SOUTH CENTRAL RAILWAY

VIGIL

QUARTERLY SAFETY BULLETIN NO.4

DECEMBER - 2021

INDEX

My dear Railway men

- In the third quarter of this financial year 2021-22, there was no consequential train accident, 3 other than consequential train accidents on this Railway when compared to nil and 16 respectively in the previous financial year for the same period i.e. October to December. Every field Official shall take all preventive measures to sustain this performance

- Number of indicative accidents has sustained to 2 during third quarter of 2021-22 when compared to 2 during 2020-21 third quarter. That indicative accidents are 'SPAD' cases.

- The number of Yard Accidents has sustained to 2 during third quarter of 2021-22 compared to 2 during 2020-21.

- For the month of October, there was no consequential train accident and one other train accident..

- For the month of November, there was no consequential train accident, two other than consequential train accident and only one indicative accident (SPAD).

- For the month of December, there was no consequential train accident and one indicative accident (SPAD) and two yard accidents..

- In regard to the safety performance of Divisions, accidents / unusual incidences in SC-1, BZA – 1, GTL – 4, HYB – 1, NED – Nil, GNT – Nil.

I hope that this booklet which contains important RB letters that are helpful in updating the knowledge of all field Officials, contribute for understanding the details of accidents, test your knowledge with key statistics etc.,

(M.Ravindranath Reddy)
Principal Chief Safety Officer

Section “A” KNOWLEDGE
Extracts of Railway Board letters

No.2021/Safety(A&R)/2/21 dated 14.10.2021

Sub: Derailment of Train No.01117(ET-PCIO) receiving on Dn loop line between Point no. 102A & 102B on 31.03.2021

The above accident, happened on 31.03.2021 in West Central Railway, was inquired by a committee of JAG officers consisting of Sr.DEN(Co), Sr.DEE(TRO), Sr.DME(CO), Sr.DSC and Sr.DSO inquired into the case and submitted the Accident inquiry report on 23.09.2021.

The inquiry committee concluded that the accident happened due to miscreant activity. A rail piece of length 300mm was placed by some miscreants in between maim line & loop line rail on LH side of Turn out just before heel block. Coach while negotiating the loop line was encountered by the rail piece and got entangled with the wheel caused derailment. The inquiry report of above accident has been finalised and accepted by General Manager, West Central Railway. Recommendations of Inquiry committee are enclosed as Annexure. Further details of inquiry report may kindly be perused from SIMS portal.

In view of above, zonal railways are advised to look into the cause of the accident and recommendations and to take measures to prevent recurrence of similar accidents.

(Anupam Verma)

DD/Safety(Impl)/Railway Board

Responsibility: After perusal of the statement of witnesses and available documents, the Inquiry Committee holds the following responsible for this incident:-

Primary : Unknown element, against whom FIR no. 0021 was registered in Govt. Railway Police Station, Mandarpara on 02.04.2021 .

Suggestions :

1. After work/maintenance by the Engineering Department, S&T Department and TRD Department, the released material should not be left in the open around the track, but they should be kept safely and systematically after calculating them at the designated sites/depots.
2. Fencing shall be erected on both the sides of tracks to prevent the movement of outsiders around the station / sensitive area.
3. An intensive awareness campaign shall be conducted by Railway Protection Force and Government Railway Police among the general public for information about railway rules and action should be taken against the guilty persons for violating the Railway Acts.

In view of the above, Divisions are advised to look into the cause of the accident and recommendations and to take measures to prevent reoccurrence of similar accidents.

No.2021/Safety(A&R)/3/1 dated 12.11.2021

Sub: Identification and strengthening of vulnerable sites to prevent landslides and boulders falling on the track..

In this current financial year, many consequential accidents/deficiencies have taken place due to boulders falling on the track and landslides. Due to extraordinary monsoon and continuation of rainfall in southern part of the country, It is advised that fresh

survey and identification of vulnerable sites should be undertaken nu the competent and dedicated team.

Measures should be taken to strengthen these identified sites for the remaining period of retreating monsoon and for the next year in order to prevent recurrence of such incidences of landslides and boulders falling on the track resulting in derailment and accident which can be fatal.

May kindly take all necessary action in this regard.

(DEVENDRA SINGH)
Principal Executive Director/Safety
Railway Board

Board's Lr No.2020/Safety (A&R)/2/25 dated 29.11..2021

Sub: Derailment of Train No.02346 /DN Saraighat special at Km 136/3-4 at Chaygaon(CGON) yard in RNY division in Kamrup Rural District, Assam, BG single line, D route, at about 13:31 hrs on 25.08.2021.

The above accident, happened on 25.08.2021 in North Frontier Railway, was inquired by a committee of SAG officers consisting of PCSO, CPTM/NFR, CRSE/Coaching/NFR, CSE/NFR and CSC/RPF/NFR

The inquiry committee concluded that accident happened due to:

1. Woking of train without ensuring clamping and pad locking of point after signal failure even though route did not appear on panel.
2. Rectification work being carried out on Operating Panel without disconnection.
3. Defective button circuit of CGON causing undue operation of Point 106/108 and 102/104 while train was still over points
4. All the concerned staff four persons viz SS/CGON , Sr.Tech/Signal/ CGON , Khalasi/HelperlSignal /COON , MS/Porter/CGON were working Hand in glove in connivance with each other resorting to shortcuts and unsafe working

The inquiry report of above accident has been finalised and accepted by General Manager, North Frontier Railway. Further details of Inquiry report including recommendations for system improvement may kindly be perused from SIMS portal.

In view of the above, Zonal Railways are advised to look into the cause of the accident and to take measures to prevent reoccurrence of similar accidents.

(Tej Prakash Agrawal)
ED/Safety/Railway Board

No.2020/Safety(DM)/12/1 dated 09.12.2021

Sub: Measures to prevent Fire in coaches originating from toilet dustbins.

In last 3 years, 17 fire accidents occurred on passenger trains in IR and many of them were on account of fire originating from the coach toilets .Smoking and /or disposing the burning cigarette butt/match stick in the toilet dustbins is a major hazard. Reckless behaviour by a few passengers is posing a safety threat for others on trains. In order to eliminate this risk , the following Action plan issued for implementation by the 31st Dec 2021, positively.

(i) Loose Non-metallic/FRP dust bins should be replaced by metallic dustbins in all coach toilets by zonal railway and all Pus should henceforth, provide only metallic bins.

(ii) In case built-in bins in a modular toilet are FRP, a loose metallic bin may be provided inside or railways may devise a scheme to avoid direct contact of FRP with burning waste. PUs should completely shift to metallic dustbins even for built-in bins at the earliest.

(iii) Awareness campaign should be run intensively using all forms of media to specifically tell people to refrain from smoking on board.

(iv) Smoking on trains should not be tolerated and controlled strictly by RPF and ticket checking staff by imposing penalty on violators as per extent rules .Zero tolerance must be the policy.

(v) Pictorial or otherwise sticker should be pasted in all toilets to caution passengers against smoking in the coach toilet and disposing any burning object in the dustbin.

Compliance of implementation may please be confirmed within the target and appraised to the Board.

This issues with the approval of competent Authority.

(Devender Singh)
PED/Safety
Railway Board

Section "B"

***Some important instructions – G.R/S.R.* 4.19**

4.25. Guards.— (1) Except under special instructions or in an emergency, every running train shall be provided with one or more Guards. (2) The Guard of a running train shall travel in his brake-van, except- (a) in an emergency, or (b) under special instructions. (3) When a train is worked without a Guard, such of his duties as can be performed by the Loco Pilot shall devolve on him as may be specified by special instructions.

S.R.4.25.4. Running of goods trains without Guard: Running trains without Guard should be avoided as far as possible. However, in exceptional circumstances, only goods trains may be run without Guard with the specific orders of Sr.DOM and a record of such orders shall be maintained in respective control office in a separate register. In case trains are run without Guard, such of the duties of the Guard as can be performed by the Loco Pilot, shall devolve on the Loco Pilot and Assistant Loco Pilot. The following precautions should be taken in all such cases.—

1) It should be ensured that the train is provided with continuous vacuum/air pressure from the engine to the rearmost vehicle, which may be a brake-van. If no Guard is provided either at an intermediate point or the crew changing station, the Loco Pilot on being informed by the Station Master, shall examine the brake power of the train and ensure that the rear-most four pistons are in proper working order. Before signing the BPC, the Loco Pilot shall ensure that the required amount of vacuum/air pressure is provided in the brake-van. Vacuum gauge/air pressure gauge shall be provided by the originating station.

2) Last vehicle indicator must be made available to the Loco Pilot and it shall invariably be fixed to the tail end of the rear-most vehicle by the Loco Pilot. The tail lamp is essential in running such a train in the night time.

3) Caution Order shall be issued to the Loco Pilot by Station Master with necessary endorsement stating that the train is to run without Guard and SCOR shall also be advised of the fact under exchange of Privates Numbers, who will inform the stations en route. The Station Master on getting the train number, will inform the end cabins, where provided and Gatemen of all the LC gates enroute provided with telephonic communication accordingly under exchange of Private Numbers.

4) The Station Master of the block station controlling the IBS, on becoming aware that the train is running without Guard, shall not dispatch a train in rear of this train up to IBS unless the goods train without Guard reaches the station ahead.

5) When such a train stops at a station, the Station Master/Switchman/Cabinman shall ensure that the train has arrived complete and is standing clear of the fouling mark.

6) During tempestuous weather, total interruption of communications and single line working on double line section, running of trains without Guards is strictly prohibited.

7) Extra detonators should be carried by the Loco Pilot who shall be responsible for protection of the train.

8) When such a train is stopped between stations on account of accident, failure, obstruction or other exceptional cause and the Loco Pilot finds that this train cannot proceed further, he shall immediately protect the train as per G.R. 6.03. While going for protection, care shall be taken that loco is not deserted if it is on rails.

9) In Automatic Block territory, no train shall be allowed to follow until the preceding train which has been allowed to run without Guard, has arrived complete at the next reporting station in advance.

10) When a train running without Guard encounters vacuum/air pressure trouble en route, the following steps are required to be taken by the Loco Pilot /Assistant Loco Pilot.—

(i) The Assistant Loco Pilot should check complete train for any leakage, hose pipe disconnections etc., and attend to it. The

help of C & W staff or Pointsmen shall be taken when the vacuum/air pressure trouble occurs within station limits.

(ii) The Assistant Loco Pilot should also ensure that all the cut-off angle cocks of air braked wagons are in open condition except the rear angle cock of rear most vehicle and the front angle cock of the train engine.

(iii) The Assistant Loco Pilot should ensure the vacuum/air pressure continuity by operating the brake-van valve/cut-off angle cock of the last vehicle.

(iv) The Loco Pilot should regulate the speed of the train depending on the 'feel test' conducted by him in the first block section.

Note:

1. Running of passenger carrying trains without Guard should not be permitted.
2. Running of goods train without Guard should not be permitted if the last vehicle is not brake-van.
3. Whenever coaches/saloons not carrying any passengers, up to a maximum of two (2) are required to be moved from one station to other, it is sufficient if the last vehicle of the train is provided with tail board/tail lamp and no Guard is required to work. Such movement shall be permitted only between Hyderabad – Secunderabad – Kachiguda and between Vijayawada – Guntur. While working in Automatic Block section territories, para 4.9 shall be adhered to.

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Section "C"
Latest Amendments

INDIAN RAILWAYS PERMANENT WAY MANUAL 2020 ADDENDUM AND CORRIGENDUM SLIP NO.1 DATED 01.07.2021

The existing Para 915 of IRPWM 2020 shall be replaced by the following:

Para 915 Level Crossing Indicators:- At the approaches of all level crossings bilingual whistle boards as per design(Annesure-9/4) should be erected at 600 metres along the track from the level crossing to enjoin the Driver of approaching trains to give audible warning of the approach of a train to the road users.

INDIAN RAILWAYS PERMANENT WAY MANUAL 2020 ADDENDUM AND CORRIGENDUM SLIP NO. 2 DATED 13.08.2021

(A) The existing Para 636(2)(e) of IRPWM 2020 shall be replaced by new Para 636(2)(e) of IRPWM 2020 as under:

I. Deep screening of Track shall be carried out
For Plain Track on Main line
   i. if the clean ballast cushion is less than 200 mm for section having sectional speed of 130 kmph and above.
   ii. ii. if the clean ballast cushion is less than 150 mm for section having sectional speed less than 130 kmph.

For Turnout on Main line If the clean ballast cushion is less than 200 mm.

II. All the loop lines should be deep screened once in 15 years.

(B) The existing Para 702(1)(2) of IRPWM 2020 on "Wear on rails" shall be read as Para 702(1)(b) of IRPWM 2020 on "Wear on rails".

(C) The existing Para 702(1)(d) of IRPWM 2020 shall be replaced by new Para 702(1)(d) of IRPWM 2020 as under:

Renewals on consideration of service life in terms of total GMT of traffic carried—

(i) The rail shall be planned for through renewal after it has carried the minimum total traffic as shown below—

Rail section	Total GMT carried for	
	72 UTS rails	90 UTS rails
60 kg/m	550	800
52 kg/m	350	525

(ii) Service life in terms of total GMT of traffic carried for considering through rail renewal of 60 kg 90 UTS rail would be 1000 GMT on the routes covered by Rail Grinding, provided condition of rail is satisfactory as per the other stipulated criteria mentioned in Para 702(1) (a),(b) and (c) above.

(iii) The service life in terms of total GMT of traffic carried for considering through rail renewal on the bridge proper and in approaches (up to 100 m on either side) for all the important bridges and such of the major bridges where height of bank is 5.0 m or more, all tunnels and their approaches (up to 100 m on either side) shall be half of the GMT specified above.

(D) The existing Para 702 (2) of IRPWM 2020 shall be replaced by new Para 702(2) of IRPWM 2020 as under:

Criteria for Renewal of Sleepers— Generally a sleeper is serviceable if it can hold gauge, provide satisfactory rail seat and permit rail fastenings being maintained in tight condition, and retain the packing underneath the sleepers. Concrete sleepers will be considered for replacement/renewal if they have developed notches more than 3 mm at rail seat locations, their inserts are broken or elongated, or they are not able to provide required toe load, sleeper themselves are broken or any other reason for which they are not able to hold gauge and level. Where re-sleepering only is justified, this should be

carried out in continuous stretches, the released serviceable sleepers being utilized for casual renewals elsewhere. Through sleeper renewal should be considered if the percentage of such sleepers exceeds 20% in a patch. On girder bridges when several sleepers are defective, renewals should be carried out for the full span, the released serviceable sleepers being used for casual renewals on the other spans.

E) The existing Para 717 (1) (b) of IRPWM 2020 shall be replaced by new Para 717 (1) (b) of IRPWM 2020 as under:

After it has carried the minimum total traffic as shown below or on condition basis as decided by Chief Track Engineer of the Railway for item at SN 1 & 2 below:

SN	Item	GMT carried	
		52 Kg	60Kg
1	Fabricated switch (ORS)	250	300
2	Thick Web Switch	500	800
3	CMS Crossing After carrying out three rounds of in-situ reconditioning using Robotic welding machine. After carrying out three rounds of reconditioning using H3B/H3C IRS electrodes	350 300	350 300

(F) The existing Para 718 of IRPWM 2020 is replaced by new Para 718 of IRPWM 2020 as under:

Renewal of Track Fittings and other track components-Renewal of track fittings to be planned after they have degenerated to a level where they are not able to serve their desired purpose. Service Life of different fittings are as under:

S. No	Item	Location	Criteria for Renewal
1	GFN-66 Liners	Plain Track	200 GMT or 4 years whichever is earlier or on condition basis as decided by CTE
2	Metal Liner	Plain Track	400 GMT or 8 years whichever is earlier or on condition basis as decided by CTE
3	ERC	Plain Track	400 GMT or 8 years whichever is earlier or on condition basis as decided by CTE
4	GRSP	Plain Track	200 GMT or 4 years whichever is earlier or on condition basis as decided by CTE
5	CGRSP	Plain Track	400 GMT or 8 years whichever is earlier or on condition basis as decided by CTE

Note: The service life of P. Way components at special locations like turnout, CC aprons, curves sharper than 5 Degree, SRI, Gradient sharper than 1 in 100, coastal areas, station yards including approaches etc. is 50 % that of plain track or on condition basis as decided by CTE.

INDIAN RAILWAYS PERMANENT WAY MANUAL 2020 ADDENDUM AND CORRIGENDUM SLIP NO. 3 DATED 21.10.2021

Heading of Para 228. "Provision of Guard Rails on Bridges" shall be read as "Provision of Guard Rails on Bridges and Tunnels"

A new Para 228 (4) to Indian Railways Permanent Way Manual shall be added as under:

Para 228 (4) Provision of Guard Rails/ Derailment Guard in Tunnels:

(I) For speed above 110 kmph

(A)Tunnel with Single track

(a) On approach of tunnel : 200 m from portal face outside the tunnel to 25 m inside the tunnel.

(b) Inside Tunnel: In addition to 25 m from face of portal as stipulated under item (a) above, guard rail/derailment guard shall be provided inside tunnels as under**:**

(i) **Ballastless Track:** Throughout the length of ballastless track.

(ii) Ballasted Track: Curves with radius upto 500m along with transition portion but excluding locations provided with check rails. Guard rail would also cover critical locations like sub-station, column/structure etc

(B) Tunnel with Double tracks

(a) On approach of tunnel : 200 m from portal face outside the tunnel.

(b) Inside Tunnel: Throughout the length of tunnel but excluding locations provided with check rails.

(II) For speed above 60 kmph and upto 110 kmph

(A)Tunnel with Single track

(a) On approach of tunnel: 100 m from portal face outside the tunnel to 25 m inside the tunnel.

(b) Inside Tunnel: In addition to 25 m from face of portal as stipulated under item (a) above, guard rail/derailment guard shall be provided inside tunnels as under**:**

(i) Ballastless Track: Throughout the length of ballastless track.
(ii) Ballasted Track: Curves with radius upto 500m along with transition portion but excluding locations provided with check rails. Guard rail would also cover critical locations like sub-station, column/structure etc

(B) Tunnel with Double tracks
(a) On approach of tunnel : 100 m from portal face outside the tunnel.
(b) Inside Tunnel: Throughout the length of tunnel but excluding locations provided with check rails.

(III) For speed upto 60 kmph
(A)Tunnel with Single track
(a) On approach of tunnel : No Guard rail/derailment guard is required.
(b) Inside Tunnel:
(i) Ballastless Track: Throughout the length of ballastless track.
(ii) Ballasted Track: Curves with radius upto 500m along with transition portion but excluding locations provided with check rails. Guard rail would also cover critical locations like sub-station, column/structure etc

(B) Tunnel with Double tracks
(a) On approach of tunnel : 25 m from portal face outside the tunnel.
(b) Inside Tunnel: Throughout the length of tunnel but excluding locations provided with check rails.

Note:
(a) The top table of guard rail should not be lower than that of the running rail, by more than 25 mm. In case of curves, the difference should be measured with reference to a straight line connecting the running tables of inner and outer rails.
(b) Fixing of Guard rails to be done as per para 228(3) above.
(c) Splaying of Guard rails need to be done on both sides in Single Line and only on facing direction in Double Line section. The non-splayed end should be bent downwards beyond the end of stipulated length of Guard rails and provided with wooden block.

(d) Derailment Guard shall be designed such that in case of derailment, the wheels of-derailed vehicle moving at maximum speed are retained by the Derailment Guard.
(e) Typical arrangement of guard rail with applicable dimensions ("a" and "L2") is shown in the sketch and table in Para 228 (2) above.
(f) Provision of Guard rails is for ballasted track and Derailment guard for ballast less track.

INDIAN RAILWAYS PERMANENT WAY MANUAL 2020
ADDENDUM AND CORRIGENDUM SLIP NO. 4 DATED 03.11.2021
Para 408 (2)(e) of IRPWM 2020 shall be replaced with the following:-
408) **Turnouts on running lines with passenger traffic:**

(e) The turnouts have inbuilt curvature as a part of the design. Therefore, it is desirable that laying of turnouts should normally be avoided on curved main line from the consideration of maintainability & comfort. If the laying of turnout on curved main line is inevitable due to site constraints, following stipulations shall be followed:

(i) for laying of turnouts with 1 in 12 or flatter crossings taking off from curve, it shall be ensured that the resultant lead curve radius as well as the radius of main line curve shall not be less than 350m.
(ii) 1 in 8.5 turnout shall not be laid from inside of a curved track.
(iii) 1 in 8.5 turnout with curved switches may be laid from outside of a curve up to five degree in exceptional circumstances with the approval of PCE, where due to limitation of room it is not possible to provide 1 in 12 turnout.
(iv) The existing turnouts not conforming to the stipulations given in Sub-Para (e) above may continue. However, efforts shall be made to eliminate such layouts in a planned manner/during yard remodeling. During yard remodeling in existing yards, under exceptional circumstances, where due to site constraints and techno economic reasons, it is not practicable to adhere to the stipulation given in Sub-para 408(2) (e) (i), laying of 1 in 12 or flatter turnout with curved switch may be allowed from inside of curved main line so that the resultant lead curve radius is not less than 290m, with the personal approval of PCE.

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Section "D"

Checklist - S&T DEPARTMENT

TESTING OF EQUIPMENT :

1. TESTING OF PANEL:

I. To Clear Signal:

i. Ensure SM's key is 'IN', set the relevant points for the route, check the track circuit indications, ensure LCs, if any are closed in the route and then take 'off' the signal.
ii. After satisfying that the signal correctly responded, put back the signal.
iii. Initiate route cancellation and also check whether the timer relay is properly functioning or not (120 seconds time).
iv. Make entry in the route cancellation register along with reasons, change of veedor counter number and remarks, if any.
v. In case of end-panels, clear the signal with slot and put back the slot and satisfy whether the signal is put back to 'on' or not.
vi. For testing of calling-ON signal functioning, ensure the Calling-'ON' track circuit is danger (by the occupation of train or by simulating), home signal knob shall be 'normal', facing points shall be correctly set before taking 'off' calling-ON.
vii. After 60/120 seconds, the calling-ON signal shall clear.
viii. Initiate calling-ON signal cancellation, wait for 240 seconds time and observe whether the route is cleared or not.
ix. Make entry in the calling-on cancellation register along with reasons, change of veedor counter number and remarks, if any.

II. Point Operation:

i. Track circuit in point zone shall be clear.
ii. Ensure the crank handle is 'IN'.

iii. Place an obstruction piece of 5mm between stock and tongue rails at 150mm from the toe of the switch and observe the lock should not enter into the slide and indication should flash on the panel for 'N' or 'R' position.

iv. Check non-correspondence by making one end of point non-operative with the help of crank handle cut off contacts.

Normal point operation voltage and current readings

Operation	Volts (V)	Current (Amp)	Obstruction	
			(V)	(Amp)
'N' to 'R'	105 + or – 5	1.6 + or – 0.2	100 + or – 5	4 + or – 0.4
'R' to 'N'	105 + or – 5	1.6 + or – 0.2	100 + or – 5	4 + or – 0.4

v. Enter the readings in the point machine book are made properly and kept in point machine.

III. Track Circuits:

i. Ensure POH of track relay is done (once in 12 years).

ii. Ensure track relay voltage is not more than 300% of the pickup value for QT relays.

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IV. Crank Handle:

i. Ensure the crank handle is able to be extracted only when the relevant signal is in 'ON' position.

V. SGE Block Instrument:

i. Bring commutator to TOL position and then take 'off' LSS, it should not get cleared.

ii. Ensure the locking of block instrument with double lock (one key with Operating staff and one key with S&T staff).

iii. Line voltage – outgoing 18V – 26 V; current 18MA – 30MA (depending on the length of the block section).

iv. Line voltage – incoming 8V – 9V; current 18MA – 20MA (depending on the length of the block section)

VI. Podanur Push-button block (PTJ):

i. Normal line voltage: 60V – 80V (depending on the length of the block section).
ii. Line current – outgoing 60MA – 70MA (depending on the length of the block section).
iii. Line current – incoming 60MA – 70MA (depending on the length of the block section).

VII. Relay Room:

i. Ensure double lock arrangements are effective.
ii. Ensure the relays are clean and in sealed condition.

VIII. Equipment Room:

i. Ensure the meters (volt/ammeter) in power board are in working condition.
ii. Records to be maintained in the Equipment Room
    a) Battery history maintenance register.
    b) Track circuit history register.
    c) Track circuit maintenance register.
    d) Axle-counter maintenance register, if any.
    e) Cable-meggering register.
    f) IPS maintenance register.
    g) Motor point reading register.
    h) Earth resistance register.
    i) Signal/LED lamp register.
    j) Date-logger Register containing the installation date, date of failure, date intimated to the agency, date of rectification, etc.,
    k) Disconnection/Reconnection Notice Memo Register.
    l) Availability of completion diagrams

IX. Battery Room:

i. Ensure proper maintenance of battery cells.
    a) Battery cells when fully charged, specific gravity should be 1220 SPG. SPG < 1180 implies that the cells are discharged.
    b) Normally charged cell voltage is 2.2V. Discharged cell voltage will be < 1.8V.
ii. Whenever cell water level falls below vent-float indicator mark, topping up of distilled water is required. Generally, once in 3 months, topping up of distilled water is required.

X. Registers to be maintained at the station:

a) Route cancellation register (UP & DN).
b) Calling-ON cancellation register.
c) S&T failure and history register.
d) Joint inspection of points and crossings register.
e) Crank handle register.
f) Axle-counter re-setting register.
g) Line clear cancellation register.
h) Relay-room key register.
i) Block instrument key register.

ALL MAIN AND TAIL CABLES SHALL BE MEGGERED ONCE IN A YEAR AND ONCE IN SIX MONTHS RESPECTIVELY.

SIGNAL GEARS MAINTENANCE SCHEDULE

S. No	Maintenance work	Periodicity		
		ESM	JE	SE/SSE
Point Machine				
1	Check all fittings for tightness, cleanliness, clean contacts and commutator	F	M	Q
2	Ensure correct working in 'N' & 'R'	F	M	Q
3	Check the tripping at the overload of friction clutch	F	M	Q
4	Conduct obstruction test. Take voltage/current readings	...	M	Q
5	Check ground connections alignment and intactness of fittings (slack pins to be replaced)	F	M	Q
6	Check intactness of wiring on terminals	F	M	Q

7	Check detection contacts. Measure I/C and O/G voltages	F	M	Q
8	Check track locking	...	M	Q
9	Check out correspondence	...	...	Q
10	Check 'D' clamp/gauge plate insulation	Q	Q	H
11	Check crank handle contact	F	M	Q
12	Check for proper ballasting and packing of sleepers	F	M	Q
13	Check the setting of switches for having required amount of spring	F	M	Q
Track Circuit				
1	Check relay for over-energisation	F	M	Q
2	Measure earth resistance	F	M	Q
Block Instrument				
1	Check functioning of double locking arrangement and sealing	F	M	Q
2	Clean and lubricate all points	F	M	Q
3	Check contact pressure	F	M	Q
4	Check functioning of PR Relay tongue	M	M	Q
5	Measure line voltage/current	F	M	Q
6	Check SM's key working	F	M	Q
7	Check whether LSS can be taken 'off' without line clear	F	M	Q

8	Check working of all counters	F	M	Q
9	Check that shunting key is released in closed or TGT position only	F	M	Q
Battery Room				
1	Check all batteries SPG	F	M	Q
2	Clean, tighten and apply petroleum jelly to terminals	F	M	Q
3	Top the levels of cells, if required	F	M	Q
Battery Chargers				
1	Check working of battery charger	W	M	Q
2	Check terminals connections, rotary switches, fuses and working of meters	F	M	Q
Panel				
1	Observe the panel and replace fused indication lamps	W	M	Q
2	Check working of knob/push buttons, effectiveness of keys on panel and veeder counters	F	M	Q
Track circuits				
1	Check bonding/jumper/lead/connection TLJ boxes	M	M	Q
2	Replace block joint, ML3 months, LL 6 months	...	...	...
3	Clean glued joints			
4	Test glued joint	H	H	Y
5	Test block joint	M	M	Q

6	Ensure fail-safe adjustment of TC	...	Q	Q
7	Measure track voltage at FE/RE/RT	F	M	Q
8	Maintain history/reading book	F	M	Q
9	Check RE bonding/Z bond, pandrol clips, bolts at block joints and GFN liners	F	M	Q
Rotary key transmitter				
1	Check all fittings, clean contact and lubricate the parts	F	M	Q
2	Test the working	F	M	Q
SM's slide control frame				
1	Check all working parts and contact pressure	...	M	Q
2	Contact pressure	...	M	Q
Location box				
1	Check location box for locking	F	M	Q
2	Clean the location box	F	M	Q
3	Check the wiring on terminals and earth connections	F	M	Q
Colour light signals				
1	Check signal unit, locking and opening and holes to be covered	M	M	Q
2	Check fixing of lamp holder contacts springs and terminals	M	M	Q
3	Ensure and clean lenses, measure voltage and adjust focusing, if required	M	M	M
Axle-counters				
1	**EJ Box**			
	Check all nuts, bolts fitting of RX,TX	F	M	Q

	Check connections of EJBs, measure reading and adjust, if required	F	M	Q
	Check DIP, staggering and record the readings	M	M	Q
2	**Evaluator**			
	Check coupler connections and soldering connections	M	M	Q
	Measure reading, adjust, if required and record	F	M	Q
3	**IB hut/RE cutting**			
	Check batteries, battery chargers and wiring on terminals	F	M	Q
	Check voltage on relays	F	M	Q
Communication				
1	Check block telephones	F	M	Q
2	Check control telephone and VHF sets	F	M	Q

SCHEDULE OF INSPECTIONS – DIVISIONAL S&T OFFICERS

S.No.	Type of inspection	Sr.DSTE/DSTE	ADSTE
1	Every station of the Division	10% of total stations	Every station of the Division in a year

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Section "E"
Accident cases

1. ***Brief of the accident*** *(derailment):* On 19.10.2021 at about 12.40 hrs, between NRE-HAQ stations of GTL division, Train No' B-211with Loco No.32643, Train left NRE @ 1235 hrs. While approaching HAQ station next to Train Engine, wagon No.SE10079255158 was derailed.

   Cause of the Accident: Derailment is attributed to some obstruction hitting the bogie frame of wagon. As there are no other obstruction other than 20RP rail which was laying in the close proximity might have caused the derailment

   Responsibility:

   Primary:

   1. Sri.Suresh, SSE/P.Way/NRE (incharge)
   2. Sri. Swaminadhan, SSE/P.Way/NRE

   Secondary:SSE/C&W,BPC issued ADTP/CKP/SER

   Blameworthy:Nil

2. ***Brief of the accident*** *(Derailment):* On 13.11.2021, between PDTR-JMDG stations of GTL division, Train No. RE BT consisting of Batching plant mounted on 4 BRN wagons hauled by Loco 14576/'GY moved in to PDTR-KMDC block section in pushing mode for unloading of material. While negotiating curve at KM 107/2, the hopper unit mounted on BRN has tilted, worked out from the position and finally fallen on LH side of the 2.5^0 curve and caused derailment of wagon NO.SE No.BRNA SER 340712547 3^{rd} Wagon from TE.

   Cause of the Accident: due to toppling effect of hoper the wagon leading trolley leading RH wheel lifted off from the rail table, thus the LH wheel dropped inside track and caused derailment of wagon.

   Responsibility:

***Primary*:** RE organisation for not ensuring the approval of Design & drawing certificate from HQ

Secondary: Sri. B.Venkata Muni Reddy, JE/DRG/RE/GTL- for ensuring covering of tarulin to avoid wetting of sand.

Blameworthy: nIl

Matters brought to light:NIL

Suggestions and Recommendations:

1) Proper authority to be obtained by RE organisation to run the GAMZEN system on wagons.
2) GAMZEN system to be maintained at scheduled periodicity to check its healthiness.
3) GAMZEN system fitting on wagon body to be certified by competent authority.
4) SE/JE of RE to ensure the Hopper system fittings and its fitness for every trip.
5) The design of the Batching plant mounted on BRN wagons to be reviewed and the frame width under the hopper needs to be widened to avoid CG falling away to avoid tilting of Hooper and causing unsafe running of wagons/train.

3. ***Brief of the accident*** *(Derailment):* On 15.11.2021, at CVB station of HYB division, DEMU empty rake left MLY Shed at 21.32 hrs, to proceed to JALNA station. As per control instructions, SM/CVB admitted train on common loop line and arrived on common loop at 21.52 hrs. The train has to negotiate two cross overs to admit from DN main line to common loop line. While admitting on common loop line, 4th coach (15558) rear trolley and 5th coach (15561) both trolleys from train engine were derailed at KM 611/39-37 and the speed fo the train was 14 Kmph.

Cause of the Accident*:* The combination effects of steep changes of cant (undulations in rate of change of cant) and the restrictions of negotiation in curve by the front trolley of coach No.5 caused the uplift of the rear trolley of coach No.4

Responsibility:

***Primary*:** Sri. J.R.Srinivas, SSE/P.WAY/MED(In-charge)
Secondary: SSE/DEMU/Bogie maintenance/LGDS
Blameworthy: Sri M. Bhaskar, GLP/KCG
Matters brought to light:
All track parameters need to be ensured as per laid down stipulations at the time of laying and proper maintenance too wile in service.
Suggestions and Recommendations: The derailed DEMU rake is a hybrid coach provided with air spring for which railway board accident proforma is not available

4. ***Brief of the accident*** *(SPAD):* On 18.11.2021, at KCC station of BZA division, Train No.02886 (Humsafar Express), while approaching KCC observed KCC home signal showing caution/main line/Rd-4. LP controlled the the train below 60 kmph, while entering KCC further controlled the train. Further ALP call out starter signal was proceed and same was acknowledged by LP. While approaching starter signal suddenly observed KCC Rd-4 Starter at danger. Immediately LP applied emergency brake and ALP also applied emergency brake. Unfortunately train stopped after passing starter signal and travelled 132 meters
Cause of the Accident*: Disregard of the starter signal aspect.*
Responsibility:
***Primary*:**
1. Sri. P. Madhava Rao, LP/Mail/BZA
2. Sri. Sk. Zakeer, Sr. ALP/BZA
Secondary:
1. Sri . T. Prathap Kumar, CCC/BZA
2. Sri. K. Ramesh, CLI/BZA
3. Sri. Ch.V.S.S.Rama Kumar, CLI/BZA

Blameworthy: NIL
Matters brought to light:
1. *As per KCC SWR and SIP* signal overlap for S-25 from Down starter (S-25) and upto the end of BJ 135 BT is 195 m. But the

actual existing distance is 175 m. (The same to be corrected in both SWR and SIP (Signal Interlocking Plan).

2. There is a system of auto generation of SMS whenever signal passed at danger. In this case of SPAD at KCC, the same has not been generated due to non-fulfilling of condition of logic as per RDSO guidelines (The logic to be suitably modified to enable generation of SMS In KCC type of SPAD situation also
3. There are two JPOs issued from Hqrs on 11 03.2008 and 11, 04.2017 to deal with the LP/ALP who are away from train handling duties. According to that such LP/ALP to be sent to refresher course followed by train handling training for 1000 Kms. (This has not been followed in this SPAD case).

Suggestions and Recommendations:

At KCC station the SWR and SIP the signal overlap distance to be correctly modified with the existing length.

1. The SPAD SMS logic to be suitably modified to cover KCC type SPAD cases also.
2. Whenever the incident of SPAD taken place apart from generating SMS message an audio/ video alert to be generated on the VDU panel to alert on duty Station Master also.
3. As per Accident Manual Rule No. 902.1 of chapter 1X, the Station Master to give a memo to LP/ALP about the incidence of SPAD, the distance travelled from stop signal etc and take acknowledgement from Loco crew to avoid any future disputes from Loco staff. The same to be strictly followed by all Station Masters.
4. JPO issued from Hqrs on 11 03 2008 and 11.04.2017to deal with the LP/ALP who are away from train handling duties are to be strictly complied with.

5. ***Brief of the accident*** *(Derailment):* On 10.12.2021, at CGTA station of GTL division, Train No. BT spl(03L+07E+02L) with Loco No.12510 was stabled at Hot Axle siding of CGTA station. It

was planned to pullout BT special from Hot axle siding to Rd-1, shunting movement given at around 12.25 hrs duly taking off shunt signal No.14. Train started and after travelling approximately 100 mts, 7th wagon from TE, ER BOBY NM1 700205 17963 leading trolley four wheel derailed after passing of point No.17A at KSN end at about 12.30hrs.

Cause of the Accident: left over ballast in wagon with uneven load at RH side

Responsibility:

***Primary*:** Sri. Rajneesh Prabhat, SSE/P.Way/KSN-for planning unloading of ballast without line block during shunting movement and failure to ensure balancing of left over ballast before starting the train.

Secondary: nil

Blameworthy:

1. Sri. Rajneesh Kumar, LP/G/RC –for not resisting unloading of ballast during shunt movement.
2. Sri. Rakesh Kumar Meena, Goods Guard/RC for not resisting unloading of ballast during shunt movement.

Matters brought to light:nil

Suggestions and Recommendations: During GDR check of Ballast BT, GDR should check availability and evenness of load in the wagons.

6. ***Brief of the accident*** *(SPAD):* On 11.12.2021 at PGDP station of SC division, Train No.17016 SC-BBS Visaka Exp left Bibinagar station at 17.42 hrs. While approaching Dn main line starter signal(S3) of PGDP station, Loco Pilot could not stopped and passed signal at 'ON' position(stop aspect) at 17.46 hrs and stopped after passing signal about 17.9 meters, Loco Pilot again started without permission and stopped after 250 meters. There was no causalities/injury to any person

Cause of the Accident: LP failed to stop short of starter signal S-3 which is at 'ON' as he applied brakes late and ALP failed to apply RS in time.

Responsibility:

***Primary*:**

1. Sri. K.Purna Chandra Rao, LP/Pass/GNT
2. Sri. D. Kishore Kumar, Sr.ALP/GNT

Secondary: nIl

Blameworthy:

1. Sri. P. Vijaya Suresh, DI/GNT- not done effective counselling on LPs weak areas.
2. |Sri. G.Venkata Ramana, CLI/GNT- not done effective counselling on ALPs weak areas. And he did not demonstrated RS application while on run to ALP.
3. Sri. KSSK Kanthi Raj, M/E/Guard/BZA
4. Sri. Pankaj Kumar Jha, SS/PGDP

Matters brought to light:

1. Sri. K. Purna Chandra Rao, LP/P/GNT signed OFF at 07.50 hrs at SC lobby and went to running room for taking rest. At about 12.'O' clock he left running room and gone to St. Joseph Hospital at Erragadda for personal work and returned to running room after 14.00hrs without RR/SC-incharge permission.
2. Though the crew was aware of working with walkie-talkies, they started the train after first stop i.e. crossed starter signal one locomotive length, started by hearing a unknown voice on walkie-talkie without ascertaining the credentials of the voice.

Suggestions and Recommendations:

1. All crew should be counselled the working procedure with VHF set/walkie talkies while on run i.e. instructions to be specifically prefixed or suffixed by train number and the person speaking with designation.
2. Regarding Hqrs instructions of controlling train speed to 60 kmph or below while passing signal at caution aspect should be followed by all LPS without any deviation. Further speed reduction to 10 kmph should be invariably followed before two OHE mast of danger signal. This should be ensured by CLIs during their footplate inspections and counsel LPs as required.

3. It has come to the notice that at PGDP station masters are always dealing trains on main line(via S3 signal) trains bound for branch line. In this instant case, Block section towards BMNP/GNT division was blocked with 12513 SC-GHY Exp at the time taking off PGDP home signal for 17016 SC-BBS Exp via starter S3(keeping Pt No. 17 & 18 in reverse position). Had this train admitted via common loop line, the detention for subsequent following trains could be avoided during such incidences, The above issues should be counselled all the staff of PGDP station and suitable instruction to be issued.

7. ***Brief of the accident*** *(Derailment):* On 27.12.2021, at 21.12.24 hrs at GTL yard, of GTL division, after coming Jaipur Suvidha Rake(82653) on Rd-11(PF-3), the LE after detaching from the rake passed the starter signal No. S-43 and crossed shuntsignal No.88 in the opposite direction and stopped. The shunter after changing the cab passed the shunt sinal No.88 at 'OFF' position and passed the Rd-12(PF-2). Without observing shunt signal; No.62 "ON' position (stop aspect) shunter moved the Loco and derailed at point No.84B at 21.30 hrs

Cause of the Accident: Shunter of Loco No.40368/KJM has passed theshunt signal NO.62 at 'ON'.

Responsibility:.

Primary**:** Sri. Bheem Singh Meena, LPG/SHG

Secondary: nil

Blameworthy: Sri. Pankaj Kumar Mahto, Dy.SS/Platoform/GTL failed to intimate the shunter about movements.

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Section “F”
Test Your Knowledge

1. What is the POH of track relay (QTA2)?
2. What is the voltage of fully charged secondary cell?
3. In _____gradient area and terminal goods yards (Constant Speed Control (CSC) of 3 phase loco should not be used.
4. In 3 ø loco, acknowledge the fault message by pressing _____button.
5. While working 3 ø loco as banker, close _____COC in pneumatic panel.
6. What is sthe aim of National Program for Civil Services Capacity Building (Karmayogi)?
7. Depth ballast cushion in all doubling, gauge conversion and new line construction works_____
8. Quantity of ballast/metre in curves of radius sharper than 600 metres(for 350 mm ballast cushion) is _____
9. In non-interlocked gates, gate is closed by using sliding booms, Gate shall make entry in the gate timing register and _____ with Station Master.
10. Under approved special instructions, when IB signal is combined with Colour light Distant signal, it shall not display less restrictive aspect than _____aspect till line has been obtained from the station ahead.

KEY

1. Once in 12 years.
2. 2.2 volts
3. Undulating
4. BPFA
5. 70
6. It is a civil services reform initiative that aims to improve capacity building efforts across the Government.
7. 350 mm
8. 2.344 M^3
9. exchange PN
10. stop

***

Section “G”
Safety drives launched

Month	Details	from	to	No. of days
October - 21	Winter precautions in P.Way maintenance and Train operations.	11.10.21	30.10.21	20
	Surprise Night Inspection of Pit lines			
November – 21	Rolling down of Stabled Rolling stock.	10.11.21	24.11.21	15
	Joint Inspection of Points and crossings.	18.11.21	27.11.21	10
December - 21	Prevention of fire in trains and counselling of on board staff	30.11.21	14.12.21	15

Calendar Safety drive

October - 21	Stabling and securing precautions	01.10.21	15.10.21	15
November- 21	Maintenance of Under gear in Coaching trains	01.11.21	15.11.21	15
December - 21	Prevention of unsafe practices	01.12.21	15.12.21	15

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Section "H"
Accident Statistics

- In the third quarter of this financial year 2021-22, there was no consequential train accident, 3 other than consequential train accidents on this Railway when compared to nil and 16 respectively in the previous financial year for the same period i.e. October to December. Every field Official shall take all preventive measures to sustain this performance

- Number of indicative accidents has sustained to 2 during third quarter of 2021-22 when compared to 2 during 2020-21 third quarter. Those indicative accidents are 'SPAD' cases.

- The number of Yard Accidents has sustained to 2 during third quarter of 2021-22 compared to 2 during 2020-21.

- For the month of October, there was no consequential train accident and one other train accident..

- For the month of November, there was no consequential train accident, two other than consequential train accident and only one indicative accident (SPAD).

- For the month of December, there was no consequential train accident and one indicative accident (SPAD) and two yard accidents..

- In regard to the safety performance of Divisions, accidents / unusual incidences in SC-1, BZA – 1, GTL – 4, HYB – 1, NED – Nil, GNT – Nil.

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