



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Engineering Practices Manual Civil Engineering

Inspection of Level Crossings - Procedure

RAP 5141

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1 General

This instruction details procedures for examinations of level crossings for all areas.

2 Reason and nature of change

Document reissued as ARTC Engineering Practice Manual.

3 Crossing Types

There are two distinct types of level crossing construction:

Modular (or Special)

These are manufactured in concrete or rubber modular sections and assembled on site.

Non-Modular

These are constructed from materials such as sleepers, ballast, fill material bitumen and in-fill concrete.

Most pedestrian crossings and take-offs are non-modular types.

4 Inspection Procedure

When performing this type of inspection, the examiner is to carry the following equipment:

- a combination cross-level/gauge board;

- a 5m tape measure;
- a bar to clean out flanges,

The inspection is performed by measuring the track gauge and flangeway clearances through the crossing at 2m intervals.

An assessment must be made of the condition of ties and fastenings. Any signs of backcanting or rail play must be noted.

Some indications of rail play are:

– **Modular Types**

Modules coming into contact with rails, rubbing marks or rusty spot on galvanised components.

– **Non-Modular Types**

At bitumen paved crossing; cracks in the bitumen around the running rails or guard rails, compressed 'humps' of bitumen behind the running rails.

Where rail play is suspected, a bar is to be inserted through the flangeway and levered in an attempt to widen the gauge. Approximate values for rail play are to be recorded on the inspection form.

Rail webs and flanges are to be carefully examined to detect rail corrosion. A bar should be used for inspecting rust flakes through the flangeways.

Assessments of rail top cross-level, alignment and drainage are also required. Where top, cross-level or alignment exceedents are suspected, these must be measured and recorded. Track drainage deficiencies are also to be noted.

Rail webs and flanges are to be carefully examined to detect rail corrosion. A bar should be used for inspecting rust flakes through the flangeways.

All crossings must be inspected for component effectiveness, road surface condition and effectiveness of signs, gates and fences, details to be recorded on the inspection form.

Modular Crossings

The components must be inspected for damage, cracks or any movement along the tracks due to ineffective end restraint. All sections must be inspected for proper level seating.

Non-Modular Crossings

The road surface must be inspected for pot holes, lifting timbers or other ineffective components.

All crossings must be checked for adequate insulation of the two track rails, this must also be achieved under passing road traffic or rocking of the sections. Any failure must be reported.

In steel-reinforced concrete modular crossings a short circuit may be caused by electrical bridging through the rubber spacers.

All measurements and assessments are to be compared to the reporting tolerances provided in the current instructions for the relevant track class.

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