

Track - Ultrasonic Testing

Scope Includes: Ultrasonic rail testing techniques as defined in NR/SP/TRK/055.

Preparation

Tools, equipment and plant items required but not limited to:

- Ultrasonic flaw detector
- Ultrasonic probes as appropriate to the technique being applied
- Calibration and sensitivity blocks as appropriate to the technique being applied
- 150mm steel rule
- Acoustic couplant or water
- Testing system, 070 or Roller Sperry Unit (RSU) as required
- Tandem probe rig, if U6 technique being applied
- Wire brush and scraper

Work planning considerations:

- Staff undertaking these operations must be trained and certificated in the technique being applied
- Equipment to be used must be of approved types and calibrated as appropriate

Method

1. Select ultrasonic technique to be applied.
2. Calibrate equipment, set sensitivity levels and monitor gates if appropriate, for technique to be applied in accordance with NR/SP/TRK/055.
3. Scan rail in accordance with NR/SP/TRK/055 for technique being applied.
4. Record any indications/signal responses.
5. Where undertaking follow up inspections, using sizing and/or investigation techniques, e.g. U5, U8, if appropriate go to clause 2.
6. Where the rail is un-testable due to surface contamination the operator shall remove the contamination using a scraper or wire brush and continue testing (where practical).
7. Report and action rail defects in accordance with NR/SP/TRK/001.

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References

Supports Ellipse Standard job

- 009012 URFD - U1 - Fishplated joint test
- 009013 URFD - U2 - Other bolt hole test
- 009014 URFD - U3 - Full rail section test
- 009015 URFD - U4 - Crack size estimation in AMS
- 009016 URFD - U5 - Squat & rail head rep - test
- 009017 URFD - U6 - Weld defect test
- 009018 URFD - U7 - Rail depth measurement
- 009019 URFD - U8 - Vert long defects exam
- 009020 URFD - U10 - Adjustment switch test
- 009021 URFD - U14 - Rolling contact fatigue test
- 009022 URFD - U15 - Sperry stick u3/u14 test
- 009023 URFD - U16 - Sperry stick bolt hole test
- 009024 URFD - Attendance after UTU run
- 009220 URFD U1&U2 FP JTS & Bolt holes - test

If applicable refer to the following associated documents:

- NR/SP/TRK/001 Inspection and Maintenance of Permanent Way
- NR/SP/TRK/055 Rail Testing – Ultrasonic Procedures
- NR/SP/TRK/057 Rail Failure Handbook
- TEF 3038 Daily report of ultrasonic testing of rails
- TEF 3037 Report of rail defect found in the track

- Risk Control Sheets:
- NR/L3/MTC/0002/TK000 Generic Track Risks
- NR/L3/MTC/0002/TK700 Ultrasonic Testing