availability of budget provisions.

28.7 The estimate(s) of the repairs after getting signed by the committee as above (Clause No.30.6) shall be submitted to the concerned circle SE(O&M) in 6 (six) copies. Three copies of the estimate duly approved shall be forwarded to the contractor by the Superintending Engineer (O&M), to enable repairer to commence the repair work on the transformers thereafter immediately.

28.8 Out of the 3 copies of the approved estimates received by the contractor, one copy shall be retained by him for his record and one copy along with the inspection clearance report shall be attached along with the bill(s) after satisfactory repairs and testing and shall be forwarded to the consingee/ stores officer to facilitate the verification. The remaining spare copies of approved estimate along with a copy of joint inspection report shall be handed over to the Inspecting Officer at the time of inspection and testing of the repaired transformers to facilitate checking and to ensure that the repairs have been done strictly in accordance with the approved estimates.

29.0 SUNDRY ITEMS:

Miscellaneous items not specified in the price schedule but are required for repairs and satisfactory operation of the transformer after repairs shall be provided by the contractor at the fixed rates given in the schedule of prices under title "SUNDRY ITEMS". These items may include Packing of bushing, rods, cover bolts, caps, screws, washers & insulating materials to be provided between HV & LV leg coils and interchangeable leg coils, minor repairs of tank and all other parts not specifically mentioned in price schedule including denting, welding etc. if required which are necessary for satisfactory operation of the transformer after repairs.

30.0 DAMAGED PARTS:

30.1 The damaged HV/ LV coils will be retained by the repairer after cutting the same at one point i.e. in two pieces in presence of Nigam's representative for which necessary details shall be given in joint inspection report to be signed by the repairer and Nigam's representative. Similarly other salvages viz. like bushing rods, caps, tap changing etc. metal parts are also to be retained by the repairer.

30.2 SALVAGES: All the salvages/ scrap of damaged/ replaced parts & burnt leg coils except removed parts such as caps, plugs etc. shall be retained by the repairer and Nigam will make 100% deduction towards cost of scrap along with sales tax/ VAT including surcharge thereupon and any other duties/ taxes at the prevailing rate at the time of payment by the Sr. Accounts Officer (CPC) from the repair bill and the latter shall arrange to deposit the amount of sales tax with the Govt. from the repair bill. The cost of copper coil scrap shall be fixed on the basis of rates published in the Economics Times, New Delhi on the date of Joint inspection. In case of copper coil scrap, rate of copper wire scrap less 15% towards impurities is to be taken into account for working out cost of copper coil scrap. As regards metals parts & other salvages, the rate of these items shall be fixed on the basis of average rate obtained in the Last auctions conducted, to be notified by DCOS, AVVNL, Ajmer.

The transformer oil shall be retained by the concerned ACOS before handing over the transformers for repair to the firm.

31.0 TESTS AND TEST CERTIFICATES:

31.1 All the transformers after repairs shall be subjected to all the routine & acceptance tests specified in the relevant ISS detailed in clause 14.0 of the technical specification (Section-III) appended herewith.

31.2 One transformer at random will be selected by the Inspecting Officer to verify physically the size of the conductor, weight of HV & LV leg coils, quantity of oil and quality of material used and workmanship, identification mark in shape of polyester strip carrying repair's name and month of manufacturing in HV/ LV coils, name plate as provided on top channel of core coil assembly etc. In case of finding reduced quantity/ weight of coil/ oil, the repair cost of transformers offered in that lot will be reduced accordingly in the same proportion and no extra payment toward loss will be paid to the contractor.

31.3 The contractor will ensure that the best quality ISI approved material is used as far as possible. The Nigam reserves the right to get conducted any test of reasonable nature at the contractor's premises, or at site in addition to the aforesaid tests and those included in the rate contract at the contractor's expenses to satisfy himself that the spare parts supplied and repairs carried out comply with specification. The contractor shall be required to rectify the defects, if any found in such tests at his own cost.

31.4 The contractor shall send copies of inspection reports duly signed by the Inspecting Officer along with test results sheet & other relevant certificates to the concerned consignee(s) and to the concerned Superintending Engineer (O&M) for each and every transformer.

32.0 INSPECTION AND TESTING:

32.1 The contractor shall give at least 7 days advance intimation to concerned Superintending Engineer (O&M), AVVNL, for arranging inspection of a lot of minimum 20 Nos. of repaired transformers or the total quantity of lot/ work order whichever is less so that Nigam may depute its representative(s) for inspection and testing of the same. The contractor shall furnish the packing list with inspection call of repaired transformer(s) as under :

- a) Job No.
- b) Work order No.
- c) Transformer(s) make & serial No.
- d) Weight of HV/ LV coils
- e) Total weight
- f) Quantity of transformer oil

32.2 No transformer shall be despatched without inspection and testing clearance by the Inspecting Officer. The transformers inspected & cleared for despatch by Inspecting Officer shall be provided with following type of seals and stickers:

- i) Numbered polycarbonate/ lead seals punched with sealing plier on diagonally opposite corners on top cover of transformers.
- ii) One number non-removable, temper proof paper seal/ sticker duly signed by the Inspecting Officer.

32.3 In case of failure of repaired transformers in guarantee period, the seals are to be opened in the presence of Nigam's representative after external inspection. Again after inspection and testing of G.P. failed/ repaired transformer numbered lead seals/ stickers shall be provided by the Nigam's inspecting officer.

32.4 The contractor shall record the following certificate on the invoice/ packing list (challan) of each transformer:-

"Certified that the consignment (lot) of repaired transformers as inspected by Sh. designation has been got tested sealed and cleared. The test results were found to be within the limits of values specified in the relevant ISS/ contract as per copy of test results enclosed." Witnessed by Sh. designation

32.5 A team from Nigam shall visit the works of repairing agency at any time and verify the estimate/ assessment for transformer repairing, quality of components used, testing instruments, machinery/ equipments, test reports of earlier transformers tested, etc. They may also witness some or all tests on the transformers available in the factory/ workshop of the repairing agency. Repairing agency shall co-operate this team during its visit and furnish all the details required by them. In case any default is observed during this visit, necessary action shall be taken against defaulting repairing agency including cancellation of the contract and /or black listing the repairing agency.

32.6 Contractor will not charge for inspection and assessment of damaged transformers.

33.0 RANDOM SITE TESTING :

33.1 The Nigam reserves to itself the right of having at its own expenses any test of reasonable nature carried out on the transformers received in the stores/ site after repair. For this purpose, the Nigam's authorised representative shall select transformer(s) from the supplied lot(s) at random from the stores/ sites as per selection procedure specified below for conducting the following tests at any test house/ Nigam premises.

- i) Measurement of No Load loss/ No Load current and load losses.
- ii) Verification of weight of HV/ LV leg coils.
- iii) Di-electric strength of transformer oil
- iv) Testing of transformer oil for conformity to the various requirements/ tests of IS:335/1993.

33.2 CRITERIA FOR RANDOM SELECTION & TESTING (RST):

One transformer will be selected at random out of supply of every 100 Nos. repaired transformers of different ratings.

34.0 MANDATORY CTL TESTING:-

After pre dispatch inspection of material at Firm's works, the sample(s) will be drawn from the lot (s) received in store(s) and will be subjected to following Tests:-

- 1) One transformer will be selected out of every lot of 10 Nos. or part thereof for measurement of No load Losses, No Load current, Load Losses, Impedance voltage and thickness of M&P Box. The testing shall be arranged either at purchaser's own testing lab and/ or at independent test lab. The testing charges for

such tests shall be borne by the purchaser. The test results will be applicable to the respective lot of 10 Nos. from which sample was drawn.

Verification of weight of HV/ LV leg coils.

Di-electric strength of transformer oil

- 2) Testing of transformer oil for conformity to the various requirements/ tests of IS:335/1993.

One Transformer will be checked in CTL out of 10 Nos. transformers or part thereof for following:

- i) **Size of Box**
- ii) **Size of wire from MCCB to Meter**
- iii) **Size of Lugs**
- iv) **Make of MCCB (01 No selected for physical verification out of 100 nos. or part thereof)**

The percentage impedance voltage at rated current shall not exceed the permissible limit as specified with allowable tolerance failing which the sub lot of transformers represented by the sample shall be rejected. The transformers selected for total Losses shall also be subjected to magnetizing current and in case found beyond the limit, the lot shall stand rejected.

The I.R. values of the sample(s) shall be measured at CTL, Ajmer and it must be more than 50 MEGA-OHM.

35.0 MATERIALS:

35.1 All material used in the repairs/ construction of the equipment shall be of the best quality of its kind and except where modified by the specification shall comply in all respect with the standard(s) laid down by ISI.

35.2 The spares/ equipments to be used in the repairs of the damaged transformer(s) should comply with one consistent set of standards.

35.3 In order to avoid inconsistencies in electrical characteristics of HT/ LT bushings, the broken/ damaged bushings with metal parts shall be replaced by the bushings of the specified/ approved makes or the entire set of HT/ LT bushings may be changed by a new set of bushings as per IS specifications, if required. Such bushings should bear manufacturer's trade mark, month & year of manufacture etc. HV/ LV Bushings of the following make or other approved makes shall be used for replacement in repair of transformers.

- i) H.V. BUSHING:- BEPCO, Jayshree, WSI, Associated Porcelain (only 11 KV), Seshasayee, Jaipur Glass, Luster Ceramics, BPPL, Bikaner.
- ii) L.V. BUSHING:- The LV coil shall be taken by cut on the top core clamp duly reinforced to compensate for the mechanical strength.

In case of externally mounted L.T. Breaker (MCCB), the L.T. bushing and the terminals shall be suitable for being concealed inside the MCCB cum distribution box from where the connections shall be released through outgoing L.T. Terminal bushings as per IS:3347 (Brass) as per enclosed drawing at Annexure-A.

The LV bushings shall be of reputed make such as BEPCO, JAYSHREE, WSI, SESHASAYEE, JAIPUR GLASS, BPPL Bikaner, Agarwal salt Co. Bikaner, Baid Sanitary Works, Bikaner/ Krishna Ceramics, Nasirabad or any other make - approved by the purchaser. The LV bushings shall generally conform to IS: 3347 and IS: 7421”.

34.4 The damaged porcelain bushings requiring replacement shall be replaced by such bushings keeping in view that these should have ample margin of safety as regards flash-over in

order to eliminate all troubles due to condensation under sudden varying atmospheric conditions and trouble from dust.

The HV/ LV bushing(s) shall be marked with manufacturer's trade mark and month & year of manufacture during firing.

34.5 METAL PARTS:

34.5.1 All the aluminum metal parts shall be removed & replaced with new brass metal parts strictly conforming to relevant standards.

34.5.2 The dimensions of HV & LV metal parts shall be strictly conformed to IS:3347(Pt.I & III).

35.0 **EXTRAS:**

When asked in writing by the Superintending Engineer (O&M)/ (MM), AVVNL to perform such extra work and supply such extra material, not covered within the scope of this specification as specified under various clauses of same, such work and material which is of most necessity shall be got complied by the contractor and its charges shall be paid extra at the rate and terms to be mutually agreed upon. This shall however, not exceed the economic limit of repairs.

36.0 ATMOSPHERIC CONDITIONS:

The transformers after satisfactory repairs/testing shall be suitable for satisfactory operations in tropical climate and shall be able to withstand a wide range of temperature and climatic erratic variations / conditions experienced in Rajasthan including exposure to direct sun.

- | | | |
|---------------------------------|---|------------|
| i) Annual rain fall (Max.) | : | 0-100 cms. |
| ii) Max. ambient temp. in shade | : | 50 Deg. C. |
| iii) Max. relative humidity | : | 90% |
| iv) Min. temp. of air in shade | : | 0 Deg.C |
| v) Min. relative humidity. | : | 10% |

37.0 **PAINTING:**

37.1 All metallic surface exposed to the weather and requiring painting shall be given one suitable priming coat after derusting by sand/ shot blast or chemical cleaning including phosphating as per IS:3618 and one coat of thermo-setting powder paint or two coats of zinc-chromate followed by two coats of synthetic anamel paint of dark admirally Grey shade confirming to shade No.632 of IS:1961 shall be applied. The rates for one coat spray painting without primer etc. shall also be quoted separately.

37.2 The inside of transformers shall be given suitable priming coat after derusting and two finishing coats of heat resistant (hot oil proof) paint which may not cause any deterioration of properties of the transformer oil by chemical reaction etc.

38.0 DESPATCH INTIMATION:

38.1. After satisfactory repairs and testing, the contractor is required to send telegraphic intimation to the consignee/ stores officer under intimation to the concerned Superintending Engineer (O&M). The telegraphic intimation will contain information regarding quantity and the amount of the bill.

38.2. In addition to above the contractor shall be required to send the monthly statement to the concerned S.E.(O&M) and S.E(MM) of quantities of the transformers of various makes, types and capacities received from various consignees, repaired and delivered back by 7th of every next month.

RESPONSIBILITY FOR SAFE CUSTODY OF TRANSFORMERS DURING THE REPAIR PERIOD:

The contractor shall be entirely responsible for the safe custody of transformers from the day damaged transformers are received by him from the consignee/ stores officer upto the time of delivering back and will be fully responsible for any loss caused due to damage/ theft/ fire/ floods etc.

40.0 STATEMENT OF TRANSFORMERS REPAIRED AND DELIVERED TO CONSIGNEE:

The contractor will be required to send the following details of the transformers repaired by him to the concerned Superintending Engineer (O&M) and Superintending Engineer (MM), AVVNL, Ajmer:-

- a) A copy of invoice pertaining to the particulars of transformers repaired by him immediately after delivery of the same to the concerned indenting/ demanding officer(s).
- b) A statement of transformers received, repaired and delivered in the preceding month should be furnished in the following proforma, so as to reach by 7th of the following month.

S.No.	Name of Circle Store/ Sub-store.	No.of transformers received for repair during the month. reporting month	Progressive total of No. of transformers recd.for repair upto	No.of transformers for which joint inspection was carried upto end of month under report and estimates have also been approved.
1.	2.	3.	4.	5.
No. of transformers repaired during the month under report.		Number of repaired transformers for which inspection & testing is pending.		Progressive total of number of transformers delivered after satisfactory repairs and testing upto the month under report
6.		7.		8.

Transformer failed more than once during the guarantee period shall be counted for total number of failure for working out the percentage failure rate. The inadequate failure rate will effect performance adversely for the repairer firms and continuance during contract period. Contract is likely to be cancelled.

To watch the performance of the repairer firm, half yearly position of repaired transformers and failure thereof firm wise shall be compiled at the circle level and sent to be S.E (MM.) for reviewing the same.

- c) Besides above fortnightly information about transformers failed in the GP and sent for repair, shall also be furnished by the repairing firm(s) in the following proforma to the SE(O&M) and SE(MM):

S.NO.	RATING	MAKE	TRNASFORMER SERIAL NO.	WORK ODER NO. & DATE	DATE OF REPAIR
1.	2.	3.	4.	5.	6.
DATE OF FAILURE	DATE OF RECEPT OF TRANSFORMER	DATE OF RE-REPAIR	PROGRAMME FOR REPAIR	REMARKS	
7.	8.	9.	10.	11.	

41.0 RESPONSIBILITY OF CONTRACTOR AND COMPLETENESS:

- 41.1. The contractor shall be entirely responsible for the satisfactory execution of this contract in accordance with the terms of the rate contract laid down here-in.
- 41.2. Approval of the contract/ sub-contract, test certificates or of tests carried out by the repairer or the representatives of the Nigam shall not relieve him from any of his obligations to meet out all the requirements of this specification or from the responsibilities for the satisfactory repair and working of the transformer(s) for the guarantee period.

42.0 INTER-CHANGEABILITY:

All parts shall be made accurately to standard gauge as far as possible so as to facilitate the replacement and repairs. All corresponding parts of similar make, type and capacity of transformers including the spare parts shall be interchangeable.

43.0 RATE CONTRACT WITHOUT PREJUDICE:

The rate contract shall be without prejudice to any of the terms of specification or the rate contract order of the Ajmer Vidyut Vitran Nigam Limited or any rate contract of DGS&D or purchase department of any other Govt./ Semi-Govt. Undertaking or of the other rate contract of the Ajmer Vidyut Vitran Nigam Limited whatsoever it might be .

44.0 NUMBER/QUANTITY TO BE CONTRACTED FOR:

- 44.1 The approximate number of transformers to be got repaired are around 5,000 Nos. of various ratings. The orders for the repair of damaged distribution transformers shall depend on their capacity, delivery quoted, performance, workmanship, financial status of the contractor, pending orders in hand, firm's performance in executing pending orders apart from the rates quoted for such items as mentioned under schedule of prices.
- 44.2 The Nigam reserves the right to place order for any quantity for undertaking the repairs by the rate contracting firm(s) during the period of the contract or extension thereof. It also reserves the right of placing any supply order of articles or repairing the failed/ damaged unit(s) provided that is included in the contract. If the total amount of the repairs is expected to exceed more than the estimated amount of the order at the time of taking job on actual repairs, this shall be intimated to the S.E (O&M), in advance who as an exceptional case may convey approval but limited to the economical limit of repair. In case it is found that the contractor is not in a position to supply/ execute the specific quantities or number/ works within the period in which repairs/ supplies/ works are required to be completed, the job will be got lifted from the firm's premises and shall be got repaired departmentally or through any other firm after imposing the due penalties as per

stipulations of Clause No. 19 above. The contractor(s) will make their own arrangements for procurement of raw material in time to deliver repaired transformers within specified time.

45.0 PARTIES TO THE CONTRACT:

Ajmer Vidyut Vitran Nigam Limited represented by the Chairman and Managing Director which shall include his legal representative, successor or assignees shall constitute the one part of the contract. The Superintending Engineer(MM), AVVNL, Ajmer shall award the rate contract to the successful tenders on behalf of the Ajmer Vidyut Vitran Nigam Limited.

46.0 PERIOD OF RATE CONTRACT:

The rate contract shall be valid initially for a period of **two year** from the date of award of the Rate Contract and further extension for one year or part thereof shall be considered provided percentage failure of the repaired distribution transformers in guarantee period is found satisfactory and within the prescribed limit. All the orders placed within this period shall be got executed by the contractor even though the delivery of the repaired equipment or spares supply order falls beyond the expiry of the rate contract period.

Nigam reserves the right to discontinue the repair work of distribution transformers in case the failure rate of repaired distribution transformers is observed more than 15%. The failure rate shall be worked out for minimum failure of two transformers. Subsequent failure of same transformer shall be counted in failure rate.

47.0 INSPECTION CHARGES FOR UNECONOMICAL UNITS:

A sum of rupees one hundred fifty (Rs.150/-) will be paid for handling of uneconomical transformers. However repairer will have to reseal the unit by tack welding at six places in presence of Nigam's representative. The repairer has to assemble the unit again i.e. core/HV, LV winding etc. In the actual position before tack welding instead of just dumping the parts in the transformer tank.

48.0 DOCUMENTS TO BE SUBMITTED:

48.1 The Bidder shall also furnish the following details along with other information as mentioned in the prescribed schedules of the bid documents:

- (i) List of partners/ Directors with their permanent as well as present residential address and details such as their relationship, if any with the Nigam's employee(s).
- (ii) List of machineries/ testing equipments with makes S. No. and other technical particulars as per Schedule-IX(A) & IX(B).
- (iii) Attested copy of proper valid SSI registration.
- (iv) Details of Rating wise transformers repaired and failed within GP for the period from _____ or date of award to _____ under CRC TN-1208. (Not required in this TN-1208)
- (v) Details of factory set-up with blue print.
- (vi) Copy of latest Electric bill.
- (vii) Calibration report of the testing instruments from the Government Approved Lab.

48.2 In case all details as mentioned above are not furnished with the bid offer or proved false, the bidder offer shall be liable to be disqualified.

49.0 FAILURE TO EXECUTE THE ORDER:

In case of failure on the part of repairer to cope with the works within the specified period, the same will be got executed through some other agency even at higher rates and the difference in amount if any, will be recovered from the repairer.

- 49.1 In case of poor progress of repairs of transformers, Nigam reserves the right to curtail the allocation of quantity. If performance/progress of repairing is poor, then rate contract order shall be cancelled without giving any notice and/or assigning the reason by the Nigam.
- 49.2 The repairer shall have to complete all formalities such as agreement, furnishing of security deposit etc. within 15 days from the date of receipt of contract order, otherwise contract order shall be automatically treated as cancelled.

50.0 **DISPUTES:**

- 50.1 All disputes, differences or questions whatsoever which may arise between the Nigam and repairer upon or in relation to or in connection with this contract shall be deemed to have arisen at Ajmer (Rajasthan) and no court other than court at Ajmer (Rajasthan) shall have the jurisdiction to entertain or try the same.
- 50.2 In case of any question/ disputes, differences whatsoever arise between the Nigam and contractor upon or in relation to the contract, the matter may be referred to the settlement committees constituted by NIGAM depositing requisite reference fee with Sr. Accounts Officer (EA & Cash), AVVNL, Ajmer.

51.0 **MINIMUM REQUIREMENT FOR VENDOR REGISTRATION OF NEW REPAIRING FIRMS:**

The following are the minimum requirement for new repairing firm(s) besides observing the formalities as prescribed in section-I/II of these tender documents:

1. Independent constructed factory shed.
2. Sufficient open land for storing of failed/ repaired transformer(s) with movement of man / material/ vehicle.
3. Loading & unloading facility for transformer(s).
4. Permanent electric connection
5. All necessary machinery for repairing of distribution transformers such as winding machine, drill machine, welding machine (electric/ arc welding/ gas welding).
6. Oven for storing minimum 10 nos. of job of 11/0.433 KV distribution transformers.
7. Oil filter machine with sufficient capacity.
8. Chain pulley block of 2-ton capacity or electric hoist of similar capacity.
9. Testing equipments suitable to carry out all routine & acceptance tests as per IS: 1180 and IS : 2026 along with calibrated meters.
10. Test bench for conducting acceptance tests with high accuracy class of meters.
11. List of machinery as per Schedule-IX-A.
12. List of testing instruments as per Schedule-IX-B.
13. Proof of ownership deed.
14. List of partner / director(s).

52.0 **CAPACITY ASSESSMENT:-**

The repairer firm should have Pneumatic Coil Winding Machine for repair of single phase distribution transformers.

The capacity assessment should be carried out prior to opening of price bid and the price bid will be opened of those firms who will have above mentioned machines for repair of single phase distribution transformers and shall furnish invoice for the same during Capacity Assessment.

ANNEXURE-I**PROTECTION:**

The transformer shall have the following additional fittings features as its integral part for HV/ LV protection:

The Meter Protection Box shall have one chamber only containing LT Bushing, MCCB, relay and outgoing LT terminal Bushings as per IS 3347 (Brass) for releasing consumer connections. The chamber is fully sealed. The drawing of the LT Box is enclosed at Annexure-A.

17.1 The transformer shall have the following CSP features:

(a) **INTERNAL HV FUSES ON THE HT SIDE OF TRANSFORMER:**

Specification for the HT fuses: Expulsion/ any other suitable fuse placed in series with primary winding. This fuse is mounted normally inside of the primary bushing and is connected to the high voltage winding through a terminal block. This has to protect that part of the electrical distribution system which is ahead of the Distribution transformers from faults which occur inside the Distribution transformers i.e., either the windings or some other part of the transformer. It shall be ensured that this fuse does not blow for faults on the secondary side (LT side) of the transformer i.e., the blowing characteristic of the fuse and LT breaker shall be so coordinated that the fuse shall not blow for any faults on the secondary side of the transformer and these faults shall be cleaned by the LT breaker only. The fuse shall be make of ERMCO or any make approved by AVVNL.

EXTENALLY MOUNTED MCCB FOR LV SIDE:

Single pole MCCB is to be provided on LV side with overload trip release with inverse time current characteristics for overload protection and magnetic trip release for instantaneous tripping in the wake of short circuits.

The type test certificate of the MCCB meeting the below mentioned tripping characteristics shall also be furnished with the tender:

Application	Outdoor (enclosed).
Utilization category	A (IS: 13947/1993) as amended upto date.
Type	Magnetic/ Thermal Magnetic trip free mechanism.
Number of poles	One
Reference ambient temperature	40° C.
Rated insulation level	660 V.
Impulse withstand	8 kV peak.
Rated operational voltage	240 V.
Continuous current rating	60 A
Fixed overload release setting (Amp)	25 Amp
Ultimate Short Circuit Breaking capacity (ICU)	18 KA at 0.3 P.F. at 240 V AC.
Rated service Short Circuit Breaking capacity (ICS)	18 KA at 0.3 P.F. at 240 V AC.
Power factor for Short Circuit (Max.)	0.3 (lag.)
Terminal capacity	2x16 sq.mm. Aluminium cable.
Application Standard	IS 13947 Part2 latest.
Time current characteristics	To coordinate with HV fuse.

The MCCB shall not cause any nuisance tripping due to switching current of motor & capacitor load, and shall have the following Time Current Characteristics.
Multiple of normal current setting

Tripping time

1.05	More than 2.5Hrs.
1.1	Less than 2.5 Hrs
1.15	More than 1Hr. & Less than 2Hrs.
1.2	More than 0.5 Hrs. & Less than 2Hrs
1.3	Less than 30 minutes.
1.4	Less than 10 minutes.
2.5	Less than 1 minute.
6.0	Less than 5 seconds.
8.0	Less than 40 milli seconds
12.0	Instantaneous (less than 20 milli seconds)

For the above time/ current characteristics reference calibration Temperature of the breaker shall be 50 deg.C. Deration if any upto 60 deg.C ambient Temperature shall not exceed 10% of the current setting indicated above.

The MCCB inverse time current characteristics have to be coordinated with under oil HV fuse and the same shall be submitted along with the offer.

The contacts of MCCB should be self wiping type so as to keep the contacts clean and milli volt drop low.

MCCB cum distribution box is ready to be used condition and to be mounted on the transformer tank directly. The enclosure shall be made with sheet of thickness not less than 1.6 mm. It shall be painted with colour Shade No. 220 both inside and outside with powder coating.

The following makes of MCCB shall be acceptable: Seimens/ L & T/ ABB/ GE Power/ Schneider-CG/ SPACEAGE_Hyundai/ HAVELLS/ H. B. ELECTRO/ C&S/ HPL and equivalent make as approved by Discom. The MCCB shall directly be purchased from the manufacturer or the authorized dealer or stockiest, however in every case of purchase of MCCB the delivery shall be from the manufacturer's godown for which a copy of bill shall be given to inspecting officer at the time of inspection.

The bidder shall submit the type test reports as per IS:13947/1993 for test sequence I, II& III complete with certified drawings, Oscillograms and approved drawing from NABL approved laboratory along with the offer.

The successful bidder shall be required to furnish the guarantee certificate of 5 years obtained from the MCCB Manufacturer as per the enclosed format on Rs.100.00 Nonjudicial stamp paper.

Acceptance Tests:

The following test(s) shall be carried out by purchaser's representative on MCCB's on the sample numbers equivalent to the number of transformer samples.

1. Overall Dimensional Checking.
2. High Voltage test at 3 kV for one minute.
3. Insulation resistance test.

ANNEXURE-II

The transformer shall have the following additional fittings features as its integral part for HV/ LV protection:

The Meter Protection Box shall have one chamber only containing LT Bushing, MCCB, relay and outgoing LT terminal Bushings as per IS 3347 (Brass) for releasing consumer connections. The chamber is fully sealed. The drawing of the LT Box is enclosed at Annexure-A.

17.2 The transformer shall have the following CSP features:

(a) **INTERNAL HV FUSES ON THE HT SIDE OF TRANSFORMER:**

Specification for the HT fuses: Expulsion/ any other suitable fuse placed in series with primary winding. This fuse is mounted normally inside of the primary bushing and is connected to the high voltage winding through a terminal block. This has to protect that part of the electrical distribution system which is ahead of the Distribution transformers from faults which occur inside the Distribution transformers i.e., either the windings or some other part of the transformer. It shall be ensured that this fuse does not blow for faults on the secondary side (LT side) of the transformer i.e., the blowing characteristic of the fuse and LT breaker shall be so coordinated that the fuse shall not blow for any faults on the secondary side of the transformer and these faults shall be cleaned by the LT breaker only. The fuse shall be make of ERMCO or any make approved by AVVNL.

(b) **EXTERNALLY MOUNTED MCCB FOR LV SIDE:**

Single pole MCCB is to be provided on LV side with overload trip release with inverse time current characteristics for overload protection and magnetic trip release for instantaneous tripping in the wake of short circuits.

The type test certificate of the MCCB meeting the below mentioned tripping characteristics shall also be furnished with the tender:

Application	Outdoor (enclosed).
Utilization category	A (IS: 13947/1993) as amended upto date.
Type	Magnetic/ Thermal Magnetic trip free mechanism.
Number of poles	One
Reference ambient temperature	40° C.
Rated insulation level	660 V.
Impulse withstand	8 kV peak.
Rated operational voltage	240 V.
Continuous current rating	150 A for 25 KVA, 100 A for 16 KVA & 63 A for 10 KVA
Fixed overload release setting (Amp)	120 Amp for 25 KVA 80 Amp. for 16 KVA 50 Amp. for 10 KVA
Ultimate Short Circuit Breaking capacity (ICU)	18 KA at 0.3 P.F. at 240 V AC.
Rated service Short Circuit	18 KA at 0.3 P.F. at 240 V AC.
Breaking capacity (ICS) Power factor for Short Circuit (Max.)	0.3 (lag.)
Terminal capacity	2x25 sq.mm. Aluminium cable.
Application Standard	IS 13947 Part2 latest.
Time current characteristics	To coordinate with HV fuse.

The MCCB shall not cause any nuisance tripping due to switching current of motor & capacitor load, and shall have the following Time Current Characteristics.

Multiple of normal current setting	Tripping time
1.05	More than 2.5Hrs.
1.1	Less than 2.5 Hrs
1.15	More than 1Hr.& Less than 2Hrs.
1.2	More than 0.5Hrs.& Less than 2Hrs
1.3	Less than 30 minutes.
1.4	Less than 10 minutes.
2.5	Less than 1 minute.
6.0	Less than 5 seconds.
8.0	Less than 40 milli seconds
12.0	Instantaneous (less than 20 milli seconds)

For the above time/ current characteristics reference calibration Temperature of the breaker shall be 50 deg.C. Deration if any upto 60 deg.C ambient Temperature shall not exceed 10% of the current setting indicated above.

The MCCB inverse time current characteristics have to be coordinated with under oil HV fuse and the same shall be submitted along with the offer.

The contacts of MCCB should be self wiping type so as to keep the contacts clean and milli volt drop low.

MCCB cum distribution box is ready to be used condition and to be mounted on the transformer tank directly. The enclosure shall be made with sheet of thickness not less than 1.6 mm. It shall be painted with colour Shade No. 220 both inside and outside with powder coating.

The following makes of MCCB shall be acceptable: Seimens / L & T/ ABB/ GE Power/ Schneider–CG/ SPACEAGE_Hyundai/ HAVELLS/ H. B. ELECTRO/ C&S/ **HPL** and equivalent make as approved by Discom. The MCCB shall directly be purchased from the manufacturer or the authorized dealer or stockiest, however in every case of purchase of MCCB the delivery shall be from the manufacturer's godown for which a copy of bill shall be given to inspecting officer at the time of inspection.

The bidder shall submit the type test reports as per IS:13947/1993 for test sequence I, II & III complete with certified drawings, Oscillograms and approved drawing from NABL approved laboratory along with the offer.

The successful bidder shall be required to furnish the guarantee certificate of 5 years obtained from the MCCB Manufacturer as per the enclosed format on Rs.100.00 Nonjudicial stamp paper.

Acceptance Tests:

The following test(s) shall be carried out by purchaser's representative on MCCB's on the sample numbers equivalent to the number of transformer samples.

1. Overall Dimensional Checking.
2. High Voltage test at 3 kV for one minute.
3. Insulation resistance test.

Instruction and operation Manual

The successful bidder shall be required to submit 5 copies of Instruction and Operation manual for each lot of 100 Transformers (or part thereof) supplied. This instruction manual should give complete details about the pre-commissioning tests/ checks and the details of preventive maintenance etc.

Signal Light (LED Indicating Lamp)

The MCCB enclosure shall be provided with LED indicating lamp to indicate tripping of MCCB. An auxiliary relay with changeover contacts can be used to connect LED indicating lamp to the transformer secondary terminals, if MCCB is not having auxiliary contacts. In case the MCCB trips or switched OFF, the relay contacts are closed which turns ON the LED indicating lamp. When the MCCB is reset and switched ON, the indicating lamp switches OFF. Signal light shall be arranged to avoid damages while handling the MCCB enclosure at site.

(Appendix-A)

FORMAT OF AFFIDAVIT

IS/oAge Yrs. Residing at
..... Proprietor/ Partner/ Director of M/s
..... do hereby solemnly affirm and declare that:

(a) My/Our above noted enterprise M/s has been issued acknowledgement of Entrepreneurial Memorandum Part - II by the District Industries Center The acknowledgement No. is dated and has been issued for manufacture/repairer of following items:

Name of Item (manufacture/repairer)	Production Capacity (Yearly)
--	-------------------------------------

- (i)
- (ii)
- (iii)
- (iv)
- (v)

(b) My/Our above noted acknowledgement of Entrepreneurial Memorandum Part - II has not been cancelled or withdrawn by the Industries Department and that the enterprise is regularly manufacturing/repairing the above items.

(c) My/Our enterprise is having all the requisite plant and machinery and is fully equipped to manufacture/repairing the above noted items.

Place _____

Signature of
Proprietor/ Director Authorized
Signatory
with Rubber Stamp and date

Appendix-B

AJMER VIDYUT VITRAN NIGAM LIMITED
(MATERIAL MANAGEMENT WING)
Corporate Identification Number (CIN) – U40109RJ2000SGC016482
 Regd. Off. Vidyut Bhawan, Panchsheel Nagar, Makarwali Road, Ajmer-305004

Phone: +91-145-2644529 E-mail - semmajmer@gmail.com Website - <http://energy.rajasthan.gov.in/avvnlavn1>

**DETAILS OF BANK FOR RTGS
 FOR FURNISHING BID SECURITY/BANK GUARANTEE**

1.	Account No.	61186312571
2.	Account Holder Name	Sr. Accounts Officer (EA & Cash)
3.	Bank Name & Branch	State Bank of India Collectorate Branch, Jaipur (Rajasthan)
4.	IFS Code	SBIN0031026
5.	Phone No. of Sr. Accounts Officer (EA & Cash) AVVNL Ajmer	0145-2642532
6.	Email ID of Sr. Accounts Officer (EA & Cash) AVVNL Ajmer	sraoeacash313@gmail.com
7.	GSTIN of Ajmer Discom	08AACCA8562EIZP

Appendix-I

Bidders are requested to furnish following details:

- 1. Name of Firm :**

- 2. Office Address :**

- 3. Work's Address :**

- 4. Email Address :**

- 5. Phone / Mobile No. :**

- 6. Fax No. :**

- 7. Name of Firm's representative :**

- 8. Contact No. of Firm's representative :**



AJMER VIDYUT VITRAN NIGAM LIMITED
Corporate Identification Number (CIN)-U40109RJ2000SG016482
Regd. Off. Vidyut Bhawan, Panchsheel Nagar, Makarwali Road, Ajmer-305004.
(Tel. 0145-2644529. Fax 0145 – 2644542 E-mail Semmajmer@gmail.com.)

SPECIFICATION FOR REPAIR OF FAILED/ DAMAGED 5 KVA TO 25 KVA SINGLE PHASE COPPER WOUND DISTRIBUTION TRANSFORMERS WITH M&P BOX AGAINST TENDER NOTICE NO: TN-1208

A	NIT No.	TN-1208
B	Cost of tender specifications	Rs. 2950 (Non-Refundable) (Two Thousand Nine Hundred Fifty Only)
C	Processing fee of RISL	Rs. 1180.00 (Non-Refundable) (One Thousand One Hundred Eighty Only)
D	Bid Security to be deposited with Tender	(i) General Bidder : Rs. 8.00 Lac (ii) Sick Unit : Rs. 04.00 Lac (iii) SSI Unit of Rajasthan : Rs. 2.00 Lac
E	Validity	120 days from the next date of opening of techno-commercial bid or 90 days from the next date of opening of Price bid whichever is later.
F	Base date for price variation	01.09.2018

IMPORTANT DATES

S.N.	Events	Date & Time	Location
1	Date of downloading of tender specifications	-	www.avvnl.com & http://eproc.rajasthan.gov.in
2	Deposit of cost of Tender Specifications, Processing fee & Bid Security	Up to 29.10.2018 (2:00 PM)	In the office of the Sr. Accounts Officer (EA & CASH), AVVNL, Panchsheel, Makarwali Road, Ajmer-305004
3	Last Date & time of submission of electronic bid	Up to 29.10.2018 (06:00 PM)	http://eproc.rajasthan.gov.in
4	Opening of Technical Bid	30.10.2018 (3:00 PM)	http://eproc.rajasthan.gov.in
5	Opening of Price Bid	To be intimated separately to the qualified bidders	http://eproc.rajasthan.gov.in

VERY VERY IMPORTANT

The bids not accompanied with qualification requirement, technical requirement indicated in the specification and other requirement given here under will be considered as incomplete offer and sufficient grounds for offer to be passed over:

1. Capacity, capability and competency proofing documents.
 - a. Capacity/orders of similar and higher rating of tendered equipment booked as on date of bidding with type and rating and construction details of equipment for which order received be indicated.
 - b. Copy of purchase orders of Erstwhile RSEB /SEB`S / Electric Utilities / Govt.
2. Departments / Discom for similar or higher rating equipment latest executed.

3. Year wise past experience for last 5 years of similar or higher rating of tendered equipment.
4. The details of testing facilities available at the works and copies of latest type test certificates, carried out on similar ITEM.
5. Quality assurance plan.
6. Complete guaranteed technical particulars, out lines and general arrangement drawings along with Bill of Material.
7. Bids without Section-I, II, III & Schedules (I to X) shall be rejected.
8. Bids shall be furnished **through online**.
9. AVVNL has the right to reject any offer on the basis of track record of poor performance in execution of previous order / equipment supplied /after sales service while evaluating the Techno-Commercial bid.
10. AVVNL reserves the right to accept minor deviations in standard terms and conditions and also in technical and constructional features as specified in the technical specification (**Schedule-III**).
11. Deviation of any kind shall not be quoted in price bid, if found quoted, the same shall be ignored.
12. The following facilities are to be provided by the supplier at his own cost to the inspecting officer of Nigam (AVVNL):-
 - i. Suitable accommodation.
 - ii. Local conveyance between arrival point, place of stay, works and departure point.
 - iii. The supplier shall assist in arranging return ticket and reservation on the request of the inspecting officer for which the payment shall be made by the inspecting officer. In case of joint inspection, single or shared double room accommodation shall be provided

AMENDMENT IN ITB AND GCC

- 2) **Wherever EMD and Security Bank Guarantee (SBG), are appearing in the ITB, GCC & other Bidding Documents, same is hereby replaced by BID SECURITY BID SECURITY**

The Bid Security amount (as applicable) to be paid by Demand Draft/Banker's Cheque in favour of SR. AO (EA & Cash), AVVNL, Ajmer (payable at Ajmer), upto 4.00 p.m. upto one WORKING day prior to schedule date of opening of respective bid or Bank Guarantee, in specified format, of a scheduled bank in favour of Superintending Engineer (MM), AVVNL, Ajmer, be deposited to the Senior Accounts Officer (EA & Cash), AVVNL, Ajmer, Vidyut Bhawan, Makarwali Road, Panchsheel Nagar, Ajmer-305004. (payable at Ajmer) **upto 4.00 p.m. upto one WORKING day prior to schedule date of opening** of respective bid, **and obtain a receipt / acknowledgement thereof. No other mode of deposit shall be accepted. At time of depositing the Bid Security amount or Bank Guarantee, the bidder shall also furnish self attested and duly attested by Notary the documentary evidence of SSI unit of Rajasthan or of sick unit (as applicable) and also submit a letter for the offered quantity by them.**

The Bank Guarantee against Bid Security be issued by Nationalized / Scheduled Bank. The same may be accepted after confirmation by issuing Bank. If any Bid Security Bank Guarantee not is proper format / not confirmed by the issuing Bank the same would not be accepted and the bidder would be immediately shorted out from bid process.

The Micro, Small & Medium Scale Industries of Rajasthan and sick industries, other than Small Scale Industries, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR) shall furnish self-attested documentary evidence duly attested by Notary to claim the above.

- 3) **Wherever Performance Bank Guarantee (PBG) and Composite Bank Guarantee (CBG) are appearing in the ITB, GCC & other Bidding Documents, same are hereby replaced by PERFORMANCE SECURITY.**

3) **VENDOR REGISTRATION**

The relaxation/exemption given to the registered vendors of the Nigam in respect of EMD/SBG, wherever appearing in the ITB, GCC & other Bidding documents, are hereby **WITHDRAWN.**

- 4) **The indirect taxes i.e. Excise Duty, Service Tax, VAT/CST, Entry Tax etc. mentioned in G.C.C., may now be read as G.S.T.**

APPENDIX-A

Bank Guarantee No. _____.
 Security Amount : _____.
 Issued on dated : _____.
 Valid upto : _____.
 Claim upto / Grace period: _____.

PERFORMA OF BANK GUARANTEE FOR BID SECURITY

(Bank Guarantee in lieu of bid Security on non-judicial Stamp Paper of Rajasthan State of 0.25% of the B.G. value or Rs.25,000/-, whichever is less)

To,

The Superintending Engineer (MM)
 Ajmer Vidyut Vitran Nigam Limited,
 Ajmer.

1. Whereas _____ (name of the Bidder) (hereinafter called "the Bidder") has submitted its bid dated _____ (date of submission of bid) for _____ (name of contract/ name of the material with Bid no. / TN No. _____) (hereinafter called "the Bid").
2. KNOW ALL PEOPLE by these presents that WE _____ (name and address of branch of Bank) of _____ (name of country), having our registered office at _____ (addresses of bank) (hereinafter called "the Bank"), are bound unto _____ (name of Purchaser) (hereinafter called "the Purchaser") in the sum of Rs. *_____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents sealed with the Common Seal of the said Bank this _____ day of _____ 20____.
3. THE CONDITIONS of this obligation are :
 - i. If the bidder withdraws its Bid during the period of bid validity specified by the Bidder in the Bid Form; or
 - ii. If the bidder refuses to accept the correction of error in his Bid; or
 - iii. If the bidder, having been notified of the acceptance of its Bid by the purchaser during the period of bid validity:
 - a. Fails or refuses to execute the Contract Agreement within the time specified in purchase / work order, if required, or
 - b. Fails or refuses to furnish the performance security within the time specified in purchase / work order in accordance with the GCC, or
 - c. Fails to commence supply of goods or services or execute work as per purchase / work order within time specified.
 - iv. If the bidder breaches any provision of the Code of integrity specified in the RTPP Act and Chapter VI of the RTPP Rules.
4. We undertake unconditionally and irrevocably to guarantee as primary obligator and not as surety merely to pay to the purchaser a sum of Rs. _____ (in words Rs. _____) upon receipt of its first written demand, without the purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or all of the three conditions specifying the occurred condition or conditions.
5. The decision of the Superintending Engineer (MM), Ajmer Vidyut Vitaran Nigam Limited, Ajmer shall be final whether breach has been committed on

the right to demand the amount of guarantee from us which has accrued to the purchaser.

6. This guarantee shall not cease or determine, if the purchaser grants time or indulgence or vary the terms of the contract with the Contractor or without our consent or knowledge.
7. The guarantee herein contained shall not be affected by any change in the constitution of the Contractor.
8. We _____ (Bank Name) further undertake not to revoke this guarantee during its currency except with the previous consent of the Superintending Engineer (MM), Ajmer Vidyut Vitaran Nigam Limited, Ajmer.
9. All disputes arising under the said guarantee between the Bank and the Nigam or between the Contractor and the Nigam pertaining to the guarantee, shall be subject to the jurisdiction of the Courts in Ajmer, Rajasthan alone.
10. This guarantee will remain in force up to and including one hundred eighty (180) days after the date of the opening of bids, i.e. upto _____, with a further grace period of Ninety (90) days and any demand in respect thereof should reach the Bank not later than the above date.

Yours faithfully,

Bankers (EXECUTANT)

Signed by the above named Bank in presence of :
(signature with full Name and Address)

Witness :

1. _____.
2. _____.

Attested by Notary Public, First Class Magistrate or directly confirmed by the executing Bank.

* The Bidder should insert the amount of the guarantee in words and figures denominated in the currency of bid.

Note: In case the bid is submitted by a Joint Venture, the Bid Bank guarantee shall be in the name of Lead partner or in the name of joint venture partners submitting the Bid covering all the partners of the joint vent