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No: CT/GJ/Manual

Date: 28/8/2012

As per mailing List enclosed.

विषय :ग्लूड इंसुलेटेड रेल जोड़ों हेतु नियमावली (1998) में पाँचवाँ संशोधन.

Sub: Addendum & Corrigendum Slip no. 5 to the Manual for Glued Insulated Rail Joints (1998).

संदर्भ :रेलवे बोर्ड के पत्र संख्या 2012/ट्रैक-I/14/2 दिनाँक 19.07.2012.

Ref: Railway Board's letter no. 2012/Track-I/14/2 dated 19.07.2012.

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Please find enclosed herewith Addendum & Corrigendum Slip No. 5 to the "Manual for Glued Insulated Rail Joints (1998)" for information and necessary action.

This has the approval of competent authority.

DA: As above

28/8/12

(संजय साहू)
निदेशक/रेलपथ-I
कृते महानिदेशक/ रेलपथ

प्रतिलिपि:
Record Section (Internal) for Record.

Addendum & Corrigendum Slip No. 5 of July 2012

To

Manual for Glued Insulated Rail Joints (1998).

1. Modified Annexure- A as attached

2. Following Annexure is deleted.

   i) Annexure - D

3. Para-1.1 of manual is replaced with the following.

MATERIAL:

The requirement of material for fabrication of one glued joint is given in Annexure B. The input materials shall be procured from RDSO approved suppliers only. The list of approved suppliers of input materials is available in Master list of Approved Vendors issued by Quality Assurance (Civil) directorate of RDSO which is updated from time to time.

4. Para- 1.2 of manual is replaced with the following.

SPECIFICATIONS:

The material shall be as per specifications given in Annexure C.

5. Para- 2.1.4 of manual is replaced with the following.

Rails required for fabrication of glued joints shall be straight and USFD tested. These rails shall be issued by the consignee Zonal Railways to the manufacturer. Old/Service rails shall not be used for fabrication of glued joints. New rails need not to be USFD tested again by consignee Zonal Railways if they have received the same from rail manufacturing plant duly USFD tested.

6. Para 2.4.1 of manual is replaced with the following.

(A) Marking of Glued Joints (by manufacturer)- Every glued joint shall have distinctive mark indicating the glued joint number, month and year of manufacturing and the code of the manufacturer as shown below. This marking should be embossed on the gauge and non gauge face sides of the head of the rail of glued joint at 300 mm away from the one end of fish plate by punching without causing any damage to rail, in letters/digits of 6 mm height at a depth of 10mm from top of vertical face of rail, as indicated in figure 5.

XXXX MM YY AAA

The first four digits indicate the glued joint number starting from 0001 for first joint of every month, the next two digits month of manufacturing followed by last two digits of the year of manufacturing. The end letters shall be code of the manufacturer, assigned by the Quality Assurance (Civil) directorate of RDSO.

(B) Marking of Glued Joints (by inspecting authority)- Every glued joint shall have distinctive inspection mark of inspecting agency. This marking should be embossed on the gauge and non gauge face sides of the head of the rail of glued joint at 300 mm away from the another end of fish plate by punching without causing any damage to rail, in letters/digits of 6 mm height at a depth of 10mm from top of vertical face of rail, as indicated in figure 5.

7. Existing Para 4.3.2 of manual is replaced with the following-

MAINTENANCE

"Between two successive tamping of glued joints by track machine, proper maintenance attentions and inputs should be given to glued joints for their upkeep and proper function."

8. Para C.1 (i) of Annexure 'C' of the manual is replaced with the following-

"Material and manufacturing process of fishplate shall conform to IRST-1 as amended from time to time."

9. New Para C.1 (iii) is added to Annexure 'C' of the manual as given below-

"Special fish plates to be used in fabrication of Glued Insulated Rail Joints shall be inspected by purchaser Railway or its nominated inspecting agency (M/s RITES) at the premises of fish plate manufacturer firm. Inspection shall be done as per Para 19 of IRST-1 as amended from time to time. After inspection every accepted fish plate shall be plainly stamped with the inspecting officers stamp at one end of each fish plate on its outer side in the presence of Inspecting officer. The inspection certificate of inspecting agency shall be sent by manufacturer of special fish plate along with the supply to glued joint manufacturer. The glued joint manufacturer will check the supply with respect to the details mentioned in Inspection Certificate of inspecting agency and then only put these in use."

10. Existing Para C.2 (i) & (ii) of manual is replaced with the following-

HTS bolts and nuts shall comply with the following specifications:-

i) "HTS Bolts - Material and manufacturing process of Hex bolts shall be as per IS: 1363 confirming to property clause 10.9 of IS: 1367."

ii) "HTS Nuts- Material and manufacturing process of Hex nuts shall be as per IS: 1363 confirming to property clause 12.0 of IS: 1367."

11. New Para C.2 (iii) is added to Annexure 'C' of the manual as given below-

"HTS HEX Bolts and Nuts to be used in fabrication of Glued Insulated Rail Joints shall be inspected by purchaser, Railway or its nominated inspecting agency (M/s RITES) at the premises of HTS HEX Bolts and Nuts manufacturer firm. The inspection certificate of inspecting agency shall be sent by manufacturer of HTS HEX Bolts and Nuts along with the supply to Glued Joint Manufacturer. The Glued Joint Manufacturer will check the supply with respect to the details mentioned in Inspection Certificate of inspecting agency and then only put these in use."

12. Para- C.5.1 (a), (b) & (c) of manual is replaced with the following.

GLASS- CLOTH CARRIER REINFORCEMENT

Glass- cloth carrier reinforcement shall conform to IS: 11273:1992 clause 4.5 type C for the properties not covered below:

a) Nominal weight: 360 ±36 gm/sq. m

b) Nominal thickness: 300 ±30 microns

c) Construction: i) Ends per 100mm: 61 ±2.5%

ii) Picks Weave per 100mm: 55.2 ±2.5 % plain

13. Para C.5.1.2 of manual is replaced with the following.

GLUE: (for making insulating components)

Glue consists of resin and hardener. The nomenclature of resin & hardener manufactured by firms approved at present are as under:

Firm's name	Resin	Hardener
M/s ATUL Ltd	Epoxy resin lapox L-12	Epoxy hardener Lapox K-6
M/s HUNTSMAN Advanced Materials (INDIA) Pvt Ltd	ARALDITE LY-556	ARADURE HY-951 IN

Resin and hardener shall be mixed in the ratio of 10:1.

14. Para C.5.4.1 of manual is replaced with the following.

Quantity of raw material required for insulating components for 52kg G3 (L) and 60kg G3 (L) glued joint, with 10mm thick end-post drawing, shall be approximately as under:

S No.	Insulating components	Qty. Reqd. per joint	Fibre Glass cloth (gm)		LY-556 (gm)		HY-951 IN (gm)		L-12 (gm)		K-6 (gm)	
			52 kg	60 kg	52 kg	60 kg	52 kg	60 kg	52 kg	60 kg	52 kg	60 kg
1.	Insulating Liners	2	500	560	450	500	45	50	450	500	45	50
2.	End post	1	210	225	180	180	18	18	180	180	18	18
3.	Bushes/Sleeves	6	180	190	150	150	15	15	150	150	15	15

15. Para C.6 (i), (ii) and (iii) of manual is replaced with the following

C.6 SPECIFICATION AND QUALITY REQUIRED OF GLUE

The tangential shear strength of glue is claimed to be about 120 kg/sq.cm by the manufacturer.

i) The Glue as developed by M/s Huntsman Advanced Materials (INDIA) Pvt Ltd for prefabricated type Glued Joints consists of ARALDITE XY 27 and hardener XY 28 IN to be mixed in proportion of 100:40. The approximate quantity of combined adhesive required

for 52 Kg rail joint is 1.4Kg for G3 (L) and for 60Kg rail joint is 1.68Kg for G3 (L). The quantity may be estimated proportionately in case of G3 (S) type joints.

ii) Similarly, the Glue as developed by M/S ATUL Ltd for Prefabricated type Glued Joints consists of Epoxy resin Lapox A-83 and Hardener Lapox K-83 to be mixed in proportion of 100:40. The approximate quantity of combined adhesive required for 52 Kg rail joint is 1.4 Kg for G3 (L) and for 60kg rail joint is 1.68 Kg for G3 (L). The quantity may be estimated proportionately in case of G3 (S) type joints.

iii) Deleted.

16. New Para 4.5 is added in the Manual-

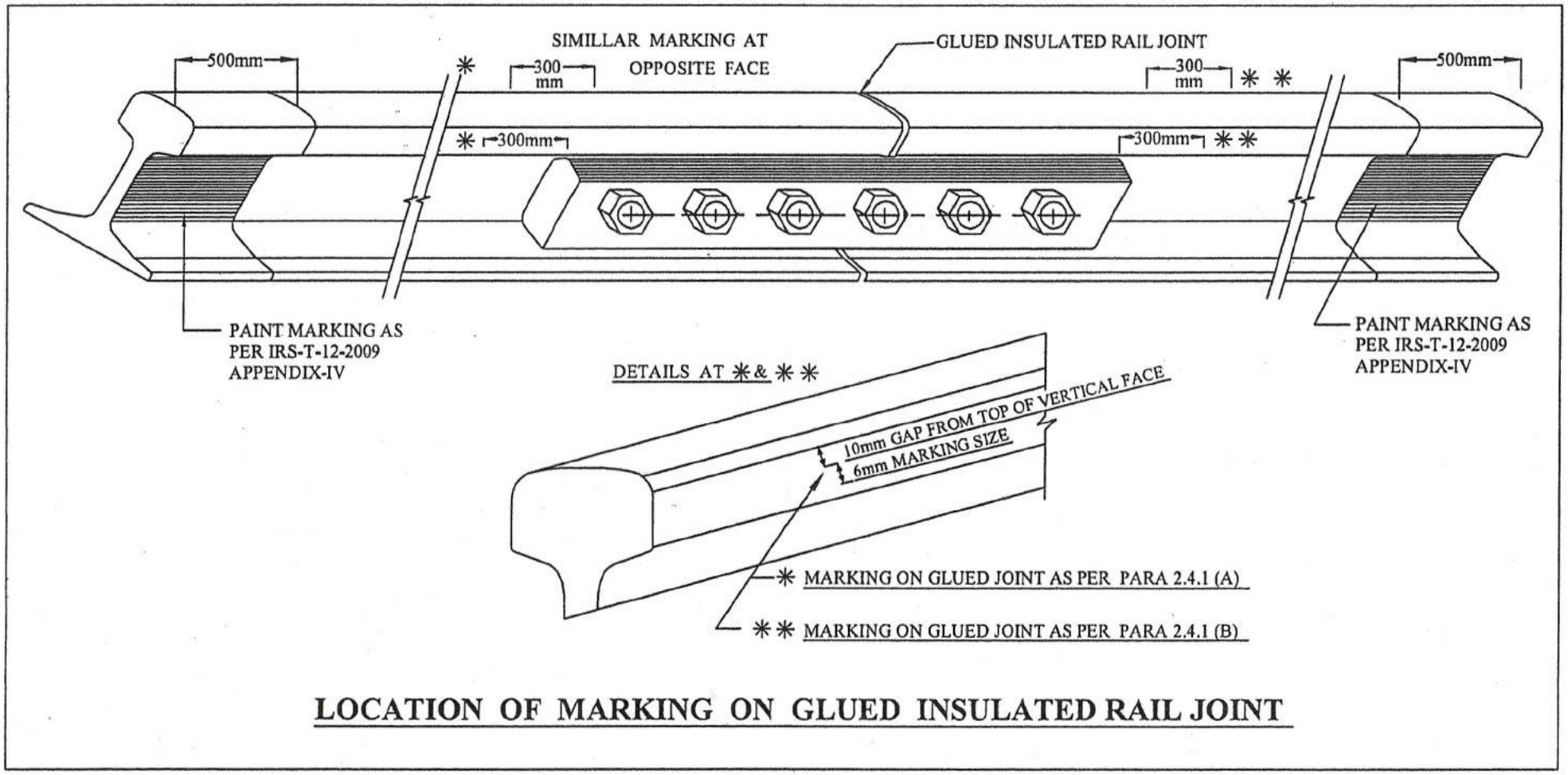
Life cycle of Glued Insulated Rail Joints is tentatively fixed at 200 Gross Million Tonnes of traffic.

17. New Para C.5.5 is added in the Manual-

Other components of input materials such as glue, glass cloth carrier reinforcement as mentioned at Para C.5.1, C.5.1.2, C.5.4.1 and C.6 of this manual to be used in fabrication of glued insulated rail joint shall be procured by the manufacturer of glued insulated rail joint from their approved sources mentioned in the current Master list of Approved Vendors issued by Quality Assurance (Civil) Directorate of RDSO which is updated from time to time. While procuring these materials from their respective approved sources, glued joint manufacturer must obtain all the relevant inspection certificates/documents from their approved suppliers and preserve the same. Purchaser Railway/nominated inspecting agency (M/s RITES) while doing the inspection at the premises of glued joint manufacturer must ensure that these input materials used in fabrication of glued joints have been procured from their respective approved sources by verifying the related inspection certificate/documents and records maintained by glued joint manufacturer.

18. Figure- 5 of manual is replaced with as attached.

FIGURE - 5



LOCATION OF MARKING ON GLUED INSULATED RAIL JOINT

Guidelines regarding developmental inspection of firms by RDSO.

A.1 Development inspection of glued joint will be under taken by RDSO after initial development of firm in normal course as per extant instruction or against developmental/educational order placed by Zonal Railway on any firm/or as per decision of competent authority. Separate approval shall be required for each drawing of the glued joints.

A.1.1 The development of firm against developmental order by Zonal Railway shall be dealt as per extant instructions of Railway Board.

A.2 After administrative clearance for development of firm, a technical capability assessment proforma will have to be downloaded by the firm/obtained from vendor registration system of RDSO. Firm shall be required to fill in the proforma in duplicate and submit the same to concerned directorate of RDSO for scrutiny alongwith the necessary charges.

A.2.1 All the information in the proforma should be clear and to the point and no para should be left blank.

A.3 The filled in proforma will be scrutinized in RDSO duly calling for any additional information if required.

A.4 If the proforma details and clarifications given by the firm are acceptable, the works of the firm shall be inspected by RDSO officials for verification of the facilities. The date of inspection of firm's works shall be advised to the firm in advance.

A.5 During the inspection, the inspecting officer shall have free access to all the sections of the firm's works. Firms shall be required to offer, to the inspecting officer, all necessary facilities to undertake the assessment inspection.

A.6 After the assessment, if the firm's manufacturing capacity/facilities are found acceptable, the firm will be required to furnish two sets of templates/gauges (item 't' Annexure 'E') for approval by RDSO alongwith the templates/gauge approval charges.

A.7 After approval of templates/gauges, the firm will undertake internal development and submit internal test report (ITR) for scrutiny to RDSO. For internal development, firm will procure rails from authorized source and preserve record for the same.

In case, ITR submitted by the firm is found satisfactory, the firm shall be advised to deposit sample drawl & testing charges.

A.8 After submission of charges, the firm will undertake manufacture of Glued joints in presence of RDSO representative and sample shall be drawn at random from the production undertaken and will be tested as per specified testing scheme given in chapter-3.

A.9 The firm shall bear the entire cost of preparation of samples and testing. The firm shall be required to pay the due charges in advance for development of their firm. The amount of charges shall be advised to the firm by RDSO.

A.10 After the samples are found satisfactory and other conditions fulfilled, the vendor shall be considered for approval. If the development is undertaken against developmental order, the firm will be given permission to undertake manufacture of ordered quantity. After satisfactory supply, it will be considered for approval.

A.11 General Instructions

A.11.1 The firm shall be required to procure all components of assembly of the joints from the firms approved by RDSO and should maintain the copies of test certificates wherever applicable.

A.11.2 Drawings and specification of the glued joints are priced documents and may be obtained either by downloading from RDSO website through RTGS/NEFT payment or from Director General (Track Design) RDSO, Lucknow on payment.

A.11.3 If the results of testing are not found satisfactory as per specifications, the firm will be required to improve upon the technique of production.

A.11.4 The firm is required to establish Quality Assurance Programme as per the proforma given in Annexure-F, and its satisfactory implementation in addition to manufacture of a minimum number of Glued joints as specified by RDSO.

A.11.5 After approval of test samples (after supply of ordered quantity in case of developmental order), the firm shall be brought as Part-II source in approved list of manufacture of Glued Joints for the particular rail section and all concerned shall be advised.

A.11.6 Based on the satisfactory and consistent quality of the firm's product, proven performance and successful implementation of QAP, the firm will be considered for up-gradation in Part-I in the approved list of manufacturer after fulfilling the criteria for up gradation as mentioned in General Guidelines for Vendor Development.

A.11.7 The approval shall be required to be renewed after a particular period as per the terms of the letter of approval and it shall be firm's responsibility to approach RDSO at least three months in advance for renewal of approval otherwise the approval is liable to lapse.