



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Engineering Practices Manual Civil Engineering

Inspection of Rail Wear - Procedure

RAP 5139

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1 General

This instruction details the procedures for rail wear inspections.

2 Reason and nature of change

Document reissued as ARTC Engineering Practice Manual.

3 Inspection

When performing this type of inspection, examiners need to have the following equipment:

- A rail wear gauge.
- Combination gauge (fitted with wear angle indicator).
- Rail Measuring calipers.
- Tables of Allowed limits when examining rails for which gauges are not available.

During the course of the examination, the examiner is to carefully look for rail wear. The gauge face of rails and running surfaces are to be visually scanned.

At locations where rail wear is evident, the examiner is to use the rail wear gauge to check the extent of wear.

Where a rail wear gauge is not available, rail calipers are to be used and measurements compared to Appendix 1 of ARTC Standard TEP 12. Rail wear gauges are not available for rails of 64mm or less head width, therefore calipers are required for rails 40kg or less.

NOTE: Rail wear is not usually confined to a single point on a rail. If wear is detected, checks are to be made at intervals along the rail for the duration of wear. This will often mean checking wear for the full length of curves.

Where isolated rail wear is identified, look for the factors that are causing it. These will often include irregularities in track alignment and superelevation.

4 Using the Rail Wear Gauge

4.1 Measuring Rail Head Width

To check reduction in head width, place the wide portion of the template over the running surface of the rail. The additional recess in the template is designed to allow for use of the gauge when head flow is present. The recessed section of the gauge is placed over the outer edge of the rail.

If the gauge cannot be placed so that the upper portion of the template touches the running surface, the extent of reduction in head width is satisfactory.

If the upper portion of the template touches the running surface of the rail, wear is approaching condemning limits and is to be noted as unsatisfactory. Further measurement of head width with calipers is necessary.



Figure 1 Checking head width with rail wear gauge

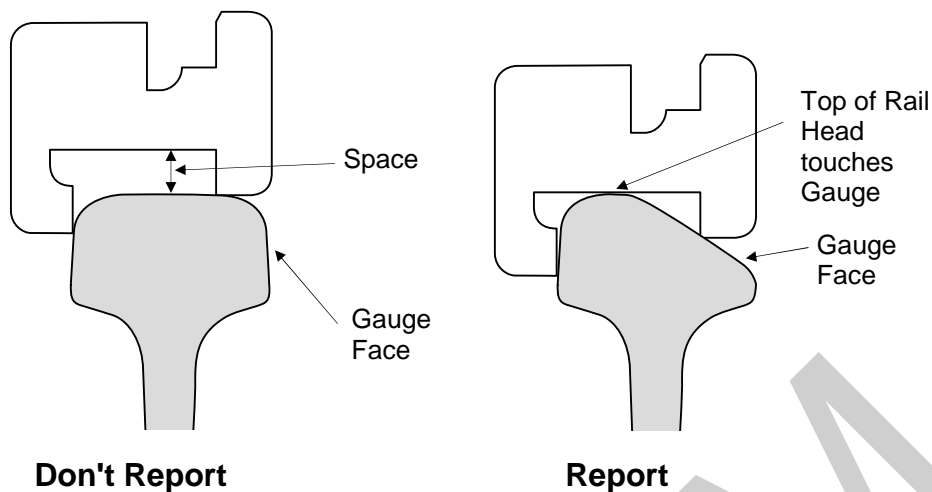


Figure 2 - Checking Head Width

4.2 Measuring rail head depth

To check reduction in head depth, place the narrow portion of the template against the gauge face of the rail. The recess in the template will allow rails with head flow to be checked. The recess is placed over the upper edge of the rail.

If the gauge cannot be placed so that the template contacts the gauge face, the extent of reduction in head depth is satisfactory.

If the template touches the gauge face, wear is approaching condemning limits and is to be noted as unsatisfactory. Further measurement of head width with calipers is necessary.



Figure 3 Checking head depth with rail wear gauge

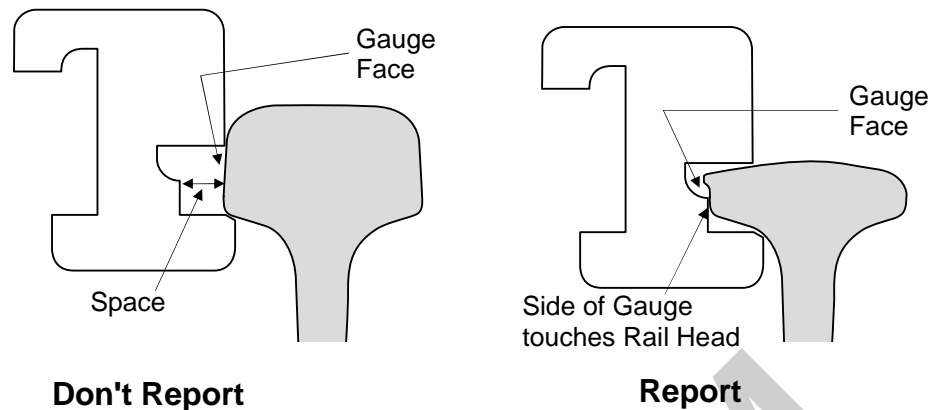


Figure 4 - Checking Head Depth

5 Measuring Rail Wear Angle

A Track Examiner's Combination Gauge has a sliding jaw with an attachment for measuring the wear angle of rails.

The angle of rail wear on the gauge face is to be checked by placing the combination cross-level/gauge board across the rails so that the wear angle indicator can be brought into contact with the gauge face of the rail to be examined.

The indicator gauge is to be manipulated so that the side of the gauge matches the angle of the gauge face of the rail. With the indicator gauge in this position, observe the position of the pointer (See Fig 5). If the pointer is in the green zone, the rail wear angle is satisfactory. Should the pointer be in the red zone, the angle of wear is too flat and must be recorded as an exceedent and reported.

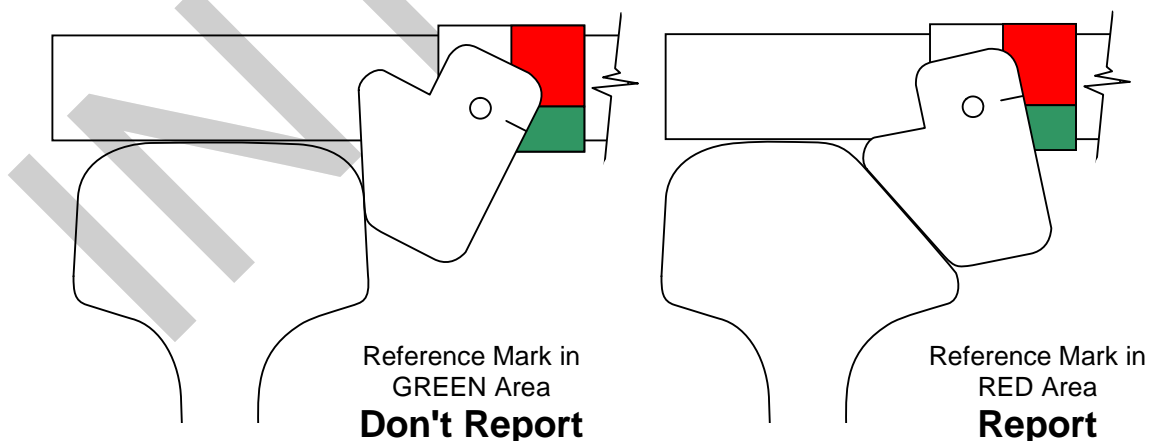


Figure 5 - Rail Wear Angle Reporting Gauge

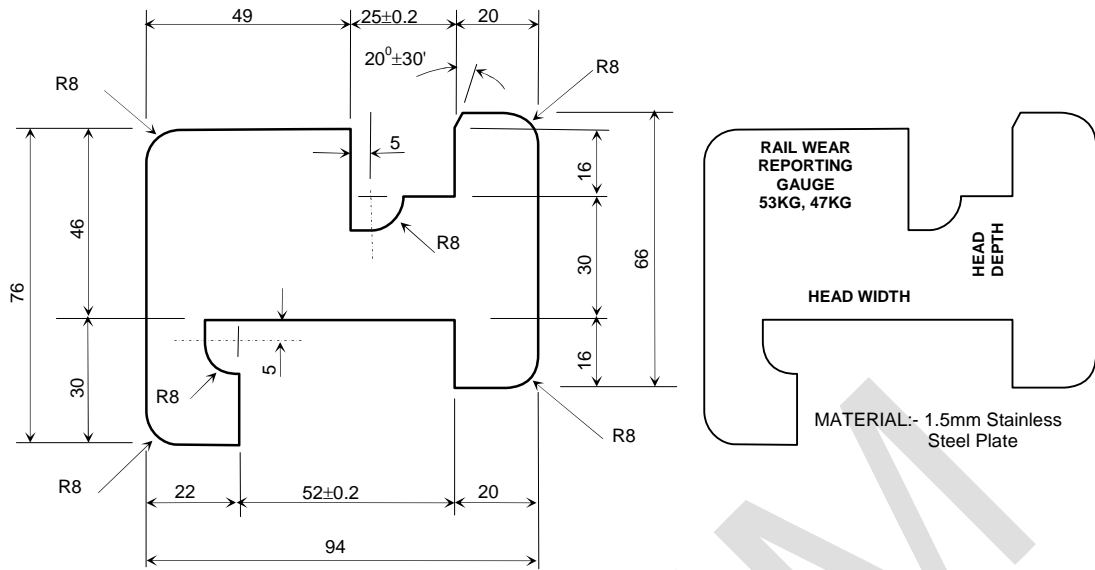


Figure 6 - Rail Wear Reporting Gauge - Specification