

**E.10/8 : FIELD WELDING AND CORRECTIVE GRINDING OF BATTERED  
RAIL JOINTS, SKID MARKS AND RAILCROWN DAMAGE**

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## 1. SCOPE

This specification covers the work necessary for correcting battered rail joints, marks and rail crown damage by field welding and grinding of rails in the track.

## 2. INTERPRETATIONS

### 2.1 SUPPORTING SPECIFICATIONS

2.1.1 Where this specification is required for a project, the following specifications, shall, inter alia, form part of the contract documents:

- a) The E.10 Gen - General.
- b) The E.10/4 - Ballasting and tamping.
- c) The E.10/11 - Survey and setting out of track alignment and referencing.
- d) Spoonnet's Track Welding Specification SSS-1 to SSS-14

2.1.2 In addition the following specifications, inter alia, may be required:

- a) The E.10/9 - Slewing and alignment.

### 2.2 DEFINITIONS

Void.

## 3. MATERIALS

3.1 Welding materials shall comply with the specifications or be of the manufacture shown in the following list.

- (i) Gaseous oxygen in cylinders - CKS 50.
- (ii) Dissolved acetylene in cylinders - CKS 169.
- (iii) Liquified petroleum gas in cylinders - SABS 690.
- (iv) Welding rods and flux core wire - Spoonnet's PWM 2/13
- (v) Cutting disks - as approved by the Engineer.
- (vi) Grinding stones - as approved by the Engineer.

#### **4. PLANT**

Void.

#### **5. CONSTRUCTION**

##### **5.1 GENERAL**

Void.

##### **5.2 SAFETY**

Void.

##### **5.3 PROGRAMME AND METHOD STATEMENT**

Void.

##### **5.4 METHODS AND PROCEDURES**

###### **5.4.1 GENERAL**

Welding other than Arc welding shall not be used to correct defects in rails and frog components made of 2% Mn steel and UIC B grade steel.

###### **5.4.2 BATTERED AND MISMATCHED RAIL ENDS**

5.4.2.1 Mismatches at rail joints of less than 2 mm shall be rectified by grinding the top of the higher rail and welding batter on the lower rail end.

5.4.2.2 Mismatches at rail joints of more than 2 mm with a maximum of 3 mm shall be rectified by building up half the difference by welding up of the lower rail end and grinding down half the difference on the higher rail. See also Specification SSS-8 clauses 2.4 to 2.7.

5.4.2.3 Rail end batter at pre-fabricated insulating joints shall not be welded.

###### **5.4.3 WHEEL SPIN DAMAGE AND SKID MARKS.**

Damage up to 0.8 mm deep shall be corrected by grinding. Damage between 0.8 mm and 6 mm deep shall be welded and ground. Continuous wheel spin damage to be corrected in terms of Specification SSS-7.

**5.4.4 CROSSINGS IN SETS**

Before a crossing is built up by welding, the following shall be done:

- a) Defective/missing bolts shall be replaced.
- b) All bolts shall be tightened.
- c) Spacer blocks shall be checked to ensure that they are securely in position and that flangeway clearances are correct.
- d) If required for welding the crossing shall be lifted by means of a special crossing jack.

**5.5 STANDARDS**

- 5.5.1 A 0,2 mm feeler gauge shall not enter under a 1,0 m straight edge, which is placed 6 mm over the battered end, corrected by welding.

**5.6 COMPLETION**

Void.

**6. TOLERANCES**

Void.

**7. TESTING**

Void.

**8. MEASUREMENT AND PAYMENT****8.1 SCHEDULED ITEMS****8.1.1 Build up and grind battered/mismatched rail joints ..... Unit: each**

Building up and grinding of battered/mismatched rail joints will be paid for the number of battered rail joints. The joint connecting two rails will be counted as one joint.

**8.1.1.1 Separate items will be scheduled for the following:**

- a) Running lines.
- b) Track in station yards.

**8.1.1.2 The rates tendered shall include for the following:**

- a) Measuring batter/mismatch.
- b) Welding and grinding of rail joints.

- c) Checking the rails after welding and grinding.

**8.1.2 Build up and grinding of rail crown damage .....Unit: each**

Building up and grinding of rail crown damage will be paid for each damaged area on the rail crown, corrected by welding and grinding.

8.1.2.1 Separate items will be scheduled for the following:

- a) Running lines.
- b) Track in station yards.

8.1.2.2 The rates tendered shall include for the following:

- a) Measuring the rail crown damage.
- b) Welding and grinding the rail crown damage.
- c) Checking the rails after welding and grinding.

**8.1.3 Build up and grind crossings/wing rails .....Unit: each**

Each crossing or wing rail corrected by welding and grinding will be counted.

8.1.3.1 Separate items will be scheduled for the following:

- a) Running lines.
- b) Track in station yards.

8.1.3.2 The rates tendered shall include for the following:

- a) Measuring the damage.
- b) Tightening all bolts, replacing defective/missing bolts.
- c) Lifting the crossings by means of a special crossing jack.
- d) Welding and grinding the crossings/wing rails.
- e) Checking the rails after welding and grinding.
- f) Tamping the affected sleepers.

**8.1.4 Replacing defective/missing bolts.....Unit: each**

Each defective or missing bolt replaced.

8.1.4.1 The rates tendered shall include for the following.

- a) Removing the defective bolt.
- b) Fitting the bolt with the necessary spacers, washers and nuts.
- c) Tightening the nut to be correct torque.

**8.1.5 Correcting continuous wheel spin damage.....Unit: each**

The number of continuous wheel spin damage corrected will be counted.

**8.1.5.1 Separate items will be scheduled for the following:**

- a) Running lines.
- b) Track in station yards.

**8.1.5.2 The rates tendered shall include for the following:**

- a) Measuring the rail damage.
- b) Grinding the rail damage.
- c) Checking the rails after grinding.
- d) Tamping the affected sleepers.

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