



## **SPECIAL CONDITIONS OF THE CONTRACT (TECHNICAL) – RAIL TESTING**

1. Carrying out through USFD testing of running Rails & Welds (excluding flange testing) including level crossings, lead portion of points and crossings and scabbed rail testing of all types of Rails by NBC (Need based concept) method under traffic conditions as per provisions of IR's "USFD manual & Specifications for Ultrasonic Testing of Rails and Welds" with latest correction slips & related instructions, duly marking defects, submission of daily reports and storing back up data as specified & directed with Contractor's USFD machine. *NOTE: (The SRT/DRT machine should have minimum of 9 probes (including 37 degree forward /backward probe for detecting bolt hole cracks).*  
Testing and reporting is to be done as per the Indian Railway Standard specification for Ultrasonic testing of Rails/Welds– Revised – 2020 and latest amendments. In case of any conflict, the special conditions of the contract shall prevail.
2. **The contractor shall conduct hand probing of machined portion of all types of SEJs, and switches ( 2 tongue Rails and 2 stock rails), scabbed rails wherever necessary as per the procedure laid down in "Manual for Ultrasonic Testing of Rails and Welds – Revised, 2022" with latest correction slips issued from time to time, and as per Indian Railways Standard Specification for Ultrasonic Testing of Rails/Welds-Revised-2020 with latest corrections slips and instructions issued by RDSO from time to time as applicable to rail testing.**  
**Agency has to deploy RDSO approved AT weld tester for hand probing of machined portion of SEJs as per "Manual for Ultrasonic Testing of Rails and Welds – Revised, 2022" with latest correction slips issued from time to time.**
3. The machine should be capable to detect the defects as given in the Manual for ultrasonic testing of rails and welds revised -2022 along with Indian Railway standard specification for ultrasonic testing of rail / welds Revised- 2020 issued by RDSO as amended from time to time with latest correction slips.
4. **The tenderer should submit the RDSO certified USFD machines SRT/DRT/Hand held testing equipment's with B-scan facility equipped with 9 channels and two extra 37 degree probes and all the machines shall have post-processing software and have the facility to generate exception report and other features as per 18.2, 18.3, 18.4 & 18.5 of RDSO specification No: RDSO/M&C/NDT/128/2007 (B-Scan) Rev-V, September 2025 and RDSO specification No: RDSO/M&C/NDT/130/2007 (B-Scan) Rev-V, September 2025 dated 23-06-2026 (for SRT & DRT respectively) and valid QAP shall be submitted along with the tender documents without which offer shall be summarily rejected. An undertaking should be submitted by tenderer along with the tender offer stating that all the machines proposed to be deployed are loaded with exception report software.**
5. The operators should have valid competency certificate for testing of Rail/Weld, issued by RDSO or ASTM-II in Non Destructive Testing.
  - (a) The operator should possess regular competency certificate in through testing of rail and weld manually by SRT/DRT (B-scan) valid for a period of 2 years, issued either by RDSO or should possess competency certificate of Level- 2 from Indian Society for Nondestructive testing (ISNT)/American Society (ASNT) for Non-destructive testing and shall have minimum two years of practical experience in Ultrasonic examination. This is to be read in conjunction with clause 7 of the Technical Specification of T-53.
  - (b) The operator holding provisional competency certificate should confirm to clause no. 7.3.2 (a) of Indian Railway Standard specification for Ultrasonic testing of Rails/Welds– Revised –2020.
  - (c) If the operators found to be working without the valid certificate at the time of inspection of the Engineer-in-charge, the testing done by the operator will be invalid.
6. The minimum defect detection level reliability percentage vis-à-vis size should satisfy clause (6) mentioned in the revised Indian Railway Standard specification for Ultrasonic testing of Rails/Welds– Revised – 2020. The capability of test system shall be verified before testing begins, and after change of operator/ machine and after every 1000 km of testing to ensure compliance of the specification. For this purpose, contractor will have to bring their machine and operators to RDSO/LKO for verifying the test system capability. This may be done using known rail defect method- where the test system runs over a test containing known defects of various sizes and types or by defect audit verification method, where numbers of rail defects detected by contractor during inspection run are audited by physical examination.  
  
For this purpose suitable method should be employed for example hand probing of rail length selected at random containing 5% of the detected defects and if required physical examination by breaking open the defects which were over reported / under reported / not reported in any of these two testing. In case it is considered necessary to carry out sizing of the flaws detected the same can be accomplished using procedure contained in Annexure-2 of Indian Railway Standard specification for Ultrasonic testing of Rails / welds Revised – 2020 and latest amendments.



7. The calibration of Ultrasonic flaw detector should be done as per Manual for Ultrasonic testing of Rails/Welds Revised - 2022 and Indian railway standard specification for ultrasonic testing of rail / welds revised- 2020 issued by RDSO. The required rail for standard test piece will have to be manufactured by the contractor at his own cost. The rail for making the standard test piece will be supplied by the railway free of cost. This standard test piece is to be returned back to the Railway after completion of the contract at destination decided by Engineer-in-Charge.
8. The USFD machine should be maintained properly by getting it inspected periodically and shall be in good working condition. The correctness of machine working shall be to the satisfaction of the Engineer-in-charge.
9. The Engineer –in- charge of the work here will be Sr.DEN/Co-ord, Sr.DEN/DEN of the respective divisions or Engineer nominated by them.
10. The tenderer should indicate the average length of track to be tested by him per day, however the maximum length of track tested shall not exceed 6 km per day per machine with 2 operators.
11. The required kms and their due date of testing of each section will be scheduled by the Railway and the tenderer shall progress the work accordingly. There should not be any overdue testing of kms.
12. The quantity of work given herein is indicative only and can increase or decrease subject to issue of instructions if any by Rly.Bd in connection with GMT and frequencies of the section to be adopted for which Railway is not responsible.
13. **Maximum delay permitted in testing of section after it has become due for USFD testing is 15 (fifteen) days. For further delay, penalty of Rs 5000/- per km per day will be levied on the contractor.**
14. Performance review of USFD operator of contractors shall also be taken by Engineer In-charge of Railways at regular interval during the currency of the contract in addition to their performance review at the level of quality in-charge of agency. Similar system of review for quality supervisor of agency shall be introduced by Zonal Railways for better reliability in implementation of Quality Assessment Plan.
15. Testing shall also cover testing of Alumino Thermit welds and Flash Butt welds falling in the test length like normal rail testing excluding flange testing and mark the defects accordingly.
16. Marking of the flaw location on the rail / weld and categorization of flaw shall be as per the clause 5 of Indian Railway Standard specification for Ultrasonic testing of Rails/Welds– Revised – 2020.
17. Rails that have not been tested on turnouts and other locations shall be recorded and reported. If such circumstances arise in the test work (where the limitation on the capacity of the testing system to identify defects in specific common track situations actually prevents reliable testing), then the start and end points of these conditions which prevent reliable testing should be identified clearly in the test exception report and be annotated to the overall comments to field on the daily test report.
18. (i) Test check of 10% at SSE level on fortnightly basis and 5% at ADEN level on monthly basis should be carried out within one month.  
(ii) In case of detection of any undetected flaw during the test check by the railways, the length of track tested in that particular week will be required to be re-tested by the contractor without any extra payment. Also, record of USFD operator will be kept who missed the flaw and the USFD operator who missed ten flaws in a year will be removed by Railways and its approval will be withdrawn by RDSO.  
(iii) CTE shall act as third party to investigate whether the defect was detectable at the time of USFD testing or not. The decision of CTE shall be final and binding on both the parties and this decision is not arbitrable.
19. **If any Rail/ Weld failure occurs due to undetected flaw within the next stipulated frequency of testing of that particular section (between stations) from the date of USFD testing, then a penalty of Rs. 30,000/- for failure of Ist Rail / Weld flaw, Rs. 50,000/- for failure of 2<sup>nd</sup> rail / weld flaw and for failure of third flaw between two stations, agreement will be terminated and the entire Security Deposit will be forfeited. RDSO shall act as a third party to investigate all such failures whether the defect was detectable at the time of USFD testing or not. The decision of RDSO shall be final and binding on both the parties.**
20. **In case any train accident occurs because of Rail/ weld fracture due to an internal detectable flaw by USFD, a penalty equivalent to 10% of the contract value will be deducted from the contractor's Bill. In addition the firm will be disqualified for this type of work in future including for the work in hand. In such cases , RDSO shall act as a third party to investigate whether the defect was detectable at the time of USFD testing or not. The decision of RDSO shall be final and binding on both the Parties. In case of occurrence of second such incident within a year, the Railway may terminate the contract and the contractor will be liable to refund all the money paid to him under the contract.**
21. Contractor's USFD team will take immediate action to intimate the concerned SSE/USFD for imposing speed restrictions in case of any IMR flaw is reported.
22. Daily test reports should be made with the test results in the format as per Annexure- 2 of "Indian Railway Standard



Specification for ultrasonic testing of Rails/welds Revised- 2020 matching with TMS for direct uploading of USFD test data on TMS (Track management system) duly signed by the Contractor's Engineer and submit to the Engineer-in-charge on the same of testing for necessary action. Daily test report should contain all the items as listed in 10.1.1 of the Technical Specifications. However, the flaws classified as 'IMR' should be reported on the same day.

23. The contractor will have to use USFD machine with B scan facility confirming to Clause no. 6 of Indian Railway Standard specification for Ultrasonic testing of Rails/Welds– Revised – 2020 and the machine should have capability of simultaneously testing with 9 channels - 00, 700 GF F/B, 700 NGF F/B, 700 C F/B, 370 C F/B.
24. In this case, the contractor will give the results in a diskette to the Division every week along with the report as mentioned in Para 21 above.
25. **Scrutiny of B-scan record and its continuity will form as part of test check at ADEN level. Data of B-scan record will be part of payment methods and preserved for three years for further analysis and necessary action in case of fracture. Software to view the B-scan data to be submitted to ADEN by contractor. B-scan machine should have provision of geo-tagging and date stamping.**
26. The contractor shall be permitted to make use of the existing facility, if available in PWI's office / Rest house for battery charging at free of cost. If such facility is not available / not feasible, contractor shall make his own arrangements. No additional payment shall be made on this account.
27. The tenderer shall provide his own accommodation for their stay during the period of contract. However, he will be permitted to construct a temporary accommodation in the Railway premises for their Office and staff, depending upon the availability of space and feasibility. No Railway accommodation will be provided for this purpose. The rates quoted by the tenderer shall include for all such charges.
28. Railway will not provide any mode of conveyance to the site of testing.
29. While accompanying the Railway official by push trolley the contractor/ contractor's staff will be permitted to travel by push trolley, for which they have to submit an Indemnity Bond in the prescribed proforma as per IRPWM within a week after issue of acceptance letter.
30. The testing shall be carried out between sunrises to sunset. No night testing will be permitted.
31. The contractor/ their representative/ staff should be well conversant with the area and with the working on track as regards to safety of traffic, personnel safety and will have to give a certificate to this effect. No compensation will be paid on whatsoever account. Contractor should indemnify the railway for any damage to the property or accident to a person.
32. The list of the technicians, operators and other assistants proposed to be deployed for testing shall be given to the Engineer-in-charge.
33. The track is situated at some locations in track circuited / HT traction and the USFD tester shall be provided with necessary insulations and shall not cause any failure of circuits. For such failures the actual losses / damages as fixed by the Railway shall be borne by the contractor. Railway will suitably decide the penalty for such type of lapses based on the ground realities.
34. All losses due to force majeure during currency of contract will be borne by the contractor.
35. Ultrasonic flaw detector and accessories shall be kept in safe custody of the contractor and Railway shall not be responsible for any loss or damage.
36. The work will be executed by DENs/Sr.DENs on the divisions and the payment shall be arranged by Sr.DFM's of respective divisions
37. No escalation charges will be claimed by the contractor on what so ever account.
38. All costs during testing will be borne by the contractor.
39. No advance payment towards mobilization shall be paid to the contractor. Monthly on account bills shall be paid to the contractor on request for the work done during the period.
40. The period of completion shall be 24 months from the date of commencement of work as mentioned in letter of acceptance. The work shall be carried out as per the program given by the Railway and there should not be any overdue in testing, as the testing is to be done as per the frequencies stipulated.