

4TH
EDITION
JULY-
DECEMBER
2020

CREW MAGAZINE EASTERN RAILWAY OPERATION SDAH

WAP-7 MU
A NEW
HEIGHT IN
OUR
DIVISION

CHALAK PATRA

WAG-12
THE HEART
OF FREIGHT





CHALAK PATRA CREW MAGAZINE

NAME OF CREW : _____

DESIGNATION : _____

H/QTR : _____

CUG/ NO : _____

EVERY MAN IS AN ARTIST
IN HIS OWN PLACE.



SRI VIKASH ANAND
Sr. D.E.E / OPERATION
SEALDAH
ESTERN RAILWAY



FOREWORD

The job of the loco pilot in our Indian railways requires full mind concentration on his duty. Lack of concentration can lead a fatal accident. So, always you must be professional-approach towards your job. Hence, as long as you are on duty you must suspend all the burning problems coming to your mind. This approach is a matter of long practice. Normal human mind always try to float on a happy imagination. This effect may result in boosting up the mind to out of track and also may disturbed your skill of driving. But, you are pre-set by the different conditions at a time with the signals, Tracks, cautions & controlling of train for your safe journey. So to prevent 'SPAD' you must be on track with full concentration while on duty.

In this way, we are all just a supporting hands behind you to keep you safe. Mind it you're the last man to prevent all unusual occurrence. I think parallel our focus should be to maintain punctuality. SSTS - APP helps you to find out your deficiency on driving skill from time and speed chart and 'CHALAK PATRA' your magazine, it update your knowledge technically and in other different angles on your responsible operation. I thanks to all who are related with this magazine in our division.

With warm regards.

A handwritten signature in blue ink, consisting of stylized, cursive letters that appear to read 'Vikash'.

(Vikash Anand)



**WE ARE PROMISED TO
SERVE THE NATION**

SRI SUMAN CHANDRA GHOSH
ADEE/OP/SDAH
EASTERN RAILWAY



OUR VIEW

It gives me a great satisfaction when I see that Chalak Patra is being regularly issued and used by the running staff. I appreciate that there has been improvement in the field of electric locomotive operation in which Chalak Patra are playing an important role under care of Sr. DEE/OP/SDAH.

With this platform I noticed that SDAH division has so far trying maintained a standard of safety to prevent SPAD. In our division we takes many steps for LPs to concentrate their mind. I request to all LPs they must take proper rest before on duty and do the job with always full mind concentration. You must use YOGA room in our SDAH lobby. Before starting BP continuity, after starting BFT, BPT, on run self-call out /call out must done, do not allow unauthorized man in driving cab, switch off your mobile phone/phones on run and keep it on your line bag, if any problem talk with our TLC immediately without delays.

I like to say more you must keep your trouble shooting book on line bag and read it on a regular basis to gather your sound knowledge in every little moment on hand and it maintained in coming days. We are now facing WAG-12, WAG-9 MU, and WAP-7 MU in our division. You must use SSTS app to know your progress in train operations. I congratulate to all running staff in our division for their contribution in this pandemic season to overcome this big-milestone.

Thanks to all



(Suman Chandra Ghosh)



EDITORIAL

Dear friends,

We know in our world "Everyone is an artist in his own place", our pilot the same. When his job gets the touch of his heart, then it reached as an Art, & when the Art mixed with love then it takes place on the top of human thought as a "great creation by an artist".

So, we request to all to do the job always with the touch of heart & love, then it will be reached on the crown of your hope. As a result your success also get satisfaction. In this path our "CHALAK PATRA" may get a role to encourage you like a friend.

In this COVID-19 our LPGs takes brave steps to fulfill the demand of Nation in his day & night with a strong effort. But many civilians don't know his depth of love toward Nation. Hence we are grateful to all & giving thanks. In our division taken many steps from operation end for crew in this pandemic of COVID -19 period to protect them in running room and in our lobby to reach it on a new height. We also get a new electrical Loco shed in this time and updated SSTS apps with the strong care of IT-CELL under Sr. DEE/OP/SDAH & we hope that, it will led over IR in future.

Thanks to all.

Yours

Core group Committee "CHALAK PATRA"
CLIs-Bhabatosh Bhowmik, Baidhar Singh,
Animesh Sarkar & Jayanta Kundu

CONTENTS

OUR ACHIEVEMENTS

INAUGURATION OF LOCO SHED & TRIP SHED AT SEALDA.....1

INAUGURATED BY SRI C. S. JEENGAR PCEE/KKK/E.RLY. 2

UPGRADED RUNNING ROOMS IN OUR DIVISION 3

GARDENING IN RUNNING ROOM.....3

ENHANCED FACILITIES FOR CREW CONVENIENCE IN RUNNING ROOM.....4

WE UPGRADE OUR KITCHEN.....7

PROGRESS IN OUR LOBBY WITH HEALTHY ENVIRONMENT 7

A SDAH NORTH LOBBY.....8

B DDJ CREW LOBBY 9

THE PART OF OUR FRESSNESS 10

‘SWACHHA BHARAT AVIYAN’ (SWACHHA PAKHWARA), 10

DEVELOPMENT OF SSTS IN OUR SUBURBAN SERVICESES ... 11

UPDATED SSTS IN OUR DIVISION 11

A REAL TIME TRAIN MONITORING AND ROBUST ENQUIRY SYSTEM
ENHANCING PUNCTUALITY AND SAFETY.....11

IMPORTANT DEVELOPMENT IN SSTS.....15

GR ADDENDUM & CORRIGENDUM 12

Sub: delete the existing GR 4.10(1) and substitute by the following

Ref: 1. PCOM's letter no. TG.202/CS/G&SR/Pt. XV Kolkata. Dated 18-03-20.....18

2. L/N-SWR/RIVN/CS-GR&SR 20 Sealdah, dated 29-06-20..18

SAFETY CIRCULARS.....18

Sub: Measures to Prevent Bumping of Locomotives during
Shunting operations in trip shed and Loco shed. 18

Sub: Functioning of Locomotives with Defective Vigilance
Control Device (VCD).....19

Sub: Running of Multiple Unit (MU) of Tap-changer Locomotives from Leading Loco when Leading Loco fails.	19
Sub: Making Leading Cab of Electric Locos Operative after attaching a Loco on the load and Cab Changing Procedure in WAP5/WAP7/WAG9 Locomotives.....	20
SUB: - Measures to Avoid Detention in the event of Pantograph Lowering In WAP5/ WAP7/ WAG9 locos while in Motion.....	22
Sub:-30 day Zonal Railway safety drive on strict observation of Shunting practices.....	23
RAILWAY BOARD CIRCULAR.....	28
Sub: Winter preparedness drive.....	28
CELE CIRCULAR.....	29
Sub: Railway Board letter no. 92/Elect. (TRS)/138/5 Pt.	29
The recommendations approved by the Board are as under:.....	29
TECHNICAL DISCUSSION.....	31
CONV. LOCO. & 3-PH LOCO.....	31
ITEMS TO BE CHECKED WHILE TAKING OVER CHARGES AT WAY SIDE STN.....	31
CONV. LOCO. & 3-PH LOCO.....	31
PREVENTION OF LOCO WHEEL SKIDDING & PART OF THE DUTY OF LP	31
WAG-9 & WAP-7 MU OPERATION.....	32
DEAD LOCO MOVEMENT	35
PREPARATION OF WAG-12 LOCO	37
GENERAL PROCEDURES OF LOCO ENERGIZING.....	37
PENALTY BRAKE RESET PROCEDURE IN CASE OF EBV FAILURE	39
GENERAL DISCUSSION.....	40
PSYCHOLOGY TEST WHY IT NEEDED FOR LPs.....	40
HOW CAN TESTS HELP YOU?.....	40
What sort of tests will you have to take?.....	40
HOW TO RECORD YOUR ANSWERS	40
<u>1. Sample Tests</u>	41

2. Test for measuring your Memory.....	41
3. Test for measuring your ability for Number Operations.....	42
4. Test for measuring your Personality-	42
Test for measuring your Field Independence-	42
5. Test for measuring your Reaction Time -	43
WHAT CAN YOU DO TO GET BETTER SCORES?	43
NEW SIGNAL LOCATION BETWEEN DKAE- JOX	43
PSR RELAXATION	44
REMOVAL/RELAXATION OF PERMANENT SPEED RESTRICTION.....	44
NEW N/S BETWEEN BNXR-DDJ	44
APPRECIABLE CASE	45
PROFORMA	45
CITATION	45
FAILURE CASE	
WHY WHEEL SLIPPING OCCURES	47
CAUSES OF WHEEL SLIPPING.....	47
TO PREVENT WHEEL SLIP	47
TRAFFIC TIPS	
GR-3.75	49
PASSING OF INTERMEDIATE BLOCK STOP SIGNAL (IBP) AT 'ON'	49
WINTER PRECAUTION	49
GR 3.61	49
SUB: Train operation during foggy and inclement weather - precautions	49
OUR NET WORK OF CHALAK PATRA	54

OUR ACHIEVEMENTS

INAUGURATION OF LOCO SHED & TRIP SHED AT SEALDAH

We are very proud that in our division we got new electrical loco shed under a strong care of electrical operation in this year. So we are not now bound to pray loco to work mail & express train from other division. Therefore a pre-estimation of nomination of the loco we can decide before. Hence loss of shunting movement detention are eliminated and as per train load our TLC can decide the power smoothly. In this connection our respected PCEE/KKK/E.RLY inaugurated Sealdah Loco shed on the date 26-06-2020 which was a great memorable day for us.



INAUGURATED BY SRI- C. S. JEENGAR PCEE/KKK/E.RLY.



**WE ARE PROUD
FOR ELECTRIFICATION OF SEALDAH LOCO SHED
(SLDS) AND HOLDING OF ELCTRIC LOCOMOTIVE**

UPGRADED RUNNING ROOMS IN OUR DIVISION

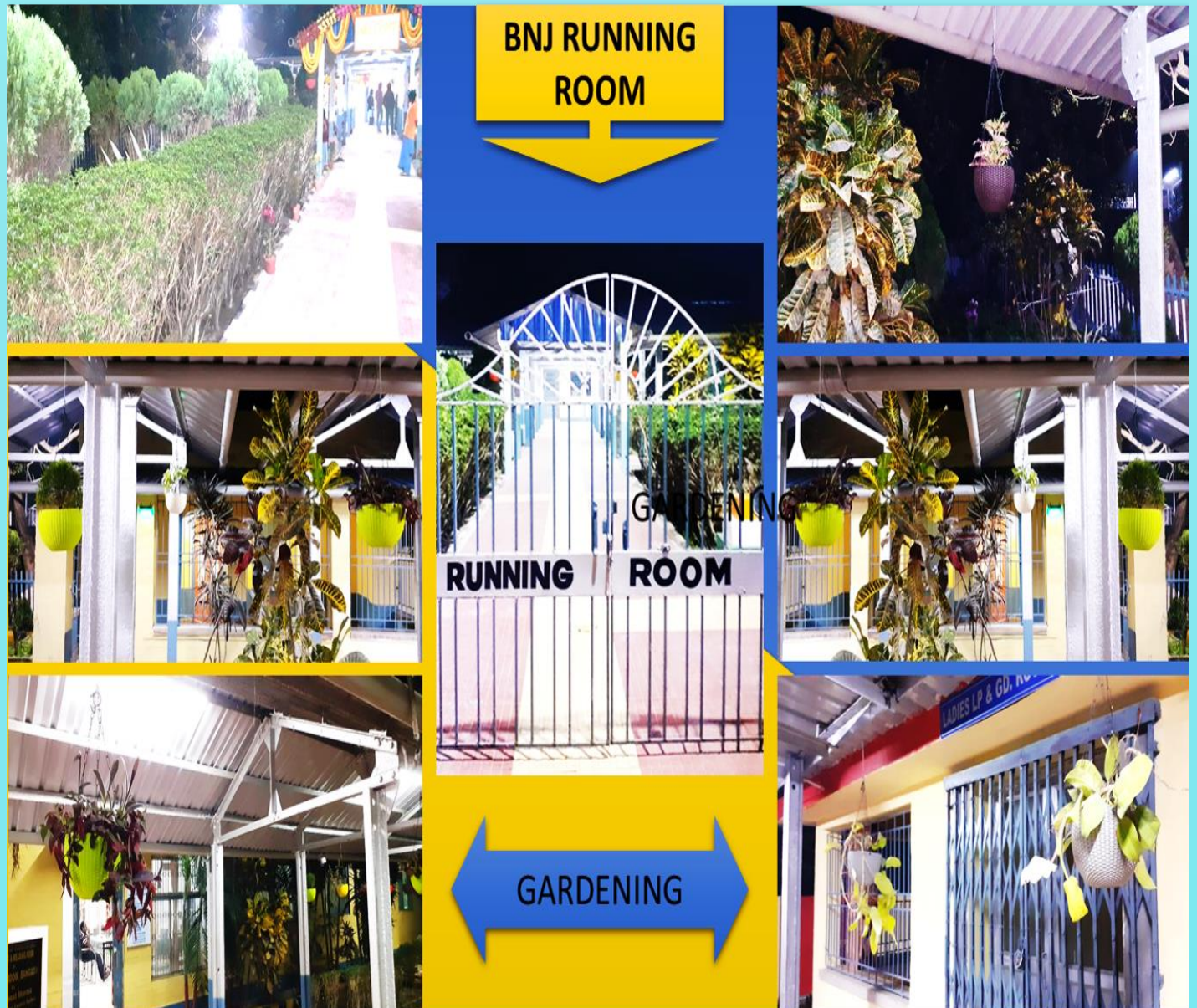
In our division, many steps are taken for convenience of our crew, they can realize a homely environment in their running room in every day 24 hours.

GARDENING IN RUNNING ROOM

When crew stay at running room he get a warm touch of love & feel comfort which he feel at home.

That encourage us every moment to do better. The foresight of our division brings always new light to reach it in a new height. We always suggest to everyone to do honestly all as a holy serving.

BANGAON (BNJ) RUNNING ROOM



LAKSHMI KANTPUR RUNNING ROOM



ENHANCED FACILITIES FOR CREW CONVENIENCE IN RUNNING ROOM

Homely appliance are available in every step at running room. After Completion of a hard & responsible job our crew can desire to take rest with soft environment. Hence our division always trying to do with our best. There are available facilities as in below –

SPLIT OR WINDOWS A.C IN OUR RUNNING ROOM



MICRO OVEN & LARGE CONTAINER OF HAND SANATIZER WITH AOTO-SENSATION IN CREW LOBBY



FOOT MASSAGER



GYESER IN EVERY BATH ROOM



FRESH LINEN & MOBILE CHARGING POINTS NEAR EVERY BED.



AQUA GUARD FOR COLD, NORMAL & HOT WATER



**WE UPGRADED OUR KITCHEN
EXHAUST CHIMNEY & MIXCY MACHINE ARE PROVIDED**

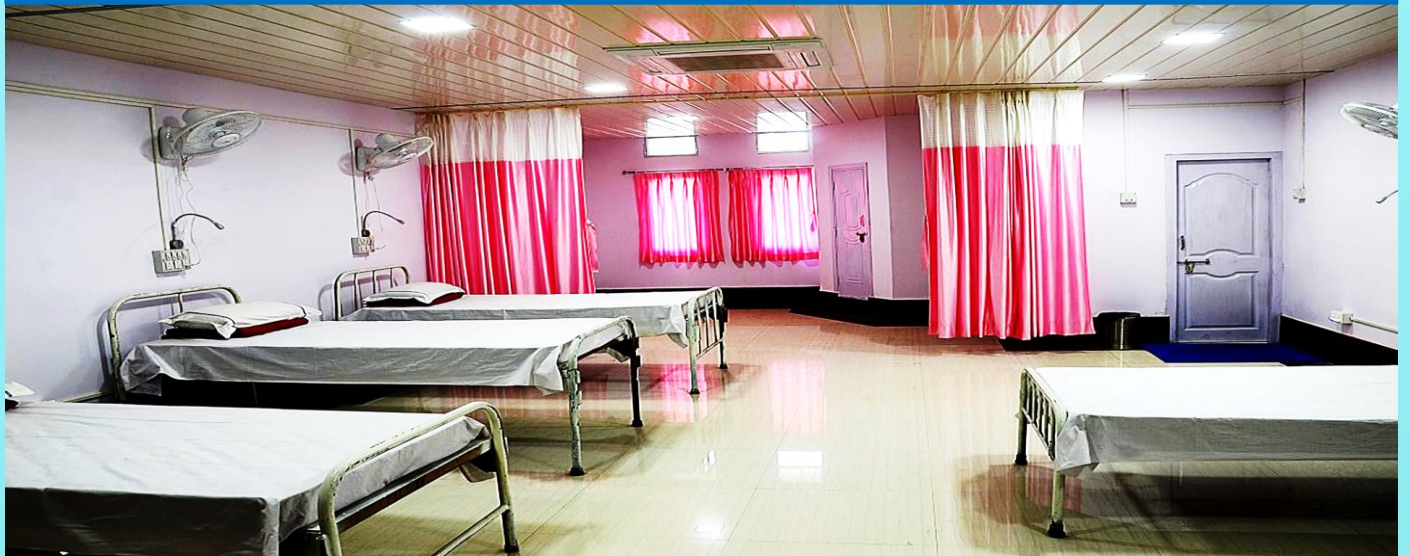


PROGRESS IN OUR LOBBY WITH HEALTHY ENVIRONMENT

A SDAH NORTH LOBBY AT A GLANCE



SEPARATE LADIES ROOM WITH INTEGRATED TOILET & CHANGING



SDAH NORTH SEMINAR HALL



B DDJ CREW LOBBY

DDJ crew lobby upgrade with new decoration in our division to play with comfort by our crew and it's more upgrading also on going under care of CCC[R] / DDJ

**WELCOME
YOU**



**DUM DUM
CREW LOBBY
WITH NEW
DECORATION**



**ALWAYS KEEP
A SHARP LOOK
OUT ON
YOUR SIGNAL**



**DO YOUR ON DUTY
IN RIGHT TIME WITH
PROPER UNIFORM**

**CALL OUT YOUR OWN SIGNAL LOUDLY WITH HANDGESTURE
TAKING STATION & SIGNAL NAME, WITH ASPECT(GATE & AUTO-
SIGNAL WITH NUMBER)**

'SWACHHA BHARAT AVIYAN' (SWACHHA PAKHWARA), THE PART OF OUR FRESHNESS



OUR
HONOURABLE
DRM / SDAH
GIVING
SPEECH
ON
"SWACHHTA
PAKHWARA
AVIYAN"
AT
SDAH STATION

"SWACHHTA
PAKHWARA
AVIYAN"

16 SEPTEMBER
2020

A RED LETTER
DAY

DEVELOPMENT OF SSTS IN OUR SUBURBAN SERVICES

WE UPDATED “SSTS” IN OUR DIVISION

A REAL TIME TRAIN MONITORING AND ROBUST ENQUIRY SYSTEM ENHANCING PUNCTUALITY AND SAFETY

Sealdah Suburban Tracking System is an IOT system aimed to improve punctuality and safety of suburban trains by live monitoring and analysis of speed with relocation data with a fine resolution of 3 seconds. It has a GPS-GPRS based hardware fitted in all the EMU/MEMU rakes with asynchronous cloud server. It generates color coded speed charts over geo-fences and speed maps of the data recorded and generates report of section wise max speed achieved, loss/gain on run, station wise stoppages, delays in arrival/departure (CTR) etc. instantaneously. It also generates daily punctuality reports with monthly analysis of crew, train and rake wise performance. Driving technique of crew can also be observed with the help of this system including brake feel and brake power test. The instant article covers hardware development, different features available in SSTS, its use from punctuality and safety improvement perspective, comparison with RTIS & TMS, roadmap and future scope.

INTRODUCTION

Sealdah division is primarily a suburban division which runs 930 services of 45,400 km and ferries approximately 18 lakh passengers per day. Thus, suburban punctuality is of it most importance for the division. Regular joint punctuality drives are an essential part of system but their effect is short lived. There are often complains of multiple departments of wrong logging punctuality loss on their account whose insights are known only the board and section controllers. On crew account, there are often complains of LOR (loss on run) and failure to achieve MPS (maximum permissible speed). Longer stoppages at stations for vendors is also assumed but cannot be confirmed due to lack of any monitoring mechanism. For suburban services where the stoppages are 20-30s or even stop-start, a loss of even 5 seconds is significant. As of now, speedometer chart analysis is the only method which does only sample checking to figure out the driving technique, stoppages etc. But this is not real time as of now. Hence, a need was felt to develop a system for close monitoring of suburban trains in real-time which can generate custom reports and alerts and bring insights to all the departments which is available only to a limited bunch. Thus, SSTS was developed as a part of “Mission-80” launched by DRM/SDAH. With this, mid-section behavior which was unknown to even the controllers has also been brought out by this system. It can be accessed at <http://164.52.197.129/>. The initial cost of development is around ₹4.5 lakhs only.

Features and various options and representations in SSTS have been classified under the heads:

1. DASH BOARD –

Indicates essential figures of punctuality, trackers, rake/train performance etc.

2. LIVE VIEW –

Shows live train movement over open street map with signals and geo fences.

3. REPLAY –

A replay of live view.

4. LIVE STATION –

Status of upcoming trains any particular station and passenger information board/announcement system.



Welcome to KALINARYNPUR JN 12:12:40

UP/DN	TRAIN NO	DESTINATION	SCH. DEP	LAST STATION	LT/BT
UP	27	LALGOLA	11:46	BADKULLA	00:12
UP	19	SHANTIPUR	11:57	HABIBPUR	00:07
DN	20	RANAGHAT JN	12:48		
DN	6	SEALDAH	13:01		

© Electric Operation, Sealdah, ER 2019

5. TRAINS RUNNING LATE –

An exception report of late trains.

6. TRAINS ON RUN –

At a glance, section wise view of all running trains.

7. PUNCTUALITY ANALYSIS

Daily position and summary of suburban trains as per Time table. a. CTR b. SPEED CHART c. SPEED MAP

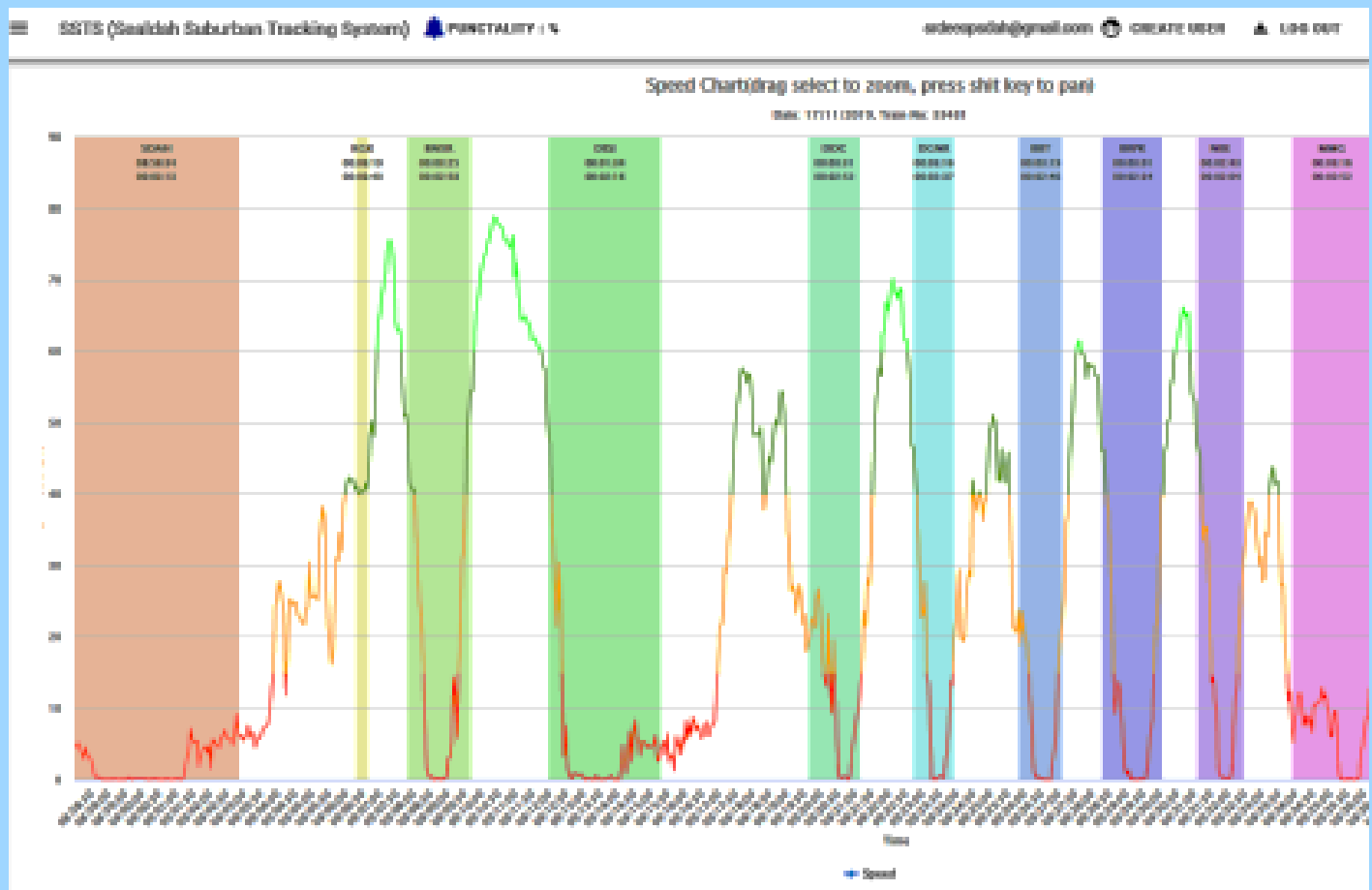
a. CTR –

CTRs being generated automatically by SSTS containing Stoppage time at each station, sectional loss, max speed achieved in block sections etc.

b. SPEED CHART –

It is a color coded plot of speed vs. time of the train. It is mapped over Geo-fences and delay in arrival and departure of each Geo-fences are also indicated. It gives mid-section behavior in time domain

Speed checks or unscheduled stoppages due to late lowering of signal (Generally gate) can be figured out from this. Chart supports PAN and zoom too. Safe driving techniques like Brake Feel and Brake Power test by LP can also be observed. Color coding makes the chart more intuitive and at a glance it gives an indication of driving technique and confidence of crew, if benchmarked color appears on selected/known sections. The code is as follows

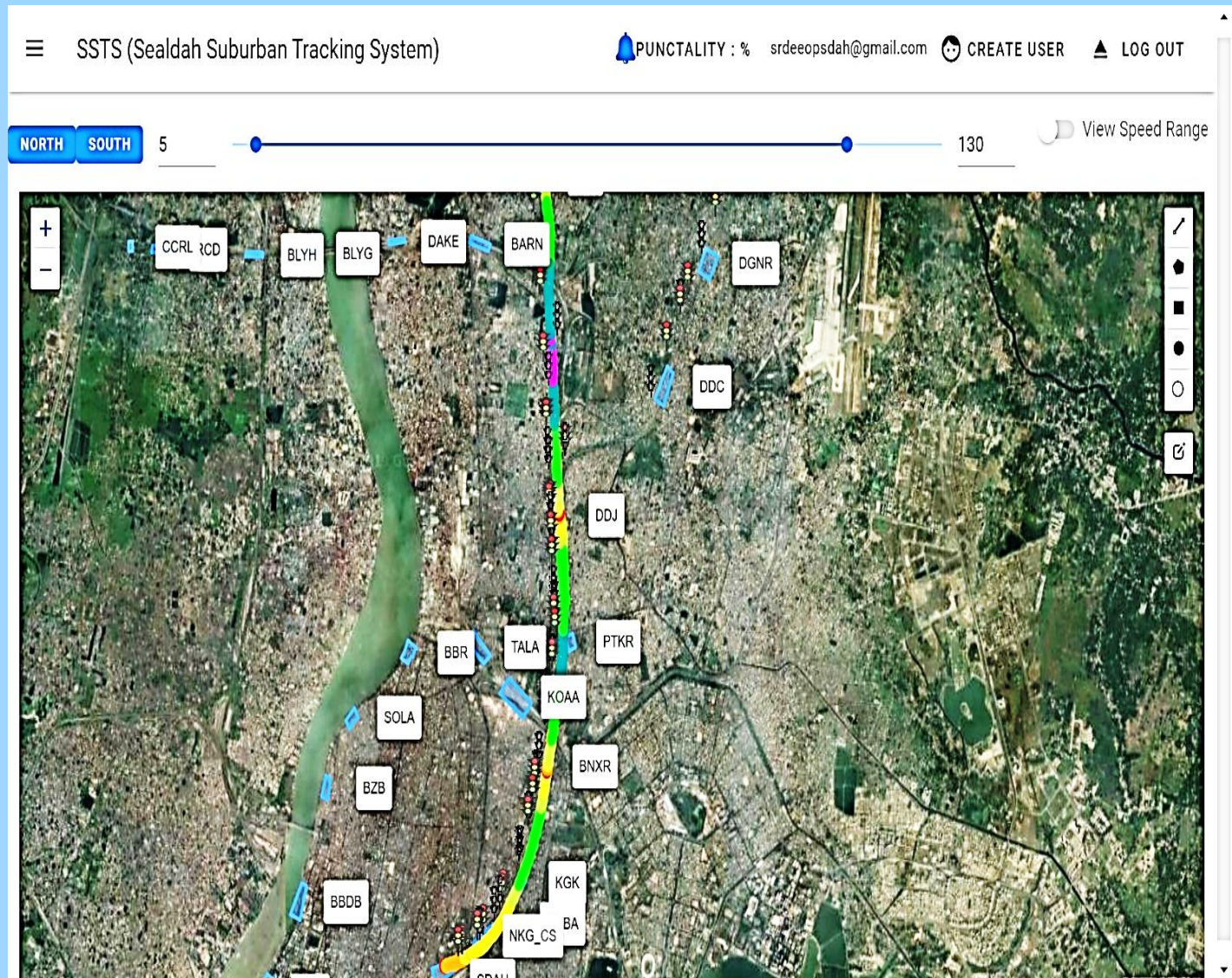


AUGMENTATION OF DISTANCE PLOT IN IMPROVED SPEED TIME- DISTANCE CHART-

By inclusion of this feature the loss of time for signal checked etc. can be calculated easily. The same is reflected in pop up for selected cursors, upon defining MPS.

C. SPEED MAP –

Speed Map is the overlay of recorded points over open street map along with geo-fences and signals. Each selected point indicates speed, timestamp and distance travelled from origin. Thus speed against the geographical locations (gates, signals, cautions, turnouts, etc.) can be seen. It also helps analyzing the distance covered and time take in clearing a speed restriction and thus the impact (loss of time) in clearing it. A sample speed map is in fig the available map layouts are hybrid, satellite and normal. It has provision of 2 level speed three's-holding. The selected speed range appears blue and the remaining is greyed out. Selecting the start and end points, one can calculate the distance covered in restriction and thus check whether it is an overcautious crew or an overconfident one.



8. GOODS ANALYSIS

Individual tracker wise report generation with CTR, speed chart, map and other reports including portable trackers. Suitable for freight train analysis.

9. TRAIN WISE ANALYSIS –

Train wise punctuality performance analysis for selected period to identify regular late trains or high allowance trains arriving early, for time table adjustments.

10. CREW WISE ANALYSIS –

Crew wise punctuality figures and analysis for selected period for suburban trains to identify good and slow runners.

11. RAKE WISE ANALYSIS –

Rake wise punctuality figures and analysis for selected period for suburban trains to identify laggard rakes.

12. SECTION WISE ANALYSIS –

Section Wise analysis of average speed, loss etc.

13. ARRIVALS –

Indicates North and South section arrivals at Sealdah for next attachment.

14. GEO-FENCE –

SSTS supports various geo-fence shapes. Majority geo-fences are polygon covering the geographical locations. Polygon geo-fence also allows to have clear distinction of units lying in vicinity, thus properly identifying the location of tracker.

IMPORTANT DEVELOPMENT IN SSTS

1. DEVELOPMENT OF ANDROID APP NAMED SEALDAH SUBURBAN TRACKING SYSTEM AVAILABLE AT GOOGLE PLAY STORE.

The app provides for enriched experience and more accurate information to its suburban users. The app is based on internal SSTS server and provides live view of trains with time stamped speed over map to its users which is a totally new feature for the users unlike any other app. Apart from the nearly real time location updates, the app also provides additional information like departure platform, number of major stations, 9/12 car rake details, days of run etc. which were earlier available only on the stations. Being a localized app, detailed notification is also delivered to the app for the convenience of the passengers. This app has been developed and maintained by IT cell of Sealdah division and is available in Google Play Store.

2. AUTO CAPTURING OF PLATFORM NUMBER INPUT IN EXISTING TIB SYSTEM IN SEALDAH STATION BY SSTS:

Platform Number input in existing TIB system in Sealdah Station is being auto captured by SSTS by developing one software program which runs in the existing TIB computer and parse the log file generated by the existing TIB software and sends relevant information to SSTS server. Thus Platform numbers are displayed in SSTS APP before departure of the trains which is highly appreciated by the users of the app.



TRAINS BTWN STATIONS

LIVE STATION

TRAINS ON RUN

SDAH

DDJ

31445

SDAH 22:22 DDJ 22:33

BLH

4m

9 Car

SDAH 22:22 -> NH 23:27

Daily

32249

SDAH 22:23 DDJ 22:35

DDJ

4m

12 Car

SDAH 22:23 -> DKAE 23:07

Daily

33859

SDAH 22:34 DDJ 22:45

KGK

3m

9 Car

SDAH 22:34 -> BNJ 00:27

Daily

31541

SDAH 22:40 DDJ 22:51

SDAH

2m

9 Car

SDAH 22:40 -> STB 00:55

Daily

31631

SDAH 22:50 DDJ 23:01

Daily

PF: 06

12 Car

SDAH 22:50 -> RHA 00:38

33861

SDAH 23:00 DDJ 23:11

Daily

PF: 03

9 Car

SDAH 23:00 -> BNJ 00:50

31447

SDAH 23:15 DDJ 23:26

Daily

SDAH 23:15 -> NH 00:18

33863

SDAH 23:40 DDJ 23:51

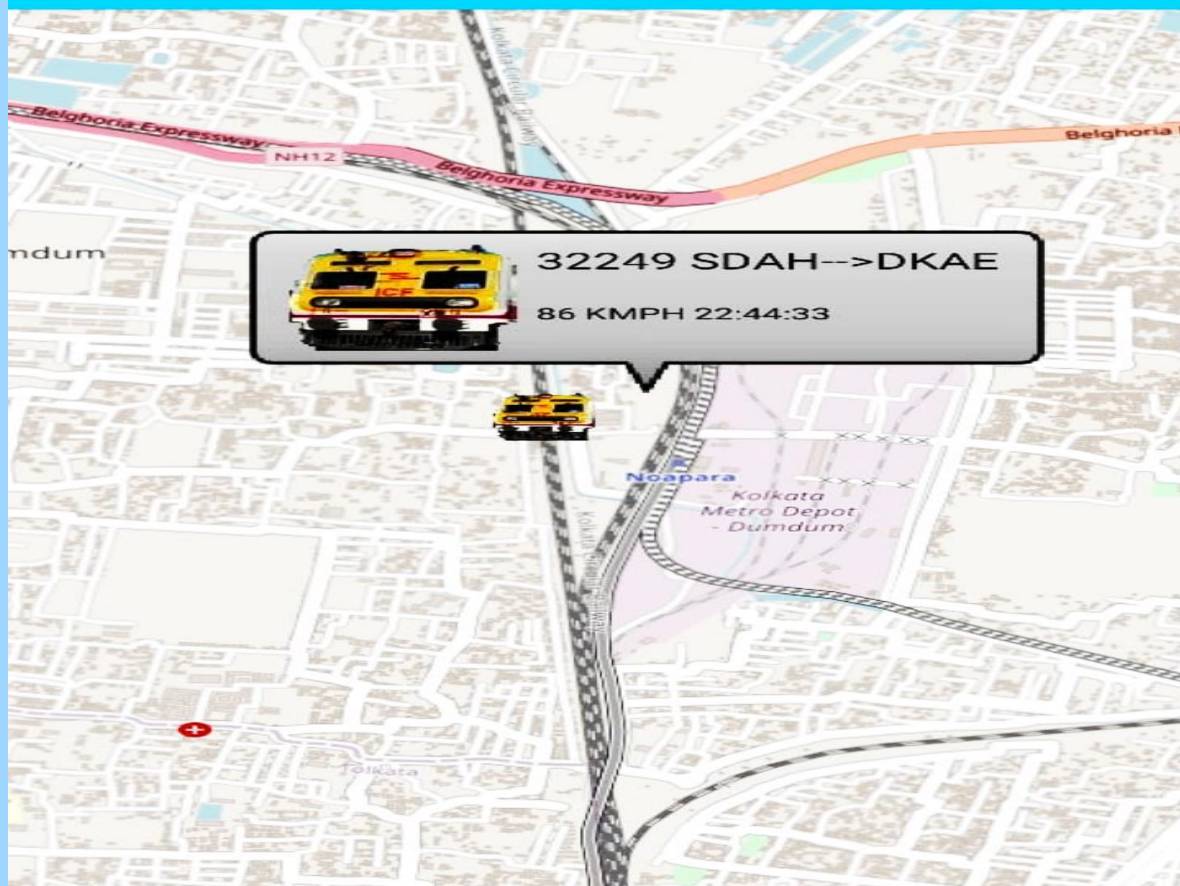
Daily

SDAH 23:40 -> BNJ 01:35

63111

SDAH 23:40 DDJ 23:51

Sealdah Sub Tracking System



FUTURE PLANS

Live view in SSTS brings a whole new experience to users where one can see speed in real-time along-with location. Since SSTS has mapping of signals, the next obvious requirement is indication of signal aspect. This is under implementation and can even work as an assistant to loco pilot through cab signaling, if reliable communication is established. 3 seconds translates to mere 100m at a speed of 130kmph. Thus, there is a potential of developing a low cost signaling system, which would be supplementary and can provide far reaching improvements in punctuality. A large set of data and driving pattern is getting generated and recorded. An application of neural network (AI) to detect the various patterns will further automate the system and raise an alert if there is any unsafe practice. Mapping of tracks including cross overs and turnouts and its mathematical modelling is planned in future. Coupled with the characteristics of rolling stock, it can work as real-time assistant to section controller by deciding precedence at crossings etc. to optimize path and reduce detentions which account for 30% LOP cases

CONCLUSION

A totally in-house developed low cost system which originally was meant to reduce LOR cases and detect long stoppages in suburban system has come a long way to enhance passenger comfort by implementing automated Passenger Information Board and announcement system and an altogether different experience by providing live view to its users and generate NFR. Since the launch of android app, IT Cell of sealdah division keeps a close watch to ensure timely updating and error free working of system. The recurring cost of system is merely ₹10k for maintenance (data) of 120 \$100 mark with a significant jump to \$85.8 in Dec 2020 itself.

REFERENCES AND RELEVANT LINKS:

SSTS server: <http://164.52.197.129> 2. Sealdah suburban tracking system <https://play.google.com/store/apps/details?id=com.SSTS.hms> 3. RTIS webinar dated- 28th July 2020. <https://www.youtube.com/watch?v=W6Q6HDFvT5M> 4. SSTS tutorial: https://www.youtube.com/playlist?list=PLqW_3yvJ3OtICJhV_TZ8rmSWmBn3ulhxm 5. SSTS intro : https://er.indianrailways.gov.in/view_section.jsp?Lang=0&id=0,6,442,462,1711,2026

GR ADDENDUM & CORRIGENDUM

Sub: delete the existing GR 4.10(1) and substitute by the following -

Ref: 1. PCOM's letter no. TG.202/CS/G&SR/Pt. XV Kolkata. Dated 18-03-20

2. L/N-SWR/RIVN/CS-GR&SR 20

Sealdah, dated 29-06-20

GR 4.10(1): the speed of the trains over non-inter lock facing points shall not exceed 30 kmph in any circumstances and the speed over turn out and cross overs shall not exceed its permissible speed or 30 kilometers an hour whichever is less, unless otherwise prescribed by approved special instructions, which may permit a higher speed.

SAFETY CIRCULARS

No. EL OP /6/11

Sealdah, dt.17.06.20

Sub: Measures to Prevent Bumping of Locomotives during Shunting operations in trip shed and Loco shed.

Recently there have been incidences of bumping of locomotives in Trip Shed of Bamangachi causing damages to large number of locomotives. Incidences of bumping are more frequent in Loco Sheds and Trip Sheds primarily on account of human errors, such as wrong cab driving, over speeding, not applying brakes in time, etc.

In order to prevent re occurrence of bumping of Locomotives following instructions are issued:

1. Wrong cab working must be prevented i.e. LPS will always occupy the front/leading cab.
2. Maximum speed of shunting shall be 10 kmph.
- 3 While caring out shunting operation with three phase Locomotive (WAP5,WAP7,WAG9), Configuration Mode switch no-160 in SB-1 panel must be kept in "0" position before commencement of shunting. This will clamp the maximum speed to 15 kmph.
4. Brake shall always be done by SA9 only, not by Regenerative/Rheostat braking.
5. Sheds must provide retro-reflective stop/Start boards with Max Speed painted at following locations:-
 - a) Fixed in nature mounted on OHE masts at the entrance of Trip sheds/Loco Sheds
 - b) Mounted on pedestals at 20 m away from the Locomotives which is to be shunted.
6. Not more than two locomotives (one working loco + two dead locos) shall be hauled during shunting for better visibility.

7. Before ordering for shunting on duty supervisor of Trip Shed/PPO/PPIO must ensure that no one is working on Locos to be shunted.

No. EL OP /6/11

Sealdah, dt.17.06.2020

Sub: Functioning of Locomotives with Defective Vigilance Control Device (VCD)

Recently in MLDT Division, a WAG5 MU was failed on account of defect in VCD. Root cause analysis of the case revealed lack of clear awareness among running staffs on the issue of working of Locomotives with defects in VCDs. Vide letter under reference (iii) a clear instruction was already been issued earlier. Now it is once again reminded for immediate implementation with the following instructions:-

1. No Locomotive should be turned out from the shed with VCD in defective/Isolated condition.
2. On run, if VCD becomes defective, Loco Pilot should isolate the VCD only after getting an authorization to do so from the Power Control/TLC.
3. If VCD gets defective/isolated on run, the Locomotive should be declared as failed at Loco changing points or destination.

All Locos are provided VCD counters, either on the device itself or in in Diagnostic Display unit of Locomotives. Activation of VCD on run shall be monitored to check the alertness of LP/ALPs and for this; the following procedure should be followed:

1. At the time of taking over charge and handling over charge of the Locomotive, the crew should record the VCD counter number in the Loco Log book.
2. On arrival to the Shed, the shed shall identify the Crew involved in the VCD actuation on run and advise the concerned controlling officer for counseling of crews.

No. EL OP /6/11

Sealdah, dt.17.06.2020

Sub: Running of Multiple Unit (MU) of Tap-changer Locomotives from Leading Loco when Leading Loco fails.

When Leading Loco of MU of tap changer Locomotives/(WAG5 and WAG7) fails(power circuit is disabled), the section can be cleared using control circuit of leading Loco and traction power of trailing Loco. This enables running at normal speed and so factor clearing of section. Existing practice is to clear the section with trailing loco as per G&SR-4.21

Detailed procedure is given below

1. Trip DJ and isolate cock of VCB of leading Loco for any leakage in VCB.
2. Close both Pantograph isolating cocks of Leading Loco.
3. Check for BA voltage, it should be above 90V.

4. Operate ZPT to raise pantograph, check if pantograph of only trailing loco is raised.
5. Operate BLDJ & BLRDJ to closed VCD of trailing Loco.
6. Ensure MR pressure is above 8 kg/cm², if necessary, number of working CPs may be increased in trailing Loco.
7. Following normal procedure of MU operation, resume traction from leading Loco and clear the block section and inform TLC.
8. As notch repeater of leading loco will not show notch counting of GR, so notch counting has to be done by the Loco Pilot.
9. With DJ of leading Loco remains in open condition, CHBA will not be in service, hence keep a watch on BA voltage, it should be above 90V.
10. Switch off cab lights (if not required), Cab fans and corridor lights to prevent, discharging of battery.
11. Before stopping the train and application of brakes, MP must be brought down to "0". MP must not be kept on "N".

Note:-

- a) If leading Loco is SIV fitted, its QCON relay shall be wedged manually in energized condition to ensure working of compressors in trailing Loco.
- b) If the leading Loco is ARNO fitted, normal operation of multi operation can be done.

If it is not possible to work from leading Loco

1. Do not change the position of Pneumatic cocks of the leading loco, get into the trailing loco and switch "ON" BLSN switch—close DJ. Also inform TLC.
2. ALP will take notches from trailing Loco. LP will control the train with A9 of the leading Loco and clear the block section as per GR&SR 4.21.
3. On application of Emergency brake with A9 in leading Loco, GR of trailing Loco automatically come to "0".

No. EL OP /6/11

Sealdah, dt.18.06.2020

Sub: Making Leading Cab of Electric Locomotives Operative after attaching a Loco on the load and Cab Changing Procedure in WAP5/WAP7/WAG9 Locomotives.

Punctuality loss of trains have been reported due to Shunter(LPS) leaving the leading cab of Locomotives Inactive/in-operative after attaching the locomotive on the load at the train originating/engine changing points.

It is required that after attaching the Loco on the load /train , LPS will make the trailing cab(near the train) "In-operative" and make the leading cab "operative" before handing over the Loco to the LPG/LPP.

Cab Changing Procedure

Running staffs are familiar with cab changing procedures in tap-changer Locomotives whereas lack of awareness of cab changing procedures in WAP5/WAP7/WAG9 Locomotives leads detention of trains. There are two types of brake systems used in WAP5, WAP7, WAG9 locomotives, which requires different actions while cab changing

1. E-70 Type Brake System of Naively (D&DM)
2. CCB-2 Type Brake System of KNORR Brake.

In this technical circular, Procedure of cab changing of both types of brake systems are reiterated as under:

A. Loco fitted with E-70 Type Brake system

- 1.1 Apply loco brake SA-9.
- 1.2 Open "VCB" with "**BLDJ**" and lower the Panto with ZPT.
- 1.3 Operate BL key form "**D**" to "**OFF**" and remove it. Control Electronics (CE) remains ON for 10 minutes in Self hold mode.
- 1.4 Set A - 9 to "Neutral" position and remove the handle, by pulling the locking lever.
- 1.5 Put SA-9 handle in "**Release**" position.
- 1.6 Go to the other cab and UT SA-9 in "**Apply**" position.
- 1.7 Insert BL key in OFF position and move to "**D**" position to switch "**ON**" Control Electronics.
- 1.8 Insert A-9 handle at "**Neutral**" position and set to "**Run**" position.
- 1.9 Raise Panto, close VCB and energize the Loco. Press BLCP "**ON**" and ensure all pressures are ready.
- 1.10 Now the loco is ready to be handed over the LPG/LPP.

B. Locos fitted with CCB-2 Type Brake system of KNORR Biremes

- 2.1 Put A-9 handle in "**FULL SERVICE**" position.
- 2.2 Lock the A9 handle by inserting the pin, if available.
- 2.3 Change the position of **EVB Mode** selection switch from **Lead to Trail**.
- 2.4 Open "VCB" with BLDJ and lower the Panto with ZPT.
- 2.5 Operate BL key from "D" to "OFF" and remove it. Control Electronics (CE) remains ON for 10 minutes in self hold mode.
- 2.6 Put SA-9 handle in "**Release**" position.
- 2.7 Go to the other cab and put SA-9 in "**Apply**" position.
- 2.8 Change the position of **EVB Mode** selection switch from **Trail to Lead**.

- 2.9 Insert BL key in “**OFF**” position and move to “D” position to switch ON control Electronics.
- 2.10 Raise Panto, close VCB and energize the Loco. Press BLCP “**ON**” and ensure MR pressure is ready.
- 2.11 Wait to see the message on LCD display of controller as “**Okay to Run**”
- 2.12 Un-lock the A-9 handle and bring A-9 Handle from **FULL SERVICE** to position to **RUN** position to charge the BP at 5Kg/cm² and BC will reduce to zero.
- 2.13 Now the Loco is ready to be handed over to LPG/LPP.

No. EL OP/6/11

SDAH, Dt. 02.07.2020

SUB: - Measures to Avoid Detention in the event of Pantograph Lowering In WAP5/ WAP7/ WAG9 locos while in Motion

Three trams hauled by WAP7 locomotives got detained as pantographs lowered suddenly while in motion in last week. Crews tried to troubleshoot and finally after isolating the defective pantographs. Worked with front pantographs. During troubleshooting, trains got delayed. Sudden lowering of pantographs is because of reasons like leakage from pneumatic pipelines from roof to servomotors, bad contacts due to vibration in blocking diodes across pantograph raising coils, operation of Emergency Push Button Switch or Tripping of MCB 127.12.etc. Crews are often confused and not able to differentiate problem with Potential Transformer and Pantograph pneumatic/electric circuits They waste lime in replacing PT Fuse In SB1 Cubicle which is for Potential Transformer not *for* Pantographs, unlike in tap-changer locomotives. CCPT fuse is for Pantograph control circuit. In order to avoid detention, followings instructions are issued-

PT Fuse of 2A in SB 1 Cubicle Is for Potential Transformer mounted on loco roof not for Pantographs. If PT Fuse blows, all-Meter will not show any OHE Voltage If there Is OHE Voltage in U-Meter, please do not check PT fuse.

1. Check the condition of pantograph visually, if it is not damaged.
2. Check position of Emergency Push Button Switches in both Cabs. It should be in “Release “condition.
3. Change Pantograph by operating Panto Selector Switch to Position I or II at Pneumatic Panel, depending upon which pantograph you want to select.
Position - i. Panto of Cab - 1 will raise and Panto-2 will be isolated electrically.
Position - ii. Panto of Cab - 2 will raise and Panto-1 will be isolated electrically.
4. Isolate defective Pantograph pneumatically by dosing PAN - 1 or PAN - 2 Cocks on Pneumatic Panel (Vertical position is Closed)
5. Try to raise pantograph with ZPT and work the train.
6. If Pantograph is not raised, check MCB 127.12 (Circuit breaker for pantograph, VCB control circuit) provided in SB - 1 cubicle, it should be in ON position). If found tripped please reset MCB to ON. Try to raise pantograph.
7. In case of no success, change the cab and try to raise pantograph.

Sub:-30 day Zonal Railway safety drive on strict observation of Shunting practices.

Vide letter under reference, a thirty (30) days Zonal Railway safety drive is to be launched with immediate effect on the following GR&SR

GR.5.13. Control of shunting

[1] Shunting operations shall be controlled by fixed signals or hand signals or by verbal directions.

[2] The Loco Pilot shall not, however depend entirely on signals and shall always be vigilant and cautious.

[3] The speed during shunting operations shall not exceed 15 kilometers an hour unless otherwise authorized by special instructions.

SR. 5.13 - [a] where shunting is necessary, following further precautions will apply

[i] Maximum impact speed when shunting a single Box wagon must not exceed 5 Kmph.

[ii] Maximum impact speed when shunting a group of five Box wagons coupled together with transition couplers at either end should not exceed 2.5 Kmph.

[iii] The maximum impact speed during shunting of coaching vehicle with occupants shall be limited between 5 to 8 KMPH.

[b][i] No engine should be allowed on any running line at a station occupied by a train carrying passengers, except the train engine or banking engine or shunting engine required to perform shunting on that particular train. The movement of such an engine should be permitted only under the control of the person in charge of shunting.

[ii] When the train or the banking engine is to be attached or any shunting is to be done for attaching or detaching coaches of any Passenger carrying train, the train engine or the banking engine or the shunting engine must first come to a halt 20 meters away from the train and move thereafter cautiously towards the train for being attached to the train or otherwise as necessary.

[iii] At originating / loco changing station where the movement of loco is controlled by fixed signals, attaching / detaching on train shall be under personal supervision of Loco Pilot / Asstt. Loco Pilot. At roadside station, such attaching / detaching shall be done by station staff.

[IV) the following categories of staff shall be deemed to be authorized to supervise shunting of a train not carrying passengers: Station Master / Guard /

Yard Master / Asstt. Yard Master / Asstt. Yard Foreman / Shunting Master / Shunting Jamadar / Shunt man / Points man or such other categories as may be prescribed in the Station Working Rules; but in the case of any passenger carrying train, the responsibilities for the supervision of shunting should not vest with an official below the rank of a Shunting Jamadar.

GR.5.14. Responsibility for shunting

The Station Master shall see that the shunting of trains or vehicles is carried on only at such times and in such manner as will not involve danger.

SR 5.14

[a] Subject to the provisions of Rule 5.19 (1), the shunting of a train from one line to another and to give precedence to another train or for any other purpose, shall be conducted by the Guard under the order of the Station Master with the assistance of Yard Foreman / Shunting Master / Shunting Jamadar / Shunt man / Points man / Station Porter where there is one. The Guard / Yard Foreman / Shunting Master / Shunting Jamadar shall be responsible for seeing that the points over which train has to move are properly set and secured for giving the proper signal. The responsibilities for the supervision of shunting of any passenger carrying train and mixed trains should not vest with an official below the rank of a Shunting Jamadar.

[b] No person other than the Guard [or Shunting Jamadar where available] shall give a signal to Loco Pilot to shunt. Guard shall assist the Loco Pilot by applying his brake, if necessary, and the Loco Pilot shall signal with his engine whistle as soon as the engine is clear of the Main Line.

[c] [i] The Station Master shall issue Form T/806 which shall be signed by the Guard/Shunting Jamadar and the Loco Pilot for shunting of all trains from a running line to a siding, from one running line to another or on the same line if such shunting fouls the facing and trailing points at either ends, unless such movements can be governed by the fixed signals. When, however, one fixed signal governs, movements from more than one line or siding, Form T/806 must be issued. If the Loco Pilot is 'illiterate' the Guard shall personally hand over and explain Form T/806 to him.

[ii] The Station Master shall also issue T/806 wherever – [a] signal governing such shunting is defective and [b] there is no advanced Starter and the Starter is the last Stop signal.

[d] [i] In case, however, of a train shunted engine foremost into a dead-end siding, and order on Form T/806 written and signed by Station Master and counter signed by the Guard/Shunting Jamadar shall be sent to the Loco Pilot to back his train out Of the siding. The Loco Pilot on receiving the written orders will comply with it when the proper signal has been exhibited by the Guard/Shunting Jamadar.

[ii] Lights on buffer stops of dead ends. – No red lights on buffer stops shall be used in places where such lights can be seen by Loco Pilots of running trains, either on entering or leaving station. Only “White” lights shall be placed on such buffer stops and a list of stations where white buffer lights are provided is embodied in the Working Time Table for the guidance of Loco Pilots. At terminal and other stations not included in the list where buffer lights are provided, they shall show red.

[e] Whenever an engine has to be attached on to vehicles, at night, the Guard/Shunting Jamadar conducting the shunting shall show a white light on to the stationary vehicle from the Loco Pilot’s side, when the engine is near the vehicle.

[f] [i] when carriages or wagons have to be attached or detached at stations where there is no Shunting Jamadar, the Guard shall proceed with that portion of his train which has to pick up or detach the wagons or carriages, and show the proper signal to the Loco Pilot. During the hours of darkness and before commencing to detach or attach vehicles the Guard shall proceed to the engine and notify the Loco Pilot that he is present. At stations where there are Shunting Jamadar the work of attaching or detaching vehicles shall be performed by the Shunting Jamadar on duty who shall give necessary signal to the Loco Pilots after taking orders from the Station Masters.

[ii] At originating / intermediate depot stations such attaching / detaching of vehicles shall be conducted by the Operating Staff as detailed vide SR 5.13(b) (iv). However, at intermediate depot stations, attaching / detaching of carriages with occupants shall invariably be carried out as per provision detailed vide SR 5.14 (f) (i).

[iii] At Roadside station such shunting of vehicles, inspection carriages, slip coaches, VP etc. shall be conducted as per provision detailed vide SR 5.14(f)(i).

[g] At any station where AYMs/Shunting Jamadar are provided, if shunting on through train is to be performed by Guard of the train, this may be permitted and suitable provision incorporated in the Station Working Rule.

[h] When shunting operations are not governed by fixed signals, the correct setting and locking of points and the permission to commence a shunting movement shall be indicated by the Cabin/the ground-frame goomty by displaying a green signal to the Guard/Shunting Jamadar supervising the shunting movement. On completion of the shunting movement and after clearance of all fouling marks the person in charge of shunting operation shall show a ‘red’ signal to the cabin/ground-frame goomty which shall be acknowledged by showing a ‘red’ signal. Before signalling completion of a shunting movement, the person in charge of shunting operations shall be responsible to ensure that all fouling marks with adjacent lines are kept clear for Movement, unless specifically authorized in writing to the contrary by the Station Master on duty. During day time, in absence of flags, the ‘red’ signal shall be given by the person in charge of

shunting operation by raising both arms with hands. During night, hand signal lamps must be used to exhibit the signals.

[i] Shunting /Movement on emergency cross over points involving both up and down lines should not be permitted without padlocking the point wherever facing point locks are not provided. The Station Master on duty of the concerned station shall exchange a Private number with the Section Controller as an assurance that the relevant facing points have been set and locked.

GR.5.16. Shunting during reception of trains

When signals have been taken 'off' for an incoming train on to a line which is not isolated, no shunting movement shall be carried out towards points over which the incoming train is to pass.

GR.5.17. Shunting near level crossing

The railway servant in charge of shunting near or across a level crossing, before giving permission to the Loco Pilot to move his train across it, shall ensure that the level crossing gates have been closed and locked against road traffic.

GR.5.20. Shunting on gradients

When shunting is being performed on a gradient, the railway servant in charge of the shunting shall ensure that – [a] sufficient number of brakes are put on, sprigs are used, where necessary, slip siding point or traps, where provided, are set to ensure safety and that all precautions are taken to prevent vehicles getting out of control, and [b] in case of shunting over a portion of line on steep gradients, neither isolated nor protected by slip sidings, an engine is also attached towards the falling side of the gradient. Note. – For purpose of this rule a steep gradient shall be 1 in 260 or steeper except in case of vehicles fitted with roller bearings, when it shall be in 1 in 400 or steeper.

No-EL/OP-6/7

Sealdah, Date:-01.08.2020

Sub:-30 day Zonal Railway safety drive on Prevention of hot Axle

Vide letter under reference, a thirty (30) days Zonal Railway safety Drive is to be launched with immediate effect on "Prevention of Hot axle" with the following points
The signs of an axle running hot/seizure of roller bearing are given in stages as follows.

SR.4.29: Hot Axle.

[i] The box commences to warm up and can only be detected in this stage by feeling with the hand, which should be placed on the side of the box facing the rear.

[ii] There is a strong smell of heated oil and waste, which can be detected at some distance from the vehicle.

[iii] A whistling noise may commence at any time during the process of heating. A box which is whistling must be examined.

[iv] The box becomes sufficiently hot to ignite the waste and oil. Flames and

Smoke can be seen issuing from the box and the metal of the box becomes red hot. In this condition the axle will break within a few kilometers.

Symptoms of Hot Axle:

- 1) Feeling by hand (not to touch)
- 2) Whistling sound.
- 3) Smell of burning oil and jute.
- 4) Black smoke comes out from axle box.
- 5) Red flame coming out of Axle.

Seizure of roller bearing.

- [i] Skidding of wheels.
- [ii] Metallic noise.
- [iii] Smell of burning oil/grease.
- [iv] Red glow during night time only
- [v] Smoke from grease.

Prevention of Hot Axle:

Before starting and every opportunity of a stopping station the LP/ALP should examine the Locomotives and examine the axle box by feeling by hand (not to touch). LP and ALP should frequently look back (GR4.41) during run. Driver and Guard/Station staff should exchange All Right Signal (ARS) during passing the station.

Duties on Hot Axle/Seizure bearing

Any employee who notices a hot axle/seizure of roller bearing must immediately report it to a responsible person such as the Station Master, Guard or Loco Pilot, who must take steps to have it examined. If necessary, the vehicle must be cut off.

At Road-side Stations where there are no Train examining staff, before a wagon is dispatched, the axle boxes must be examined by Station/Train staff. If the covers are deficient it is simple matter to see if the box contains waste or not. If any box is empty the wagon must be detained and message sent to the nearest Train Examiner who will arrange to pack it. Station Master must see that these orders are made known to all the Class IV staff at their stations. Water must not be thrown.

On an axle box or axle when hot.

In case of failure of an engine from any cause at a station, the Loco Pilot shall, if the station is connected with Control Phone, report the fact to the Power Controller Personally, and inform him about the nature and cause of the failure. The Power Controller will then take necessary action in the matter. In case the station is not connected with Control Phone the Loco Pilot shall hand over the necessary message to the Station Master for dispatch to the nearest Running Shed Foreman and Power Controller

RAILWAY BOARD CIRCULAR

No.2005/Elect (TRS)/440/23 New Delhi,

Dated: 22/08/2020

Sub: Winter preparedness drive.

Ref: ministry of railways

Instructions exist for undertaking essential precautions and special drive to check all electric locos prior to the commencement of winter season, so that typical failures attributed to low temperature and fog do not occur and the desired level of reliability is maintained.

The important pre-winter precautions mentioned in ACTM para 30514 and related instructions issued by RDSO are reiterated as follows:

1. During all trip inspections or roof inspections whenever carried out, proper cleaning of roof-line & pantograph insulators with a wet & dry cloth for maintaining shining surface finish may be ensured. Instructions laid down in RDSO SMI No. RDSO/ 2012/ EI/SMI/0274, Rev. O, dated 29.03.2012 may be ensured by homing shed before onset of winter drive.
 2. Ensure joint checking of loco roof equipment's (including pantographs, cleaning of roof insulators and roof bar etc.) with TRD staff at sheds & trip shed as a preventive measure.
 3. Modification in mounting bracket of fixed contact and movable contact arm of HOM switch to increase the electrical clearance issued by RDSO vide RDSO/2012/EL/MS/0405 (Rev. O), dated 03.01.2012.
 4. Re-greasing of pantograph servomotor to avoid jamming.
 5. Working of heaters/blowers in both cabs.
 6. Air tightness of cab main doors, window shutters and sealing of ventilator covers.
 7. Proper level of oil to be maintained in TFP, GR and Traction Converter.
 8. Silica gel for Transformer, Tap changer and Traction Converter must be in Good condition.
 9. SMGR servomotor cylinders to be cleaned and re-greased.
 10. Air dryer must be in working order and isolation should not be permitted.
 11. Draining of moisture from all MR and free movement of drain cocks.
 12. Proper level of oil to be maintained in compressors and ensure that un-loaders are in working order.
 13. Availability of dry sand in all sand boxes and all covers must be air tight.
 14. TM inspection covers to be provided with gasket and ensure no air gap & locked properly.
 15. Cleaning of battery terminals and application of petroleum jelly.
 16. Free movement of brake cylinders. If found sluggish, overhauling should be done.
- Besides the maintenance of electric locos, it is advised that a drive to counsel running staff regarding working of trains during poor visibility condition like foggy weather etc. should also be undertaken. Fog Pass devices to be given to crew to alert crew in poor visibility condition while approaching signals.

CELE CIRCULAR

No. EL/3.6.1

Dated: 13.10.2020

Sub: Railway Board letter no. 92/Elect. (TRS)/138/5 Pt.

Dated 06.10.2020. Railway Board

Vide their letter under reference above have informed that the report on review of periodicity of maintenance schedule of electric locos along with analysis recommendation of the Committee, views of COMs of Zonal Railways and RDSO, submitted by GM/SCR to Planning Directorate of Railway Board have been deliberated in a Board Meeting and accepted the recommendations.

The recommendations approved by the Board are as under:

Loco.	Type of Maintenance Schedule		Existing Periodicity	Revised Periodicity
WAP7	Trip Inspection		4500 km or one trip, whichever is later	4500 km or one trip, whichever is later.
	Minor Schedule	IA	90 days	90 days
		IB	180 days	180 days
		IC	270 days	270 days
		TOH	24 months, 72 months	27 months (2¼ years), 81 months (6¾ years)
		IOH	48 months (4 years) ± 6 months or 12 lakh km whichever is earlier	54 months (4½ years) or 12 lakh km, whichever is earlier. 4 months (4½ years)
		POH	108 months (9 years) ± 6 months or 24 lakh km whichever is earlier	108 months (9 years) or 24 lakh km, whichever is earlier
WAG9	Trip Inspection		45 days	45 days
	Minor Schedule	IA	90 days	90 days
		IB	180 days	180 days
		IC	270 days	270 days
	Major Schedule	TOH	24 months, 48 months, 96 months, 120 months	36 months (3 years), 108 months (9 years), 180 months (15 years)
		IOH	72 months (6 years) ± 6 months or 12 lakh km whichever is earlier	72 months (6 years) or 8 lakh km, whichever is earlier 144 months (12 years) or 16 lakh km, whichever is earlier
		POH	144 months (12 years) ± 6 months or 24 lakh km whichever is earlier	216 months (18 years) or 24 lakh km, whichever is earlier

WAP4	Trip Inspection		4500 km or one trip, whichever is later	4500 km or one trip, whichever is later.
	Minor Schedule	IA	60 days	60 days
		IB	X	X
		IC	120 days	120 days
	Major Schedule	TOH	18 months±15 days	18 months (1½ years)
		IOH	36 months± 1 month or 6 lakh km whichever is earlier	54 months(4 ½ years) or 9 lakh km, whichever is earlier
		POH	72 months(6 years) ±3 months or 15 lakh km whichever is earlier	108 months (9 years) or 18 lakh km, whichever is earlier
WAG7	Trip Inspection		20 days	20 days
	Minor Schedule	IA	60 days	60 days
		IB	120 days	120 days
		IC	180 days	180 days
	Major Schedule	TOH	24 months±15 days	24 months (2 years)
		IOH	72 months(6 years)± 1 month or 6 lakh km whichever is earlier	72 months(6 years) or 6 lakh km, whichever is earlier
		POH	120 months(10 years) ±3 months or 12 lakh km whichever is earlier	120 months (10years) or 12 lakh km, whichever is earlier

Note:

The grace period (+/-) will remain the same as existing at present for different schedules till final decision on same, based on feedback from Zonal Railway on item (viii) below is taken.

1. Zonal Railways are advised to implement the aforesaid revised periodicity of maintenance schedules for the four types of electric locomotives mentioned above with immediate effect.
2. Apart from above, Railway Board has also identified following additional issues on which feedback of Zonal Railways is requested:
 - i. Must change items of TOH/IOH/POH to be reviewed in line with the aforesaid revised schedules.
 - ii. Conventional coaching locomotives may not be sent for the last POH if residual life is less than 6 years.
 - iii. WAG-7, WAG-5H and WAG-5 TAOCHI locomotives may not be sent for last POH if residual life is less than 9 years.
 - iv. Scheme, modalities and development of condition monitoring based assessment system for bogie, wheel and Traction motor in trip sheds for remote monitoring of electric locomotives.
 - v. Guidelines for periodicity of UST may be reviewed as per EKM.
 - vi. Periodicity of replacement of items should be in line of Major schedules and uniformity of replacement should also be maintained over codal life.

- vii. All scheduled activities of must change of equipment/assembly which require lifting of locomotives should be aligned with IOH schedule of locomotive so that TOH schedule of locomotive should be made non lifting maintenance schedule.
- viii. Suitable $\pm$ grace period may be included in each Major/Minor Schedule.

TECHNICAL DISCUSSION

CONV. LOCO. & 3-PH LOCO.

ITEMS TO BE CHECKED WHILE TAKING OVER CHARGES AT WAY SIDE STN

CONVENTIONAL & 3-PH
(TIME 5-MIN FOR PASSENGER TRAIN & 10 MINUTES FOR FREIGHT TRAIN)

1. Check booking in the loco log book
2. Scrutiny of BPC
3. Caution order T-409 for you own section
4. Working of the head light, flasher light, marker light & sander(availability of sand in sand-box)
5. Raising & lowering of both PT taking time
6. Rail guard, CBC coupling & locking pin, axle box temperature, and other safety guards
7. Gauges for adequacy of pressure
8. SA-9, A-9 emergency knob & other switches positions
9. VCD working or not (VCU provided or not)
10. HT compartment / machine rooms for bad smell, oil spread and leakage, oil level of TFP and GR(SR-1 & SR-2 for 3PH)
11. All MCBs are normal
12. Temperature of machine rooms equipment
13. Availability of MC handle and GR on '0' (for conventional loco)
14. Draining of reservoirs (for conventional loco)

CONV. LOCO. & 3-PH LOCO.

PREVENTION OF LOCO WHEEL SKIDDING & PART OF THE DUTY OF LP WHEEL SKIDDING

During run, a defective wheel having flats or skidding marks will produce hammering blow sounds Greater the flat portion on the wheel, louder will the hammering sound. The permissible limit for the skidding on the wheels of the locomotive is 2 inches or 50 millimeters in length. Power controller should keep it in mind that this permissible limit of 2 inches is only for the locomotive working in through running train. No locomotives should be made on load event through slightest of the wheel skidding and the skidding portion should be removed before this locomotive is made on load.

The loco pilot should be vigilant in detection of Hammering blow sound while on run. On detection of the same they should check the locomotive wheels for skating. In case the length of skidding portion is more than 2 inches, they should clear the section with a speed of 20 kmph and should talk to TLC at the first available opportunity for further advice.

ACTION REQUIRED TO BE TAKEN TO PREVENT WHEEL SKIDDING

1. The loco pilot should use PVEF judiciously. If they find that the brake power of the train is weak, then they should use PV EF without fail
2. They should not try to stop the train, using the local break only even at a speed of 10 kmph. This may result in wheel skidding
3. In case of poor brake / track condition, reducing adhesion coefficient due to Drizzling rain, dry leaf, oil, salt etc. Brake should be applied judiciously.
4. In case of detection of wheel skidding, load should also be checked for jamming

WAG-9 & WAP-7 MU OPERATION



MULTIPLE UNIT OPERATION WITH TWO LOCOMOTIVES

In multiple operations a maximum of two locomotives can be operated. Both must be directly coupled to one another. They must not be separated by a carriage. While in motion, the front Loco Pilot's cab is usually activated. When linking up or in unusual situations, it is also possible to control the locomotives from another Loco Pilot's cab.

The train bus configuration for multiple operation is only possible from the Loco Pilot's cab at the uncoupled end. A configuration from a rear Loco Pilot's cab is referred to as single-unit traction. The train bus automatically checks the configuration. The leading manned locomotive is called the master locomotive and the other one is called the slave locomotive. The two locomotives are correctly linked together once the mechanical and pneumatic systems and the UIC cable have been connected. Commands are transmitted down the UIC cable.

Pantograph

In multiple operation, both the most distant pantographs are raised if “pantograph selection switches” in both the locomotives are in position “AUTO”. The train bus connections define the free end of each locomotive. The command from the master locomotive to raise/lower the pantographs also controls the pantographs on the slave locomotive.

Note: Whenever the simulation key switches on the master and slave locomotives are not in the same position, the pantograph are not active (fault message).

Main circuit breaker

The command from the master locomotive to switch the main circuit breaker “ON/OFF” also control the main circuit breaker on the slave locomotive. The VCB on the slave locomotives is switched on after a delay of 0.5 seconds following the switch on of the VCB on the master locomotive. When switching off, there is no delay. Note: If the VCB on the slave locomotive cannot be closed due to a fault, an appropriate fault message appears on the screen.

Regenerative brake

During multiple operation, there is a limitation on the regenerative brake on the slave locomotive. This limitation reduces forces on the loco buffers (prevention of derailing).

Constant Speed Control (CSC)

During multiple operation, the constant speed control of the slave locomotive is inactive. The train bus transmits the selected. Tractive / braking effort from the master locomotive to the slave locomotive. The master loco performs speed Controlling function, demanding TE/BE on master and slave loco.

Anti-spin protection

The anti-spin protection of the slave locomotive is independent of the master locomotive.

Compressor control

The compressors are able to operate in three different operating modes. These modes can be selected with the spring-loaded switch

“BLCP”, (Panel A)

Pos. “Off” Compressor switched off.

Pos. “Auto” Automatic pressure monitoring.

Pos. “Man” Compressor switched on (manual monitoring).

The selected position of the compressor switch is transmitted to the slave locomotive.

In the “Main” and “Off” positions, all main compressors in both locomotives are controlled directly.

In the position “Auto”, there are the following options:

1. If the main reservoir pressure below 8 kg/cm² on the master or slave locomotive activates all compressors on both locomotives at the same time.
2. If the main reservoir pressure below 5.6 kg/cm², each locomotive independently control its compressors.

Parking brake

The multiple units cannot drive if one of the parking brakes is applied. Note: An activated parking brake on the master or slave locomotive is indicated in the activated Loco Pilot's cab of the master locomotive by the red illuminated push button "BPPB".

Emergency Brake

An emergency brake on the slave locomotive can only be initiated in the following manner:

1. By actuating the brake handle of the automatic train brake to "Emergency" position.
2. By actuating the emergency brake cock on the assistant Loco Pilot's side. If the pressure switch 269.1 on the master or slave locomotive registers actuation of the emergency brake, the ensuing command for emergency braking applies to both locomotives.

The master for all other emergency braking commands is the master locomotive in the double (multiple) unit.

Other Brake functions

If the pressure switch (269.6) registers a pressure in the brake cylinder of any bogie, and if speed exceeds 10 km/h, tractive effort is set to 0.

Note: If the electrical brake on one of two locomotives fails, the electrical brake on the other locomotive remains functional.

Coupling

1. Both locomotives must be deactivated. The key switch must be in position "0"
2. Couple both locomotives mechanically, pneumatically and connect the UIC cable.
3. Close the isolating cock on the brake supply line of the slave locomotive.
4. Move the key switch on the slave locomotive into position "D" and, as soon as the light test starts, turn back to position "0". The MCE on the slave locomotive is now in self-hold mode.
5. During the self-hold mode of the slave locomotive, move key switch into Pos. "D" on the master locomotive. The control electronics starts to configure the train bus.
6. After the configuration procedure, screen on the display shows the serial numbers of the master and slave locomotives.

Example: Train configuration Loco 31001 Loco 31002

Note: If configuration proves impossible, (or if no locomotive is available) locomotive number 00000 appears. If more than one Loco Pilot's cab is activated in both

Locomotive, one is shut down and a corresponding message appears on the displays in both locomotives.

Uncoupling:

Starting position: Master and slave locomotives are available and both are ready.

1. Shut down both locomotives in accordance with regulations (VCB switched off, pantograph lowered).

2. Remove the UIC cable and disconnect the locomotives pneumatically and mechanically.

3. Both the locomotives are now ready for setting up as a single locomotive.

Note: If for any reason the train bus link is interrupted, or if both locomotives are set up or in motion, the system protection initiates a monitored shut down of the slave locomotive.

Reaction:

The pantograph of the slave locomotive is lowered and a corresponding fault message appears on the screen of the master locomotive.

Sanding:

Sanders working on both locos can be initiated by the Loco Pilot by pressing the sanding foot switch on the master loco.

Fire alarm:

Fire detection on the slave locomotive initiates an audio signal on the master locomotive. In addition, the VCB on the slave locomotive is switched off and a priority 1 fault message appears on the displays of both locomotives.

Trailing mode

Trailing mode means that on the master locomotive in a multiple unit no tractive effort is available, if both bogies are electrically isolated. The Loco Pilot's cab of the master locomotive still controls the slave locomotive.

The status of the master locomotive is as follows -

1. VCB switched off.
2. Pantograph is lowered.
3. Train bus is working correctly.
4. Pneumatic brake system is working correctly.
5. Brakes are controlled from the master locomotive.
6. The TE/BE meters show the values for the slave locomotive.

Note: All equipment's on the master locomotive are supplied by the battery and are functional for a maximum of 5 hours, if battery is fully charged.

DEAD LOCO MOVEMENT

Hauling dead WAP-5/WAG-9 electric locomotive (fitted with E-70 brake pipe control system) in a train or attached to next to Train engine.

1. Switch off BLDJ and lower the pantograph of the loco to be sent as dead. Isolate the pantograph through panel isolating Cock on pneumatic panel.
2. Switch off CEL as per procedure
3. Switch off the 'circuit breaker control circuit locomotive' (pv.1) in SB2 panel.
4. Couple the dead loco in the train.
5. Put auto brake controller (A9) in "Neutral" position in both cabs of dead loco.
6. Put the direct brake controller (SA9) in "Release" position in both cabs of dead locomotive.
7. Drain the Main reservoirs of dead locomotive completely. After draining out, close the drain Cock of main reservoirs.
8. In the dead locomotive, ensure isolating Cock position in the pneumatic Panel as follows

COCK	POSITION
47 (Dead Engine)	Open
74 (Emergency/ Vigilance)	Closed
136 (Brake Feed Pipe)	Closed
70 (E-70 brake pipe)	Closed
TPWS COC in Cabs if provided	Closed

9. Connect BP pipe of the dead loco to the BP pipes of load and open BP angle Cock of both of loco and load side. The aux. reservoir on dead locomotive will get charged from BP supply. Check the BP pressure gauge in the cab of dead loco. It should show the same pressure as that of the load in case of load (In case of locos are to be attached on a train having twin pipe i.e. both BP and FP then FP of dead locos should also connected and its angle Cock should be opened.)
10. If loco brake in the dead locomotive has not got released, which can be verified by observing the BC pressure gauge, then release the same in the following steps. a. Manual handle of distributor valve at pneumatic panel should be operated manually to release control pressure. BC pressure shall automatically vent through D2 relay valve to release Loco-brakes. b. In case residual BC pressure remains in brake cylinder line, the BC pressure should be released through bogie isolating Cock of both bogies. Make bogie-isolating Cocks in 'Normal' position after releasing the BC pressure
11. Release the parking brakes of dead loco by Operating 30 solenoid valve in release and lock condition and ensure parking brake are released and PB gauge will show 5 Kg/Cm².
12. Apply auto brakes (A9) in the working locomotive and check that LOCO brakes on both the locomotives are getting applied. Then release the auto brake in the working loco and check that LOCO brakes are getting released on both the locomotives. Rear locomotive (WAG-9 / WAP-5 dead) takes about 1 minute to release

13. As a final check, run the coupled loco for about 500 meters and feel for any abnormal rise in temperature of wheels of dead loco and also check if at subsequent stop during journey.

14. Remember that in the dead locomotive, the LOCO brakes takes about 1 minute to release after auto brake application from the live loco. Hence after every auto brake application and release wait for adequate time (minimum 1 minute) for release of Loco-brakes in dead locomotive before resuming traction

15. After reaching the destination, before detaching the working loco,

a) Unlock the Release plunger of parking brake solenoid valve no. 30.

b) Apply parking brakes on dead locomotive by application plunger of parking brake solenoid valve no. 30.

Note: If three phase Dead loco attached in rear of three phase working loco, MRE and DBE pipes also to be connected and respective COCs should be opened and 47 COC can be kept in closed condition.

LOCO TYPE & POSITION OF PARKING BRAKE

The parking brake units are fitted on the following wheels

LOCO TYPE	WHEEL POSITION OF PARKING BRAKE UNITS			
WAP5	1	4	5	8
WAG-9	2	6	7	11

PREPARATION OF WAG-12 LOCO



GENERAL PROCEDURES OF LOCO ENERGIZING

i. Operate Battery Isolation CB to normal position. ii. Check Battery Voltage on Voltmeter at LV Cubicle. iii. Move battery connect switch to Start-up position. iv. Turn, Key Switch (BL Key) to ON Position in Master Controller. v. Move Pantograph toggle switch to raise position. vi. Check the line voltage value is within range from Line Indicator located on Driver Desk. vii. Move the VCB open/close switch to close

Position-29 viii. Place the EBV handle in FS position for minimum 10 seconds then in RUN position to release penalty brake. ix. Select the direction from Reverser on Master Controller.

Procedure:

i. Place the EBV handle in FS position and lock with pin. ii. Move the VCB open/close switch to open position. iii. Move Pantograph toggle switch to lower position. iv. Ensure pantograph is lowered. v. Turn, Key Switch (BL Key) to OFF Position in Master Controller. vi. Move battery connect switch to "Stop" position. vii. Ensure all loads are shutdown. iv. Operate Battery Isolation CB to normal position

Cab Change

i. Place the EBV handle in FS position and lock with pin. ii. Move the VCB open/close switch to open position. iii. Move Pantograph toggle switch to lower position. iv. Ensure pantograph is lowered. v. Turn MASCON Key Switch (BL Key) to OFF Position in Master Controller. vi. Change the Cab within 10 Minutes vii. Turn, Key Switch (BL Key) to ON Position in Master Controller. viii. Move Pantograph toggle switch to raise position. ix. Check the line voltage value is within range from Line Indicator located on Driver Desk. x. Move the VCB open/close switch to close position. xi. Place the EBV handle in FS position for minimum 10 seconds then in RUN position to release penalty brake. xii. Select the direction from Reverser on Master Controller. 30

Dead Engine Brake Configuration

i. Locomotive is in Dead Mode (batteries isolated); ii. EBV mode switch in 'TRL' position in both sections; iii. Auto handle in both the section should be kept in FS position & secure using lock pin. iv. DER (Dead Engine Regulator) cock in Brake Panel shall be operated in 'IN' position (rotate anti-clockwise position) in both sections v. Close (horizontal handle position) SIFA cock (N55.05), on Auxiliary Panel of Brake System. vi. Close (vertical handle position) FP cock (B50.01), on Auxiliary Panel of Brake System. vii Brake Pipe are connected upstream and downstream; The Loco acts as a wagon for Service and Emergency Brake application. viii. If Parking brakes are applied release the same by pressing the plunger (red color on impulse minor valve)

EB RESET PROCEDURE

i. Move the auto handle to EMER position once intimation on EBV comes. ii. Clear the reason for EB application if any. For example: a) Normalize EB push button from the Active/non active section from where break was applied. b) Reset the assistant break handle from the active/non active section from where break was applied. c) Put the auto break handle on FS if EB applied from non-active cab auto break handle. iii. Give a VCB close triggered pulse. (No need the give trigger if EB applied by Auto brake handle) IV. Move the Auto Brake handle to FS position once intimation of "Safety Penalty Keep in FS" comes on EBV if this message not come on the display loco can run with backup brake. v. Wait for 10 seconds and move the Auto brake handle to RUN to charge BP once intimation of "Okay to run" comes on EBV 31

PENALTY BRAKE RESET PROCEDURE IN CASE OF EBV FAILURE

Note: - Loco cannot run from EBV failure section

i. Move auto brake handle in FS and lock of the failure EBV. ii. Put selector switch on LEAD of the healthy EBV. iii. Move the auto brake handle to EMER position once intimation on EBV comes. iv. Move the Auto Brake handle to FS position once intimation of "Safety Penalty Keep in FS" comes on EBV v. Wait for 10 seconds and move the Auto brake handle to RUN to charge BP once intimation of "Okay to run" comes on EBV

Vigilance Management

Vigilance control is operative in all driving modes except inching mode, it is also operative for locomotive speeds beyond 5 km/h. The logic of vigilance is different for driving modes and logic is explained below:

Loco pilot must perform any of the following actions every 60 seconds (acknowledgement)

i. Movement of master controller handle (displacement of more than 5 degree ii. Movement of auto brake handle iii. Tap vigilance pedal switch iv. Press the VCD Ack. /Reset push button Loco Pilot has to press vigilance pedal switch every 60 seconds (acknowledgment). If none of the above actions are performed for 60 seconds, an alarm is triggered and vigilance warning indication lamp is lit

On indication panel along with buzzer. To reset, Loco Pilot has to press and release the vigilance foot pedal. If alarm is not reset within 16 seconds, then penalty brake is initiated.

To reset vigilance function, Loco Pilot has to

i. Bring traction brake controller handle to "Neutral" and ii. Wait for 32 seconds iii. Press "VCD Ack. /Reset" push button on central panel. iv. Give VCB close command v. The reset is recorded in event recorder. To reset the penalty brake, move auto brake handle to Full Service (FS) position for 10 seconds and then to RUN position.

Indications: Indication is provided on Indication panel when vigilance alarm is active. i) on Indication Panel ii) Buzzer Alarm

Back-Up Brake

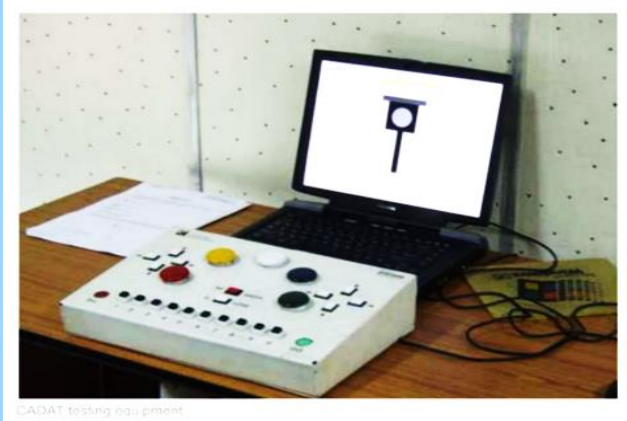
The following sequence will be applied to switch over from normal brake to backup brake -

i. Trip the Circuit breakers 62Q06 (present in LVC) of BCM in both the sections. ii. Operate the per-cos. cock present in BCM of active section to cut - in Position. iii. Ensure Back-Up Brake Valve handle in Position 'III' (lap position). iv. Ensure VCD bypass switch is in normal position. v. Charge Brake Pipe pressure by operating the Back-Up Brake Valve handle (position II) in active cab. vi. BC pressure will reduce to zero. If not, briefly pull the quick release lever vii. At the bottom of the 'KE' (Distributor) Valve present in BCM panel. Thereafter actor can operate with back-up brake. Viii.

Locomotive Speed is restricted. ix. The EBV handle can still be used for EMERGENCY brake application

GENERAL DISCUSSION

PSYCHOLOGY TEST WHY IT NEEDED FOR LPs



HOW CAN TESTS HELP YOU?

1. They will help you to show where your strengths lie.
2. They have been chosen because the skills they involve are used in the job.
3. The tests are carefully designed so that they are fair to all applicants.

Taking tests will help you in adjusting on the job.

How can tests help us?

1. We get the right sort of people to do the job.
2. Tests give us unbiased assessment of your strengths and limitations.
3. People who do well on the test usually do well in the job itself.

What sort of tests will you have to take?

The Psychological tests have been designed for various jobs in critical safety categories. You will be given the test battery, consisting of five-six tests, prescribed for the job you have applied for. Generally the tests are administered in groups of 35-150 candidates. They are required to answer the questions given in test booklets and mark the responses on OMR Answer Sheets.

HOW TO RECORD YOUR ANSWERS

Most paper-pencil tests require you to record your answers on a separate answer sheet so that they can be scored quickly. A sample of the answer sheet used by Indian Railways may be seen here. The answers are marked on the answer sheet by fully darkening the circles which go with your answers. Use a blue ball point pen. Remember you are not permitted to change your answer.

Please note

1. Your OMR Answer Sheet has spaces for writing your Roll Number, Answers to Practice Problems, Test ID and Test Code for each test and Answers to the main test.

2. There is separate space for answering each test of the test battery. Space for practice tests has also been given separately. Be careful in marking your answers at correct place only.
3. Remember only one circle is to be darkened for each answer.
4. Do not make any stray marks on your Answer Sheet or Test booklets.
5. Do not fold your Answer Sheet.

Composition of Motorman's Test Battery

- Intelligence Test
- Memory Test
- Number Operations Test
- Personality Test
- Field Independence Test
- Reaction Time Test

Each test has separate Time Limits, which will be advised to you during test sessions. You have to solve Note:

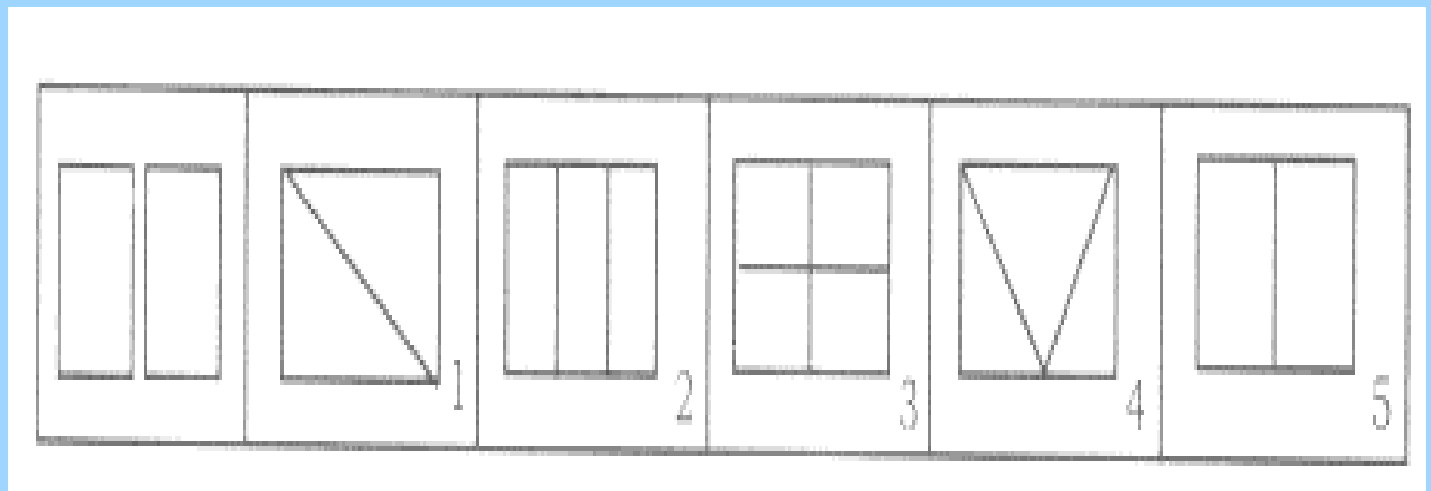
The details of the tests shown here are only indicative. These may change any time without any prior notice.

Sample Tests

1. Test for measuring your Intelligence

In this test you have to decide, which of the five figures given in the numbered boxes at right hand shows the parts given in left hand box fitted correctly.

EST items and mark your answers within the prescribed time.

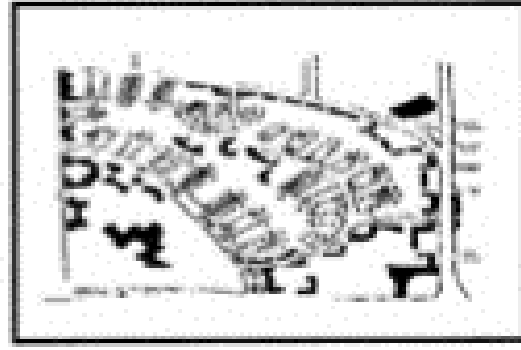
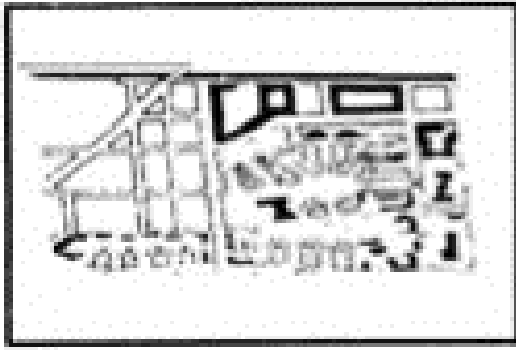


In the above example 5 is the correct answer.

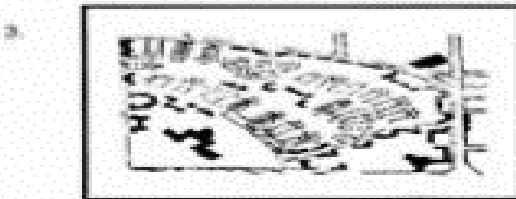
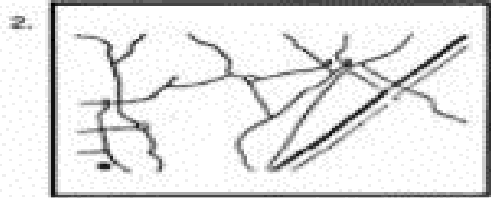
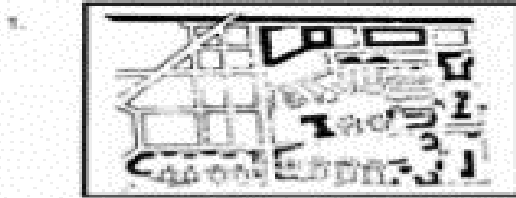
2. Test for measuring your Memory

In this test your task is to memorize the maps given on a Study page and then on Memory page recognize the ones you have seen on the Study page.

Study the sample items given below:



Which of the following maps you have seen above?



Mark 'Y' if you have seen the map and 'N' if you have not. Your answers should be, Y, N, Y & N

3. Test for measuring your ability for Number Operations

This is a test of how rapidly and accurately you can do number operations, addition, subtraction and multiplication. Try following examples:

Add		
(1)	(2)	A 145
42	77	B 154
65	83	C 155
<u>38</u>	<u>12</u>	D 172
		E 174

The correct answers for two examples should be A and D.

4. Test for measuring your Personality-

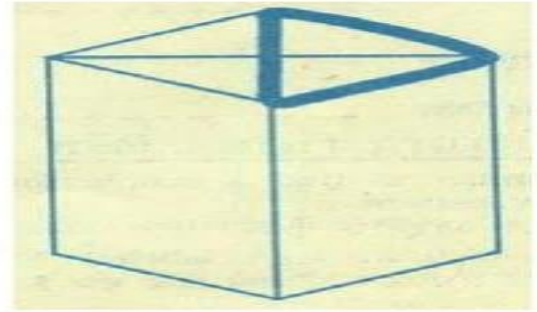
You will be given some statements. Read each statement carefully. If the statement seems to be true or if you agree with it, mark 'Y'. If you disagree with it mark 'N'. If you cannot decide between true or false, mark '?'. Be sure to answer every statement.

Test for measuring your Field Independence-

सरल आकार
Simple Figure



जटिल आकार
Complex Figure



5. Test for measuring your Reaction Time -

Your reaction time will be measured with the help of equipment. Your task will be to respond to some coloured lights, as quickly and accurately as you can, by pressing some buttons.

WHAT CAN YOU DO TO GET BETTER SCORES?

Before the Session

A. Don't stay up all night. Make sure you get a good night's sleep.

B. Give yourself plenty of time to reach the examination centre so that you don't have to rush. At the Session

1. Listen carefully to the instructions.
2. Do exactly as you are told.
3. Don't hesitate to ask questions.
4. Think about each question before answering.
5. Work quickly and accurately, as most tests have short time limits.
6. Don't waste time on difficult questions.
7. Do not try to copy the answers of your neighbours as his question booklet is likely to be different from you

NEW SIGNAL LOCATION BETWEEN DKAE- JOX

SL NO.	SIGNAL NAME & NUMBER	LOCATION	KM NO.
1.	S-27 DKAE UP HBC-1 STR	LHS	15/3-5
2.	S-35 DKAE UP HBC-1 ADV/STR	LHS	15/23-25
3.	S-33 DKAE UP HBC-2 ADV/ STR	LHS	15/23A-25A
4.	S-1 JOX UP HBC-1 H/S	LHS	18/23-25
5.	S-3 JOX UP HBC-2 H/S	LHS	18/23A-25A
6.	S-17 JOX UP HBC-1 STR	LHS	20/29-31
7.	S-15 JOX UP HBC-2 STR	LHS	20/33
8.	S-13 JOX UP LOOP STR	LHS	20/33
9.	S-21 JOX UP HBC-1 ADV/STR	LHS	21/31-33
10.	S-23 JOX UP HBC-2 ADV/STR	LHS	21/31A-33A
11.	S-6 JOX UP HBC-1 STR	LHS	19/32A-30A
12.	S-8 JOX DN HBC-2 STR	LHS	19/32-30
13.	S-3 BRPA UP HBC-1 H/S	LHS	25/1-3
14.	S-1 BRPA UP HBC-2 H/S	LHS	25/7-9

15.	S-10	BRPA UP LOOP /DN DEP. STR	LHS	26/4-2
16.	S-5	BRPA UP HBC-1 STR	LHS	26/33
17.	S-7	BRPA UP HBC-2 STR	LHS	26/31-33
18.	S-9	BRPA LOOP DN DEP STR	LHS	26/27-29
19.	S-15	BRPA UP HBC ADV/STR	LHS	27/27-29
20.	S-11	BRPA UP REV ADV/STR	LHS	27/27-29
21.	S-16	BRPA DN REV H/S	LHS	28/6-4
22.	S-06	BRPA DN HBC-1 STR	LHS	25/26-24
23.	S-08	BRPA DN HBC-2 STR	LHS	25/26A-24A
24.	S-12	BRPA DN LOOP STR	LHS	25/26-24
25.	S-04	BRPA DN HBC-1 A/STR	LHS	24/22-20
26.	S-02	BRPA DN HBC-2 A/STR	LHS	24/22A-20A

PSR RELAXATION

REMOVAL/RELAXATION OF PERMANENT SPEED RESTRICTION.

As per CTE/ER letter no. W (8)/586/4/Vol16 dated 28/23/21/22-09-20

BETWEEN STATION	LINE	SEC. SPEED KMPH	KM. NO.	REASON OF PSR	EXISTING SR IN KMPH	PROPOSED SP RELAXATION	REMARKS
KGK-SDAH	DN SUB	95	2/18-6	POINT & CROSSING ON TRANSITION OF 0.75° CURVE WITH IN ADEQUATE SE-18 MM	45	NORMAL SEC SPEED	APPROVAL FROM CTE/ER' L NO. W(8)/586/4/VOL16 DATED 28-09-20
MJT-BLN	DN CORD CUM UP PASS. LINE	75	9/7X-8/25X	ENCROACHMENT	30	45	APPROVAL FROM CTE/ER' L NO. W(8)/586/4/VOL16 DATED 28-09-20
MJT-BLN	UP LINE	75	6/17-5/35	ENCROACHMENT	45	NORMAL SEC SPEED	APPROVAL FROM CTE/ER' L NO. W(8)/586/4/VOL16 DATED 23-09-20
JDP-NDHK	UP LINE	95	6/26-6/14	ENCROACHMENT	45	NORMAL SEC SPEED	APPROVAL FROM CTE/ER' L NO. W(8)/586/4/VOL16 DATED 22-09-20

NEW N/S BETWEEN BNXR-DDJ

New PTFE N/S commissioned between BNXR –DDJ. The necessary caution board have already been provided on its requisite location which given as bellow

S. N.	TYPE OF CAUTION BOARD	L/ NO	LOCATION /KM
1.	500 M board before N/S.	UP SUB LINE	4/15
2.	250 M board before N/S.		4/23
3.	DJ open board		4/29
4.	PTFE		4/29/1
5.	DJ close board for loco		5/1
6.	DJ close board EMU		5/7
7.	500 M board before N/S.	DN SUB LINE	4/26
8.	250 M board before N/S.		4/18
9.	DJ open board		4/12
10.	PTFE		4/10/1
11.	DJ close board for loco		4/8
12.	DJ close board EMU		4/2(ON SEPARATE STEUCTURE)
13.	500 M board before N/S.	UP MAIN LINE	4/5Q
14.	250 M board before N/S.		4/13Q
15.	DJ open board		4/19Q
16.	PTFE		4/21Q
17.	DJ close board for loco		4/23Q
18.	DJ close board EMU		4/31Q
19.	500 M board before N/S.	DN MAIN LINE	4/24Q
20.	250 M board before N/S.		4/16
21.	DJ open board		4/10Q
22.	PTFE		4/8Q
23.	DJ close board for loco		4/6Q
24.	DJ close board EMU		3/36Q

APPRECIABLE CASE

PROFORMA

S.N.	Item	Remarks	Photo copy
1	Name in full	Sri Sanjay Halder	
2	Designation	ALP	
3	Department	Electric (Operation)	
5	PF / Emp. No.	50205618265	

CITATION

Sri Sanjay Halder, ALP/SDAH, while working train no.- 13103 Up on 30.12.2019 hauled by loco no.- 22773/WAP4/ASN and while train was approaching MPJ station, experienced huge air leakage sound from under frame and

MR pressure was reducing abruptly. On checking he found that after cooler drain cock which was at a critical location was broken due to hitting by some external foreign material. He did not hesitate to take right decision to insert wooden wedge to arrest the air leakage and succeeded. The train cleared the section with minimum detention on line. He took measure in such a manner that the train reached destination with the same power without any further detention on its account.

Thus Sri Halder saved an important M/Exp. train from detention and saved precious time of its passengers also. In view of the above, he is recommended for DRM Award for his great sincerity and dedication to his duty as well as integrity to the Railway service.

FAILURE CASE

Sub: Rail burnt due to wheel slipping

In connection with the incident of the train no. BOXN(LD)/TWS/SER, T/LD-59BOXN(LD)+1BV, Tonage-5157(T), hauled by Loco no. 28152/WAG-7/SRE., **rail burnt occurred over 52m length of rail in 10 places due to wheel slip**, en-route Ex-DK, while BOXN(LD) was negotiating up goods (reversible) line in NACC station limit over bridge no B-9 on 01.11.2020. After analysing the incident, the conclusion of the incident as under.

S.N.	Item	Report
1	Train No. / Loco No.	BOXN (LD)/TWS/SER, Loco no – 28152/WAG-7/SER
2	Line Report	As reported by LPG while the train passed MJT Adv./ Str. passed on 'Y' aspect, he observed that the next signal NACC Str. was not visible from adequate distance due to obstructed by tree branches, resulted he controlled the train. When the signal aspect was visible, he resume traction and at that time wheel slipping took place. To avoid stalling LPG puts Q 51 in wedge condition though sand was not available in the sand box. Finally, rail burnt took place due to heavy wheel slipping.
3	Actual cause of detention	A joint note has been prepared by CLI/OP/SDAH & SSE/PWI/BGA and their observations – They found rail burnt in 10 places in between km no. 9/8X – 9/10X over B-9 bridge in NACC Stn. limit. Dragging marks found about 150 mm x 50 mm x 2-3 mm. This occurred due to stalling of loco.

4	Action should be taken by LPM/LPG/LPS/ALP	LPG should follow action while taking charge of the locomotive- i) If no sand is available, should be relayed to TLC at the time of CTO. Depending upon the situation, train should be worked only when sand is made available. ii) Gross weight was be relayed to TLC as if gross weight is high there is doubt of stalling, banking loco should immediately be demanded through TLC. iii) If wheel slipping/stalling tendency is felt, forcibly traction by wedging Q51 must not be done at any cost. Step I & ii must be followed.
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WHY WHEEL SLIPPING OCCURES

1. Wheel slipping occurs when tractive effort exceeds adhesive weight. When Tractive effort is more than adhesive weight, difference in power between two TMs of same block accelerate the wheels which results into grinding action on the rail.

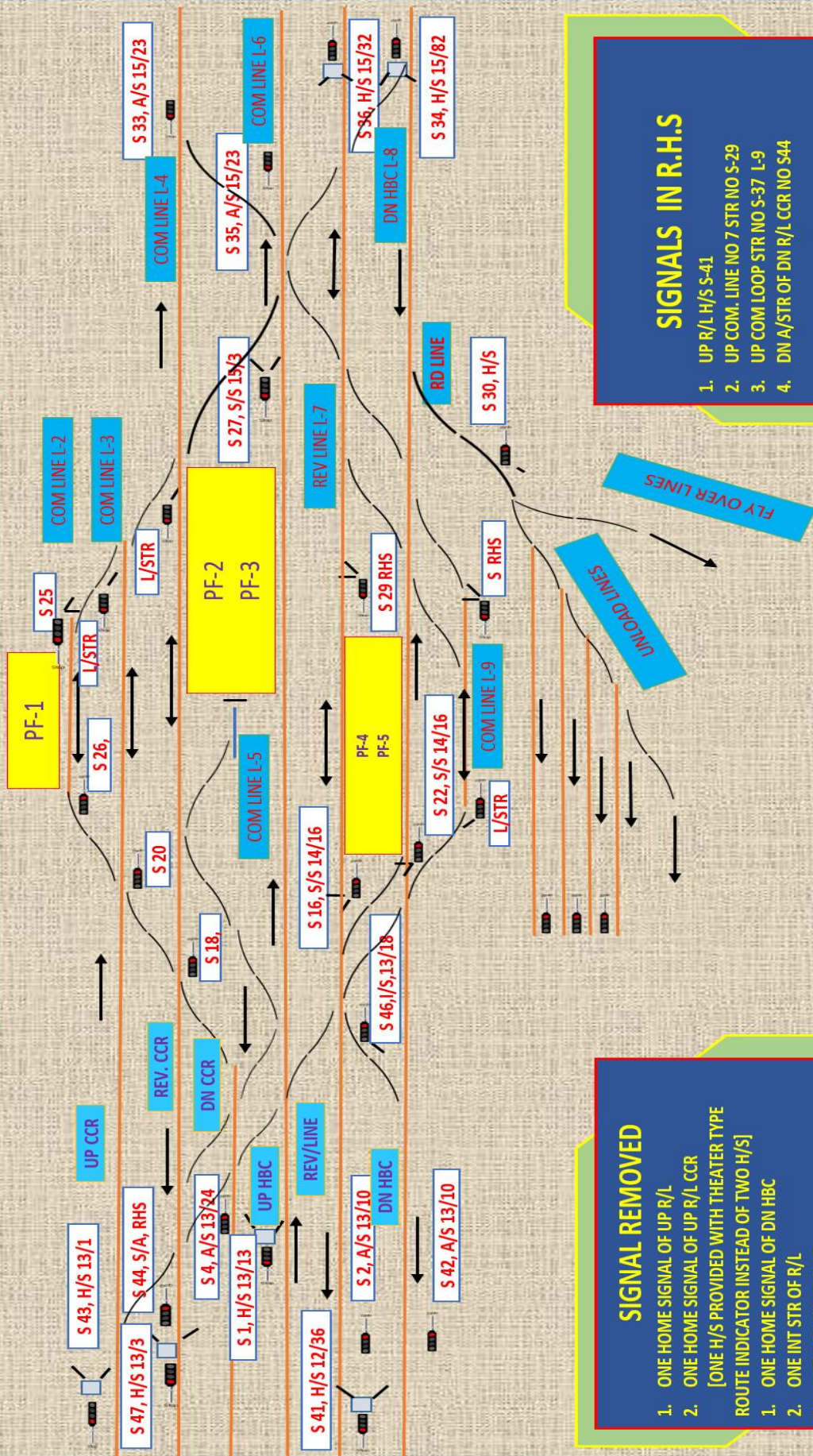
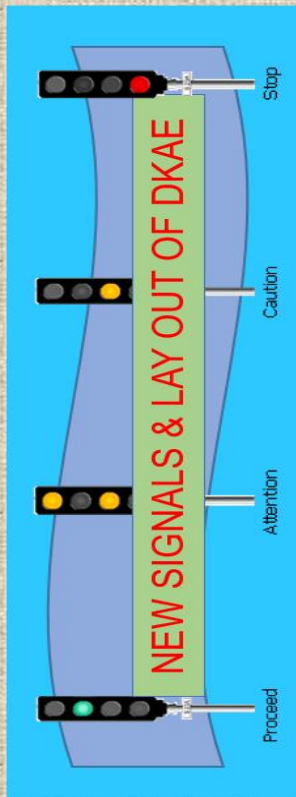
CAUSES OF WHEEL SLIPPING

- Brake binding in train.
- Taking notch without releasing train Brake
- Poor knowledge on road learning.
- Not using sander during starting.
- Not using of 'ZQWC/BPQWC' during starting.
- Inclement weather can result in poor adhesion.
- UP Gradient section.
- Excess Tonnages.
- Defective Traction Motor/Line Contactor/ Shunting Contactor.



TO PREVENT WHEEL SLIP.

- Every LP will be fully conversant with the maximum permissible speeds, gradients & land mark, location of the signals on the section.
- When attacking an up-gradient, the LP will attain sufficient speed at the foot of the gradient & ensuring the maximum permissible speed for that section is not exceeded.
- 'ZQWC' or 'BPQWC' to be pressed during starting (for Conventional locomotive).
- For oily or wet rail 'PSA' to be used for manual sanding.
- In case of brake binding, train to be checked and rectify the same.
- In case where hauling power of locomotive is not adequate to carry the load of train, then should be relayed to TLC for arranging banking if required.
- Check availability of dry sand in sand boxes and ensure sanding equipment are in working condition during CTO.
- Do not continue notching forward forcibly while heavy wheel slipping was continuing, where relay Q51 wedged condition (possibility of rail burn).

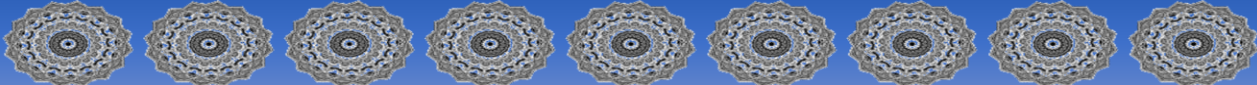


SIGNAL REMOVED

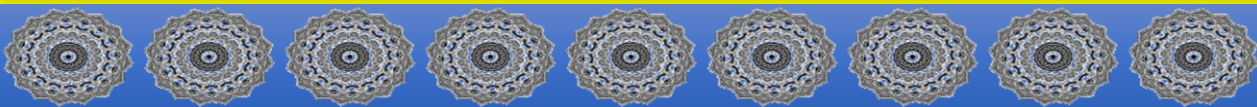
1. ONE HOME SIGNAL OF UP R/L
2. ONE HOME SIGNAL OF UP R/L CCR
[ONE H/S PROVIDED WITH THEATER TYPE ROUTE INDICATOR INSTEAD OF TWO H/S]
1. ONE HOME SIGNAL OF DN HBC
2. ONE INT STR OF R/L
3. ONE INT STR OF HBC

SIGNALS IN R.H.S

1. UP R/L H/S S-41
2. UP COM. LINE NO 7 STR NO S-29
3. UP COM LOOP STR NO S-37 L-9
4. DN A/STR OF DN R/L CCR NO S44



**ALWAYS KEEP A SHARP LOOK OUT ON YOUR SIGNAL
TILL IT NOT PASS.**



TRAFFIC TIPS

GR-3.75

PASSING OF INTERMEDIATE BLOCK STOP SIGNAL (IBP) AT 'ON'

1. Loco pilot finds an intermediate block stop signal at 'ON', HE SHALL stop his train in rear of the signal and contact the station master of the block station in rear on the telephone, if provided on the signal post.
2. The station master shall authorize the loco pilot to pass the intermediate block stop signal, if defective, and prescribed by special instruction.
3. If the telephone is not provided or is out of order, the loco pilot after waiting for 5 minutes at the signal shall pass it at 'on' and proceed cautiously and be prepared to stop short of any obstruction, at a speed not exceeding 15 kilometers an hour if he has a good view of the line ahead, otherwise at a speed not exceeding 8 kmph an hour and report the failure of the station master of the block station ahead
4. The station master of the block station working the intermediate block stop signal on becoming aware that such a signal is defective shall, before dispatching a train, treat the entire section up to the block station immediately ahead of the intermediate Block Post as one block section and issue a written authority to the loco pilot to pass the defective intermediate block stop signal at 'on', without stopping at the signal, in accordance with the procedure prescribed by special instructions.

WINTER PRECAUTION

GR 3.61

SUB: Train operation during foggy and inclement weather - PRECAUTIONS

NO: TS/S/safety drive/46/RB/2020

Sealdah Dated, 27.10.2020

Winter is knocking the door fog will prevail over the division very Soon which may hamper the safety of train operation. In order to combat unusual situation and safe

running of train necessary instruction and guidelines of **Railway Board** has already been circulated vide this office letter **NO.98/SAFETY(A&R)/19/16 New Delhi 25-10-2019**

In continuation of the aforesaid circular, additional safety instructions have also been issued by railway board which is appended below for information, guidance and necessary action.

The Board had decided that with the use of fog devices in locomotives, the maximum permissible speed during foggy /inclement weather condition be enhanced from 60 kmph to 75 kmph. References have been received from some of the zonal Railways seeking clarification on the subject. It has therefore, been decided that following precaution/ preparation be done by zonal Railway for train operation during foggy /inclement weather as under-

(A) Infrastructure/ Addition/ Alternations.

(i) Provision of Fog safe device:

Reliable Fog safe devices, if available, may be provided to the loco pilots in all locomotives running in fog affected areas during fog. Placement of Detonators under condition as described in para E-(ii) shall be dispensed with, where reliable Fog Safe device is available and is in working order.

(ii) Modification of automatic signaling system:

Introduction of modified automatic signaling system As per GR 9.01 (3) and (4) And GR 9.03 (3) and (4) and GR 5.18 to be followed strictly.

Works to be completed before Foggy whether to strength then rail infrastructure-

1. Adequate supply of detonators to be ensured
2. Lime marking across the track at the sighting board (or at distance signal in case of double distant signals) must be done.
3. All signal sighting boards, whistle boards, fog signals posts and busy vulnerable level crossing Gates which are accident prone should either be painted or provided with yellow / black Luminous strips. The work of repainting for their proper visibility should be completed before onset of winter / foggy season.
4. Lifting barriers at busy level crossings, where necessary, to be provided with yellow/ black luminous indications trips.
5. The new existing SLRs are already being fixed with LED based flasher tail light therefore, the existing SLRs with fixed red lights should also be modified and fixed with LED lights. This will be a very important step to ensure safety in foggy weather. The railway should undertake this work on war footing. When the train is held up in automatic territory on fog and multiple section in abnormal situation including fog the guard will put the LED light to 'on' position. This will be in addition to flasher red tail lamp.
6. It should be ensured that retro reflective strip in Sigma shape for identification to stop signal be provided as per existing instructions

(C) The following points are to be kept in mind during operation of train in foggy weather

1. Reduced movement during fog:

Renationalization of movements in the Coaching yards approaches to terminals and at near terminals etc. has to be done to reduce pressure on congested areas. This may be achieved by the reduction in local changes, reduced shunting, etc. and cancellation of trains 20% reduction in movements during the fog has to be ensured that is by reduced movement of locos from and to shed, shunting in major yards, etc. and mainly by cancellation of trains - mail / Express and passenger trains running in and via Delhi area as also up to an equal number also in other fog affected sections (Other than the trains passing by Delhi area) to be proposed to be cancelled. A review be done by all zonal Railway with mutual consultation to identify which mail/ Express and passenger trains are to be cancelled and proposals sent to the coaching directorate, Railway Board. This will also help in tickling extra requirements of loco pilot/ assist pilots and Guards for changing en-route on Sections where there is abnormal increase in duty hours of crew. This will also increase availability of spear rakes to Cater to late running of trains.

2. PME/ Refresher training and other safety/ promotional courses of loco pilot/ assistant Loco pilot and Guards in ZRTIs/STCs, etc. who become due between 15th December and 31st January should be completed by 15th December.

3. Fog affected Railway should review the crew changing locations. In view of increased hours on road the Railways may create infrastructure at new/ additional crew changing locations. Simultaneously the loco/ crew/ rake links are reviewed during the period of fog. All Crew (loco pilots, assistant loco pilot, and Guards) on stationary duty should be utilized for train working especially during fog.

4. The instruction on all matters including cancellation of train be made applicable from 20th December to 30 1st January every year subject to the provisions if the fog sets in early before 20th December and continuous beyond 31st January respectively as the case may be.

(D) Visibility test object (VTO)

The check of adequacy of visibility through the VTO is to guide the SM/ ASM so as that he can decide when Detonators are to be placed to warn the loco pilot of the location of an approach stop signal

1. VTO for semaphore signaling and for two Aspect CLS-

The VTO may be the light (or arm by day) of a starter signal (where exists) or the backlight of the home signal etc. As defined in GR 3.61/ (2) (b) in such cases the VTO is normally located 300- 350 meters at a place from where it is to be seen by the SM. During foggy or tempestuous weather, when such a VTO is not seen by the SM it shall determine that fog has set in.

Note: Divisibility test object to be defined in the SWR of stations which qualify for placement of detonators, should be on each end of a station (for junction stations there may be more than two VTOs).

3. Prescribed VTO for multiple aspect color light signaling.

- a. Stations with MACLS shall have a prescribed VTO located at a distance of 180 meters from a nominated location where the SM shell stand
- b. When a prescribed VTO is not visible from 180 meters or more during dense fog, the station master shall not use his discretion as per GR3.61(2)(a) but will arrange to place the detonators to warn the loco pilot, unless Specified otherwise in these instructions

Note: There should be one visibility test post in MACLS territory (at stations which qualify for placement of Detonators) located at a distance of 180 m from the place where the SM shall normally stands to see the prescribed VTO.

4. When the VTO (or the prescribed VTO) provided under conditions laid down is not visible to the station master, he shall take action as under:-

(a) Ensure that signals are lit during night as well as during day in Semaphore signaling sections when visibility is impaired due to fog, and VTO is also lit.

(b) Observe the VTO before Granting line clear to a train.

(c) In case Prescribed VTO is not visible; take action as under

(i) Depute fog signalman with detonators to place detonators in situations prescribed under para (i) (E)(ii) at 270-280 m from the first stop signal to inform in advance the location of this signal to the loco pilot of the approaching train.

(ii) Engineering department will make all efforts to provide fog signal man.

(iii) No shunting should be carried out on non-isolated lines after granting line clear to an approaching train

(d) Provisions given as per GR 5.18 to be followed strictly and no train to be advanced beyond the starter, or beyond intermediate starter Signal where these exist, up to the advanced starter at stations which do not have track circuiting in this zone.

(E) Necessity of placement of the detonators

Where not necessary to place detonators:-

It is not necessary to place detonators to indicate location of stop signal to the loco pilot in following circumstances

(a) In sections where a reliable fog safe device has been provided on locomotives;

(b) Where adequate pre- warning is provided; i.e. at stations where double distance signals are provided.

(c) Where maximum speed allowed in the station section is up to 15 kmph even at stations where pre- warning signals is not available, but a warning board exist.

(d) Where speed of the section is less than 50 kmph (but more than 15 kmph) and the first signal of a station is not stop signal.

(e) In automatic signaling territory.

(f) On gate signal

(g) On departure signal

(h) At the site(s) of Temporary speed restriction imposed due to maintenance of track/OHE/ signal

Where it is necessary to place detonators -

The detonators should be placed at 270 short of the first stop signal at station detailed as under

- a. At 'A' Class stations where Warner exist- determined to be place photo of home signal and not the Warner;
- b. At 'B' Class station equipped with lower quadrant signals- detonators to be placed Short of outer signal
- c. In multiple aspect signaling, where single distance signal is provided - detonators to be placed short of home signal

Note: - The fog Signal post will be provided only at stations where there may be a requirement for placing detonators. Such post may, therefore, be shifted suitably based on the above mentioned position(s)

(F) Precautions by loco pilot-

The loco pilot shall take action in regard to speed of the train during fog as under

- (i) During fog when the loco pilot in his judgment feels that visibility is restricted due to fog he shall run at a speed at which he can control the train so as to be prepared to stop short of any restrictions this speed shall in any case not be more than 75 kmph
- (ii) Loco pilot to whistle frequently to warn the gate man (where provided) and road users of an approaching train at level crossing
- (iii) In absolute block system the speed should not exceed 75 kmph as detailed at item (i) above
- (iv) In automatic block territory the speed will be subject to the judgment of the loco pilot as mentioned in item (i) Above and shall not exceed as under-
 - (a) After passing an automatic stop signal at "green" the speed not to exceed 75 kmph
 - (b) After passing an automatic stop signal at "double yellow" the speed not to exceed 30 kmph
 - (c) After passing an automatic stop signal at "yellow" the loco pilot to run at a further restricted speed so as to be prepared to stop the next stop signal.

Note: (i) In case Fog Safe device is not available in locomotives or the device fails en-route the maximum speed of 75 kmph as indicated above shall be reduced to 60 kmph or less subject to adjustment of loco pilot

Note: (ii) As provided under GR 4.16 oblique 1 oblique be a red tail lamp of approved design displaying a flashing red light during day or night to indicate last vehicle check device in foggy weather should be provided and lit on the last vehicle.

Note: (iii) First of signal location kilometer chart of every station be provided to each loco pilot either as an easy to carry card or in the working time table

Note: (IV) Prevailing Fog situation should be advised to crew and guard in lobby during "SIGN ON"

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