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SOUTH EAST CENTRAL RAILWAY

Date: 04.04.2012

Sub: Corrigendum to Revised Joint procedure order for Installation and Maintenance of Glued Joints.

Ref: Revised Joint procedure order for Installation and Maintenance of Glued Joints. Circulated vide Engg/TC-1/Glued Joint Fracture/Vol-I/03 dated 05.08.11.

With reference to above, **Para No. 5.0** of above JPO is deleted. The fixing of service life of Glued Joint will be referred to Railway Board for decision separately.

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NO. Engg/TC-1/GJ Fracture/Vol-II/3/

dated. 04.04.2012

- Copy to:-
1. DRM/BSP,R and NGP for information and necessary action.
 2. SR DEN/CO/BSP, Rand NGP for information and necessary action.
 3. SR DSTE/BSP,R and NGP for information and necessary action
 4. CTE, CSE for information.

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South East Central Railway

Sub: Revised Joint procedure order for Installation and Maintenance of Glued Joints.

Ref: Joint circular dated 05.07.10 issued by CTE & CSE.

Glued Joints are provided in LWR/CWR track for track circuiting. On analysis of Glued Joints failures, it has come out that proper installation & maintenance practice are not in place even after issue of earlier joint circular dated 05.07.10 and therefore a need was felt to revise this joint procedure order. The revised joint procedure order will supersede the earlier joint procedure order dated 05.07.10. The following revised joint procedure shall be followed in the field.

Item No.	Details of the item	Action to be taken by
1.0	PRELIMINARY WORKS	
1.1	Sleeper & Sleeper spacing: - Only FTC (fit for track circuiting) sleeper shall be used in track circuit area. The sleeper spacing under Glued joint shall be the same as that of intermediate sleepers (Para-4.1.1 of Manual of Glued Insulated Rail Joint-1998). The sleepers shall be square and Glued Joint shall be centrally located over the adjoining sleepers as far as possible.	P.Way
1.2	Packing: -When a Glued Joint is being laid at a new location (during yard remodeling or such other works), then before laying of the glued joint at such new locations, it shall be ensured that at least 10 sleepers on either side of the joint are properly packed to the correct level (Para-4.1.2 of Manual of Glued Insulated Rail Joint-1998). However if a defective Glued Joint is being replaced with a new Glued Joint without changing the location then in such case, need of packing will be decided as per the site condition/requirement.	P.Way
1.3	Transportation: -Proper care shall be taken in transporting the Glued Joints to the site of laying so that no damage is caused during loading, unloading and transportation (Para-4.1.3 of Manual of Glued Insulated Rail Joint-1998).	P.Way

✓ D/Sig :
S/Sig :

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2.0 INSTALLATION OF GLUED JOINTS

- 2.1 **Installation:** - For installation of New Glued Joint, a suitable length of rail, depending on length of the Glued Joint to be inserted, shall be cut and removed. The Glued Joint shall be placed in position and shall be welded at the two ends by an approved method (Para-4.2 (a) of Manual of Glued Insulated Rail Joint-1998). P.Way

For installation of Glued Joint in an existing LWR, the method used for rectification of rail fracture as outlined in Manual of Instructions for LWR shall be adopted (Para-4.2 (b) of Manual of Glued Insulated Rail Joint-1998).

While doing welding, all the Precautions / Guidelines applicable for welding in LWR/CWR shall be followed.

Similar procedure shall be adopted for the replacement of a defective Glued Joint (Para-4.2.2 of Manual of Glued Insulated Rail Joint-1998).

- 2.2 **Insulation Resistance of a New Glued Joint:** -Insulation resistance of a fresh / new Glued Joint shall be checked jointly by S&T and P.way staff before insertion in track (Para-4.2.3 of Manual of Glued Insulated Rail Joint-1998). It shall be checked 100 % at the time of supply itself at Divisional Store Depots at Bilaspur, Raipur and Bhandara Road atleast @ 30 joints per day and shall be completed within 7 days from date of supply of material by the firm. Intimation shall be given by depot in charge within 1 day of receipt of supply to the concerned SE/JE/Signal nominated for checking of glued joints at the divisional store depots. S&T and P.way

The Insulation Resistance shall not be less than 25 Mega Ohms in dry condition and 03 Kilo Ohms in wet condition (48 hrs submersion in clean water) on application of meggering voltage of 100 volts DC (Para 3.3 & 3.5 of Manual for Glued Insulated Rail Joint-1998).

As it is difficult to ensure total dry condition in the depot, the Glued Joint failed in test conducted in dry condition shall not be rejected and shall be subjected to test in wet condition. The Glued Joint failed in test conducted in wet condition shall only be declared defective. Glued Joint found good shall be stamped FTC on the web of the Glued Joint and defective Glued Joints shall be marked 000 by red paint by P. Way staff in presence of S & T staff.

A good quality megger (ISI mark) duly calibrated by independent test house or jointly by SE/JE/Signal & SE/JE/P.Way shall only be used.

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- 2.3 **Marking Strip for Glued Joint:** -The new glued joints being supplied shall have marking strip pasted on the web of Glued Joint Rail. The aluminum marking strip shall indicate Name of the Manufacturing Firm and Station, Month and Year of manufacture, Serial Number of the Glued Joint (**Para-2.4.1 of Manual for Glued Insulated Rail Joint-1998**). No glued joint without proper marking strip with proper details shall be accepted. P.way
- 2.4 **Communication of details of Glued Joint:** - While issuing of Glued Joints from divisional store depots at Bilaspur, Raipur and Bhandara Road, the issuing depot will invariably provide details such as serial number of the glued joint, month and year of manufacture, name of the manufacturing firm, purchase order number and inspection certificate number etc. to receiving depot so as to facilitate easy identification of defective glued joint in service incase of non availability / loss of marking strip pasted on the Glued Joint. P.way
- 3.0 **MAINTENANCE OF GLUED JOINTS**
- 3.1 **Ballast:** -The ballast in track in the vicinity of the Glued Joints shall be clean to ensure proper packing and efficient drainage. It shall be ensured that the ballast is clear off rails and rail fastening. The clearance from the underside of rail to ballast shall normally not be less than 50mm (**Para-281(2)(b) of IRPWM & Para- 4.3.1 of Manual of Glued Insulated Rail Joint-1998**). P.Way
- 3.2 **Fastenings:** -Grooved Rubber Sole Plate (GRSP), ERC-J Clips or GJ Clips and end cut GFN liners shall only be used for rail fastening in Glued Joints area. P.Way
- 60 kg GFN liner to RDSO Drg. No. T-3706 shall be end cut 13 mm from the end as per RDSO Drg. No. T-4511. 52 kg GFN liner to RDSO Drg. No. T-3702 shall be end cut 19 mm from the end as per RDSO Drg. No. T-4322. Combination GFN liner to RDSO Drg. No. T-3707 & T-3708 shall be end cut 20 mm from the end as per RDSO Drg. No. T-4511.
- 3.3 **Maintenance Packing:** -The Glued Joint does not need special maintenance. It shall be maintained as normal track (**Para-281(2)(a) of IRPWM & Para- 4.3.2 of Manual of Glued Insulated Rail Joint-1998**). However, glued joint shall be packed once a month manually and once a year by machine. P.Way
- 3.4 **Metal Flow:** -The Metal burrs/flow at the ends of the rails shall be removed from time to time to avoid short – circuiting. The burrs / flow shall be removed skillfully avoiding damage to the end-post (**Para-281(2)(c) of IRPWM Para-4.3.4 of Manual of Glued Insulated Rail Joint-1998**). P.Way staff shall arrange to remove metal burrs in presence of S&T staff to avoid failure of track circuit. P.Way & S & T

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3.5 **Deep Screening:** - Timely deep screening of Glued Joint area shall be carried out to avoid cracking of glued Joint fish plate due to hard bed. It shall be ensured that there is no overdue deep screening. P.Way

3.6 **Joint Inspection of Glued Joints:** -

Joint inspection of track circuit area including glued joint shall be conducted once in every six month by SE/JE/P.way and SE/JE/Signal (Para 17.30 of SEM-II). This should preferably be carried out along with joint inspection of Points and Crossing. Inspection of various items as per the format at Annexure -I shall be carried out and details shall be recorded in the Joint Glued Joint Inspection Register to be Kept at the station. Incase of IBH, this register is to be kept at the nearest Station. P.Way & S & T

Checking of Insulation Resistance of Glued Joint during service: -

Insulation of Glued Joint shall be checked during joint inspection and shall be recorded in the Joint Glued Joint Inspection Register. The measurement of insulation resistance shall be done by good quality megger duly calibrated by independent test house or jointly by SE/JE/signal & SE/JE/P.way and meggering voltage of 100 V DC shall be applied for measurement.

If the insulation resistance of the Glued Joint is found to be below 1 Mega Ohms in dry condition, it shall be replaced at the earliest within 10 days (depending upon the availability of required temperature range for carrying out the required welding in LWR track). The Glued Joint visible to be in wet condition shall not be tested and shall be tested only after its becoming dry.

Any inspection of Glued Joint shall be done jointly by P. Way and S&T staff and no single handed remarks regarding Glued Joints will be acceptable for replacement / failure. In case a defective / old Glued joint is replaced with a new Glued Joint, then the details / record of new Glued joint shall be entered in the same register such that all these records of new Glued Joint are properly linked with the entries of old Glued Joint so that proper data base is available regarding functioning of Glued Joint.

3.7 Accumulation of iron dust / iron chips etc. on Glued Joint edges and side shall be cleaned by signal maintainer / helper by nylon brush on every visit of station. S & T

3.8 Proper drainage should be ensured so as to avoid flooding of track during rains particularly in yards (Para-279 (7) of IRPWM). P.Way

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3.9 "Adequate spare Glued Joints shall be kept at the stations P.Way depending upon population of the Glued Joints for quick replacement in case of failure of any Glued Joint."

4.0 FAILED JOINTS: -

4.1 Normally no relative movement shall occur between rails and fishplate at the Glued Joint. In case, failure of the joint occurs by separation of the rail / fishplates surfaces with consequent relative movement, the damaged Glued Joint will be replaced as early possible by a new joint (Para-281(2)(d) of IRPWM Para-4.3.6 of Manual of Glued Insulated Rail Joint-1998). P.Way

4.2 The report of all failed Glued Joint shall be submitted to HQ (CTE) P.Way within 2 days as per the format given in Annexure-II.

5.0 PLANNED REPLACEMENT: -

5.1 Glued joints in service shall be planned for replacements which have passed 200 GMT or 5 years whichever is earlier. Every year, 20 % quantity or quantity equals to number of Glued joint failed / declared defective during the previous year whichever is more shall be proposed for replacement in LAW Book or Pink Book and shall be replaced every year. P.way

No. Engg /TC-1/Glued Joint Fracture/Vol-I

DATED 05.08.11

Copy To: - 1. DRM/BSP, R and NGP for information and necessary action.

2. SR DEN/CO/BSP, R & NGP for information and necessary action. They are advised to circulate upto the level of JE/P.way.

3. SR DSTE/BSP, R & NGP for information and necessary action. They are advised to circulate upto the level of JE/Signal.

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Glued Joint Failure Report

Sl. No.	Items	Details
1	Date of Failure	
2	Station/ Yard	
3	Block Section if any	
4	Major Section	
5	Route	
6	Line-Up / Dn /Mid / SL / Loop / Bye Pass	
7	Track Circuit No.	
8	Location KM	
9	Glued Joint Serial No. as given by Manufacturer.	
10	Glued Joint- 60 Kg / 52 Kg	
11	Glued Joint- 6 mm / 10 mm thick end Post	
12	Month & Year of Manufacture	
13	Date of Laying	
14	Years in Service	
15	GMT Passed	
16	Name of the Manufacturer	
17	Purchase Order No.	
18	Inspection Certificate No. issued by RITES.	
19	Date of Last Joint Inspection	
20	Irregularities if any found in Last joint Inspection (Xerox copy of Joint inspection register to be attached)	
21	Whether Fittings provided 100% and conditions of fittings at the time of failure- a) ERC J Clip/ GJ clip- b) GRSP- c) End Cut GFN Liner,	



22	Condition of Sleepers-Whether Grooved / Broken or not	
23	Condition of Packing at the time of failure- Whether Loose or Not.	
24	Date of last packing: - a) By machine- b) Manually-	
25	Year of last deep screening	
26	Type of Failure- Insulation failure / Fish Plate Crack	
27	Reason for Failure- To be ascertained by Sectional Sr. DEN.	
28	The Person Responsible- to be ascertained by Sectional Sr. DEN.	
29	Failure Reported By	
30	Time of failure reported	
31	Speed Restriction imposed	
32	Time of Imposition of Speed Restriction	
33	Date and Time of relaxation of Speed restriction.	
34	Time taken in rectification in hrs.	
35	Any Other Remarks	

(.....) (.....) (.....)
 SR DEN/DEN/..... ADEN/..... Incharge SE.way/.....