

Specification for Spring Points Complete with Lever

The Spring Points Complete with Lever Frame shall be manufactured as per the SLR Drawing No. 22642 for use in turn outs of the track.

The Spring Points Complete with Lever Frame is the device to move the tongue rail to divert the train from one track to another.

The device mainly comprises of a Point Box, Plunger, Crank, Spring Rod, Fulcrum Block and the Handle. (Lever Frame) The Spring Points Complete with Lever connected with the tongue rail by Stretcher Bars, Front Rod and Back Rods.

Manufactures shall ensure that the Spring Points Complete with Lever Frames offered by them conform to the latest revision of the drawing and the specification.

Each Spring Points Complete with Lever Frames shall be provided with connecting rods, front rods back rods and stretcher bars.

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**Specification for Glued Insulated Rail Joints EN 45 E1 (BS 90A)**

The Glued Insulated Rail Joints manufactured from EN 45 E1 (BS 90 A) 320 BHN Rail Section as per the Drawing No. 22641 for use in fish plated track.

**Material Specifications****1. Steel Fish Plates shall conform to IRS T – 1.**

Tensile Strength

Class 4 of steel Designation as per IS: 1762 (Part I): 1974: 45 C8

Tensile Strength (min) - 620 MPa

Yield Strength (min) - 320 MPa

Elongation - 5.65 SO

Percentage Elongation - 15% (min)

Hardness (HB) (min) - 175

**2. HTS Bolts & Nuts**

Hexagonal bolts shall conform to IS: 1363 and property clause 10.9 of IS: 1367.

Hexagonal bolts shall conform to IS: 1363 and property clause 12 of IS: 1367.

**3. Punched Washers:**

Steel of Punched Washers shall conform to IS: 2062.

**4. Insulating bushes / sleeves, liners and end-posts:**

The insulating components viz. bushes / sleeves, liners and end-posts shall be made with the materials as given.

**5. The 02 closure rails should be 2750mm each.****Materials for Insulating Components****1. Glass-cloth Carrier Reinforcement:**

Glass-cloth Carrier Reinforcement shall conform to IS: 11273: Clause 4.5 type C.

- a) Nominal weight: 360 + 36 gm/sq.m
- b) Nominal thickness: 300 +- 30 microns
- c) Construction
  - Ends per inch: 15.5 + or – 2.5 %.
  - Picks Weave per inch: 14 + or – 2.5 %.

## 2. Binder

The glass roving shall contain a sizing agent to facilitate weaving and to impart high wet strength to liners, bushes/ sleeves and end posts. The sizing agent used shall be compatible with epoxy resins. Approximate size of glass-cloth pieces are as given below for guidance.

For 04 bolts type: 15 x 50 cm

## 3. Glue

Glue for fabricating insulating components consists of epoxy and hardener.

### Testing and Inspection of Glued Insulated Rail Joints

#### a) Dimensional Check

Every fabricated joint shall be checked for vertical and lateral alignment with 1m long straight edge.

Vertical Alignment – Variation shall be within +1 mm and -0 mm measured at the end of the rail head.

Lateral Alignment - Variation shall not be more than +0.5 mm and -0 mm measured at the centre along the gauge face.

#### b) Insulation Resistance Test in Dry Condition

A meggering voltage of 100 V DC shall be applied across the joint. The value of the insulation resistance shall not be less than 25 mega ohms.

#### c) Pull-Out Test

The pull-out test shall be conducted by suitably gripping the joint and subjecting the joint to axial tension.

##### Method 01

Hold one end of the Glued Joint at the fixed end. The other end of the Glued Joint is held to a moving frame with the help of a wedge inserted in slots cut in the Glued Joint through the moving frame bracket.

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## Method 02

Hold the Glued Joint at both ends of the testing frame. One end of the testing frame remains fixed and the other is moved with the help of 02 hydraulic jacks operated simultaneously.

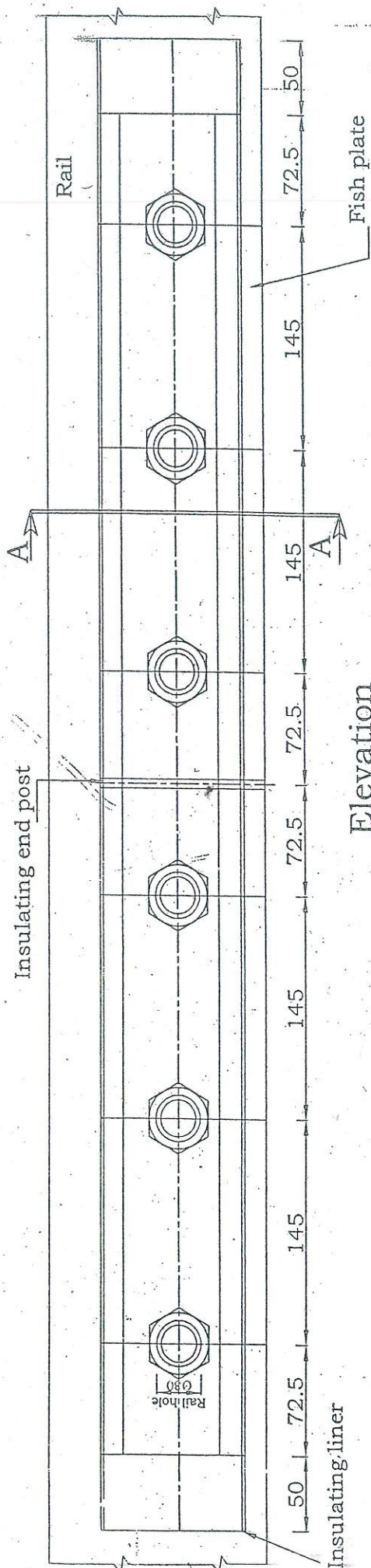
### Acceptance values

Acceptable if there is no indication of separation between end posts and rail ends visible to the naked eye at 85 tonnes pull out load.

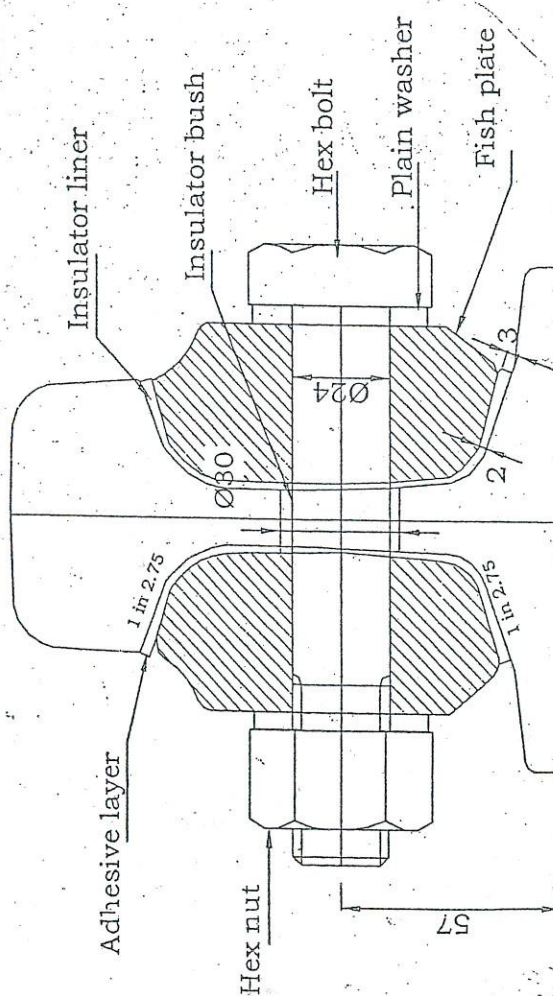
#### d) Insulation systems test in wet condition

The Glued Joints shall be immersed for 48 hours in a suitable clean water tank and resistance shall be measured immediately after taking the joints from the water by applying meggering voltage of 100 V DC across the joint and measuring the current by an ammeter capable of measuring current up to micro – amperes. The insulation resistance determined by the ratio of voltage to current in amperes shall not be less than 03 kilo-ohms for each of the joints.

Drg No: 22641



Elevation



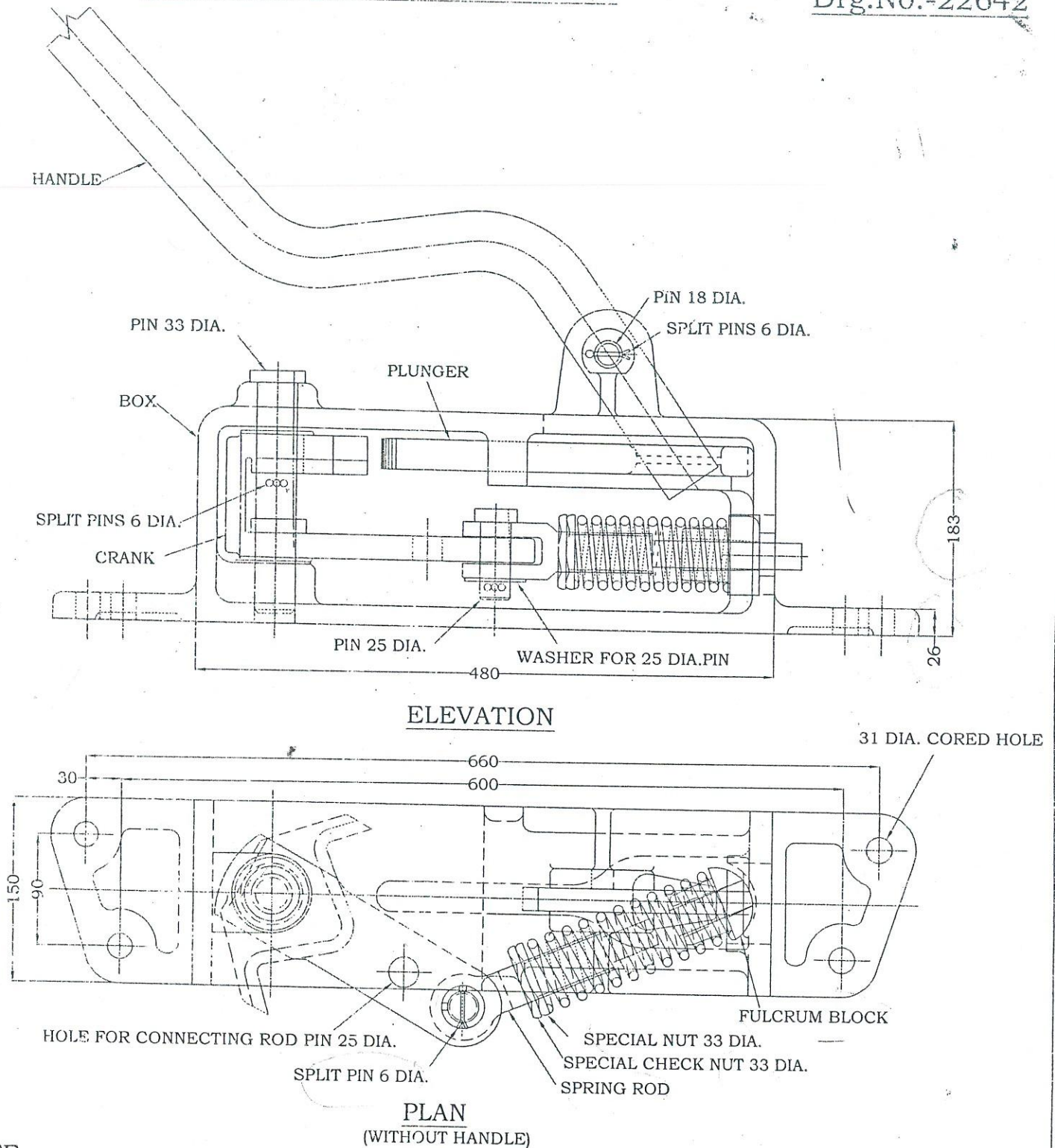
Section A-A

|                                                                   |                       |                                                                                                      |                  |
|-------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------|------------------|
| SLR - TYPE PLAN                                                   | DRAWN BY:<br>Muditha  | SRI LANKA RAILWAYS                                                                                   |                  |
|                                                                   | CHECKED BY:<br>D.O.A. | WAY & WORKS DEPARTMENT                                                                               |                  |
| GLUED INSULATED RAIL<br>JOINT FOR 45E1 (BS 90A)<br>RAIL (6 HOLES) | D.E.                  | Drg. No. - 22641                                                                                     | Date - Jan. 2020 |
|                                                                   | APPROVED              |                                                                                                      |                  |
| SCALE: NOT TO SCALE                                               |                       | <br>CHIEF ENGINEER |                  |

39

# SPRING POINT LEVER FOR TURNOUT

Drg.No:-22642



## NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THIS LEVER BOX CAN BE WORKED UP TO 120mm OPENING.

|                                   |                                      |                    |
|-----------------------------------|--------------------------------------|--------------------|
| DRAWN BY<br><i>Indika</i>         | SRI LANKA RAILWAYS                   |                    |
| CHECKED BY<br><i>Ro.</i>          | WAY & WORKS DEPARTMENT               |                    |
| D.O.A.<br><i>Ro.</i>              | Drg.No. :-22642                      | Date :- 2020.01.09 |
| D.E.<br><i>[Signature]</i>        | <i>[Signature]</i><br>CHIEF ENGINEER |                    |
| APPROVED BY<br><i>[Signature]</i> |                                      |                    |