3112537/2024/O/o ED/TRACK-1/RDSO

भारत सरकार/GOVERNMENT OF INDIA
रेल मंत्रालय/MINISTRY OF RAILWAYS
(रेलवे बोर्ड)/ (RAILWAY BOARD)

सं/No. 2017/Track-I(P)/9/2/Vol.III

दिनांक/Date: 23.08.2024

PED/Infra-I,
RDSO,
Manaknagar,
Lucknow.

विषय/Sub:- **Draft Addendum & Correction Slip No. 1 of "Indian Railway Standard Specification for Ultrasonic Testing of Rails Welds using Vehicular Systems, Revised-2020 (Document No. T-52).**

संदर्भ/**Ref:** RDSO's letter No. CT/USFD/RCRV dated 21.08.2024.

In regard to the above mentioned subject, the Addendum & Correction Slip No. 1 of "Indian Railway Standard Specification for Ultrasonic Testing of Rails Welds using Vehicular Systems, Revised-2020 (Document No. T-52), as submitted by RDSO vide letter under reference, has been **approved.**

RDSO may take further necessary action accordingly.

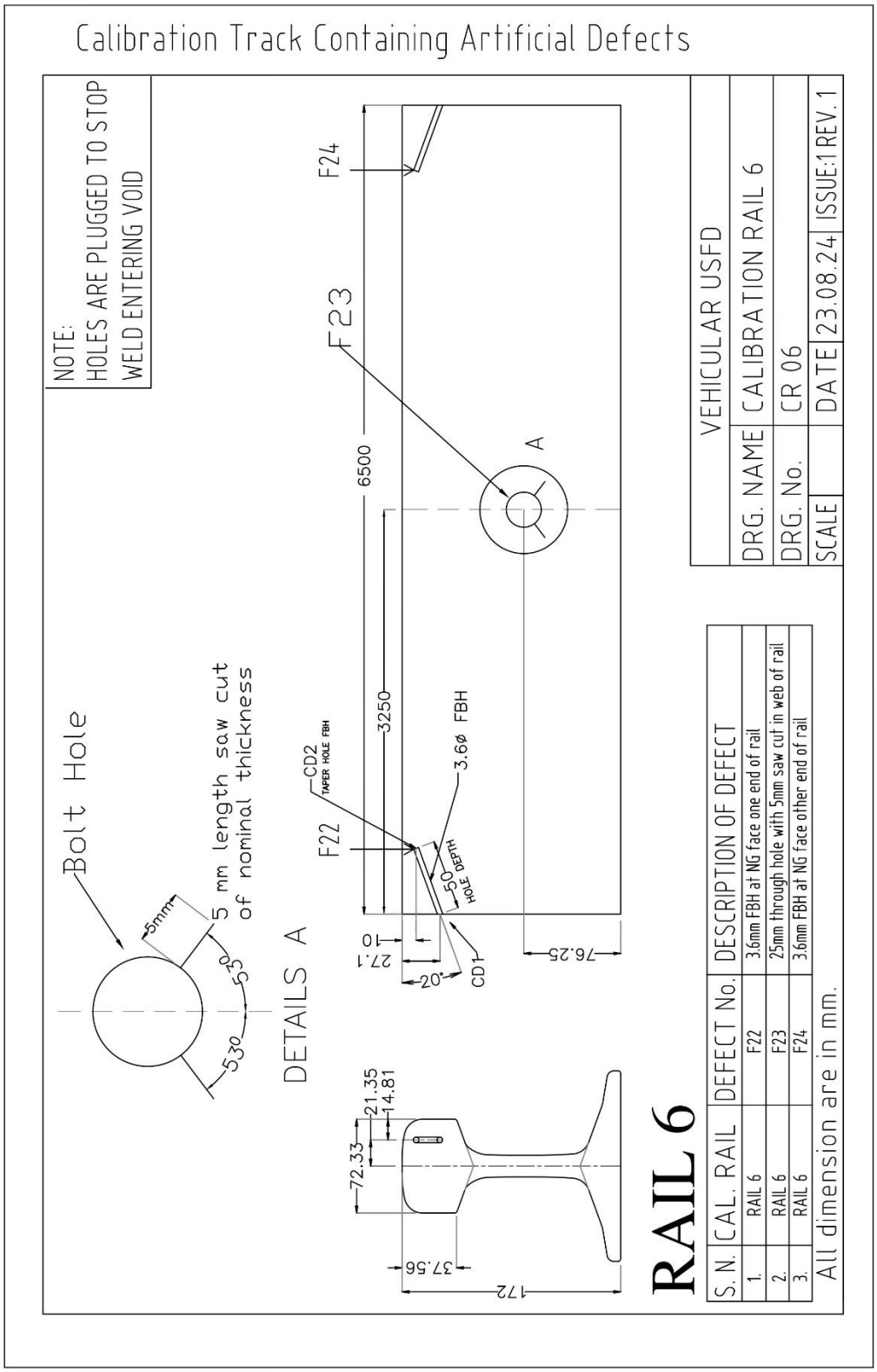
This issues with the approval of AM/CE, Railway Board.

23-08-24

(Alok Kumar)
Executive Director/Track (P&P)
Railway Board
New Delhi 110001
E-mail: alokkumar.g@gov.in

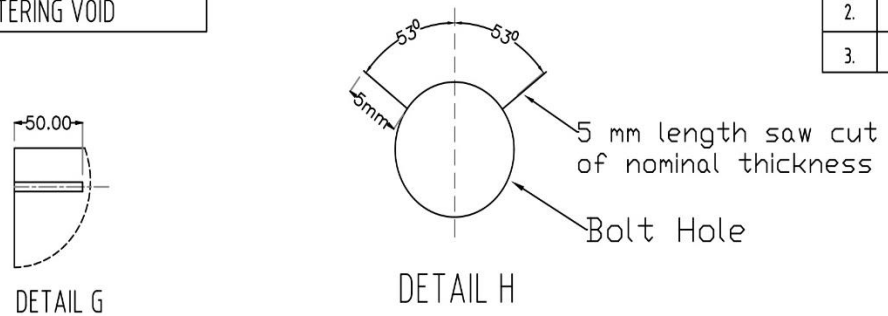
"Indian Railway Standard Specification for Ultrasonic Testing of Rails/Welds using Vehicular Systems Revised – 2020 (Document no. T-52)"
Addendum and Corrigendum Slip No. 1 of 2024

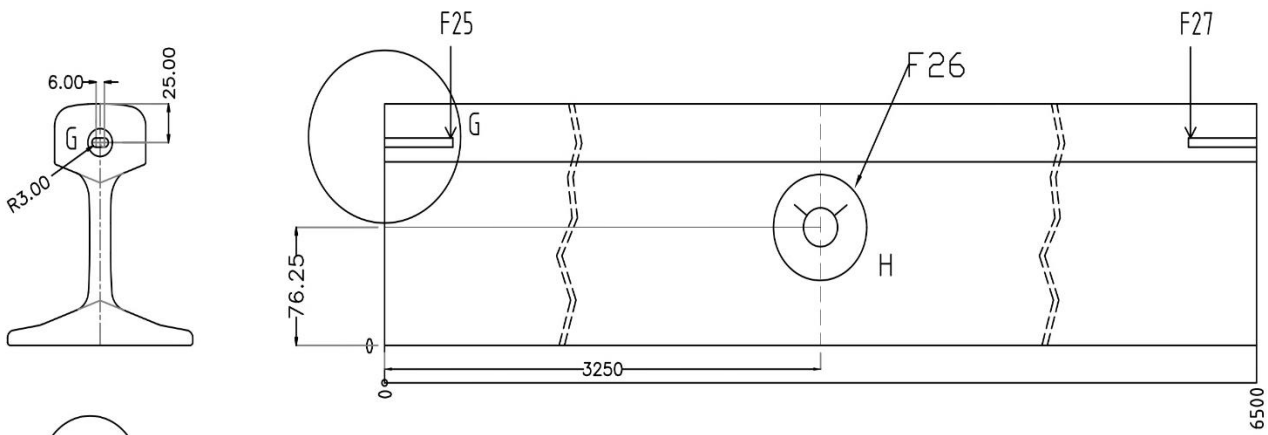
1. **Modification in drawings of Rail 6 and Rail 7 of Calibration Track Containing Artificial Defects of Annexure 3:**

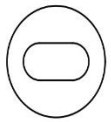


NOTE:
HOLES ARE PLUGGED TO STOP WELD ENTERING VOID

S. N.	CAL. RAIL	DEFECT No.	DESCRIPTION OF DEFECT
1.	RAIL 7	F25	6mm VSH REFLECTOR one end of rail
2.	RAIL 7	F26	25mm through hole with 5mm saw cut in web of rail
3.	RAIL 7	F27	6mm VSH REFLECTOR other end of rail







RAIL 7

All dimensions are in mm.

VEHICULAR USFD				
DRG. NAME	CALIBRATION RAIL 7			
DRG. No.	CR 7			
SCALE		DATE	23.08.24	ISSUE:1 REV. 1

2. Modification in List of defects on calibration track (Calibration Rail - 6 & 7) of Annexure 3:

List of defects on calibration track: For each side of rail, one set of calibration rails shall be prepared and inserted in the Track.

Calibration Rail - 1

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail one	F1	5 mm FBH at center in head one end of rail
2	Rail one	F2	6 mm Thru hole in web
3	Rail one	F3	6 mm Thru hole in head-web junction
4	Rail one	F4	6 mm Thru hole in head
5	Rail one	F5	25 mm Thru hole with cuts
6	Rail one	F6	5 mm FBH at center in head other end of rail

Calibration Rail - 2

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail two	F7	7 mm FBH at center one end of rail
2	Rail two	F8	6 mm Thru hole in web
3	Rail two	F9	6 mm Thru hole head-web junction
4	Rail two	F10	6 mm Thru hole head
5	Rail two	F11	12 mm Thru hole in head
6	Rail two	F12	7 mm FBH at center other end of rail

Calibration Rail - 3

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail three	F13	5 mm FBH at Non-Gauge face one end of rail
2	Rail three	F14	5 mm FBH at Non-Gauge face other end of rail
3	Rail three	F15	25 mm Thru hole with saw cut in web
4	Rail three	F16	5 mm FBH at Gauge face one end of rail
5	Rail three	F17	5 mm FBH at Gauge face other end of rail

Calibration Rail - 4

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail four	F18	4 mm FBH at center one end of rail
2	Rail four	F19	4 mm FBH at center other end of rail

Calibration Rail - 5

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail five	F20	3.6 mm FBH at Gauge face one end of rail
2	Rail five	F21	3.6 mm FBH at Gauge face other end of rail

Calibration Rail - 6

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail six	F22	3.6 mm FBH at Non-Gauge face one end of rail
2	Rail six	F23	25 mm through hole with 5mm saw cut in web of rail
3	Rail six	F24	3.6 mm FBH at Non-Gauge face other end of rail

Calibration Rail - 7

S.N.	Calibration Rail	Defect Number	Description of defect
1	Rail seven	F25	6 mm VSH reflector one end of rail
2	Rail seven	F26	25 mm through hole with 5mm saw cut in web of rail
3	Rail seven	F27	6 mm VSH reflector other end of rail

3. Modification in table of "For calculation of repeatability on Calibration rail defect at 30 KMPH following artificial defects on calibration rail shall be considered" of Annexure 3:

For calculation of repeatability on Calibration rail defect at 30 KMPH following artificial defects on calibration rail shall be considered

S.N.	Calibration Rail	Defect No.	Description of defect	Defect detected by
1	Rail one	F1	5 mm FBH at center in head one end of rail	70^0 central probe / 70^0 probe
2	Rail one	F2	6 mm through hole in web	0^0 probe
3	Rail one	F3	6 mm through hole in neck	0^0 probe
4	Rail one	F4	6 mm through hole in head	0^0 probe
5	Rail one	F5	25 mm through hole with cuts in web	Any Angular probe calibrated for Range of full rail height for detection of bolt hole crack
6	Rail one	F6	5 mm FBH at center in head other end of rail	70^0 central probe / 70^0 probe
7	Rail two	F7	7 mm FBH at center one end of rail	70^0 central probe / 70^0 probe
8	Rail two	F8	6 mm through hole in web	0^0 probe
9	Rail two	F9	6 mm through hole in neck	0^0 probe
10	Rail two	F10	6 mm through hole in head	0^0 probe
11	Rail two	F11	12 mm through hole in head	**i.** 0^0 probe and **ii.** 70^0 central probe, 70^0 G face probe, 70^0 NG face probe/ 70^0 probe
12	Rail two	F12	7 mm FBH at center other end of rail	70^0 central probe / 70^0 probe
13	Rail three	F13	5 mm FBH at NG face one end of rail	70^0 non -gauge side probe / 70^0 probe

14	Rail three	F14	5 mm FBH at NG face other end of rail	70^0 non -gauge side probe / 70^0 probe
15	Rail three	F15	25 mm through hole with saw cut in web	Any Angular probe calibrated for Range of full rail height for detection of bolt hole crack
16	Rail three	F16	5 mm FBH at G face one end of rail	70^0 gauge side probe / 70^0 probe
17	Rail three	F17	5 mm FBH at G face other end of rail	70^0 gauge side probe / 70^0 probe
18	Rail four	F18	4 mm FBH at center one end of rail	70^0 central probe / 70^0 probe
19	Rail four	F19	4 mm FBH at center other end of rail	70^0 central probe / 70^0 probe
20	Rail five	F20	3.6 mm FBH at Gauge face one end of rail	70^0 gauge side probe / 70^0 probe
21	Rail five	F21	3.6 mm FBH at Gauge face other end of rail	70^0 gauge side probe / 70^0 probe
22	Rail six	F22	3.6 mm FBH at Non-Gauge face one end of rail	70^0 non -gauge side probe / 70^0 probe
23	Rail six	F23	25 mm through hole with 5mm saw cut in web of rail	$36^0/37^0/38^0/40^0$ probe for detection of bolt hole crack
24	Rail six	F24	3.6 mm FBH at Non-Gauge face other end of rail	70^0 non -gauge side probe / 70^0 probe
25	Rail seven	F25	6 mm VSH reflector one end of rail	0^0 probe
26	Rail seven	F26	25 mm through hole with 5mm saw cut in web of rail	$36^0/37^0/38^0/40^0$ probe for detection of bolt hole crack
27	Rail seven	F27	6 mm VSH reflector other end of rail	0^0 probe

Note: Repeatability of detection of defect no. F5 (25 mm through hole with cuts in web) in Rail 1 and F15 (25 mm through hole with saw cut in web) in Rail 3 at 30kmph is optional by $36^0/37^0/38^0/40^0$ probe of vehicular USFD system. Repeatability of Detection of remaining defect are mandatory by the respective probe of vehicular USFD system as shown in above table.

4. Modification in table of "For calculation of under-reporting on Calibration rail defect at Benchmarking speed (Minimum 40 KMPH) following artificial defects on calibration rail shall be considered" of Annexure 3:

For calculation of under-reporting on Calibration rail defect at Benchmarking speed (Minimum 40 KMPH) following artificial defects on calibration rail shall be considered

S.N.	Calibration Rail	Defect Number	Description of defect	Defect detected by	Represented Defect for calculation of under-reporting
1	Rail one	F1	5 mm FBH at center in head one end of rail	70^0 central probe / 70^0 probe	Developed OBS
2	Rail one	F2	6 mm through hole in web	0^0 probe	OBS
3	Rail one	F3	6 mm through hole in neck	0^0 probe	OBS
4	Rail one	F4	6 mm through hole in head	0^0 probe	OBS
5	Rail one	F5	25 mm through hole with cuts in web	Any Angular probe calibrated for Range of full rail height for detection of bolt hole crack	OBS
6	Rail one	F6	5 mm FBH at center in head other end of rail	70^0 central probe / 70^0 probe	Developed OBS
7	Rail two	F7	7 mm FBH at center one end of rail	70^0 central probe / 70^0 probe	IMR
8	Rail two	F8	6 mm through hole in web	0^0 probe	OBS
9	Rail two	F9	6 mm through hole in neck	0^0 probe	OBS
10	Rail two	F10	6 mm through hole in head	0^0 probe	OBS
11	Rail two	F12	7 mm FBH at center other end of rail	70^0 central probe / 70^0 probe	IMR
12	Rail three	F13	5 mm FBH at NG face one end of rail	70^0 non -gauge side probe / 70^0 probe	IMR
13	Rail three	F14	5 mm FBH at NG face other end of rail	70^0 non -gauge side probe / 70^0 probe	IMR
14	Rail three	F15	25 mm through hole with saw cut in web	Any Angular probe calibrated for Range of full rail height for detection of bolt hole crack	OBS
15	Rail three	F16	5 mm FBH at G face one end of rail	70^0 gauge side probe / 70^0 probe	IMR
16	Rail three	F17	5 mm FBH at G face other end of rail	70^0 gauge side probe / 70^0 probe	IMR
17	Rail four	F18	4 mm FBH at center one end of rail	70^0 central probe / 70^0 probe	Borderline OBS

18	Rail four	F19	4 mm FBH at center other end of rail	70^0 central probe / 70^0 probe	Borderline OBS
19	Rail five	F20	3.6 mm FBH at G face one end of rail	70^0 gauge side probe / 70^0 probe	OBS
20	Rail five	F21	3.6 mm FBH at G face other end of rail	70^0 gauge side probe / 70^0 probe	OBS
21	Rail six	F22	3.6 mm FBH at NG face one end of rail	70^0 non -gauge side probe / 70^0 probe	OBS
22	Rail six	F23	25 mm through hole with 5mm saw cut in web of rail	$36^0/37^0/38^0/40^0$ probe for detection of bolt hole crack	OBS
23	Rail six	F24	3.6 mm FBH at Non-Gauge face other end of rail	70^0 non -gauge side probe / 70^0 probe	IMR
24	Rail seven	F25	6 mm VSH reflector one end of rail	0^0 probe	IMR
25	Rail seven	F26	25 mm through hole with 5mm saw cut in web of rail	$36^0/37^0/38^0/40^0$ probe for detection of bolt hole crack	IMR
26	Rail seven	F27	6 mm VSH reflector other end of rail	0^0 probe	IMR

Note: Detection of defect no. F5 (25 mm through hole with cuts in web) in Rail 1 and F15 (25 mm through hole with saw cut in web) in Rail 3 at Benchmarking speed (minimum 40 Kmph) is optional by $36^0/37^0/38^0/40^0$ probe of vehicular USFD system. Detection of remaining defect are mandatory by the respective probe of vehicular USFD system as shown in above table. Relaxation in under-reporting of artificial defects (mandatory) shall be given as per provision of Para 6.2.1

Digitally signed by RAJEEV PACHAURI
Date: 2024.08.27 15:11:10 +05'30'