Global Open Tender for the work  
For Rehabilitation of Instron make Fatigue Testing system installed in  
Fatigue Testing Lab. of RDSO, Lucknow

Tender no.: RM1/GL-8/FTL/Instron System Rehabilitation/2018  
Tender to be opened on: - 25.03.2019 at 15.00 hrs

Estimated cost of Work: Rs. 7,88,81,505.00  
(Rupees Seven Crores Eighty Eight Lakh Eighty One Thousand Five Hundred Five only)

Total Number of Pages including cover page = 45 (Forty Five)

Tender document cost: INR 10,000/-

Research Designs & Standards Organisation,  
Ministry of Railways,  
Manak Nagar,  
Lucknow – 226011,  
India
Preamble

Tender documents for work of “Rehabilitation of Instron make Fatigue Testing system installed in Fatigue Testing Lab. of RDSO, Lucknow” have been divided in five parts, as under:

- General Instructions to Tenderers Page no. 3 to 5
- Tender Forms-First Sheet Page no. 6
- Tender Forms -Second Sheet Page no. 7 to 11
- Special Terms & Conditions/ Specification Page no. 12 to 20
- Annexures Page no. 21 to 36
- Tender Form-Third sheet (Schedule of Rates) Page no. 37 to 39
- GCC for Works/Services (Internet URL Link) Page no. 40
- Forms Page no. 41 to 45

Total no. of Pages = 45

Government of India, Ministry of Railways, Research Designs and Standards Organization reserves the right to accept or summarily reject or cancel any or all bids without assigning any reason.
GENERAL INSTRUCTIONS TO TENDERERS

1.1 The Tender Document is non-transferable.

1.2 DESCRIPTION & LOCATION OF THE ORGANISATION: Research, Designs & Standards Organisation (RDSO) is situated at Manak Nagar, Lucknow. This Organisation is engaged in research, design & standardisation of works in various railway disciplines. Testing Directorate is one of the important directorate having three testing laboratories. This directorate undertakes design validation of all newly designed/modified member of rolling stock developed, whether in house or imported.

1.3 In the bid document ‘Railways’ shall be mean ‘Research Design and Standards’ situated at Manak Nagar, Lucknow. Similarly the word ‘Manager/Chief Manager’ shall mean Director Testing/Executive Director/Testing, RDSO or any higher authority of RDSO.

1.4 In connection with the rehabilitation work, Director Testing (Labs), Research Designs and Standards Organization, Ministry of Railway, Manak Nagar, Lucknow-226011, India on behalf of the President of India, invites global open tender for the work “Rehabilitation of Instron make fatigue testing system installed in Fatigue Testing Lab of R.D.S.O, Lucknow". The details of works covered under the Scope of Works are given in Special conditions/specifications of the tender documents.

1.5 The tender shall be either type written or hand written neatly in indelible ink and corrections, if any, attested by the individual signing the tender.

1.6 The intending Tenderers are advised to study the tender papers carefully. The submission of the tender shall be deemed to have been done after careful study and examination of the tender papers with a full understanding of the implications thereof.

1.7 The Cost of Tender document is Rs. 10,000/- (Rupees Ten Thousand only) and can be obtained from the office of Director Testing / Labs / RDSO / Lucknow on any working day between 10.00 hrs to 17.00 hrs. w.e.f 04.02.2019 to 24.03.2019 and till 12.00 hrs. on 25.03.2019. Tender document can be purchased by depositing non-refundable cash at DCPM/NR/Charbagh, Lucknow in favour of Executive Director Finance, RDSO. The necessary original money receipt can then be used for purchasing tender document and a photocopy thereof should be furnished while participating in the tender. For purchasing tender set by post, an additional amount of Rs.500/- per set is to be submitted through Demand Draft of State Bank of India or of any of the Nationalized Banks in favour of Executive Director Finance/RDSO, Lucknow is required to be sent to this office. Department will not take any responsibility on account of delay/loss or non-delivery of Tender Sets/Offer sent by post.

1.8 Tender documents are also available at RDSO web-site www.rdso.indianrailways.gov.in and can be downloaded for participation in tender. Cost of tender documents is to be submitted in the form of Demand Draft of STATE BANK OF INDIA or of any of the NATIONALIZED BANKS in favour of Executive Director Finance, RDSO, Lucknow at the time of submission of the tender.

1.9 Tender documents without the tender document cost will be summarily rejected.
1.10 The Tenderer is advised to study the tender papers carefully. The submission of the tender shall be deemed to have been done after careful study and examination of the tender papers with a full understanding of the implications thereof.

1.11 All information in the tender must be in English. Information in any other language must be accompanied by its authenticated translation in English. In the event of any discrepancy between a tender in a language other than English and its English translation, the English translation will prevail.

1.12 Tenderers should keep their offers valid for period of 180 (one hundred and eighty) days from the date of opening of tender.

1.13 Security Deposit for each work should be 5% of the contract value.

1.14 Performance Guarantee (PG): Performance Guarantee (PG) at a rate of 5% of the contractual amount shall be deposited by the successful bidder in the favour of Executive Director/Finance of RDSO. The conditions related to Performance Guarantee shall be governed by para no. 16.(4) of IRGCC NOV.-2018.

1.15 The tender shall be addressed to Director Testing (Labs.), Air Brake Lab, Testing Directorate, R.D.S.O., Manak Nagar, Lucknow-226011, in a sealed cover & marked "Offer for Works Tender No. RM1/GL-8/FTL/Instron System Rehabilitation/2018”.

1.16 Tenders sent by registered post shall be with acknowledgement due. The RDSO administration does not take any responsibility on account of delay, loss or non-delivery of the tender documents sent by post.

1.17 Tender can also be dropped in the Tender Box painted in Blue Colour and written “Mech. Engg. Dte.” on Tender Box located in RPF post, near TEN office, RDSO, Manak Nagar, Lucknow-226011. The tender box will be sealed at 14.30 hrs. on 25.03.2019. The tender will be opened on 15.00 hrs. at the location mentioned above on 25.03.2019. The tenderer(s) or their authorized representatives may choose to witness the opening of tender on 25.03.2019 at the same place. The tender document will not be sold after 12.00 hrs. on 25.03.2018.

1.18 All the copies of forms enclosed with tender paper should be duly filled in by the tenderer and attached along with the tender duly signed and Stamped on each page.

1.19 General Instructions

1. An earnest money equivalent to Rs. 5,44,400.00 shall accompany the tender. The tender not accompanied by Earnest Money in any one of the approved forms shall be rejected summarily. The Tenderer is required to deposit an Earnest Money of Rs. 5,44,400.00 (Rupees Five Lakh Forty Four Thousand Four Hundred only) in favour of Executive Director/Finance of RDSO.

2. No interest shall be allowed on the earnest money& security deposit.

3. The Earnest Money/Bid Guarantee is likely to be forfeited if the tenderer withdraws commitments, impairs or derogates from the tender in any respect within the period of his offer.

4. The Earnest Money of unsuccessful tenderers will be returned to them by RDSO after finalisation of bid process.

5. Security Deposit for each work should be 5% of the contract value.
6. Performance Guarantee (PG) at a rate of 5% of the contractual amount shall be deposited by the successful bidder in the favour of Executive Director/Finance of RDSO. The conditions related to Performance Guarantee shall be governed by para no. 16. (4) of IRGCC Nov.-2018.

7. **Eligibility Criteria:**

6.1 **Technical Eligibility Criteria:**

(a) The tenderer must have successfully completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

Three similar works costing not less than the amount equal to 40% of advertised value of the tender, or

Two similar works costing not less than the amount equal to 50% of advertised value of the tender, or

One similar work costing not less than the amount equal to 80% of advertised value of the tender.

*Similar work* for the purpose of this tender shall mean “supply and commissioning of machinery/equipment or execution of project of supply/reconditioning of machinery/equipment with servo controlled electrohydraulic actuators of at least 25t capacity, hydraulic power unit with computerized controls”.

6.2 **Financial Eligibility Criteria:** The tenderer must have received contractual payments in the previous three financial years and the current financial year upto the date of opening of tender, at least 150% of the advertised value of the tender. The tenderers shall submit Certificates to this effect which may be an attested Certificate from the concerned department / client and/or Audited Balance Sheet duly certified by the Chartered Accountant etc.
TENDER FORM (First sheet)

Name of Work/Service: Rehabilitation of Intron make Fatigue Testing system installed in Fatigue Testing Lab. of RDSO, Lucknow

Tender no. RM1/GL-8/FTL/Instron System Rehabilitation/2018

Research, Design and Standards Organisation

To,
The President of India
Acting through the Director Testing / Labs
Research, Design and Standards Organisation
Ministry of Railways,

1. I/We have read the various conditions to the bid attached hereto and agree to abide by the said conditions. I/We also agree to keep this bid open for acceptance for a period of 180 days from the date fixed for opening the same. I/We offer to do the work for Research, Design and Standards Organisation, at the rates quoted in the attached schedule and hereby bind myself/ourselves to complete the work in all respects within 06 month from the date of issue of letter of acceptance of the Bid.

2. I/we also hereby agree to abide by the Indian Railways General Conditions of Contract for Services, with all correction slips up-to-date and to carry out the work according the Special conditions of Contract and Specifications of materials and works as laid down by Research, Design and Standards Organisation in the annexed Special Conditions/Specifications, Schedule of Rates with all correction slips up-to-date for the present contract.

3. A sum of Rs. 5,44,400.00(Rupees Five Lakh Forty Four Thousand Four Hundred only) has already been deposited online as Earnest money shall stand forfeited without prejudice to any other right or remedies in case my/our Bid is accepted and if:
   a) I/we do not submit the Performance Guarantee within the time specified in the tender document;
   b) I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and
   c) I/We do not commence the work within fifteen days after receipt of orders to that effect.

4. I/We am/are a Startup firm registered by ----------------- Department of Industrial Policy and Promotion (DIPP) and my registration number is ---------------- valid upto ------------------ (Copy enclosed) and hence exempted from submission of Earnest Money.

5. Until a formal agreement is prepared and executed, acceptance of this Bid shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work/service.

Signature of Bidder/s
Date………………
Address………………

Signature of Tenderer
Page 6 of 45
With stamp
Director Testing / Labs
RDSO / Lucknow
TENDER FORM (Second sheet)

Name of Work/Service: Rehabilitation of Intron make Fatigue Testing system installed in Fatigue Testing Lab. Of RDSO, Lucknow

1. Instructions to bidder and Conditions of bid: The following documents form part of tender/contract:
   a) Tender forms-First Sheet and Second Sheet
   b) Special Conditions/Specifications (enclosed)
   c) Schedule of Rates – Third Sheet (enclosed)
   d) Standard General conditions of Contract and Standard Specifications for Materials and Works of Indian Railways as amended/corrected upto latest Correction Slips, copies of which can be seen or obtained from the office of Executive Director (Testing)/ RDSO, Lucknow on payment of prescribed charges.
   e) Schedule of Rates as amended/corrected upto latest Correction Slips, copies of which can been seen or obtained from the office of the Executive Director (Testing)/ RDSO, Lucknow on payment of prescribed charges.
   f) All general and detailed drawing pertaining to this work which will be issued by the Manager or her representatives (from time to time) with all changes and modifications.

2. Drawings for the Work: The drawings for the work can be seen in the office of the Executive Director (Testing)/RDSO at any time during the office hours. The drawings are only for the guidance of Bidder(s). Detailed working drawings (if required) based generally on the drawing mentioned above, will be given by the Manager or her representative from time to time.

3. The Tenderer(s) shall quote their rates as item-wise rates and must tender for all the items shown in the Schedule except where it is not applicable. The quantities shown in the attached schedule are given as a guide and are approximate only and are subject to variation according to the needs of Research, Design and Standards Organisation. RDSO does not guarantee work under each or any item of the Schedule.

4. Tenders containing erasures and/or alterations of tender documents are liable to be rejected. Any correction made by tender(s) in her/ their entries must be attested by them.

5. The works & Training is required to be completed within a period of 06+02 (six+two) months from the date of issue of acceptance letter. The successful bidder needs to submit an action plan as to how it will carry out the work in the accepted time period within 15 days of issue of LOA.

6. Earnest Money:
   (a) The bid must be accompanied by a sum of Rs. 5,44,400.00 as Earnest Money deposited in cash through e-payment gateway or as mentioned in tender documents, failing which the tender shall not be considered. Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as ‘Startups’ shall be exempted from payment of Earnest Money on submission of Registration Certificate issued by appropriate authority.
   (b) The bidder(s) shall keep the offer open for a minimum period of 180 days from the date of opening of the bid. It is understood that the bid documents have been sold/issued to the bidder(s) and the bidder(s), is/are permitted to bid in consideration of the stipulation on her/their part that after submitting her/their bid subject to the period being extended further, if required by mutual agreement from time to time, she will not be resile from her offer or modify
the terms and conditions thereof in a manner not accepted to the Chief Manager/Manager. Should the bidder fail to observe or comply with the foregoing stipulation, the amount deposited as Earnest money for the due performance of the above stipulation, shall be forfeited to the Railway.

(c) If the bid is accepted, the amount of Earnest money mentioned in sub clause (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Earnest Money of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation to the Earnest Money that may happen thereto while in their possession, nor be liable to pay interest thereon.

(d) In case Contractor submits the Term Deposit Receipt/Bank Guarantee Bond towards full Security Deposit, the Railway shall return the Earnest Money so retained to the Contractor.

7. Rights of the Railway to Deal with Tender: The authority for the acceptance of the tender will rest with the Railway. The bidder shall demand any explanation for the cause of rejection of their tender nor the Railway to assign reasons for declining to consider or reject any particular tender or tenders.

8. If the bidder deliberately gives/give wrong information in their tender or create circumstances for the acceptance of their tender, the Railway reserves the right to reject such tender at any stage.

9. If the bidder expire after the submission of their tender or after the acceptance of their tender, the Railway shall deem such tender cancelled. If a partner of a firm expires after the submission of their tender or after the acceptance of their tender, the Railway shall deem such tender as cancelled, unless the firm retains its character.

10. For Manual Bidding:

This bid is called on two packet system basis. The technical bid and the financial bid must be kept in separate sealed envelopes duly superscripted "Bid No. RM1/GL-8/FTL/Instron System Rehabilitation/2018-Technical bid” and “Bid No. RM1/GL-8/FTL/Instron System Rehabilitation/2018- Financial bid”. Both these envelops must be kept in a sealed cover, superscripted “Bid No. RM1/GL-8/FTL/Instron System Rehabilitation/2018” and should be sent by registered post to the address of Director Testing/Labs, Air Brake Lab, Testing Directorate, R.D.S.O., Manak Nagar, Lucknow-226011 so as to reach their office not later than 14:00 hours on 25.02.2019 or deposited in the special box (Tender Box) allotted for the purpose and located in RPF post, near TEN office, RDSO, Manak Nagar, Lucknow-226011. This Special box will be sealed at 14:30 hours on 25.02.2019. The Bid will be opened at 15:00 hours on the same day. The Bid papers will not be sold after 12:00 hours on 25.02.2019.

11. Tenderer Credentials:
Documents testifying tenderer previous experience and financial status should be produced along with the tender.

Tenderer(s) who is / are not borne on the approved list of the Contractors of _________ Railway shall submit along with his / their tender:

(i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.
(ii) Certificates which may be an attested Certificate from the client, Audited Balance Sheet duly certified by the Chartered Accountant etc regarding contractual payments received in the past.

(iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.

(iv) A copy of notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as Annexure-V. Non submission of a copy of notarized affidavit by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document.

(v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway thereunder.

(vi)(a) In case of any information submitted by tenderer is found to be false forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Earnest Money Deposit besides banning of business for a period of upto five years.

(b) In case of any information submitted by tenderer is found to be false forged or incorrect after the award of contract, the contract shall be terminated. Earnest Money Deposit (EMD), Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto five years.

12. Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.

13. Execution of Contract Documents: The successful bidder(s) shall be required to execute an agreement with the President of India acting through the Executive Director Testing / Labs / RDSO for carrying out the Training/work according to Standard General Conditions of Contract, Special Conditions/ Specifications annexed to the tender and Specification for work and materials of Railway as amended/corrected up to latest Correction slips, mentioned in tender form (first Sheet).


(i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / company / Joint Venture (JV) / Registered Society / Registered Trust etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by
such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.

(ii) In case tenderer is other than sole proprietorship firm, following documents shall be submitted by the tenderer:

(a) **Partnership Firm:** The tenderer shall submit (i) a copy of Partnership Deed and (ii) a copy of Power of Attorney (duly registered as per prevailing law) in favour of an individual to sign the tender documents and create liability against the Firm.

(b) **Joint Venture (JV):** The tenderer shall submit documents as mentioned in Clause 17 of the Tender Form (Second Sheet).

(c) **Company registered under Companies Act-2013:** The tenderer shall submit (i) the copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company; and (ii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.

(d) **LLP (Limited Liability Partnership) Firm:** If the tender is submitted on behalf of a LLP Firm registered under LLP Act-2008, the tenderer shall submit along with the tender- (i) a copy of LLP Agreement, (ii) a copy of Certificate of Incorporation; and (iii) a copy of Power of Attorney/Authorization issued by the LLP Firm in favour of the individual to sign the tender on behalf of the LLP Firm and create liability against the Firm.

(e) **Registered Society & Registered Trust:** The tenderer shall submit (i) a copy of the Certificate of Registration, (ii) Deed of Formation; and (iii) a copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.

(iii)If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.

(iv)After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust / Registered Society etc. shall be neither asked nor considered, if submitted.

(v) A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.

(vi) The Railway will not be bound by any change in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

**15. The tenderer whether sole proprietor, a company or a partnership firm / joint venture (JV) /registered society / registered trust etc. if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/she be partner(s) of the firm or any other person specifically authorizing him/them to submit the tender, sign the agreement, receive money, co-ordinate measurements through contractor's authorized engineer, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration.**
16. Employment/Partnership etc. of Retired Railway Employees:

a) Should a bidder be a retired Manager of the Gazetted rank or any other Gazetted officer working before her retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in any department of any of the railways owned and administered by the President of India for the time being, or should a bidder being a partnership firm have as one of its partners a retired Manager or retired Gazetted Officer as aforesaid, or should a bidder being an incorporated company have any such retired Manager or retired officer as one of its Directors or should a bidder have in her employment any retired Manager or retired Gazetted Officer as aforesaid, the full information as to the date of retirement of such Manager or Gazetted Officer from the said service and in case where such Manager or Officer had not retired from Government service at least 2 years prior to the date of submission of the tender as to whether permission for tasking such contract, or if the contractor be a partnership firm or an incorporated company, to become a partner or Director as the case may be, or to take the employment under the contractor, has been obtained by the bidder or the Manager or Officer, as the case may be from the President of India or any officer, duly authorised by her in this behalf, shall be clearly stated in writing at the time of submitting the bid. Bids without the information above referred to or a statement to the effect that no such retired Manager or retired Gazette Officer is so associated with the bidder, as the case may be, shall be rejected.

b) Should a bidder or contractor being an individual on the list of approved Contractors, have a relative(s) or in the case of partnership firm or company of contractors one or more of her shareholder(s) or a relative(s) of the shareholder(s) employed in gazetted capacity in the any department of the Indian Railway, The authority inviting tenders shall be informed of the fact at the time of submission of tender, failing which the tender may be disqualified/rejected or if such fact subsequently comes to light, the contract may be rescinded in accordance with provision in Clause-7.4 of Standard General Conditions of Contract.

Signature of Bidder(s)                        Signature

Date________________       Director Testing / Labs

RDSO / Lucknow
SPECIAL TERMS & CONDITIONS / SPECIFICATION

Name of Work/Service: Rehabilitation of Instron make Fatigue Testing system installed in Fatigue Testing Lab. of RDSO, Lucknow

The following special conditions of the contract (SCC) shall be applicable in this contract addition to the IRGCC NOV. -2018. In the event of any contradiction between these SCC and IRGCC NOVEMBER -2018, the SCC shall prevail.

1. **Detail of specification to cover the technical provision for the work of comprehensive rehabilitation of Instron make computerized fatigue testing system is at ANNEXURE-A**

2. The tenderer is required to submit complete offer covering all the requirements laid down in this specification.

3. Offers, which do not cover all the requirements of this specification, will not be considered for evaluation.

4. The bid invited against this tender shall be under **Two-Packet system** and the technical bid will be evaluated based on the technically suitability of the offer and the evaluation of the bids shall be carried out on the basis of total cost of contract including complete scope of rehabilitation of the fatigue testing system and five year cost of CAMC.

5. **Similar work for the purpose of this tender shall mean “supply and commissioning of machinery/equipment or execution of project of supply/reconditioning of machinery/equipment with servo controlled electrohydraulic actuators of at least 25t capacity, hydraulic power unit with computerized controls”**.

6. For proper reflection of annual financial turnover, the audited balance sheet is to be supported along with ‘Income Statement’ by the bidder.

7. In case of foreign bidders, the banking reference from overseas banks shall be acceptable subject to fulfilment of other conditions as prescribed in this bid document.

8. Earnest Money shall be submitted in the form of following instruments:
   a. Deposit receipt, Pay Orders or a Crossed Demand Draft in favour of the “Executive Director/ Finance, RDSO, A/C “Name of the firm”, Lucknow payable at Lucknow, India executed by State Bank of India or any of the Nationalized or Scheduled Bank in India.
      For avoidance of doubt, Scheduled Bank shall mean a bank as defined under Section 2 (e) of the Reserve Bank of India Act 1934.

9. The bidder(s) shall keep the offer open for a minimum period of 180 days from the date of opening of the bid.

10. The successful bidder shall execute the contract document within 30 days after receipt of notice issued by Railways that such documents are ready.

11. There will not be any advance payment to the contractor/ successful bidder under any name including ‘Mobilization Advance’.
12. Bid is required from the firm or their authorised agent who should submit a letter of authority from their Principals as in Form-V. Bid from other agents, brokers, and middlemen will not be accepted.

13. The contractor shall commence the work within 30 days from the date of the issue of LOA.

14. The successful bidder should give a security deposit as below:

   I. The Earnest Money deposited by the Contractor with his tender will be retained by the Railways as part of security for the due and faithful fulfillment of the contract by the Contractor. The Security Deposit shall be 5% of the contract value. The balance to make up the security deposit, the rates for which are given below, may be deposited by the contractor or may be recovered by percentage deduction from contracts on accounts bills.

   II. Further, in case Security Deposit has been submitted as Term Deposit Receipt/Bank Guarantee Bond in full amount, the Earnest Money deposited by the Contractor with his tender will be returned by the Railways.

15. Additional Bank Guarantee: In case replacement is not given where it is mandatory and reconditioning is not possible at RDSO premises the firm need to submit similar new component in order to take the particular old component(s) for reconditioning. Alternatively BG has to be submitted against estimated cost of old components depending upon type and number of components to be lifted and the action plan of lifting and delivering back the reconditioned components. Indicative value of BG will be approximately 20% of the new component. However, the exact value of BG will be communicated to the successful bidder on submission of the request along with their action plan. The transportation and handling charges have to be borne by the contractor themselves.

   The successful bidder needs to submit an action plan as to how it will carry out the work in the accepted time period within 15 days of issue of LOA.

16. Payment Terms:

   a. 80% payment will be made after supply, reconditioning of old system and receiving of new/reconditioned items at RDSO on proof of inspection certificate. Balance 20% payment will be made after installation & commissioning and successful test & trials duly approved at appropriate level subject to submission of Warranty Bank Guarantee for an amount of 10% of contract value of rehabilitation work, as Warranty Bank Guarantee (WBG). The payment for this complete works shall be made to the contractor after the satisfactory completion of the work when certified by the nominated RDSO official(s) and competent authority after submission of bill by the contractor. The competent authority shall normally be the authority that is competent to sign the contract. The certificate, inter alia, should mention that the work has been completed in all respects and the contractor has fulfilled the contractual obligations and that there is no due from the contractors to RDSO against the contract.

   b. The final bill payment of rehabilitation work shall be made after submission of a Warranty Bank Guarantee of 10% of the total cost of contract value (as indicated in the Bid Form- Third Sheet) towards new supplied components (actuators, controller and HPU) as well as old rehabilitated components (actuators, sub-stations and HPU). The
Warranty Bank Guarantee should remain valid for the full warranty period of 2 years plus 60 days.

c. The warranty bank guarantee shall be released after a period of 2 years from the date of completion of contract. Warranty period will be from the date of commissioning of the system.

d. The Warranty Bank Guarantee shall be in any form as applicable for Performance Bank Guarantee mentioned in this contract. No interest shall be payable to the contractor against the Warranty Bank Guarantee as stipulated hereinabove.

e. The contract price will be normally paid in the currency or currencies in which the price is stated in the successful bid. However, Indian Railways reserves the right to effect payment of equivalent amount in the currency or currencies of the country of origin of the work/goods/services in case the price is stated in other currencies. The equivalent amount will be calculated on the basis of exchange rate prevailing on the date of payment.

f. Payments shall be made in INR to Indian firms or, in case of foreign firms, through Letter of Credit (LC). In case of payment through LC, all charges including the confirmation charges of LC, levied by foreign banks shall be borne by the contractor.

g. All taxes, duties etc. leviable on this contract and payable to Government of India as per applicable tax laws shall be deducted by the Indian Railways from the Contractor’s Bills before making any payment.

h. The software and hardware to be supplied under this contract are essentially R&D equipment for the use of Research Designs and Standards Organisation (RDSO) of Indian Railways for the purpose of research and scientific studies. Such supplies are eligible for concessional customs duty as applicable at the time of import to India.

i. Withholding taxes may need to be paid by an overseas firm if it is a successful bidder as per Government of India taxation laws.

j. Indian Railways shall not be liable to pay any taxes or duties paid by the contractor due to misclassification.

k. **Statutory Variation Clause:** Any statutory variation in taxes or duties arising in future is liable to be admissible only within the original completion period of the contract subject to production of documentary evidence and related government notifications, further subject to indication of the same in firm’s offer and contract. The following shall be applicable:

   i. Reduction in price of the goods and services being supplied by the contractor to Indian Railways, resulting from any reduction or remission of taxes and duties shall be passed onto Indian Railways by the contractor irrespective of the original completion period of the contract.

   ii. Any increase in taxes and duties beyond the original completion period of the contract shall be borne by the contractor.

l. Where the bidder has quoted all-inclusive price without mentioning the taxes at present or in future and has also not quoted with Statutory Variation Clause, the contractor shall have to bear the future variations in all such cases.

m. Tenderer to give consent in a mandate form for receipt of payment through ECS/EFT. Tenderer to provide the details of bank account in line with RBI guidelines for the same. These details will include bank name, branch name and address, account type,
bank account number and bank & branch code as appearing on MICR cheque by bank. Tenderer to attach certificate from their bank certifying the correctness of all such information.

In case of non-payment through ECS/EFT or where ECS/EFT facility is not available, payment will be released through cheque. Payment by irrevocable letter of credit can also be made. However, in such cases, the contractor has to give a notice of one month before submitting request for payment.

n. **Paying Authority:** Payment for all items of the contract will be made by Executive Director/Finance, RDSO, Manak Nagar, Lucknow-226011.

17. **Insurance:** Insurance cover for all including material, instruments and documents in transit shall be provided for by the contractor.

18. **Penalty:** The contractor should complete whole of the work in all respects on or before the date fixed by the Railways or any authorized extension or thereof. The Railway Administration is entitled to recover penalty. The decision of the Manager/Chief Manager regarding performance of the contractor shall be final and binding in this regard.

With liquidated Damage (LD): The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the period(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in Clause 17 and 17-A, of GCC November -2018, the Railway may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the following rates of the contract value of the works.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Duration of the time under Clause 17-B of GCC-Nov.-2018</th>
<th>Rate of Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Up to Twenty percent of original period of completion including period of extension of DOC granted under Section 17A(i)</td>
<td>As decided by Engineer, between 0.01% to 0.10% of contract value for each week or part of the week</td>
</tr>
<tr>
<td>(ii)</td>
<td>Above Twenty percent but upto Thirty percent of original period of completion including period of extension of DOC granted under Section 17A(i)</td>
<td>0.20% of contract value for each week or part of the week</td>
</tr>
<tr>
<td>(iii)</td>
<td>Above Thirty percent but upto Forty percent of original period of completion including period of extension of DOC granted under Section 17A(i)</td>
<td>0.30% of contract value for each week or part of the week</td>
</tr>
<tr>
<td>(iv)</td>
<td>Above Forty percent of original period of completion including period of extension of DOC granted under Section 17A(i)</td>
<td>0.50% of contract value for each week or part of the week</td>
</tr>
</tbody>
</table>

19. **Settlement of disputes including arbitration between the contractor and Indian Railways, if any, and not provided for in the SCC shall be by way of the IR GCC-November-2018.**
20. **Price Basis:**

i. Tenderers are required to quote on a firm price basis.

ii. The prices quoted must include all charges e.g. Taxes (withholding Tax, GST etc.), levies, duties, cess, packing, forwarding and delivery charge etc. as applicable.

iii. The prices should be stated only in one currency and should be either in the currency of the bidder’s country or in US dollar or in any other currency widely used in International trade. Tenderers belonging to countries with which Government of India have Rupee Payment Agreements should quote the entire bid price in Indian Rupees.

iv. **Annual Maintenance Contract:**

   (a) Five years comprehensive AMC of the complete (Rehabilitated and new both) system is mandatory for the bidder after expiry of two years of thewarrantee period. The bidder should quote for post warranty comprehensive AMC charges for five years separately along with the rehabilitation work.

   (b) Firm shall have to provide scope of work (activity chart) to be done during AMC.

   (c) The firm shall provide list of spares (along with their item-wise price) likely to be used during normal AMC period.

In addition to the tendered work, the bidder must also quote their rate (in the rate sheet specified for this purpose appearing after the Tender Form (Third Sheet) in this document) on a firm price basis for Annual Maintenance of the complete (Rehabilitated & New both) system. The rates shall be inclusive of all spares, material and labour costs. All the applicable taxes should be indicated separately. The following conditions apply:

a) These rates shall be used for the purpose of evaluation of the bid.

b) Indian Railways reserves the right to place an order for Comprehensive Annual Maintenance of the complete (Rehabilitated & New both) system supplied under this contract to the successful bidder at the rates declared by her in her bid. Such an order by Indian Railways shall be binding on the contractor who shall execute the work of Annual Maintenance of the complete (Rehabilitated & New both) system supplied to the satisfaction of Indian Railways at the quoted rates which will remain applicable on yearly basis and not subject to any changes except statutory changes in taxes and duties as compared to quoted rates.

c) The duration of the Comprehensive AMC shall be for a period of five years from the date of expiry of warranty.

d) The complete Comprehensive Maintenance work of the complete (Rehabilitated & New both) system shall need to be completed at site in RDSO, Lucknow without any precondition and all cost for any transportation of material and men and any other logistical arrangement which may become necessary pursuant to such maintenance activity shall be borne by the successful bidder in case the work is awarded to her.

e) The cost for any replacement of any parts of the New and rehabilitated system and related equipment necessary during the Comprehensive AMC period shall be borne by the contractor.
f) The AMC shall include at least two preventive maintenance schedule and required number of breakdown maintenance schedules in one year.

g) A Bank Guarantee equal to 10% of contractual cost of the Comprehensive AMC (i.e Rs. 3.186 crore) of complete (Rehabilitated & New supplied both) system including concomitant accessories and software will be submitted by the Contractor to Indian Railways 90 days before the expiry of warranty. The BG for the AMC shall have validity of 5 years plus three months. The Warranty Bank Guarantee shall be released after submission of this BG for AMC. The AMC BG will be returned on completion of AMC period. In case, the tenderer fails to provide AMC services successfully, the AMC BG will be forfeited and action will be taken as per extant provisions/norms.

h) The contractor must ensure that in case a failure/breakdown of the complete (Rehabilitated & New both) system is reported by Indian Railways, the contractor’s qualified engineer must visit the site for rectification within seven calendar days from the date of such intimation by Indian Railways. Complaints shall be lodged by consignee by fax, e-mail or per bearer at address given by the tenderer. The responsibility to keep the failure reporting address details current will rest with the tenderer.

i) **Penalty:** The complete (Rehabilitated & New both) system shall not have a downtime of more than 10% in any year worked out on calendar days basis. This down time shall be calculated excluding the seven days period permitted to contractor for deputing her engineer at site for rectification. In case the downtime is more than 10% of the calendar days in any year, penalty at the rate of 1% reduction in the amount payable for every 1% increase in downtime beyond 10% in that year shall be levied on the bills of the contractor for CAMC for that year.

j) Normally annual payment at the yearly rate quoted by the tenderer for the CAMC will be made to the tenderer within 30 days from the end of that year subject to submission of the following documents by the tenderer:

- Consignee’s certificate for work done with calculation of down time and penalty applicable.
- Bills submitted by the tenderer & accepted by consignee.
- Attested photocopy of the AMC BG.

k) The AMC contract can be terminated in following ways:

- Consignee may terminate the AMC in the event of failure of tenderer to provide the CAMC services as per the AMC agreement in addition to encashing of AMC BG.

l) Any other conditions from the bidder’s side should be explicitly mentioned by the bidder in the rate sheet for CAMC of both new & old rehabilitated system.
21. **Scope of Work:**

The work covers comprehensive rehabilitation work of Instron computerized fatigue testing system. The rehabilitation work is will interalia, include following:

(i) Supply of two 250kN actuators to replace two severely damaged actuators.
(ii) Supply of one new HPU of minimum flow of 230 LPM to replace 2\textsuperscript{nd} non-functional HPU.
(iii) Supply of 8 channel controller and associated software including two analogue input provision.
(iv) Supply of UPS to provide conditioned and uninterrupted power to controller and PC.
(v) Supply of one set Window 10 PC, 64 bit, 8GB RAM, 1TB hard drive, PC with peripherals, printer and dedicated control software and analysis software.
(vi) Rehabilitation of four 250kN actuators (chrome plating of scratch marks on pistons and filling up of worn out bearing plates, replacement of complete seal kit, change of filter elements, servicing of servo valves)
(vii) Rehabilitation of two 100kN actuators (replacement of complete seal kit, change of filter elements, servicing of servo valves) and overhauling of manifold.
(viii) Repair and Servicing of four nos. 500 litre/min sub-stations.
(ix) Replacement of all hydraulic hoses of HPU and actuators.
(x) Rehabilitation of 1\textsuperscript{st} Hydraulic Power Unit.
(xi) Flushing/Cleaning of Pressure, Return and drain hard pipe line.
(xii) Supply of 3000ltr Hydrol 46 grade oil for the system.
(xiii) Lifting of old components for rehabilitation from RDSO, Lucknow and delivering back after reconditioning

22. **Training**

i. The bidder shall arrange for five day training free of cost as part of supply on operation of machine, software and controller to three RDSO personnel after installation and commissioning of the system.
ii. The firm shall provide two sets of operation and maintenance manual and details of hydraulic and electrical circuit diagram of the new component supplied as per clause 2.1, 2.2, 2.3, 2.4 and 2.5 (HPU, actuator and controller, UPS) of specification at Annexure-A.

23. **Inspection before dispatch to RDSO**

The new actuators, controller and HPU which will be supplied and the rehabilitated old actuators, sub-stations and HPU shall be inspected by RDSO representatives in the manufacturer’s/bidder’s premises to check its working condition as per specification before dispatch.

24. **Warranty**

i. Two years warranty shall cover on all new supplied components (actuators, controller and HPU) as well as old rehabilitated components (actuators, sub-stations and HPU).
ii. The firm shall upgrade the software during warrantee period free of cost. The Licence of the software should cover warrantee period of two years.

iii. Spares required during routine maintenance and any breakdown maintenance shall be borne by the firm in the period of warrantee.

iv. The contractor also guarantees that the said articles would continue to conform to the description and quality as aforesaid, for a period as specified in technical specification.

25. **Bidder’s Responsibility**

   i. Bidder shall include a line-by-line response to each paragraph and on requirements of this specification in addition to the quotation.

   ii. A “comply” response indicating full compliance with every aspect of the specification.

   iii. A “deviation” or “equivalent” response must include a complete technical explanation for the offer to be considered.

   iv. Satisfactory execution of the contract in accordance with this specification, irrespective of any approval which Purchaser may have given.

   v. Ensuring that latest Standards & technology shall be used by contractor in execution of all activities of this contract.

25. **IR’S RESPONSIBILITY**

   RDSO will provide only Electricity and Water, free of cost to the firm for erection and commissioning of the system.

26. **Compliance of Technical Specification and deviations:**

   i. Tenderer shall offer clause-by-clause comments of this specification confirming compliance of the respective clauses and elaborating wherever necessary. In case there are any deviations, complete details of alternate proposals against the clause shall be given.

   ii. In addition, the tenderer shall submit consolidated statement of deviations from this specification.

   iii. In case, the tenderer does not require any deviation from this specification, a NIL DEVIATION certificate will be submitted by him in **Form-IV.**

27. **General Instructions/Information/Requirements**

   1. Director Testing / Labs, RDSO, Lucknow-226011 shall be the Officer-in-charge for this work.

   2. All the work to be done as part of the contract shall be done in consultation with the Director Testing / Labs, RDSO, Lucknow or his authorized representative(s).

   3. The complete rehabilitated system (new supplied actuators, controller and HPU and rehabilitated HPU, actuators, substations etc) shall be Installed and commissioned by the bidder on turnkey basis in the fatigue testing laboratory of testing directorate, RDSO, Lucknow.

   4. Custom, Insurance and Freight shall be arranged by the bidder.
5. If new system is to be imported (new supplied actuators, controller), it shall be firm’s responsibility to import and borne expenses of import and transportation.

6. The components said in clause 2.6, 2.7, 2.8 and 2.10 of the specification at Annexure-A, if requires to be rehabilitated at the bidder premises, it shall be responsibility of the bidder to collect them from RDSO premises and return back after refurbishment of the components to RDSO, Fatigue Testing Lab. The transportation cost should be included in the offer price.

7. Machines, equipment, tools and all other things to be required for installation and commissioning of the system shall have to be arranged by the bidder itself or shall be under scope of supply whatever is applicable as per the specification requirements.

8. The installation of the rehabilitated machine components shall be responsibility of the bidder.

9. Uprooting of existing HPU and other components which are to be replaced or repaired will be responsibility of the bidder.

10. Bidders are advised to inspect the system which is to be rehabilitated before quoting.

11. All the costs of the spares, including transportation of spares and other associated charges, for up keeping the system shall be borne by the Contractor.

12. If any item of actuators/substation to be carried by the contractor for repair, all the charges involved in transportation will be borne by the Contractor and all the formalities in this regard will be done by the Contractor.

13. All the spares to be used should be original.

14. Contractor will be responsible to deliver the material after repair to RDSO in good condition without any damage.

15. The cost of air travel and accommodation of representative(s) of OEM (if any) shall be borne by the Contractor.

16. The costs of the visits of the Contractor’s officials to RDSO/Lucknow including their accommodation will be borne by them.

28. **Technical Clarifications:**

Any clarifications, if any, required by the tenderer, can be obtained from:

**Director Testing / Labs**  
Research, Designs & Standards Organisation,  
Govt. of India, Ministry of Railways, Manak Nagar,  
Lucknow –226011 (INDIA)  
Telefax: +91-522-2451053  
E-mail: directorlabrdso@gmail.com
Annexure-A

Specification for comprehensive rehabilitation work of Instron computerized fatigue testing system.

1.0 INTRODUCTION:

Research Designs & Standards Organization (RDSO) is the sole R&D organization of Indian Railways and function’s as the technical adviser and consultant of Railway Board, Zonal Railways & Production Units and also having ability to development, adoption & absorption of new technologies for use of Indian Railways along with testing of new/developed rail components.

Fatigue Testing Lab. of this organization is equipped with Multi axis fatigue testing system supplied by M/s Instron Ltd UK.

Instron make Computerized control Fatigue Testing system was installed in Fatigue Testing Lab in 1997.

The complete system comprises of following components:

(i) 2 Nos of Hydraulic power Unit of 230 ltr/per min.
(ii) 6 Nos actuators of 250kN capacity, stroke ± 50 mm
(iii) 2 Nos actuators of 100kN capacity, stroke ± 60 mm
(iv) 4 Nos. of Hydraulic substations to connect all the 8 actuators with hydraulic Power Unit
(v) 2Nos of 4 channel controllers to control all the 8 actuators and interface with PC.
(v) PC installed with required software to run the system.

This system was installed for fatigue testing of various bogie frame and rolling stock components such as brake beam, elastomeric pads, helical springs, side bearer pads, shock absorbers, AT weld rail joints, FRP sleepers, bridge stringers etc.

Over the period and regular rigorous utilization of the system, many components have worn out and some components got non-functional.

1. Main pump of one Hydraulic Power Unit is not working. Some electrical relay of the HPU is not working. Heat exchanger of this is also not functional.

2. Main pump of other HPU is minutely leaking.

3. Heat exchanger of 2nd HPU is clogged and out of order.

4. Leakage from all the six 250kN actuators occur most often. Bearing and cylinder of one actuator is damaged. Piston rod of two actuators are much damaged. Piston rod of remaining four actuators have scratch marks.

5. The two 100kNactuators leak minutely from upper and lower end seals.

6. All the servo valves fitted on actuators require servicing. Servo valve is important component of any actuator which is responsible of accurate movement of the actuator.

7. We have two nos. of 8800IST controller for controlling eight actuators. Each controller has four integrated axis controller cards with on board sensor conditioners card, to control four actuators. Now, only four cards out of eight cards are in working condition. So at a time only four actuators can be run.
8. Controlling and acquisition customized software supplied by Instron to run the machine are of very old version. They do not work on higher than window-98 version. Since Microsoft do not provide any support of such old software, therefore the machine is run through very old PC. It is also difficult to transfer data from this system to new version of window. Now, in view of above problems in the system it requires rehabilitation of the complete system so that it may run in its full efficiency.

2.0 COMPREHENSIVE REHABILITATION WORK:

This specification covers comprehensive rehabilitation work of Instron computerized fatigue testing system. The rehabilitation work is divided into following segments:

(i) Supply of two 250kN actuators to replace two severely damaged actuators
(ii) Supply of one new HPU of minimum flow of 230 LPM to replace 2nd non-functional HPU
(iii) Supply of 8 channel controller including 8 channel digital and analog input/output ports.
(iv) Supply of UPS to provide conditioned and uninterrupted power to controller and PC
(v) Supply of one set Window 10 PC, 64 bit, 8GB RAM, 1TB hard drive, PC with peripherals and dedicated control software and analysis software.
(vi) Rehabilitation of four 250kN actuators (chrome plating of scratch marks on pistons and filling up of worn out bearing plates, replacement of complete seal kit, change of filter elements, servicing of servo valves)
(vii) Rehabilitation of two 100kN actuators (replacement of complete seal kit, change of filter elements, servicing of servo valves) and overhauling of manifold.
(viii) Repair and Servicing of four nos. 500 litre/min sub-stations.
(ix) Replacement of all hydraulic hoses of HPU and actuators.
(x) Rehabilitation of 1st Hydraulic Power Unit.
(xi) Flushing/Cleaning of Pressure, Return and drain hard pipe line.
(xii) Supply of 3000ltr HYDROL 46 or equivalent hydraulic oil.

2.1 Supply of two nos. of 250kN dynamic actuators to replace two severely damaged actuators.

2.1.1 The actuator shall be closed loop servo controlled electro-hydraulic type. The actuator shall be double-ended, fatigue-rated and robust design and quality materials that minimize friction, while maximizing reliability, wear resistance, high side load tolerance and ease of maintenance. The actuator shall be capable of dynamic force requirement to maintain waveform fidelity in both polarities.

2.1.2 The actuator shall have fatigue rated swivel base to minimise side loads on actuator with tilt angle and swivel angle. Swivel shall be strong, durable, versatile and specifically designed for rigorous demands of close loop servo hydraulic testing application. Load cell end of the actuator shall also have swivel arrangement.
2.1.3 Dynamic force capacity shall be ± 250kN.
2.1.4 Working pressure of the actuator (AP) should be 3000 psi.
2.1.5 The Actuator shall be designed for minimum working Stroke of 150 mm (i.e. ± 75 mm) with provision of robust designed internal built full-stroke, coaxially-mounted higher accuracy position transducer/LVDT.
2.1.6 The Actuators shall be provided with heavy duty two stage/Three stage servo-valve and compatible with existing Instron substation.
2.1.7 Each actuator shall be capable to run min 0.1 Hz to max 50 Hz or above frequency truly following the command signal.
2.1.8 Each actuator shall be capable to run 50 mm amplitude (±50 mm) @ 1 Hz frequency.
2.1.9 Least count of the feedback of engineering unit of force in kN and position in mm shall be third place of decimal with stable reading up to at least second place of decimal.
2.1.10 The least count of the actuator stroke measurement with integral position transducer/LVDT should be 0.001 millimeter.
2.1.11 The resolution of position transducer/LVDT should be 0.05% of FSO (Full scale output).
2.1.12 Linearity or error of the actuator stroke measurement should be ± 0.3% FSO.
2.1.13 Robust designed fatigue rated load cell of rating in static: 500 kN and in dynamic: 250 kN shall be provided with the actuator for load measurement and safe overload capacity of 300%.
2.1.14 Non linearity of the actuator’s load cell shall be less than or equal to +/-0.1% of Full Scale.
2.1.15 Hysteresis of the load cell shall be less than or equal to +/- 0.1% FS.
2.1.16 The load cell shall have threaded holes to mount any fixture.
2.1.17 Calibration certificates of position transducer/LVDT & Load cell (NIST/NABL traceable certificates) of the actuator should be valid for two years regarding measurement of actuator Stroke & Load.
2.1.18 Surety of long fatigue life (excepted operate in excess of 1000 million loading cycles).
2.1.19 Actuator shall be fitted with the Swivel at the both end (base and load cell).
2.1.20 Actuator shall be provided with end cushions.
2.1.21 Actuator shall be supplied with provision of spiral washer between the fixture and rod for an extremely rigid connection.
2.1.22 Actuator shall have excellent wear resistance.
2.1.23 Actuator shall have zero backlashes.
2.1.24 The size and weight of actuator shall be clearly indicated.
2.1.25 Actuators shall have inbuilt lifting shackles.

2.2 Supply of one new Hydraulic Power Unit to replace one non-functional HPU
2.2.1 The Hydraulic power unit shall have total flow capacity of minimum 230 Litre per minute.
2.2.2 The HPU shall supply hydraulic fluid at 210 bar (3000psi) continuously since existing HPU produces 210 bar pressure to which the new HPU will be connected in parallel.

2.2.3 The Hydraulic power pack unit shall be designed to provide Hyd. Pressure to feed hydraulic hard pipe line for connecting substation inlet points. The HPU shall be provided with following features:

2.2.3.1 Oil reservoir of stainless steel capacity minimum 1000 litre.

2.2.3.2 A booster/ recirculation pump motor to circulate oil through the low pressure filter and heat exchanger and to provide boost pressure as well as cooling of hydraulic oil.

2.2.3.3 High pressure piston pump variable delivery with pressure compensated.

2.2.3.4 Low pressure filter 3 micron.

2.2.3.5 Plate type heat exchanger with water strainer at inlet of water for cooling of hydraulic oil.

2.2.3.6 The unit must have adequate cooling capacity to provide total system cooling even if inlet water temperature are at 32°C.

2.2.3.7 Pre-charged Nitrogen accumulator fitted with pressure line.

2.2.3.8 Suction line strainer inside of tank – not more than 125 micron.

2.2.3.9 Manifold mounted pressure relief valve- manual pressure adjustment, with electrically operated pilot valve for dumping the pressure straight back to the tank.

2.2.3.10 System protection device shut down the hydraulic supply in the event of Oil level low, Oil output pressure low, boost oil pressure low, main motor overload boost motor overload or oil temperature high.

2.2.3.11 Local or remote start up control, monitoring and fault indication of hydraulic power unit.

2.2.3.12 Digital oil temperature indicator.

2.2.3.13 Oil over temperature cut out shall be set equal to the refurbished HPU cut temperature (70°C).

2.2.4 The HPU must have hydraulic fluid sampling port to ensure safe and reliable periodic fluid testing.

2.2.5 The HPU must have pockets and/or cut-outs for easy transport access by forklift and/or pallet jack systems.

2.2.6 The noise level of HPU shall be less than 74db (A at full pressure, full compensated.

2.2.7 The motor/pump must be mounted on vibration isolators to reduce vibration.

2.2.8 The HPU must be provided with a lockable acoustic hood enclosure for the mechanical portion to prevent noise and hazards. This enclosure must have easy access for maintenance.

2.2.9 All electrical control must be mounted in NEMA standard or equivalent international standard enclosures.

2.2.10 Available Electrical Power supply: 415V 3 phase 50 Hz, up to 400Amp. & Single phase 220V 50 Hz.

2.2.11 Mounting of HPU: Free standing.
2.3 **Supply of Digital Multi Axis Controller:**

2.3.1 The digital multi axis controller should be capable to control servo- Hydraulic actuators for static & dynamic testing of railway rolling stocks structures & components which is manufactured with different type materials.

2.3.2 The controller should be also capable to provide close loop control with transducer conditioning and function generator to conduct various types testing.

2.3.3 The controller should have a high-performance controller processor, capable of update rates ≥ 1kHz.

2.3.4 Graphical user interface (GUI) must be able to show digital display of feedback values and graph simultaneously.

2.3.5 The controller shall support minimum 8 actuators and at least 4 sub-station (hydraulic power supply off/Low/High control)

2.3.6 Axis control card ≥ 08nos along with control cable.

2.3.7 Substation/Hyd. service manifold control cable ≥ 8 nos.

2.3.8 Capable to control axis in both mode i.e. stroke/position mode and force/load mode.

2.3.9 Controller should be with no configuration constraints i.e. any input can be assigned to any control channel (i.e. load, strain, stroke & calculated variable).

2.3.10 Control channels can be assigned to any station without changing circuit board or cables.

2.3.11 8 channels digital signal input and output port.

2.3.12 At least 8 channels analog voltages (0 to 10V) signal input and output port card/module for other external transducer connection.

2.3.13 Stable & Repeatable readings of position and force feedback with least count 0.001mm in position and 0.001/kN in force mode.

2.3.14 Independent multi-station operation is to be simplified with consolidated control panels/Station desktop organiser software.

2.3.15 The digital axis controller card should be drive a 2-stage & 3-stage servo valve and also able to condition a transducer signals. The functionality can be changed by the user through software.

2.3.16 Should be capable to work with standard waveforms (i.e. sine, squire, triangle, haversine, ramp, random, sine-sweep etc.) pattern at different frequencies & amplitude.

2.3.17 The controller shall support customized Sequential block program file with internal / external input for dynamic testing of samples.

2.3.18 All connections for Transducers should be supports 4-wire/6-wire connection & balanced constant excitation voltage.

2.3.19 For 8 channel external input card/module: DC excitation voltage range: 5 to 24 Volts selectable type.

2.3.20 For 8 channel external input card/module: AC excitation voltage range: 1 to 10 Volts peak to peak.
2.3.21 For 8 channel external input card/module: Excitation frequency range: up to 10 kHz selectable type.
2.3.22 Interlocks for excitation failure in hardware, conditioner saturation in software.
2.3.23 All transducer should be TEDS support.
2.3.24 Input Resolution ≥ 19 bit.
2.3.25 Simultaneous data sample and hold on all analog inputs.
2.3.26 Data sample rate ≥1kHz.
2.3.27 Signal processing ≥ 32 bit.
2.3.28 Working Environment temperature: 5 to 40°C & RH:5-85%
2.3.29 An Analog inputs for connection of external load cell & LVDT for each axis.
2.3.30 System can be capable to run with external data inputs obtained during field trial to simulate the field condition.
2.3.31 Provision of dump valve with actuator manifold & cable connection for control High/ Low flow to actuator manifold and piston rod locking immediately when system is total power shutdown.
2.3.32 Capability to control Hydraulic. Power Unit pressure remotely and also monitoring of HPU parameters (i.e. Hyd. Pressure reading along with low/high indication, level of oil in tank, dirty filter indication, oil temperature, etc.) along with suitable control cable.
2.3.33 Ethernet port/GPIB port for communication with dedicated controlling computer system & control software.
2.3.34 Power input voltage range : 110V – 250V AC single phase 50Hz
2.3.35 Provision for short circuit protection device/circuit.
2.3.36 Dimensions should be compact. Components inside the enclosures should be easily assessable for routine checking and maintenance.
2.3.37 The controller should be capable to connect a handset. The hand set to provide an easy, convenient and compact means to install and replace specimens and to setup and initiate test at the load frame or test rig.

2.4 **Supply of Controlling Computer System and software:**

2.4.1 PC required for running various software packages Make: Dell
2.4.2 Processor: Intel® Core™ i7- (6 or 8 Cores/12MB/12T/up to 4.0GHz/35W)
2.4.3 Operating System: License Microsoft® Windows 10 Pro 64 bit operating software with MS office professional version & acrobat writer license version.
2.4.4 Memory(RAM) ≥ 8GB (2x4GB) 2666MHz DDR4 Memory
2.4.5 Hard Drive ≥1TB 7200rpm SATA Hard Disk Drive
2.4.6 Optical Drive ≥ 16X DVD+-RW
2.4.7 LED Monitor ≥21” LED monitor make dell/hp/Sony with HDMI interface
2.4.8 Video Card ≥ 256MB PCI x16 NVidiaQuadra NVS 290 (ULGA8), Dual Monitor DVI or VGA Graphics Card.

2.4.9 4 External USB 3.1 Type-A (2 front/2 rear), 4 External USB 2.0 Type-A (2 front/2 rear), 1 RJ-45, 1 Display Port 1.2, 1 Line-out, 1 VGA, 1 HDMI 1.4/2.0, 1 Serial, 1 x Integrated Ethernet Port and 1 x Ethernet PCI-E Network Card, 3 PCI Slots (2 full length, 1 short length), 1 free PCI Express Slots, Wireless LAN, 2 button USB scroll optical mouse, Keyboard, Wi-Fi & Bluetooth enable, Internal Speaker.

2.4.10 1GPIB input/output module/card fitted with PCI slot or GPIB to USB Converter module and vice versa.

2.4.11 A dedicated controller software and analysis software.

2.4.12 The control software shall be versatile, easy to use & control multi axis servo- controller for static & dynamic testing applications.

2.4.13 To provide real-time close loop control with transducer feedback and function generator to drive various types of servo-actuators.

2.4.14 The Controller software automatically recognises added hardware.

2.4.15 The software should be capable for control loops tuned (PID) manually & automatically both with command optimisation PVC (peak valley control), and null pacing should be standard.

2.4.16 The Software should have transducer electronic data sheet (TEDS) to ensure that proper calibration information is used for each corresponding transducer.

2.4.17 System should be capable to customise programs for conducting compressive & tensile test as per test scheme/ specifications requirements.

2.4.18 System should be capable to Static Load Deflection Test & Fatigue Test.

2.4.19 The real time data should be stored during the test.

2.4.20 Stroke /displacement feedback data should be measured with actuators internal LVDT.

2.4.21 Multi Axis Fatigue Package software. Software packages to conduct tension, compression, fatigue properties as per appropriate standards.

2.4.22 Software should be capable for amplitude & Phase matching.

2.4.23 Graphically displaying of data acquiring from transducers as well as high–level signals.

2.4.24 Capabilities for tension, compression, and fatigue tests with data acquisition of all channels & storage to disk.

2.4.25 Control software shall allow Ramp, hold, sine, triangle, square, and trapezoidal waveforms for control in a series of test blocks.

2.4.26 Shall support block to block event triggers

2.4.27 Shall allow continuous update of PID terms at 1KHz.

2.4.28 Eliminating the need for expert operator for set-up PID values and automatically compensating for specimens stiffness. By PID setting with auto mode.
2.4.29 Graphical representation of Load Vs stroke curve on screen in real time and provision for copying the graphical presentation.

2.4.30 Multiple signals of the all channels should be able to view together.

2.4.31 Real time Data Acquisition and analysis software.

2.4.32 Data analysis software and report generation software should be available in the PC. Data analysis software shall facilitate analysis of recorded data, load vs deflection loop generation and energy calculation.

2.4.33 Real time data recording ≥ 1000 s/s.

2.4.34 System has to be capable to store all channel to the pc disk at continuous rate of 1 kHz.

2.4.35 For total flexibility in data analysis and report creation, software should be capable saves or convert recorded data in different standard file formats (i.e. ASCII, CSV, XML, RPC, ANSI, etc.)

2.4.36 Software should be capable to record all data with acquisition processes (i.e. Peak/valley, Max/min, timed data, cyclic.

2.4.37 Data analysis software. Automatic customized report generation.

2.4.38 Calculation of energy loop, Load vs. height curve and loop.

2.4.39 Color laser printer with scan & copy function along with Ethernet port for online report generation Make HP or Epson.

2.5 **Supply of UPS to provide conditioned and uninterrupted power to controller and PC**

2.5.1 Reliable, Versatile, Powerful and Efficient online UPS With double-conversion topology for constant power conditioning and up to 90 percent efficiency. A graphical LCD for local status updates and integrates with virtualized environments.

2.5.2 Provision for controller, PC and monitor to be plugged in the supplied UPS.

2.5.3 Power Rating: minimum 3.0 KVA with at least half an hour backup

2.5.4 Voltage: 230 V

2.5.5 Frequency: 50Hz

2.6 **Rehabilitation of 250kN four nos. of servo controlled electro-hydraulic actuators**

2.6.1 Four nos. of 250kN Instron actuators shall be rehabilitated.

2.6.2 Piston of the all four actuators shall be chrome plated where wear and scratch/pitting mark are present.

2.6.3 The chrome plated surface shall match accurately with existing surface so that damage of seal may not occur during movement of piston in cylinder after chrome plating.

2.6.4 If there any cylinder housing and labyrinth bearing found worn out these shall be repaired/replaced upto their original dimension.

2.6.5 All the seal kit of four actuators shall be replaced with new seal kit.

2.6.6 Pressure line filter element 3 micron of all the four actuators shall be replaced with new elements.
2.6.7 Dry Nitrogen filled accumulator of all the four actuators shall be checked. If bladders are found torn they shall be replaced and all the accumulators shall be recharged up to recommended pressure.

2.6.8 Replacement or servicing of 72 series servo valves of the four actuators to give accurate response during running of actuator.

2.6.9 Electrical signal connectors and cables shall be replaced if found damaged or become damage during rehabilitation.

2.6.10 If any component of the actuator is found damage it should be replaced.

2.6.11 All the components of the actuators shall be assembled after replacement/Rehabilitation including load cell and LVDT. The actuators thus after rehabilitation shall be mounted on reaction frame and hose connection shall be made.

2.6.12 The bidder may replace one or more actuators with new actuator among the four which are to be rehabilitated if finds not repairable. Condition based replacement will be decided upon by the bidder as rehabilitated actuators must satisfy the condition of acceptance by the consignee and must run trouble free within 2 years warrantee period plus 5 years AMC period.

2.6.13 If the bidder replaces any of these four actuators with new, the newly replaced actuators shall strictly fulfil all sub-clauses of clause 2.1.

2.7 **Rehabilitation of two nos. of 100kN servo controlled electro-hydraulic actuators**

2.7.1 Two nos. of 100kN Instron actuators shall be rehabilitated.

2.7.2 Piston of the all four actuators shall be chrome plated where wear and scratch/pitting mark are present.

2.7.3 The chrome plated surface shall match accurately with existing surface so that damage of seal may not occur during movement of piston in cylinder after chrome plating.

2.7.4 If there any cylinder housing and labyrinth bearing found worn out these shall be repaired or replaced up to their original dimension.

2.7.5 All the seal kit of four actuators shall be replaced with new seal kit.

2.7.6 Pressure line filter element 3 micron of all the four actuators shall be replaced with new elements.

2.7.7 Dry Nitrogen filled accumulator of all the four actuators shall be checked. If bladders are found torn they shall be replaced and all the accumulators shall be recharged up to recommended pressure.

2.7.8 Replacement or servicing of 761 series servo valves of the four actuators to give accurate response during running of actuator.

2.7.9 Electrical signal connectors or cables shall be replaced if found damaged or become damage during Rehabilitation.

2.7.10 If any component of the actuator is found damage it should be replaced.
2.7.11 All the components of the actuators shall be assembled after replacement/Rehabilitation including existing load cell and LVDT. The actuators shall be mounted on reaction frame and hose connection shall be made.

2.8 **Repair and Servicing of four nos. 500LPM Sub-Stations**

2.8.1 All the eight Instron actuators are connected with four nos. of two outlet sub-stations. All these sub-stations shall be serviced and repaired. The pressure gauges mounted on them shall be replaced with new.

2.8.2 The bladder of accumulators (1 litre and 0.075 litre) shall be checked and if found damage shall be replaced. The accumulators shall be recharged with dry nitrogen at recommended pressure.

2.8.3 Repair or replacement of pressure control valve

2.8.4 Repair or replacement of connectors.

2.8.5 Overhauling or replacement NRV of 0.5 bar drain line and return line 1 bar.

2.8.6 If any component is found damage it should be replaced.

2.8.7 If the substations are not repairable, the bidder may supply compatible required new 4 nos. having one inlet and two outlets substation with the flow as per the performance requirements for individual actuator.

2.9 **Replacement of Hydraulic hoses of complete system**

2.9.1 All the hoses (pressure, return and drain line) of 8 actuators connecting to substations shall be replaced with new. These hoses shall be compatible with the actuators and substations.

2.9.2 Hoses from hydraulic sub-station to Actuator

Pressure line hose of actuator SAE 100 R2 with female end fitting and dummies
Length : 10 meters
ID: 1”
Min. working pressure: 3000psi
Testing pressure: 6000psi
Bursting pressure: 12000psi

Return line hose of actuator SAE 100 R2 with female end fitting and dummies
Length : 10 meters
ID: 1 1/4”
Min. working pressure: 1500 psi
Testing pressure: 3000 psi
Bursting pressure: 6000 psi

Drain line hose of actuator SAE 100 R2 with male end fitting and dummies
Length : 10 meters
ID: 1/2”
Min. working pressure: 1500 psi
Testing pressure: 3000 psi
Bursting pressure: 6000 psi
2.9.3 02 sets of Pressure return and drain hoses connecting Power pack to hard pipeline suiting to existing infrastructure.

2.9.4 All the existing hydraulic hoses of pressure, return and drain line connecting hard pipeline and substation shall be replaced.

2.10 Rehabilitation of one Hydraulic Power Unit which is in working condition

2.10.1 The hydraulic oil tank shall be cleaned completely after emptying it.
2.10.2 The pressure sensor, oil level sensor and temperature sensor shall be checked for its working properly.
2.10.3 Suction strainer 125 micron shall be cleaned.
2.10.4 Low pressure filter element shall be replaced.
2.10.5 The pressure return and drain line NRV shall be serviced.
2.10.6 The pressure relief valve shall be checked and serviced if required.
2.10.7 New plate type heat exchanger shall be retrofitted in the HPU. All connection of heat exchanger for water and oil supply whichever required shall be done by the firm.
2.10.8 Water line strainer shall be provided by the firm for incoming water to the heat exchanger.
2.10.9 All hydraulic hose connected on HPU shall be replaced by the bidder.
2.10.10 Glycerine filled pressure gauge 6000psi shall be replaced by the bidder.
2.10.11 The high pressure pump is leaking from the coupling end. The leakage shall be arrested completely.
2.10.12 Any partially working/faulty electrical components shall be replaced.
2.10.13 Control panel switches/buttons shall be replaced.
2.10.14 The rehabilitated HPU shall provide supply of 3000 psi at its rated flow of 230lpm.
2.10.15 The accumulator shall be checked and recharged.
2.10.16 The oil tank of both the HPU new supplied and refurbished shall be connected with hard pipe line to maintain the oil level equal in both the tanks in case of parallel running of the HPUs.
2.10.17 System protection device such as shut down the hydraulic supply in the event of Oil level low, Oil output pressure low, boost oil pressure low, main motor overload boost motor overload or oil temperature high must be in working condition.
2.10.18 Digital oil temperature display device should be retrofitted.
2.10.19 Oil over temperature cut out shall be set equal to the new HPU cut temperature. (-70°C)
2.10.20 Any other component if found damage shall be replaced.
2.10.21 The bidder may supply new HPU of the same capacity instead of rehabilitation of the old HPU if finds not repairable. Condition based replacement will be decided upon by the bidder as rehabilitated HPU must satisfy the condition of acceptance by the consignee and must run trouble free within 2 years warrantee period plus 5 years AMC period. If the bidder supplies new HPU instead of rehabilitation, the new HPU must fulfil all the requirements as mentioned in clause 2.2.
2.10.22 The bidder may supply new single HPU of the minimum 500litre/min flow rate at hydraulic pressure of 210 bar (3000psi) continuously, instead of supplying one new HPU as per clause 2.2 and rehabilitation of old HPU as per clause 2.10. In case of supply of new HPU of the minimum 500litre/min flow rate, this HPU shall fulfil all the sub clauses of clause 2.2 except sub clause 2.2.1. Overall tank capacity should be minimum 1800 litres.

2.11 Flushing/Cleaning of hard pipeline

2.11.1 Entire length of hard pipe line for tapping to four sub-station shall be cleaned and flushed to remove any contamination or sludge in the line.

2.11.2 Replacement of seal/O-rings of joints of hard pipe line.

2.12 Supply of 3000 litres suitable hydraulic oil required for supplied machine.

2.12.1 3000 litre of HYDROL 46 grade or equivalent hydraulic oil for HPU shall be supplied by the bidder suitable for both types of new and old actuators and HPU.

2.13 Supply of communication cable with connectors/ electrical signal cables

2.13.1 Communication cable with connectors/ electrical signal cables from controller to 8 actuators and controller to 4 hydraulic sub-stations shall be replaced with new.

3.0 TECHNICAL REQUIREMENTS OF THE SYSTEM

3.1 The new supplied system shall be incorporated in existing system which shall be refurbished by the bidder

3.2 Calibration of two newly supplied actuators and 6 rehabilitated actuators shall be done by the firm in Fatigue Testing Lab in position and force mode. Proving ring and height gage shall be provided by RDSO.

3.3 The calibration data of new actuators shall fall within specified limit as mentioned in clause 2.1.9, 2.1.12 and 2.14

3.4 All the 8 actuators i.e. 2 new and 6 refurbished actuators shall be capable to run simultaneously by using flow of both the HPU or New single 500LPM HPU.

3.5 There shall be provision to use either of the HPU to run less than 8 actuators to save power.

4.0 TRAINING

4.1 The bidder shall arrange for five day training free of cost as part of supply on operation of machine, software and controller to three RDSO personnel after installation and commissioning of the system

4.2 The firm shall provide two sets of operation and maintenance manual and details of hydraulic and electrical circuit diagram of the new component supplied as per clause 2.1, 2.2, 2.3, 2.4 and 2.5 (HPU, actuator and controller, UPS)

4.3 The firm shall provide manual of rig control software and one backup softcopy of the software.

5.0 INSPECTION BEFORE DISPATCH TO RDSO

5.1 The new actuators, controller and HPU which will be supplied and the rehabilitated old actuators, sub-stations and HPU shall be inspected by RDSO representatives in the manufacturer’s/bidder’s premises to check its working condition as per specification before dispatch.
6.0 **ANNUAL MAINTENANCE CONTRACT**

6.1 Five years comprehensive AMC of the complete (Old and new both) system is mandatory for the bidder after expiry of two years of warrantee period. The bidder should quote comprehensive AMC charges for five years along with the rehabilitation work.

6.2 Firm shall have to provide scope of work (activity chart) to be done during AMC

6.3 The firm shall provide list of spares and their price to be used during normal AMC period.

7.0 **WARRANTEE**

7.1 Two years Warrantee shall cover on all new supplied components (actuators, controller and HPU) as well as old rehabilitated components (actuators, sub-stations and HPU).

7.2 The bidder shall upgrade the software during warrantee period free of cost. The Licence of the software should cover warrantee period of two year period.

7.3 Spares required during routine maintenance and any breakdown maintenance shall be borne by the bidder in the period of warrantee.

8.0 **GENERAL TERMS AND CONDITION**

8.1 The complete rehabilitated system (new supplied actuators, controller and HPU and rehabilitated HPU, actuators, substations etc.) shall be Installed and commissioned by the bidder on turnkey basis in the fatigue testing laboratory of testing directorate, RDSO, Lucknow.

8.2 If new system is to be imported (new supplied actuators, controller), it shall be firm’s responsibility to import and borne expenses of import and transportation.

8.3 Custom, Insurance and Freight shall be arranged by the bidder.

8.4 The components said in clause 2.6, 2.7, 2.8 and 2.10 if requires to be rehabilitated at the bidder premises, it shall be responsibility of the bidder to collect them from RDSO premises and return back after Rehabilitation of the components to RDSO, Fatigue Testing Lab. The transportation cost should be included in the offer price.

8.5 Machines, equipment, tools and all other things to be required for installation and commissioning of the system shall have to be arranged by the bidder itself or shall be under scope of supply whatever is applicable as per the specification requirements.

8.6 RDSO will provide only Electricity and Water, free of cost to the firm for erection and commissioning of the system.

8.7 The installation of the rehabilitated machine components shall be responsibility of the bidder.

8.8 Uprooting of existing HPU and other components which are to be replaced or repaired will be responsibility of the bidder.

8.9 Bidders are advised to inspect the system which is to be rehabilitated before quoting.

8.10 Information regarding corporate size, history, and projected financial stability must be provided (annual report or equivalent, work experience in manufacture and service of electro-hydraulic machines are requested) and will be factor in awarding the contract.

9.0 **BIDDER’S RESPONSE:**

9.1 Bidder shall include a line-by-line response to each paragraph and on requirements of this specification in addition to the quotation.

9.2 A “comply” response indicating full compliance with every aspect of the specification.

9.3 A “deviation” or “equivalent” response must include a complete technical explanation for the offer to be considered.

9.4 Any other items required for installation and commissioning of machine should be in the scope of supply and shall be the responsibility of the bidder under Turn Key project.
10.0 DELIVERABLES: THE LIST OF DELIVERABLES ARE AS UNDER

<table>
<thead>
<tr>
<th>S. No.</th>
<th>DESCRIPTION OF ITEM</th>
<th>As per clause no.</th>
<th>Qty. to be supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>New 250 kN dynamic actuators</td>
<td>Clause 2.1</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>2.</td>
<td>New Hydraulic Power Unit</td>
<td>Clause 2.2</td>
<td>1 No</td>
</tr>
<tr>
<td>3.</td>
<td>Digital controller</td>
<td>Clause 2.3</td>
<td>1 No</td>
</tr>
<tr>
<td>4.</td>
<td>Controlling Computer System and control software</td>
<td>Clause 2.4</td>
<td>1 Sets</td>
</tr>
<tr>
<td>5.</td>
<td>UPS 3 kVA</td>
<td>Clause 2.5</td>
<td>1 No</td>
</tr>
<tr>
<td>6.</td>
<td>Hydraulic hoses of complete system</td>
<td>Clause 2.9</td>
<td>8 sets for 8 actuator 4 sets for 4 substation 2 sets for 2HPU</td>
</tr>
<tr>
<td>7.</td>
<td>2.1 Rehabilitation of 250KN four nos. of servo controlled electro-hydraulic actuators</td>
<td>Clause 2.6</td>
<td>4 Nos.</td>
</tr>
<tr>
<td>8.</td>
<td>2.2 Rehabilitation of two nos. of 100kN servo controlled electro-hydraulic actuators</td>
<td>Clause 2.7</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>9.</td>
<td>2.9.5 Repair and Servicing of four nos 500 LPM Sub- Stations or supply of compatible required new 4 nos. having one inlet and two outlets substation with the flow as per the performance requirements for individual actuator.</td>
<td>Clause 2.8</td>
<td>4 Nos.</td>
</tr>
<tr>
<td>10.</td>
<td>2.3 Rehabilitation one Hydraulic Power Unit which is in working condition</td>
<td>Clause 2.10</td>
<td>1 No</td>
</tr>
<tr>
<td>11.</td>
<td>Supply of Hydrol 46 grade oil or equivalent hydraulic oil suitable for the system</td>
<td>Clause 2.12</td>
<td>3000ltr</td>
</tr>
<tr>
<td>12.</td>
<td>2.5 Communication cable with connectors/ electrical signal cables from controller to 8 actuators and controller to 4 hydraulic sub-stations shall be replaced with new.</td>
<td>Clause 2.13</td>
<td>8 sets for 8 actuators 4 sets for 4 sub-station</td>
</tr>
</tbody>
</table>

Director Testing/Labs
Format for Details of the Previous Works/Services by the Bidder

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the Work</th>
<th>Brief Scope of Work (Indicate activities covered under the scope, especially those which relate to technical evaluation of your bid)</th>
<th>Agreement Number and Date</th>
<th>Details of Firm/Client for whom work was done</th>
<th>Experience certificate from Firm/Client enclosed? (Yes/No)</th>
<th>Value of Work as per Agreement indicating currency unit (in figure and words)</th>
<th>Due date of completion (in case of continuing work)/Actual completion date</th>
<th>Amount received against the work from Firm/Client indicating currency unit (in figure and words)</th>
<th>Financial Year* in which the payment was received from Firm/Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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*Financial Year is taken from 1st April of a year upto 31st March of succeeding Year e.g. the period of 1st April 2015 to 31st March 2016 is taken as Financial Year 2015-2016. In case payment for a single work has been received in different financial years, indicate payment received against each financial year for that work.
On the Issuing Firm/Client’s Official Letterhead

Reference No: ___________ Date of Issue: ___________

Work Experience Certificate

It is certified that M/s bidder/executing agency’s name having their offices at ______________ have completed/in process of completing* the following work/services for Certificate Issuing Firm’s Name and address. *(Strike out whichever is not applicable)

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of Work/Service</td>
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<tr>
<td>2.</td>
<td>Agreement Number with date and, name &amp; address of agency to whom the work awarded</td>
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<tr>
<td>3.</td>
<td>Brief scope of the work/service.</td>
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<td>4.</td>
<td>Agreement Value indicating currency unit (in words and figures)</td>
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<td>5.</td>
<td>Due date of completion as per agreement</td>
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<tr>
<td>6.</td>
<td>Number of extensions granted</td>
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<tr>
<td>7.</td>
<td>Actual Date of completion of work/service (if completed)</td>
<td></td>
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<tr>
<td>8.</td>
<td>Total Value of Payment released to the executing agency against the agreement indicating currency unit (in words and figures)</td>
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<tr>
<td>9.</td>
<td>Remarks about quality of performance of the executing agency under the agreement</td>
<td></td>
</tr>
</tbody>
</table>

It is also certified that I, Mr/Mrs/Ms ___________ working as ___________ in the Issuing Firm’s Name, am authorized to issue this certificate to bidder/executing agency’s name on behalf of Issuing Firm’s name having offices located at address of issuing firm.

(Signature)
Full Name
Designation
Contact details

Affix Office Seal/
Stamp here
# TENDER FORM (Third sheet)
## Schedule of Rates

**Name of the Work/Service:** Rehabilitation of Instron make Fatigue Testing system installed in Fatigue Testing Lab. of RDSO, Lucknow

*Rate should be quoted separately for each item*

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Work/Service description</th>
<th>Appro x. Qty. Nos.</th>
<th>Basic rate</th>
<th>Taxes &amp; rate of taxation if any</th>
<th>Total rates in figures &amp; words Rs.</th>
<th>Amount with currency</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Supply of Actuator 250 kN capacity</td>
<td>02</td>
<td></td>
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<tr>
<td></td>
<td>Supply of HPU of minimum flow 230 LPM</td>
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<tr>
<td></td>
<td>Supply/Rehabilitation of HPU 230 LPM (as applicable)</td>
<td>01</td>
<td>Supply Rehabilitation</td>
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<td></td>
<td>Supply of 8 channel Controller &amp; associated software</td>
<td>01</td>
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<tr>
<td></td>
<td>Supply of HPU of flow 500 LPM (if applicable)</td>
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<tr>
<td></td>
<td>Supply/Rehabilitation of 500lpm substations</td>
<td>04</td>
<td>Supply Rehabilitation</td>
<td></td>
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<td></td>
<td>Flushing of the system &amp; Supply of Hydrol 46 grade Oil or suitable to the system</td>
<td>3000ltr.</td>
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<td></td>
<td>Supply/Rehabilitation of actuator 250kN capacity (as applicable)</td>
<td>04</td>
<td>Supply Rehabilitation</td>
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<tr>
<td></td>
<td>Supply/Rehabilitation of actuator 100kN capacity (as applicable)</td>
<td>02</td>
<td>Supply Rehabilitation</td>
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<td></td>
<td>Replacement of all hydraulic hoses of HPU &amp; actuators</td>
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<td></td>
<td>Retro fitment of existing control cables to suit new controller</td>
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<td></td>
<td>Supply of UPS for controller &amp; PC</td>
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<td></td>
<td>Supply of 01 set window 10 PC with printer &amp; dedicated control software and analysis software</td>
<td>01 set</td>
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<td></td>
<td>Lifting of old components for rehabilitation from RDSO &amp; delivering back after reconditioning</td>
<td>There will not be separate charges for these activities</td>
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<tr>
<td></td>
<td>Training on operation of machine, software &amp; controller</td>
<td>There will not be separate charges for these activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Installation and commissioning of new and rehabilitated items of old system</td>
<td>01 set</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total amount (in figures & words)**
Note:
1) Overwriting or use of fluid are liable to rejection of offer.
2) No unscheduled item should be included in the Price bid.
3) The tenderer should clearly indicate all duties and taxes including local taxes also failing which it will be taken as these are borne by the contractor.
4) Rate quoted should be in words and figures both. In case of any difference in the rates quoted in words and the rates quoted in figures, the rates quoted in words only will be considered as correct.

Witnessed by: Name, Designation & seal
(From tenderer’s side)
RATE SHEET FOR COMPREHENSIVE ANNUAL MAINTENANCE SERVICE OF THE COMPLETE (OLD AND NEW BOTH) SYSTEM

Name of Work/Service: CAMC of Instron make Fatigue Testing system installed in Fatigue Testing Lab. of RDSO, Lucknow after its rehabilitation and expiry of warranty.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Rate for CAMC for every year</th>
<th>Cumulative Cost of CAMC for 5 years (in figures &amp; words)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year</td>
<td>Basic Rate</td>
</tr>
<tr>
<td>1</td>
<td>Comprehensive Annual maintenance service charges for maintaining the complete (Old &amp; New both) system supplied under this contract etc.</td>
<td>Year 1</td>
<td>Basic Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year 2</td>
<td>Basic Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year 3</td>
<td>Basic Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year 4</td>
<td>Basic Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year 5</td>
<td>Basic Rate</td>
</tr>
</tbody>
</table>

Notes:

1. The rates quoted should be inclusive of all taxes and discount (if any). The offers wherever rates are not quoted in this manner are liable to be summarily rejected.
2. Rate to be quoted for above works should be in figures and words. In case of any difference in the rates quoted in figures and words the rates quoted in words only will be considered as correct.

Signature of Tenderer with SEAL
Part – V

The guiding document for All Indian Railway contracts generally follows the document entitled

“General Conditions of Contract”

which may be downloaded by the following navigation chart

http://www.indianrailways.gov.in/railwayboard/
↓
About Indian Railways
↓
Railway Board Directorates
↓
Transformation Cell
↓
Circulars
↓
The General Conditions of Contract for Service

### Details of the Tenderer

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Details</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Full name</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Address of Registered Head Office</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Address of Branch office in India, if any</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Name and address of Indian Agent (if any)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Address on which correspondence regarding this tender should be made:</td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Postal Address</td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Telephone No. (including country code)</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Fax No.</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>E-mail address &amp; website URL</td>
<td></td>
</tr>
</tbody>
</table>
**Form-II**

**MANDATE FORM**

Electronic Clearing Service (Credit Clearing)/ Real Time Gross Settlement (RTGS) facility for receiving payments.

A. Details of Account Holder:-

<table>
<thead>
<tr>
<th>Name of Account Holder</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Contact Address</td>
<td></td>
</tr>
<tr>
<td>Telephone Number/FAX/E-mail</td>
<td></td>
</tr>
</tbody>
</table>

B. Bank Account Details:-

<table>
<thead>
<tr>
<th>Bank Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch Name with complete address, Telephone no. and E-mail</td>
<td></td>
</tr>
<tr>
<td>Whether the Branch is computerized?</td>
<td></td>
</tr>
<tr>
<td>Whether the branch is RTGS enabled? If yes then what is the Branch’s IFSC Code</td>
<td></td>
</tr>
<tr>
<td>Is the Branch also NEFT enabled?</td>
<td></td>
</tr>
<tr>
<td>Type of Bank Account (SB/Current/Cash credit)</td>
<td></td>
</tr>
<tr>
<td>Complete Bank Account No. (Latest)</td>
<td></td>
</tr>
<tr>
<td>MICR Code of Bank</td>
<td></td>
</tr>
</tbody>
</table>

Date of effect:-

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information I would not hold the use Institution responsible. I have read the option invitation letter and agree to discharge responsibility expected of me as a participant under the Scheme.

Signature of Customer

Date

Certified that the particulars furnished above are correct as per our records.

(Bank’s Stamp)

Date:

Signature of Customer

1. Please attach a photocopy of cheque along with the verification obtained from the bank.
2. In case your Bank Branch is presently not “RTGS enabled”, then upon its up gradation to “RTGS Enabled” branch, please submit the information again in the above proforma to the Department at earliest.

NOTE:- Refund of Security Deposit/Hire Charges

Due to operation of E-payment w. e. f. 01/04/2012 the Mandate form may please be submitted, duly verified by the bank, to this office for claiming Refund of Security Deposit/ Hire Charges along with a photocopy of blank Cheque.
Certificate of undertaking to be given by Tenderers who have used tender documents downloaded from RDSO website

Tenderer will give a certificate as under:

(a) Cost of tender documents has been paid as required in tender notice.

(b) “I/We certify that I/we have checked the downloaded tender documents with the tender documents available online at http://www.rdso.indianrailways.gov.in and there is no discrepancy/ variation/ printing mistake and it is further certified that no alteration/ modification has been made in the bid documents. I/We accept that the entire responsibility of ensuring that these documents are as per original available on website is mine/ours. I/We also agree that if anything contrary is found, the decision of RDSO will be final and binding on me/us.”

Signature & Seal of the Tenderer

Full address with contact numbers & names with e-mail address
Statement of Deviations from Technical Specification of Work  
(Part-III of Tender Documents)

Tender No.: RM1/GL-8/FTL/Instron System Rehabilitation/2018

<table>
<thead>
<tr>
<th>S. No</th>
<th>Reference Clause No. and Description</th>
<th>Deviation in the Offer</th>
<th>Justification/reasons of the Deviation</th>
</tr>
</thead>
</table>

**Note:** If there is no deviation with respect to tender document, “NIL DEVIATION” should be written in this form. If no text is mentioned in this form, it will be treated as “NIL DEVIATION”.
Proforma for authority from actual firm imparting rehabilitation of Instron make Fatigue Testing system installed in Fatigue Testing Lab. Of RDSO, Lucknow

No. ........................................ Dated........................................

To
THE PRESIDENT OF INDIA,
Acting through, the Director Testing / Labs,
Research Designs & Standards Organisation,
Ministry of Railways, Manak Nagar
Lucknow-226011 (UP) INDIA

Dear Sir,


We ..................................................as established and reputable firm of........................................having offices at........................................do hereby authorise M/s.......................................................... (Name and address of Agent) to represent us, to bid, negotiate and conclude the contract on our behalf with you against Tender No.........................

No company/firm or individual other than M/s .......................................................... are authorised to represent us in regard to this business against this specific tender.

Yours faithfully,

(NAME)
For & on behalf of M/s...........
(Name of Firm)

Note: This letter of authority should be on the Letterhead of the firm the systems concerned and should be signed by a person competent and having the power of attorney to bind the firm.