Engineering Practices Manual

Civil Engineering

Continuous Welded Rail – Control of Creep

RTS 3646

Issue A, Revision 0

March 2006

1. Scope

This document describes the method for establishing, marking and monitoring creep points in CWR track.

2. Reason and nature of change

Document reissued as ARTC Engineering Practice.

3. Types of Monitoring Points

3.1 Creep Pegs

Creep pegs are to be installed at locations as required by ARTC Standard TMP 10. That is at every kilometre and half kilometre post and also at other significant points of the track which the Corridor Manager or nominated representative considers appropriate.

The standard creep peg is a stub post of old rail is to be placed at least 500mm into the ground, preferably with the foot facing towards Sydney, and at sufficient height to allow the check string to be stretched without touching the rail. The post should be located clear of access roads, ballast regulator operating areas and drains, etc.

In electrified areas, where overhead wiring structures exist on both sides of the formation, the masts can be used as creep pegs.

3.2 Punch Marking

At the time of adjustment, either when originally continuously welded or after subsequent adjustments, a small punch mark is placed on the field side of the head of each rail, in line with the "Sydney" end of each creep peg. This is achieved by stretching a stringline between the two opposing creep pegs and marking on the rail.

This single mark is the measurement point for the end of one section of track and the start of another.

Where double punch marking is used, the second series of punch marks is placed in line with the "Country" end of each creep peg.

In this case the mark on the "Sydney" end is the measurement point for the end of the previous section and the mark on the "Country" end is the measurement point for the next section of track. (See Fig 1)

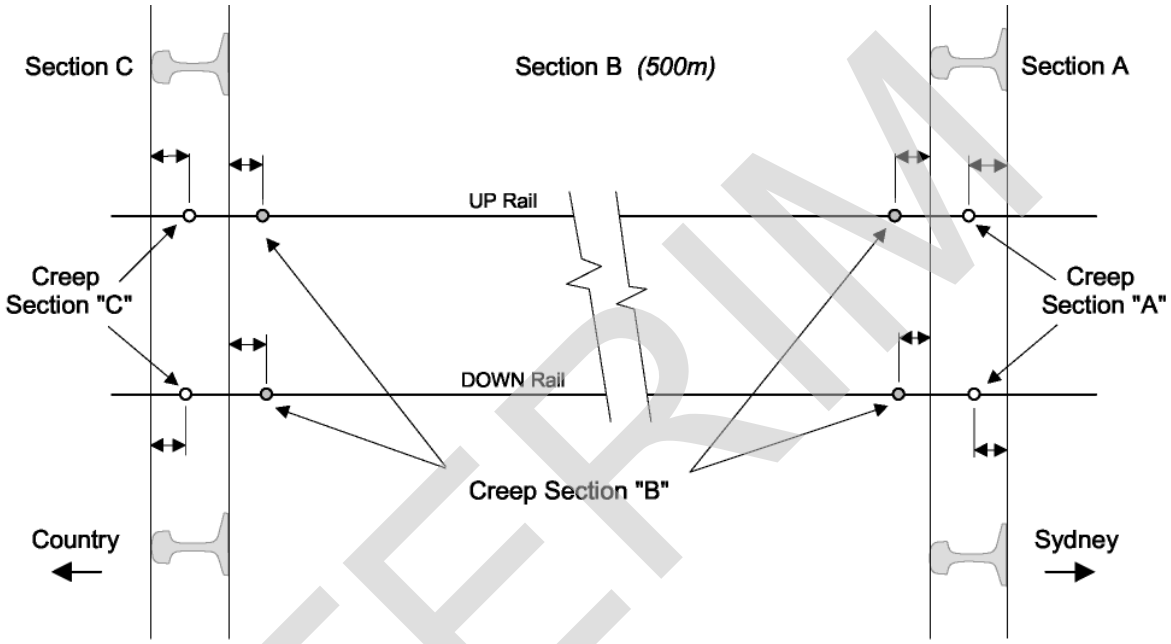

Figure 1 - Double punch marking

4. Method Monitoring

Monitoring is to be carried out by periodic inspection as part of the Welded Track Stability Examination detailed in ARTC Standard TEP 11. The difference occurring in the position of the rail punch marks and the original recovered position is to be checked.

5. Rectification of Creep

The attention given is to include thorough diagnosis of both the source of the creep and the rate at which it is occurring. The correction of the adjustment is to then be carried out in accordance with the instructions.

The monitoring points on the rail are to be re-established on completion of the adjustment.

In double punch marked track, grind off the punch marks at the beginning and end of the section which has been adjusted and punch new zero marks. If the sections either side of the adjusted section have not been adjusted, their punch marks can remain untouched.

In single punch marked track, when a section is readjusted, install double punch marks at this time. Care is required in punching new marks. Whilst the marks for the

re-adjusted section will be established at zero, the existing creep on the next and previous sections must be transferred to the new punch marks. (see Figs 3 - 6)

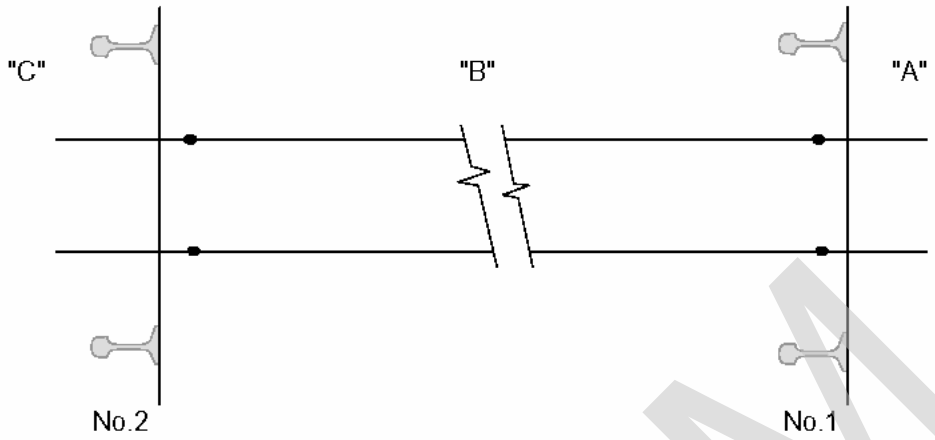

Figure 2 - Potential situation with Single punchmarking

Figure 2 shows a potential situation with single punch marking. Rail creep has occurred into both ends of Section "B". It has been established that adjustment of Section "B" is required. To maintain original punch marks for Sections "A" and "C" and install new punch marks for Section "B", use the following process:-

Step 1

(i) Measure the creep from stringline on Sydney side of No.2 creep peg

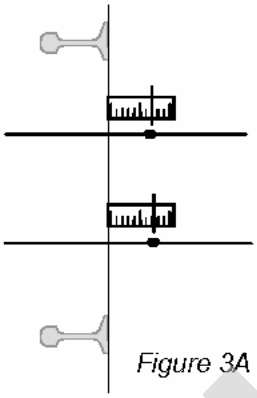

Figure 3A

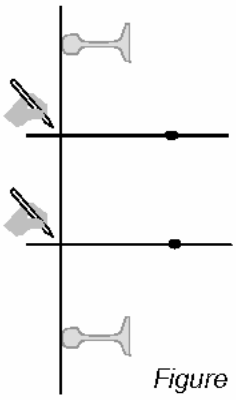

Figure 3B

(ii) Establish stringline on Country side of No. 2 creep peg.

(iii) Mark zero point for Country side creep on each rail at No. 2 creep peg

(iv) Transfer the measured creep from (I) to the Country side zero mark

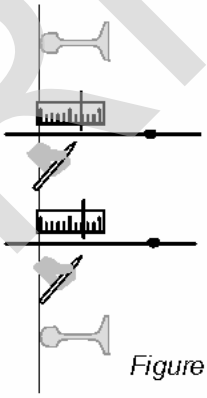

Figure 3C

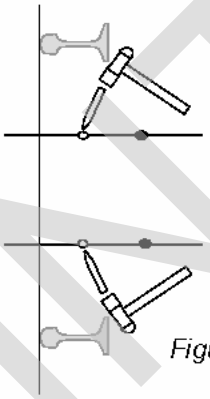

Figure 3D

(v) Install transferred punch mark

Step 2

Adjust Section "B" between Creep peg No.1 and No.2 to add steel.

Step 3

Grind off old punch mark on Country end of Section "B"

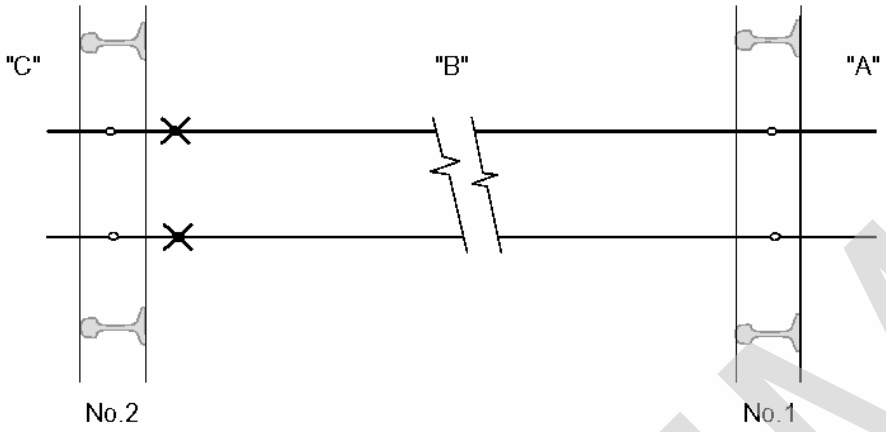

Figure 5 – Removal of redundant punch marks for Section "B"

Step 4

(i) Install new zero punch marks for Section "B" on Country end of No.1 Creep peg.

(ii) Install new zero punch marks for Section "B" on Sydney end of No.2 Creep peg

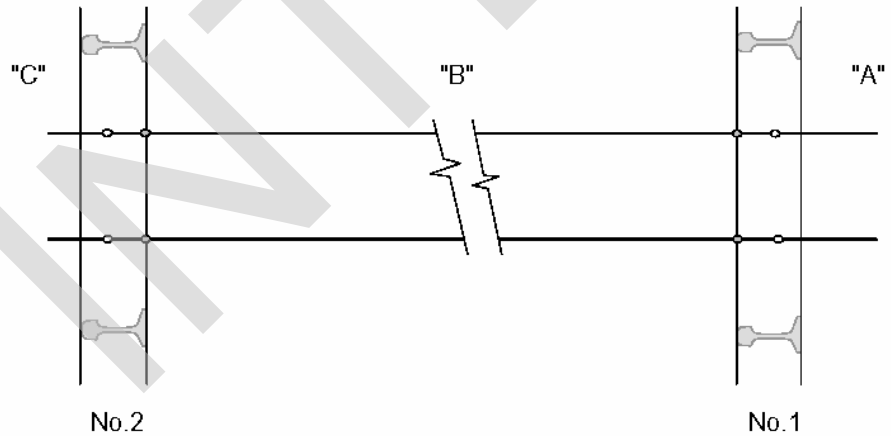

Figure 6 – Final position of double punchmarks