



WEST CENTRAL RAILWAY

Office of
Chief Administrative Officer/Con.
Second Floor, WCR/HQ
Jabalpur-482001

E-office No: WCR-HQ0CONS (QUAL)/1/2020
Computer No.: 41506

Date: 04.08.2025

All Dy. CEs/C
West Central Railway

Sub: Important instructions.

Ref: This office letter No. WCR/H.Q./CE/C-1/2023-24/Track dated 07.08.2023.

Important instructions were circulated vide this office letter mentioned above. A copy of the same is enclosed herewith for ready reference.

All the concerned officials may please be advised to follow the same in the field sacrosanctly and compliance of the instructions may please be ensured.

This is issued as per direction of CAO/C/WCR.

DA: As above

**NEERAJ
DUBEY**

(Neeraj Dubey)
Dy. CE/C/Plg./HQ

Digitally signed by
NEERAJ DUBEY
Date: 2025.08.04
17:00:22 +05'30'

C/- All CEs/C and CPM/C/Kota for information and necessary action please.



No. WCR/H.Q./CE/C-1/2023-24/Track

Dated: 07.08.2023

All Dy CE/C/WCR

CE/CON-I, II, IV/JBP

CE/REWA

CPM/KOTA

CSTE/CON

CEE/CON

Following important instructions must be adhered -

1. In order to prevent frequent loosening of bolts & nuts of fish plates of CMS crossing, damage to concrete sleepers provided below crossing body, frequent wear of rails and battering of joints, the joints at CMS crossing should be made jointless.

To ensure the gapless joint between CMS xing & the adjoining rail, the diameter of rail hole is kept as 26.5 mm and the centre of 1st, 2nd and 3rd rail hole are kept at 83mm, 249mm & 415mm from rail end respectively instead of 80mm, 246mm & 412mm from rail end respectively. With this rail hole arrangement, all the four joints between CMS crossing and its adjoining rails are made gapless. The drawing of gapless joint is attached as **Annexure - A**. **Only 1.0 m long fish plate shall be used at CMS crossing.**

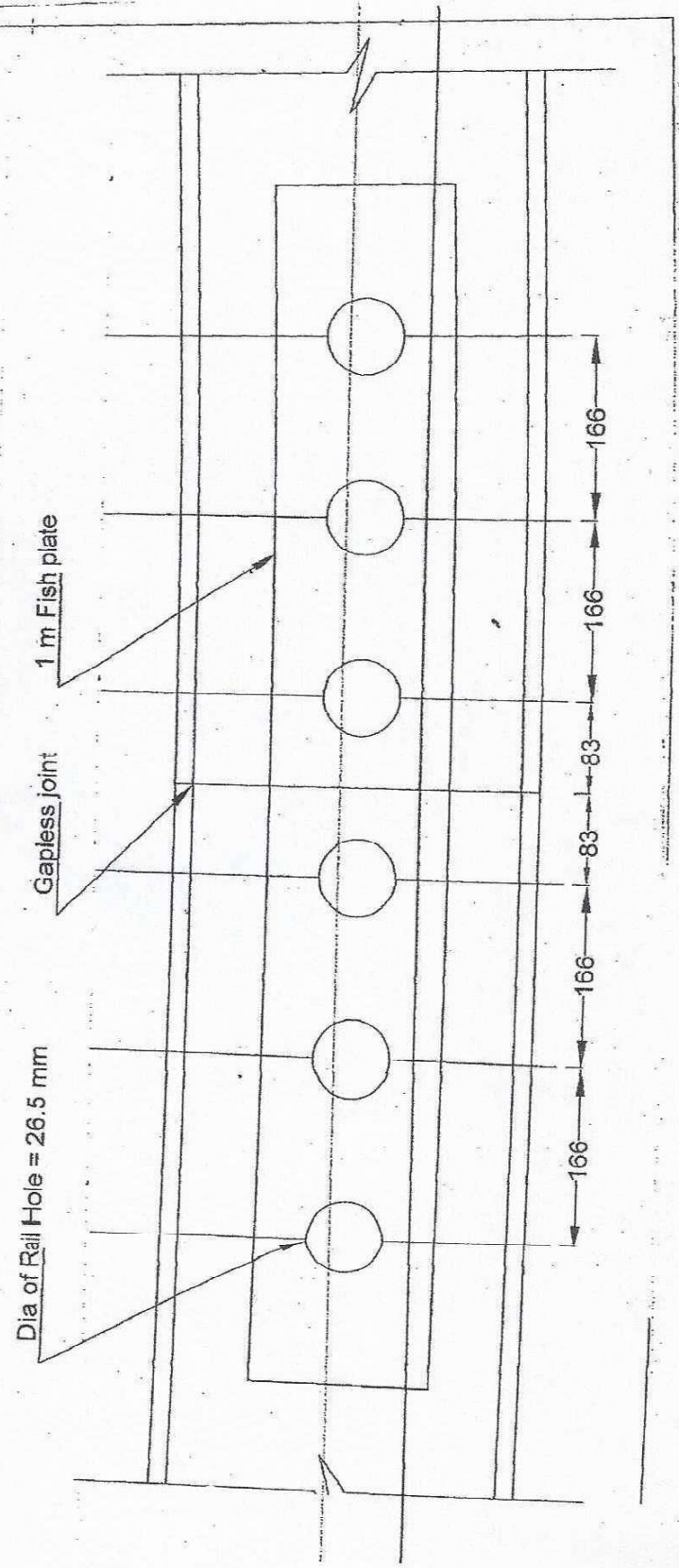
2. Holes made in the rails either for fish plate bolts or bond rods or S&T arrangements must be chamfered. Bolt holes in new rails received directly from steel plant should be chamfered before rails are laid in track. The chamfering of rail holes gives substantial increase in fatigue life of rail at the hole (an increase of three to four times). Chamfering of bolt holes hardens the periphery of holes and thereby delays the formation of star cracks. Work hardening of bolt holes should be done with chamfering kit of approved make.

(a) Procedure for chamfering of bolt holes:

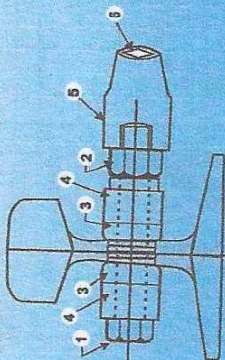
- (i) The nut of high tensile steel bolt is removed and one packing piece is inserted in the shank followed by one side of the H.S.S. chamfering bit.

- (ii) The high tensile steel bolt is inserted with 2 pieces in the rail hole.
- (iii) On the other face of the rail hole, the second half of the HSS chamfering bit is inserted over the shank followed by the second packing piece.
- (iv) The nut on the high tensile steel bolt is replaced.
- (v) Pre-set torque-wrench on nut at torque value of 52 Kg-m equivalent to an axial force of 12.5 tonnes, is applied. The nut is tightened with the torque wrench. As soon as the pre-set torque is attained, the torque wrench will automatically trip indicating complete tightening to pre-set torque value.
- (vi) The nut by reversing the torque wrench is unscrewed and HTS bolt is removed. The process is repeated on other rail holes.

DRAWING OF GAPLESS JOINT



Sketch showing the assembly details of chamfering equipment :



1. High tensile bolt (RDSO/T/4513)
2. High tensile nut (RDSO/T/4513)
3. Chamfering bits
(RDSO/T/4510 for 32mm dia. hole
and RDSO/T/4511 for 26.5mm dia. hole)
4. Packing pieces (RDSO/T/4512)
5. Socket to fix on high tensile nut
6. Torque wrench

Our Objective

To upgrade Maintenance Technologies and Methodologies and achieve improvement in productivity and performance of all Railway assets and manpower which inter-alia would cover Reliability, Availability, and Utilisation.

If you have any suggestion & any specific comments, please write to us :

Contact person : Director (Civil)

Postal Address : Centre for Advanced Maintenance Technology
Maharajpur, Gwalior (M.P.)
Pin Code - 474 020

Phone : 0761-2470889
0761-2470803

Fax : 0761-2470841

For Official Use Only

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**CHAMFERING OF
FISH BOLT HOLES
IN RAIL**

CAMTECH/C/2004/FBH/1.0
SEPTEMBER - 2004

Centre
for
Advanced
Maintenance
Technology

MAHARAJPUR

Maharajpur, Gwalior - 474 020 (INDIA)
C 0761 - 2470889 • Fax : 0761 - 2470841

Chamfering of Fish Bolt Holes in Rail

Purpose:

Chamfering of rail holes gives substantial increase in fatigue life of rail at the hole (an increase of three to four times). Chamfering of bolt holes work hardens the periphery of holes and thereby delays the formation of star cracks. Each hole drilled in the rail shall be chamfered as under:

- Bolt holes in new rails received directly from steel plant should be chamfered before rails are laid in track.
- Chamfering of bolt holes in the welded rail panels should be done before dispatch in the Flash Butt Welding Plants, if situation so warrants.
- When rails in track are end-cropped, new bolt holes should be chamfered at site.
- Existing bolt holes in fracture prone zones should be chamfered if not elongated.

- In case of elongated holes, such portion of rail should be removed, new holes should be drilled and chamfered.

- Old elongated holes should not be chamfered, as the chamfering bit will not be in contact with the full edge of the elongated bolt holes periphery and there will be uneven hardening of the metal resulting in stress concentration in weaker zones.

Competent Person/Official In-charge:

Matte/Keyman.

Equipment:

Work hardening of bolt holes should be done with chamfering kit of approved make (RDSO drawing no. RDSO/T/4510 for 32mm dia. hole and RDSO/T/4511 for 26.5mm dia. hole for gapless joint).

The chamfering kit consists of the following equipment:

Description / Item No.	Qty.
High Tensile Steel (HTS) bolt M-20 (RDSO/T/4513)	1 No.
High Tensile Steel nut for M-20 bolt (RDSO/T/4513)	1 No.
Sets of 2 High Speed Steel (HSS) chamfering bits (RDSO/T/4510 for 32mm dia. hole and RDSO/T/4511 for 26.5 mm dia. hole)	1 Set
19 mm square drive sockets size 32 mm	1 No.
Set of 2 packing pieces (Sleeves) (RDSO/T/4512)	1 Set
T-400 torque-wrench with built-in ratchet mechanism 1.25 m length	1 No.

Procedure:

- Insert one packing piece on the shank of HTS bolt followed by one side HSS chamfering bit.
- Now insert the HTS bolt (with one packing piece and one HSS chamfering bit as above) in the hole.

- On the other face of the rail hole, insert the second half of the HSS chamfering bit over the bolt shank followed by the second packing piece.
- It shall be ensured that chamfering bit faces the bolt hole on both sides.
- Fix the nut on the HTS bolt thread and tighten initially by hand or with a spanner.
- Pre-set torque wrench to torque value of 52 kg-m equivalent to an axial force of 12.5 tonnes.
- Fix the socket in the square drive of the torque wrench and then fix the socket with torque wrench on the nut.
- The nut is then tightened with the torque wrench. As soon as the pre-set torque is attained, the torque wrench will automatically trip indicating complete tightening to pre-set torque value.
- Unscrew the nut by reversing the torque wrench and remove the HTS bolt.
- The process is then repeated on other rail holes.

Annexure B
2/2

W.C.R.