

CHALAKPATRA

CREW FRIENDLY SHUNTING LOCO
WAS-4/ASN



SINGLE KEY
OPERATED CAB
CHANGING FEATURE

CREW MAGAZINE
SEALDAH EASTERN
RAILWAY

5TH EDITION JANUARY TO JUNE 2021

**WELCOME TO SEALDAH
DIVISION EASTERN RAILWAY**



CHALAK PATRA

A CREW MAGAZINE

NAME OF CREW : _____

DESIGNATION : _____

HQ : _____

CUG/ NO : _____

WE WISH YOUR HAPPY JOURNEY

SRI VIKASH ANAND
SR. D.E.E. / OPERATION
SEALDAH
EASTERN RAILWAY



FOREWORD

It is heartening to see Chalak Patra evolving better with each edition. The content is now broad covering the innovations of division, introduction of new technologies (like WAS4), good work by crew, core troubleshooting, improvements in running room, initiatives of IT Cell and other units, etc. which give an overall view to its readers. This issue covers the innovation of division – SSTS (Sealdah Suburban Tracking System) in detail, who's Android APP has become quite popular amongst daily commuters and has 5 lakhs+ user base. I appreciate IT-CELL staffs of this division for their contribution in achieving this milestone.

I appreciate and congratulate the team of Chalak Patra for their continuous effort and dedication in release of this new edition presenting all topics and updates in a glance.

With warm regards.

A handwritten signature in black ink, appearing to be 'Vikash'.

(Sri Vikash Anand)

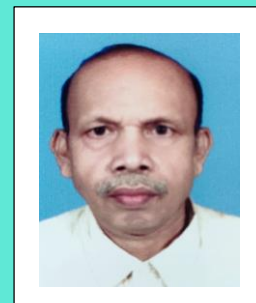


**YOU CAN PLEASED TO ALL
BY YOUR LOVE TOWARDS NATION**



**KEEP YOUR
STATION
CLEAN**

SRI G B MAHATA
DY.C.E.E (PLG)/HQ
EASTERN RAILWAY



THE GREAT RESPONSIBILITY OF LOCO PILOT

I am very pleased to read CHALAK PATRA of Sealdah division and having many information on my hand. One innovation of SSTS APP developments are going on there under care of Sr.D.E.E/OP/SDAH. It is very useful to loco-pilots and all. I hope that loco pilots read this magazine on regular basis on his rest time to update his knowledge.

The loco pilots are front category staff to meet many challenges on line round the clock. There any slackness or casualness may cause an accident which leads to enormous loss of Railway properties, loss of human lives and dislocation of Railway Transportation. Developed transportation is reflection of development of country. Railway transportation system is vast transportation system in India. It helps transporting raw material such as coal, patrol, diesel, cements, iron ores, sand etc. to factory and final product to market. Railway transports the people one place to another for education, treatment employment etc. therefore punctuality is a big factor there. If Railway transportation system is collapsed then all activity will be collapsed and life line of Nation will be suffered. Hence loco pilot should discharge duties by his capacity more careful so that no untoward incident would take place.

On my conclusion, I thanks to all Loco Pilots who are always giving their mind effort to move the wheels on track and thanks to all members who are involved day & night behind this CHALAK PATRA to build up its heart.

Again thanks to all.



(G. B. MAHATA)



**HONESTY
IS A PART OF OUR MISSION**

DO YOUR JOB WITH HEART & LOVE

SRI SUMAN CHANDRA GHOSH
A.D.E.E/OP
SEALDAH
EASTERN RAILWAY



OUR VIEW

I am pleased to say “Chalak Patra” is a platform to exchange our knowledge with each other and share good work done in our division. In spite of the pandemic situation, the electrical operation team has further developed the SSTS and newly developed BR Singh OPD app. With the development and inauguration of the KRP Running room, our LPs working in LGL link can avail best of facilities provided there with many recreational facilities. On my footplate observation I noticed few LPs are still not familiar with auto brake application at first stopping station and not self-call out every signal aspect. I hope in future they must do it better and CLIs should guide them. LPs can know his driving performance and deficiencies from SSTS APP to increase his skill. Safety and Punctuality is a part of our mission. So, in all respects we must be updated with all safety circulars and update knowledge of troubleshooting. As such, this edition of Chalak Patra focuses on technical discussions on conventional and three phase locomotives and EMU's. Also it provides instructions for operating newly inducted WAS-4 locos.

I give thanks to all running staff for their sincerity and devotion toward their jobs in this situation. I sincerely hope that everyone finds this edition very informative and helpful.

Wishing best

A handwritten signature in black ink, appearing to read 'Suman', with a horizontal line underneath it.

(Suman Chandra Ghosh)



Dear friends,

We already published many numbers of 'CHALAK PATRA' in our division from our end, we hope that those are very informative to you all. We always want to give the latest modification & essential topics which help you on your train operations. Therefore, you must read the magazine on regular basis and keep it on your line bag to update your knowledge.

We here request to all in your train operation safety is the first priority at any cost and simultaneously our focus in punctuality also. Mainly your loss time i) to observed low speed cautions in different locations (if you not observed the exact speed), ii) calculation of braking distance which not match properly with the location of speed indicator board iii) you also loss, if your next signal is RED and which is situated on a very long distance, you drive slowly waiting for signal OFF aspect without informing GD and after getting OFF aspect, you drive fast (without stopping on that red aspect), then GD will book sectional loss time on your account. If you stop your train on the signal (driving by on normal drive) on that aspect then the loss time will be on traffic account instead of your LOR. So, we again request to you to calculate proper safe braking distance in every situation & keep your train under control. Don't assume your signal aspect will be OFF soon. Your responsibility our assets, we always respect your depth of love toward job in all critical situations.

Thanks to all.

Yours

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

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OUR ACHIEVEMENT
INAUGURATION OF RUNNING ROOM KRISHNAPUR
BY HON'BLE GM / E. RLY.



A MEMORABLE DAY WITH OUR GM
23RD MARCH 2021

WE FELT PROUD FOR THE DAY



OUR MISSION SAFETY, SECURITY & PUNCTUALITY

VERTICAL GARDEN AT ENTRANCE OF SEALDAH CREW LOBBY



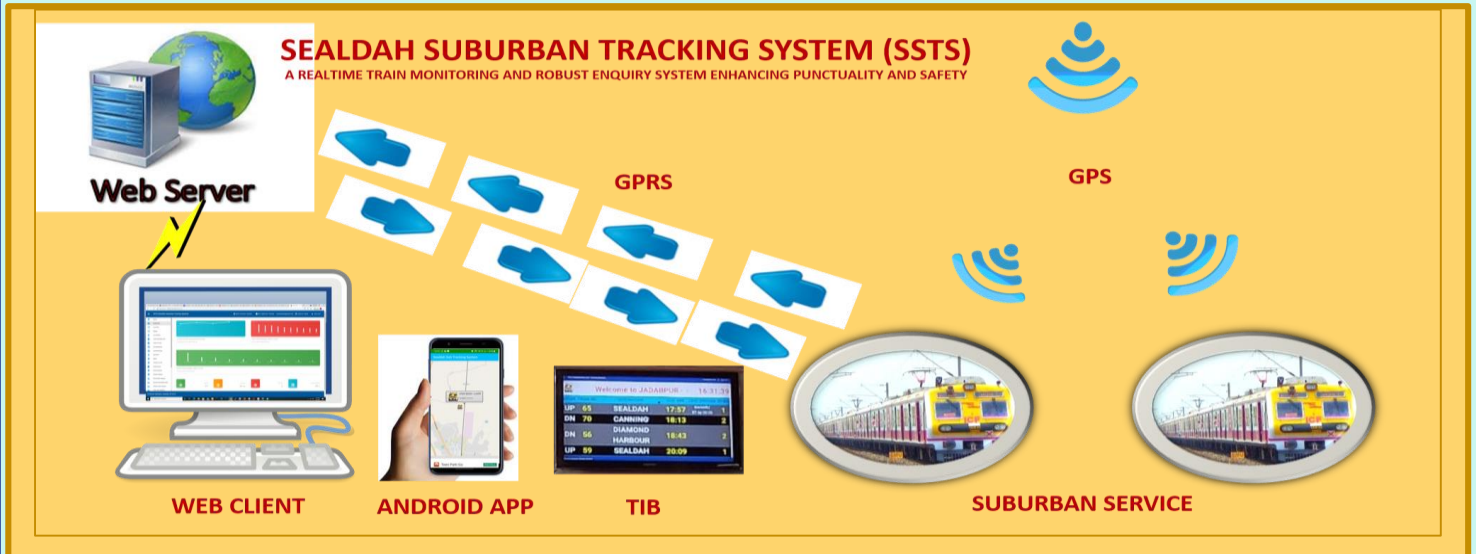
Warmly greets the visitors



**YOU ARE UNDER
SURVEILLANCE OF CC CAMERA**

SEALDAH SUBURBAN TRACKING SYSTEM (SSTS) ACKNOWLEDGED BY RDSO

A REALTIME TRAIN MONITORING AND ROBUST ENQUIRY SYSTEM
ENHANCING PUNCTUALITY AND SAFETY



A good news and great achievement to us, RDSO acknowledged our SSTS app by publishing ten pages (41 to 50) in his INDIAN RAILWAY TECHNICAL BULLETIN (RDSO Website: <http://www.rdsso.indianrailways.gov.in>) Volume: LXXVI Number: 375, November 2020, attaching pictures of our respected Sr. DEE/OP/SDAH (SRI VIKASH ANAND) and CLI- DIPANKAR ROY with introduction as bellow-

सारांश: सियालदह सबअर्बन ट्रैकिंग सिस्टम (एस.एस.टी.एस) एक आईओटी आधारित प्रणाली है जिसका उद्देश्य बारीक रिज़ॉल्यूशन (3 सेकंड) जियोलोके शन डेटा के साथ लाइव निगरानी और गति के विश्लेषण द्वारा उपनगरीय ट्रेनों की समय की पाबंदी और सरक्षा में संधार करना है। इसमें जीपीएस-जीपीआरएस आधारित हार्डवेयर है जो सभी उपनगरीय रेकों में फिट किया गया है जिसका डेटा क्लाउड सर्वर पर भेजा जाता है। यह रंग-कोडित स्पीड चार्ट तथा "ओपन स्ट्रीट मैप्स" पर स्पीड-मैप उत्पन्न करता है और सेक्शनवा-इज मैक्स.स्पीड प्राप्त, रन पर हानि / लाभ, स्टेशन पर ठहराव, आगमन / प्रस्थान में देरी (सीटीआर) आदि की रिपोर्ट तुरंत उत्पन्न करता है। यह समयनिष्ठा के विश्लेषण की दैनिक रिपोर्ट तथा चालक दल, ट्रेन और रेक के परिपेक्ष में मासिक विश्लेषण भी तैयार करता है। ब्रेक फील और ब्रेक पावर टेस्ट सहित ड्राइविंग तकनीक भी इसके मार्फत देखी जा सकती है।

Abstract: 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 geo-location data with fine resolution of 3 seconds. It has GPS-GPRS based hardware fitted in all the suburban rakes with and cloud server. It generates color-coded speed charts over geo-fences and speed maps 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 including brake feel and brake power test can also be observed.

It is a new journey in our division, which we are developing day by day. We discussing here with some new features added now to give more public facilities by this app.

SOFTWARE DEVELOPMENT

1. 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 geo-location data with fine resolution of 3 seconds.
2. It has GPS-GPRS based hardware fitted in all the suburban rakes which send location, speed and time to cloud server
3. It generates color-coded speed charts over geo-fences and speed maps and generates report of section wise max. Speed achieved, loss/gain on run, station wise stoppages, delays in arrival/departure (CTR) etc. instantaneously.
4. It also generates daily punctuality reports with monthly analysis of crew, train and rake wise performance, driving technique including brake feel and brake power test can also be observed.

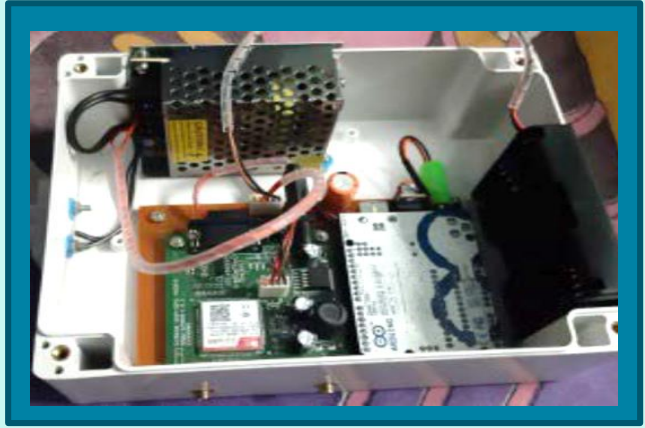
SSTS FEATURES

1. **Dashboard** – 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 at particular station and passenger information board/announcement system.
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 Timetable.
 - a. CTR
 - b. Speed Chart
 - c. Speed Map
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 timetable 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** – Indication of all geo-fences marked. These are discussed in detail further indicating the utility in punctuality or safety.

HARDWARE

Initial hardware was based on Arduino esp32/uno + sim 808 boards. The devices operated on 110V battery supply and were installed in LT compartment.

They had external antennae.



HARDWARE

At present, Teltonika make trackers of Tk 103 protocol with 3m accuracy have been installed.

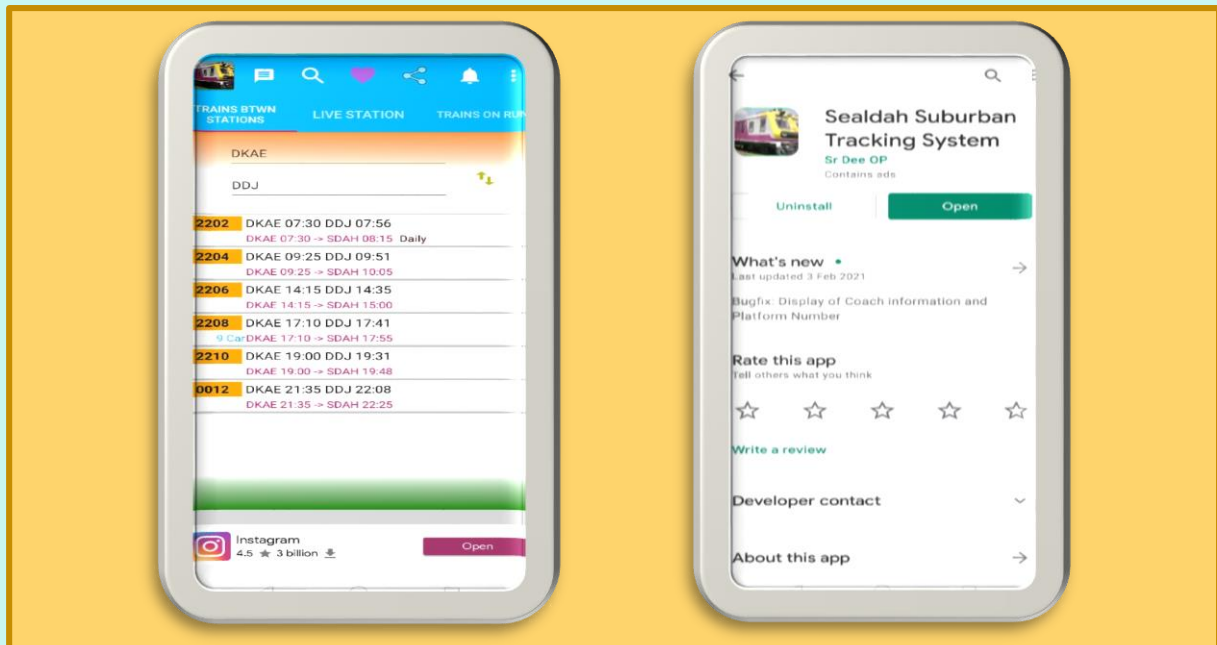
These have been installed in one of the driving cabs of all the rakes.

CLIENT SIDE

Client side being based on Java-Script takes care of many calculations and data representation on client side itself and thus off loads the server significantly. Being asynchronous, it offers excellent user experience being highly responsive and fast

ANDROID APP

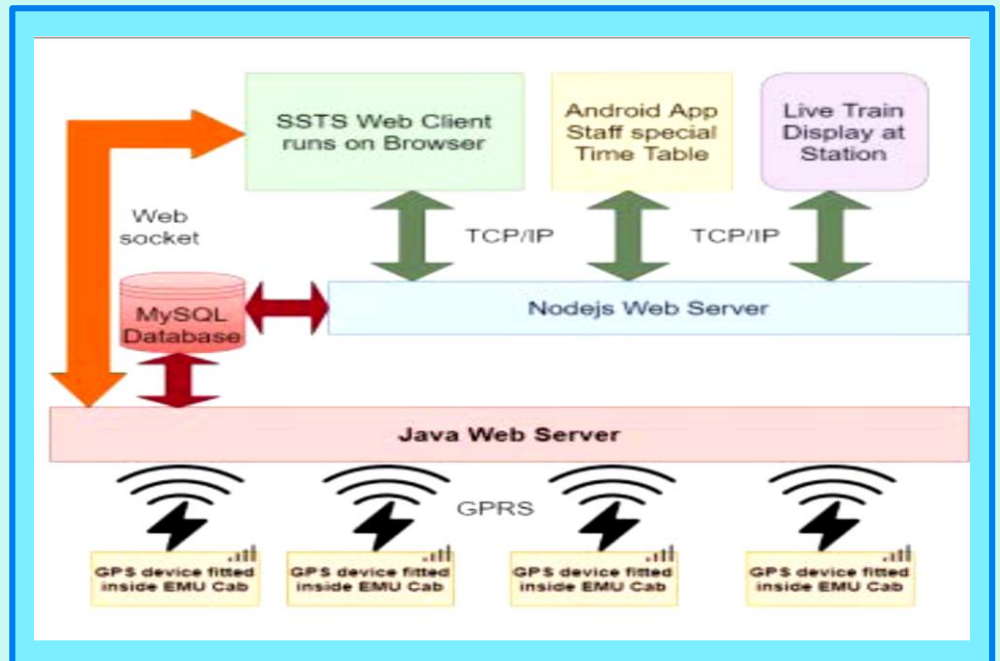
Android App has been developed based on data available in SSTS server to provide real time position to passengers of SDAH Suburban services.



1. The SSTS app is running for over 1 year and already used by over one lac user.
2. The app is highly appreciated by the users with excellent reviews and **5 star ratings**, demanding implementation in other adjoining division like Howrah, Asansol and South Eastern Railways also.

SERVER SIDE

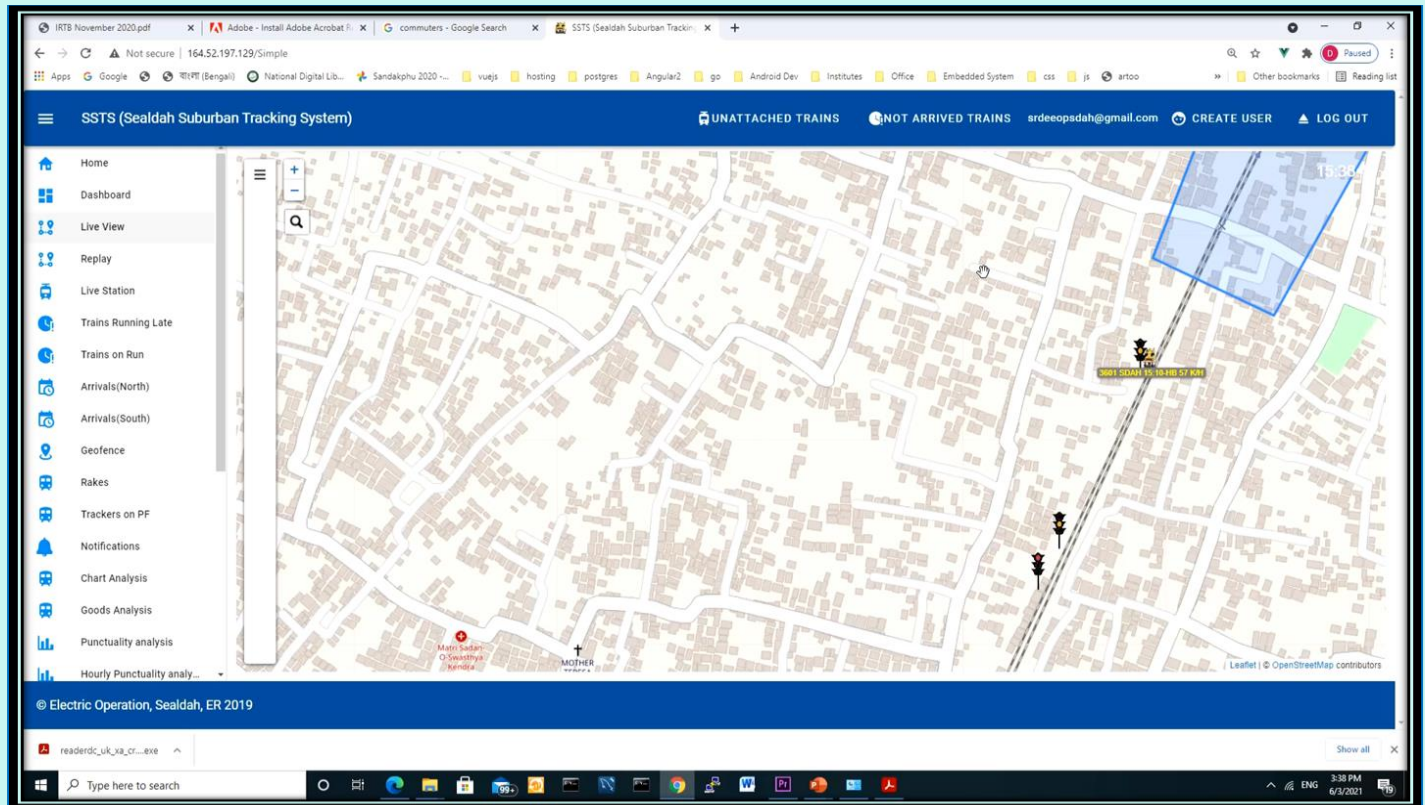
The SSTS server is based on Java Script. It is asynchronous and has been developed with open-source libraries only. The database too is MySQL which is free and can handle inputs from approx. 120 trackers as required and the concurrent client requests.



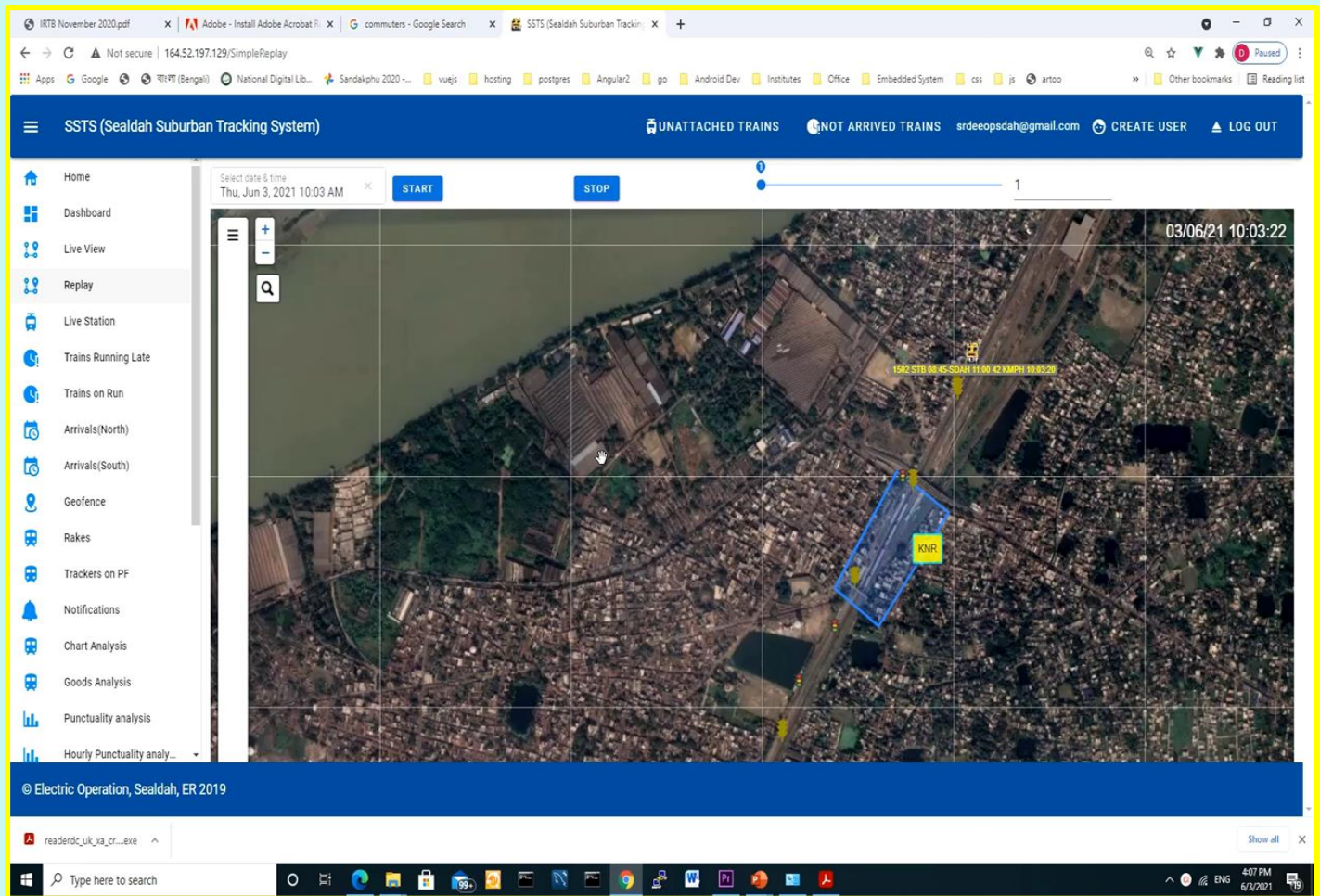
FEW SSTS FEATURES

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

LIVE VIEW – Shows live train movement over open street map with signals and geofences.



REPLAY- A replay of live view



It is live view in replay mode. Starting time and play speed (data interval) are selectable. It also supports search and focus as on live view.

LIVE STATION –

Display status of incoming and outgoing trains at particular station and already used as passenger information board or announcement system at Jadavpur station and South Crew Booking lobby at Sealdah. It is also being used at South RRI cabin by on duty station master.



TRAINS ON RUN – At a glance, section wise view of all running trains

CONCLUSIONS

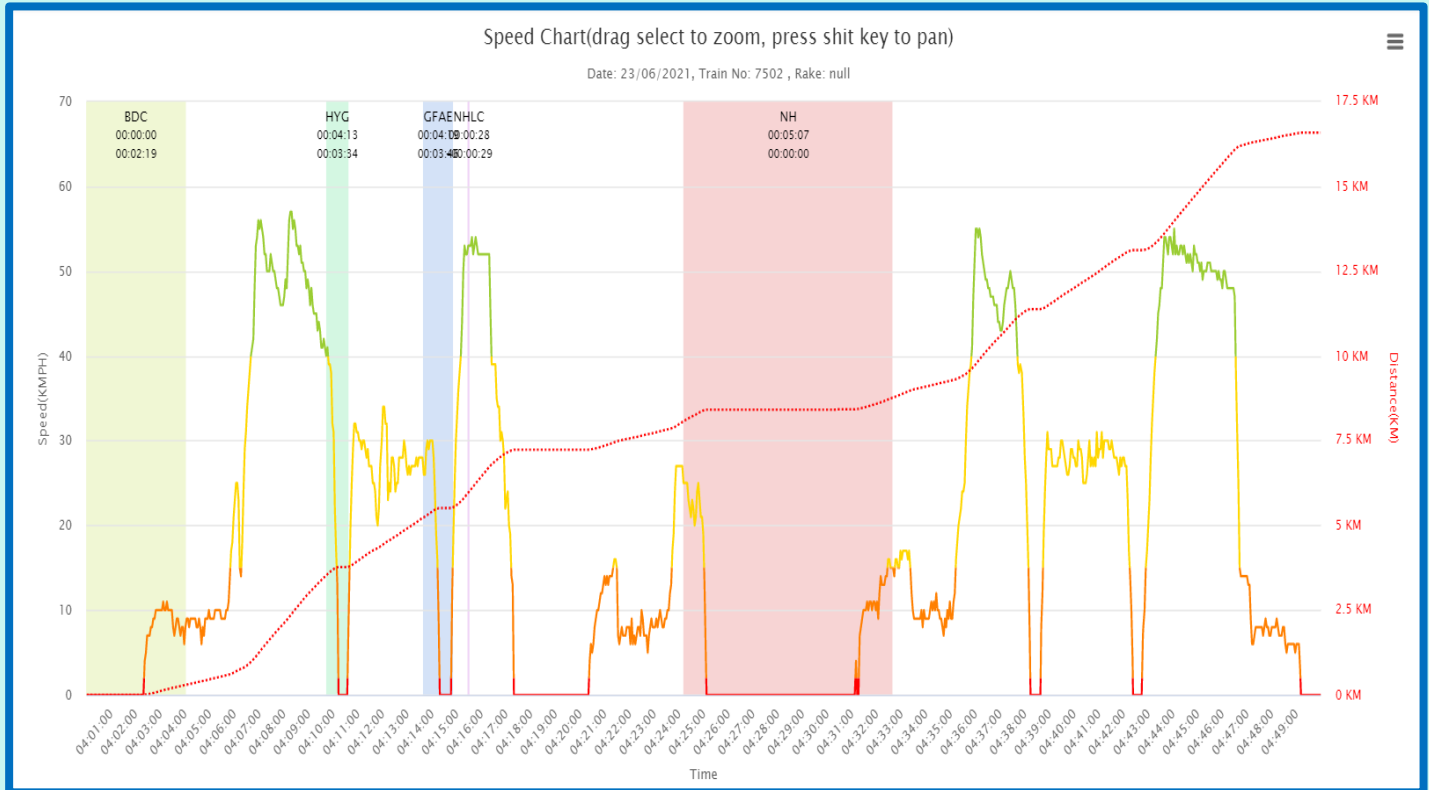
PUNCTUALITY ANALYSIS

EXCEL

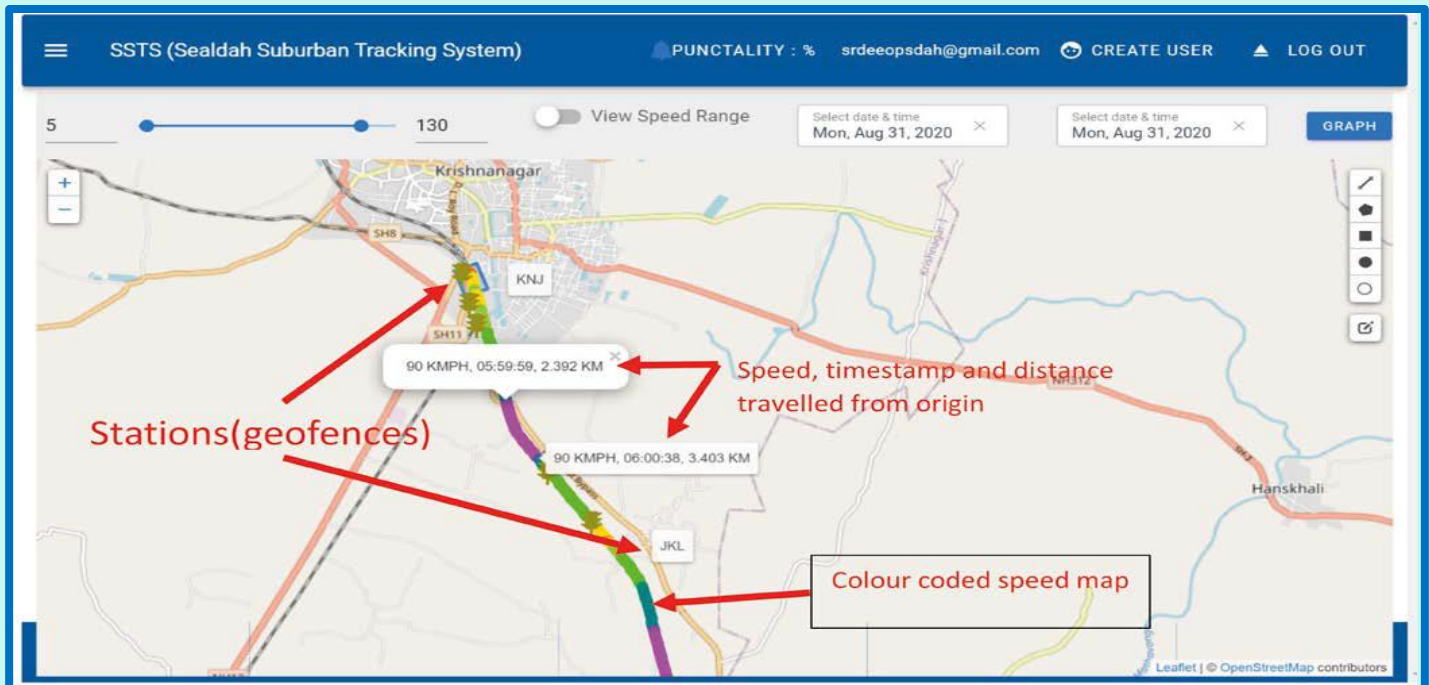
Srl	Train Date	Train No	Rake No	ORG	Sch Dep.	Act Dep.	Late Dep.	DEST	Sch Arr.	Act Arr.	Late Arr.	PF	Auto/PF	Auto/PF Arr	Report
1	23/06/2021	7521	NKG60004 (9)	NH	00:00:00	00:00:31	00:00:31	BDC	00:20:00	00:19:36	-00:00:24				Rake Failure
2	23/06/2021	7502	NKG60004 (9)	BDC	04:00:00	04:02:19	00:02:19	NH	04:20:00	04:25:07	00:05:07				Rake Failure
3	23/06/2021	7501	NKG60004 (9)	NH	04:30:00	04:31:16	00:01:16	BDC	04:50:00	04:49:11	-00:00:49				Rake Failure
4	23/06/2021	7504	NKG60004 (9)	BDC	06:00:00	06:00:53	00:00:53	NH	06:21:00	06:19:18	-00:01:42				Rake Failure
5	23/06/2021	7503	NKG60004 (9)	NH	06:30:00	06:30:36	00:00:36	BDC	06:50:00	06:48:33	-00:01:27				Rake Failure
6	23/06/2021	7506	NKG60004 (9)	BDC	07:00:00	07:10:40	00:10:40	NH	07:21:00	07:27:47	00:06:47				Rake Failure
7	23/06/2021	7505	NKG60004 (9)	NH	07:30:00	07:35:20	00:05:20	BDC	07:50:00	07:52:54	00:02:54				Rake Failure
8	23/06/2021	7524	NKG60004 (9)	BDC	09:10:00	09:10:40	00:00:40	NH	09:30:00	09:26:24	-00:03:36				Rake Failure

It is the daily punctuality analysis table. The punctuality figures are color coded as per arrival delay at destination and are displayed for the selected

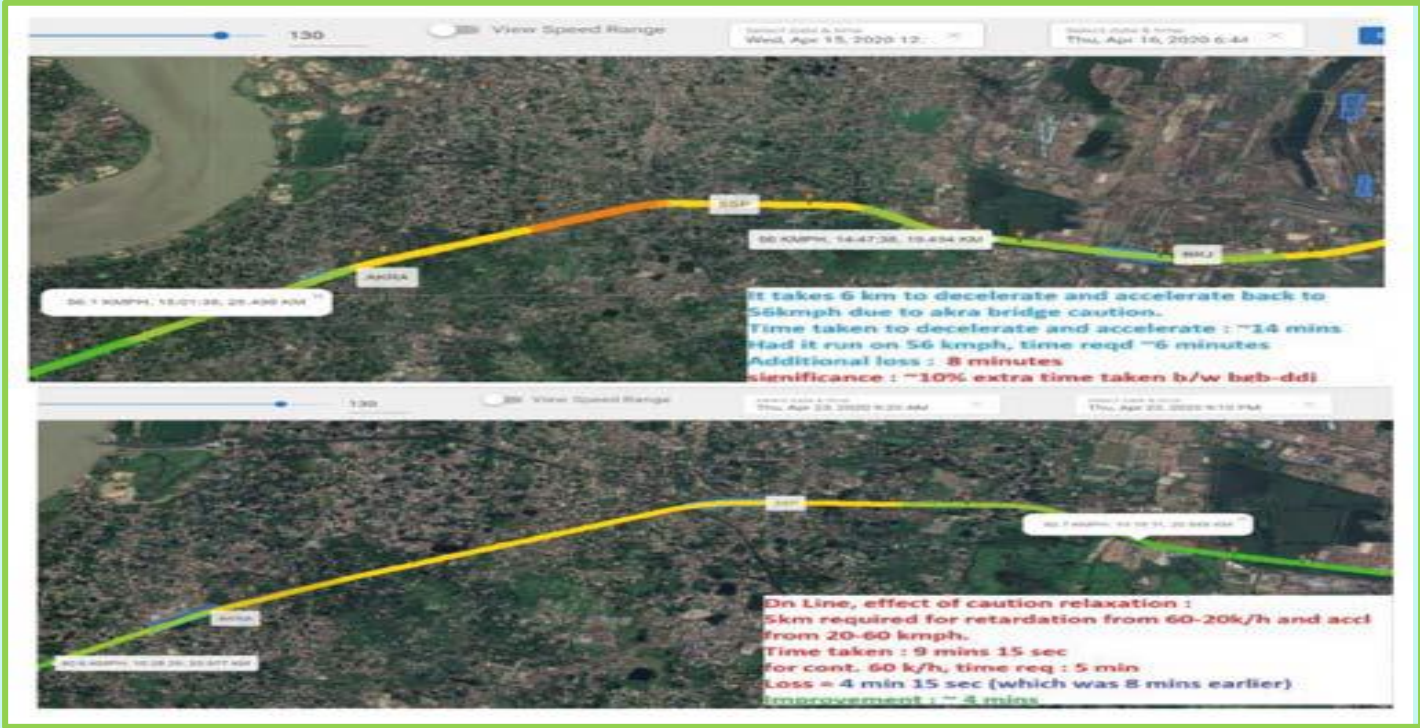
SPEED CHART



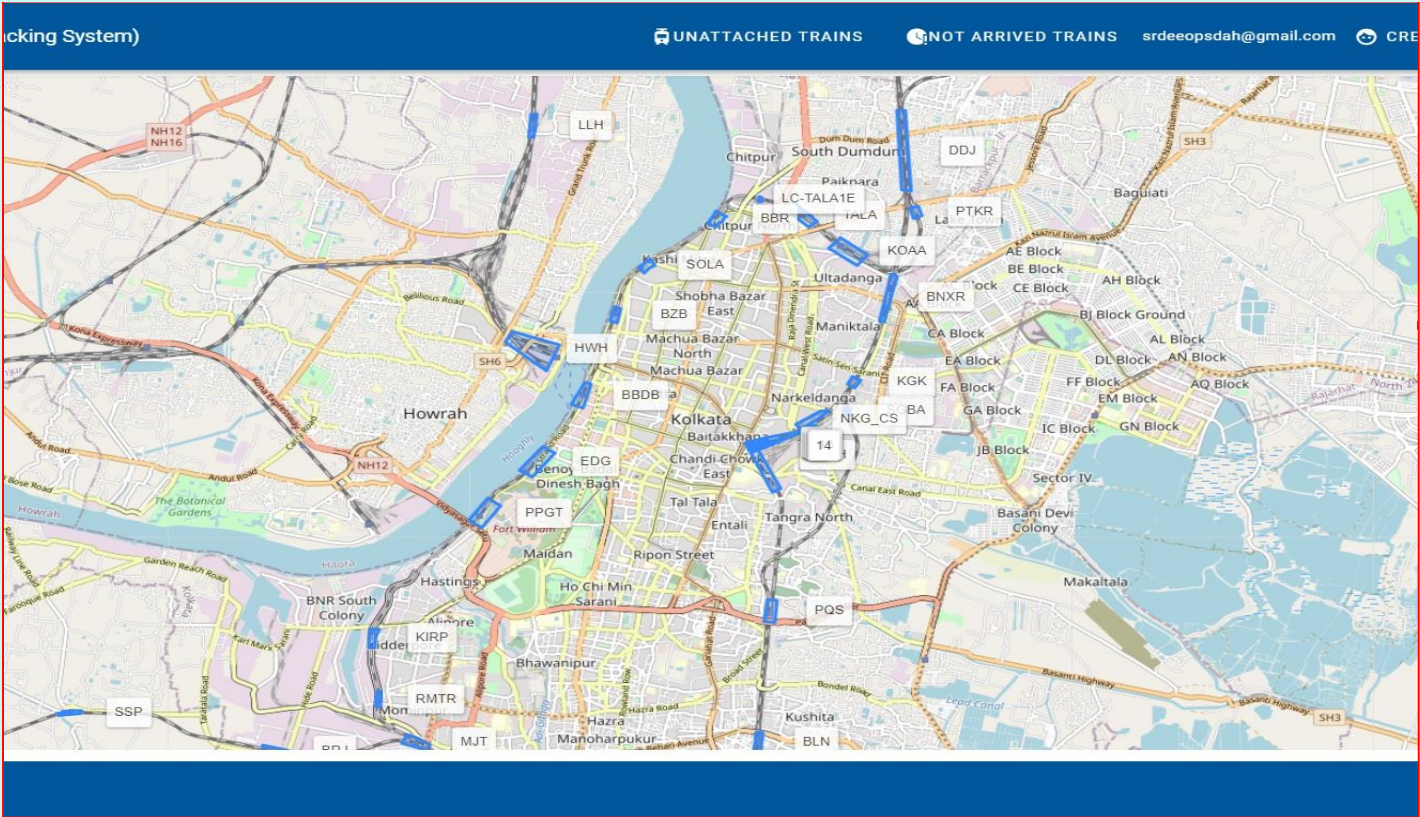
COLOUR CODED SPEED MAP



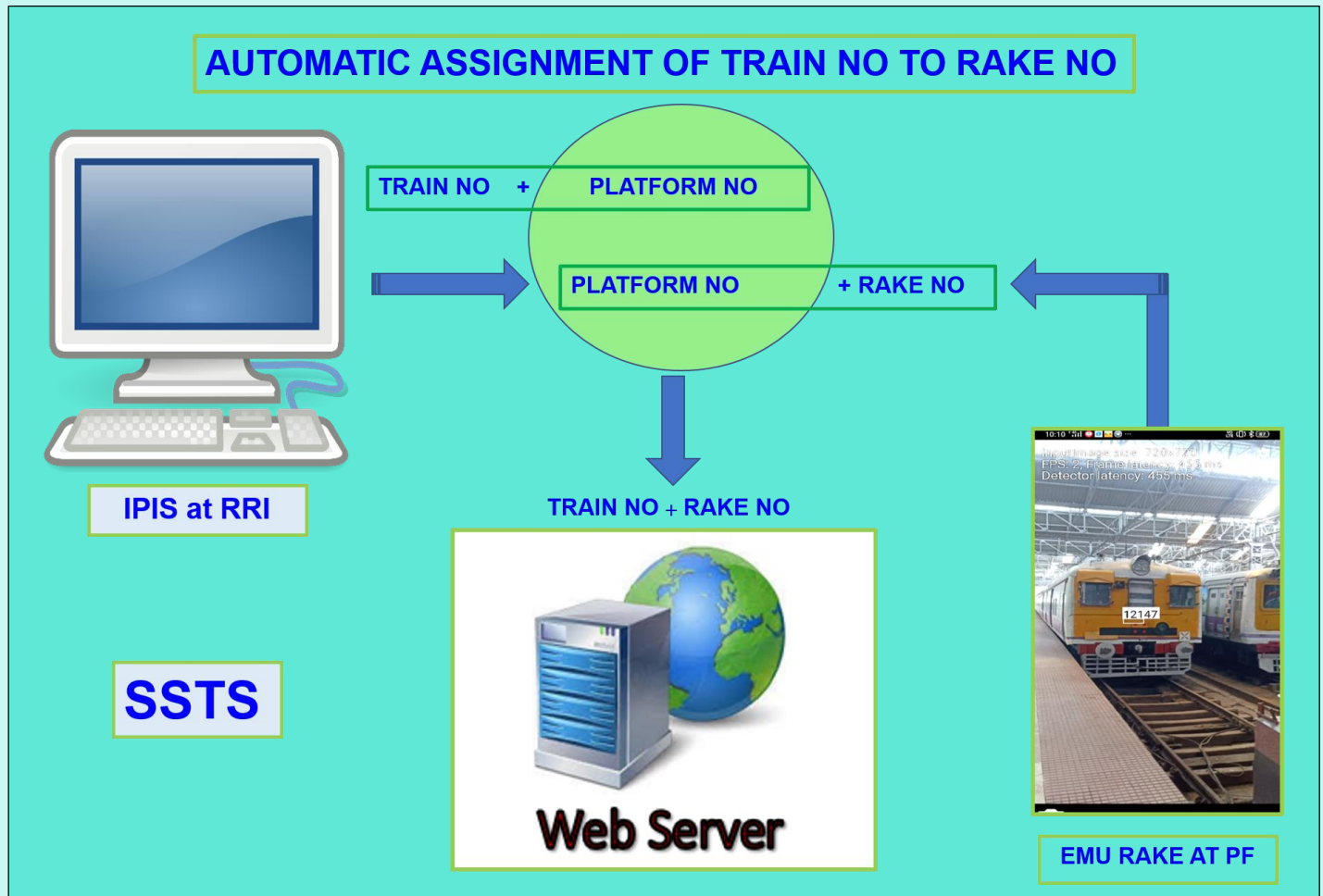
Goods analysis – Individual tracker wise report generation with CTR, speed chart, map and other reports including portable trackers. Suitable for freight train analysis.



RAKE CHANGE SET USED BY TLC



AUTOMATIC ASSIGNMENT OF TRAIN NO. TO RAKE NO.



Auto detection of Rake No at Platform and automatic rake attachment with train number without any manpower involvement. [Under implementation]

COMPARISON WITH RTIS AND SSTS

TMS can indicate the track circuit and thus the approx. location of rake if the system has automatic signaling throughout. It has no mechanism to indicate speed of rolling stock or derive other reports to improve punctuality. Moreover, if track circuits are long (BPAC based), true location and arrival prediction are not good.

RTIS is under implementation of all locomotives across IR. But a comparison of SSTS vs. RTIS indicating advantages of SSTS is as per table below:

Sl. No	Feature	SSTS	RTIS
1	Polygon Non overlapping Geo-fences	YES	NO
2	Live View	YES	NO
3	Replay	YES	NO
4	Section wise MPS recording	YES	NO
5	Geo-fence enter speed	YES	NO
6	Sectional loss/gain on run	YES	NO
7	Fine data resolution (3s)	YES	NO
8	Color coded speed chart	YES	NO
9	Color coded speed map	YES	NO
10	Brake Feel and Power Test detection	YES	NO
11	Freight Analysis	YES	NO
12	Crew wise punctuality	YES	NO
13	Automatic Platform Detection of Train	YES	NO
14	Automatic Train No assignment to Rake	YES	NO
15	Interdivisional interchange statistics	NO	YES

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.

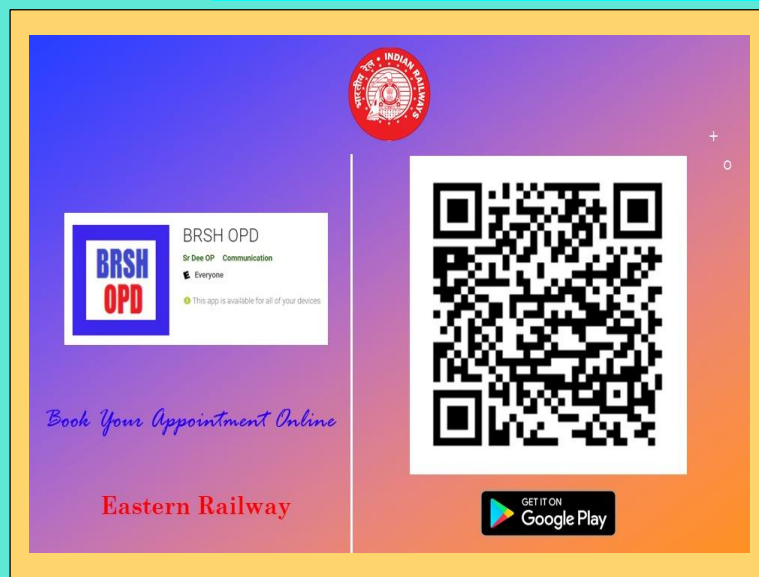
CONCLUSION

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 trackers and cloud server.

NEWLY DEVELOPED - OPD ANDROID APP FOR BRS HOSPITAL

BY IT CELL UNDER ELECTRICT OPERATION



QR CODE

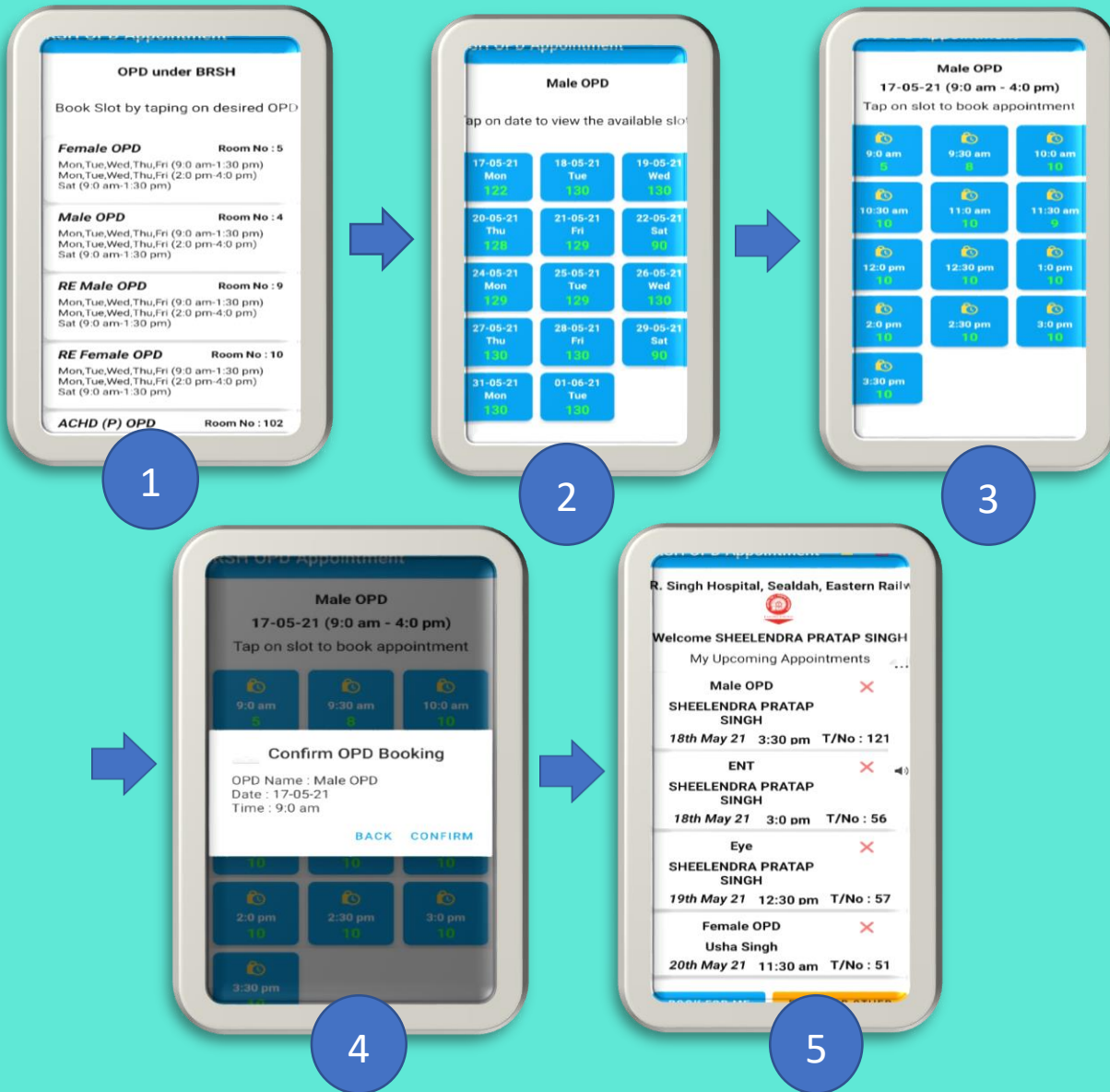
OPD APP

FEATURES

- For Patients :
- Online Appointment
- Distributed Time Slots (30 min) - Less Waiting Time
- 15 days advance booking
- Contactless
- OTP based login – individual profile
- Easy Follow UP–Uploading prescription and necessary documents.
- For BRS
- Better Crowd Management
- social distancing through scheduling
- Easy consultancy

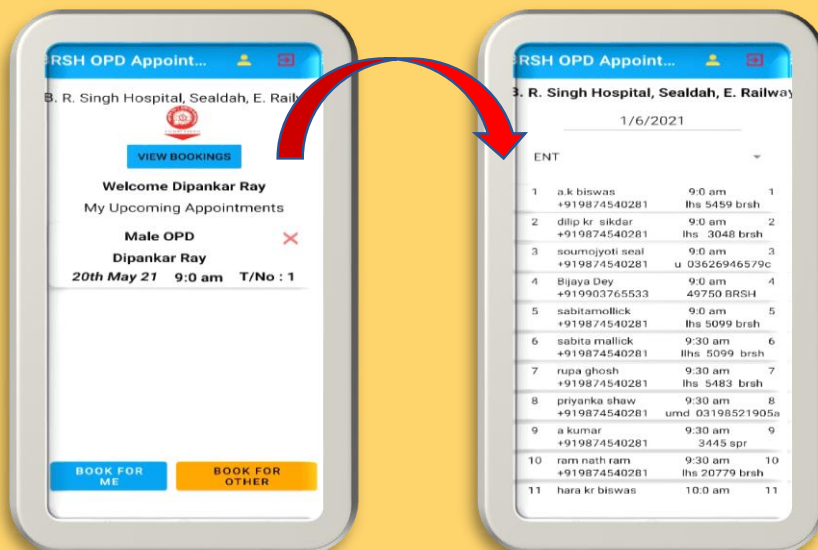


DESIGN FLOW OF BOOKING



FOR DOCTORS

1. List of appointments
2. Easy Access of Patient history



FOLLOWING TASKS CAN BE PERFORMED THROUGH BACK END

1. Maintain OPD list – add or modify OPD.
2. Add/modify schedule working days and hours of OPD
3. Assign Doctor to OPD
4. Maintain list of Closed Holidays to prevent booking on holiday.

Over 5000 employees has already been installed the app and using the app for booking OPD appointments

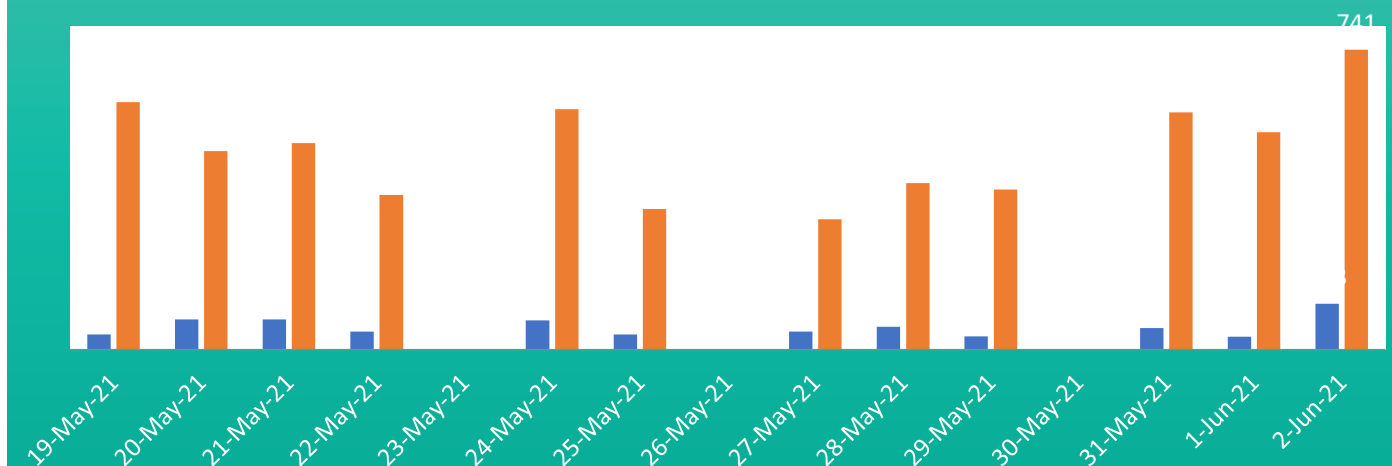
B. R. Singh Hospital, Sealdah, Eastern Railway

OPD Name: ENT

Srl No	Date	Token No	Patient Name	Time
1	01/06/21	1	a.k biswas	9:0 am
2	01/06/21	2	dilip kr sikdar	9:0 am
3	01/06/21	3	soumojyoti seal	9:0 am
4	01/06/21	4	Bijaya Dey	9:0 am
5	01/06/21	5	sabitamollick	9:0 am
6	01/06/21	6	sabita mallick	9:30 am
7	01/06/21	7	rupa ghosh	9:30 am
8	01/06/21	8	priyanka shaw	9:30 am
9	01/06/21	9	a kumar	9:30 am
10	01/06/21	10	ram nath ram	9:30 am
11	01/06/21	11	hara kr biswas	10:0 am
12	01/06/21	12	arati das	10:0 am
13	01/06/21	13	s.rchowdhury	10:0 am
14	01/06/21	14	bibhaskikdar	10:0 am
15	01/06/21	36	Tabassum Ara Begum	12:30 pm
16	02/06/21	1	Sapna Das	9:0 am
17	02/06/21	2	s k biswas	9:0 am
18	02/06/21	3	mrityunjaysardar	9:0 am
19	02/06/21	4	Pulak kanti Bhattacharjee	9:0 am
20	02/06/21	5	arnav archit	9:0 am
21	02/06/21	6	bisweswar paul	9:30 am
22	02/06/21	7	gopal neogi	9:30 am
23	02/06/21	8	chandra debi	9:30 am
24	02/06/21	9	basudeb bagchi	9:30 am
25	02/06/21	10	m.lbanerjee	9:30 am
26	02/06/21	11	d.rmondal	10:0 am
27	02/06/21	12	p.c das	10:0 am
28	02/06/21	13	T M Mandal	10:0 am
29	02/06/21	14	r.nbiswas	10:0 am
30	02/06/21	15	b.nsah	10:0 am
31	02/06/21	16	ARNAV ARCHIT	10:30 am
32	02/06/21	17	Archana Biswas	10:30 am

NO OF OPD APPOINTMENT OVER APP VS TOTAL NO OF PATIENT VISIT

■ Booking using App ■ Total patient



FUTURE PLANS

- Individual dashboard of doctor.
- Test Reports through app.
- Facility for uploading photos and prescription.
- Tele medical advice over video calls.
- Appointment booking for pathological labs.



APPRECIATION TO DR. SANCHITA DUTTA / ACHD (OPD/IC) FOR HER GREAT CONTRIBUTION IN OPD APP



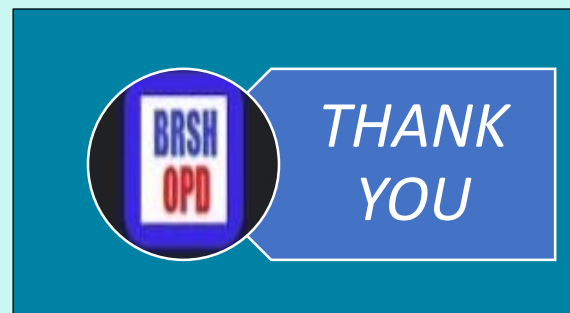
TEAM INVOLVED

Guidance:

Dr. R. Bhattacharya, PCMD/ER
Dr. Sanchita Dutta, ACHD (OPD/IC)
Dr. Achinta Sanyal, CS-III

Development:

Sri Dipankar Ray, CLI (In charge)
& IT Cell members



TECHNICAL DISCUSSIONS

CONVENTIONAL EMU / MEMU

1. FAILURE INDICATION OF BELLOW IN CONVENTIONAL EMU

Introduction: INDICATION LAMP for bursting of Bellow (on driving indication panel) are provided in conventional EMU rakes. There are total 14 no. EMU rakes have been equipped with bellow bursting indication lamp (Data collected from Subrata Some /Tech. Asstt./TRS/SDAH)

SL. NO.	BASE	RAKE NO	INDICATION (IF BURST)
1	NKG	10696+10694+10695	RED LAMP LIT UP
2		50063+50064+50065	RED LAMP LIT UP
3		50066+50067+50068	RED LAMP LIT UP
4		80045+80046+80047	RED LAMP LIT UP
5		80036+80037+80038	RED LAMP LIT UP
6		80042+80043+80044	RED LAMP LIT UP
7	BT	80027+80028+80029	RED LAMP LIT UP
8		80033+80034+80035	RED LAMP LIT UP
9		50027+50028+50029	RED LAMP LIT UP
10		80024+80026+80025	RED LAMP LIT UP
11		50024+50025+50026	RED LAMP LIT UP
12		50036+50037+50038	RED LAMP LIT UP
13	SPR	50041+50062+50060+50039	RED LAMP LIT UP
14		50042+50043+50040+50044	RED LAMP LIT UP

2. FUNCTION OF FIBA IN MEMU AND WHAT IS THE DUTIES OF LPP IF IT ACTIVATED

INTRODUCTION

There are five numbers of MEMU rakes in SDAH division. Four numbers rakes are provided with FIBA (Data collected from Subrata Some /Tech. Asstt./TRS/SDAH)

1	198306+198305+1983067	yes	--	red
2	198184+198907+199061	yes	--	red
3	99059+99062+99060	yes	--	red
4	199178+199183+199177	yes	--	red
5	25025+25026	-----	yes	--

DUTIES OF LPP IN CASE FIBA ACTIVATED IN MEMU

Whenever BP dropped, LPP should stop the train, secured the train and proceed to the coach formation to know the cause of dropping of BP pressure. If he found hissing sound of air leakage from FIBA unit with red color indicator. It is clearly understood that FIBA has been activated. He should try to rectify the problem as given below i) isolate the cock between FIBA and BP branch line ii) isolate the cock between

MR (150 L for bellow) and affected bogie cock iii) to change the red indication to green rotate the knob anti clockwise again clockwise iv) speed of the train should not be more than 60 kmph (ED/Carr./RDSO letter no. MC/CB/MM dated 09.09.2009)

BRAKE BINDING IN CONVENTIONAL EMU

Brake binding is a phenomenon of binding of wheels by brake blocks when the Loco Pilot's brake valve is release position.

SIGNS & SYMPTOMS

- All indication lamps normal but Unit not to move when MP kept in Shunt position or very hard to move. Poor hauling.
- Train running heavy with push back tendency. Poor acceleration. Quick de-acceleration.
- Rise in temperature and emission of smoke or smell from effected wheels or smell/smoke reported by passengers in the defective coach.
- Unusual sound due to binding of wheels by brake blocks.
- Skidding of wheels on rail.

MAIN CAUSES

- Due to 'EP' Valves malfunctioning in particular coach.
- Auto Brake binding due to Triple valve defective in particular coach.
- Mechanical Brake Binding occurs due to particular brake cylinder stuck up in 'Motor Coach' or 'Tailor Coach' (even though Brake Cylinder pressure exhausted).
- Jamming of brake cylinder piston.
- Jamming of brake gear levers, pins, brake beam hangers etc.
-

ATTENTION OF BRAKE BINDING

Stop the train at a convenient place (try Stop clear the platforms & bridges), keep the brake controller handle in release position. Before leaving the cab secure the train to avoid rolling down.

STEP-1 OFF EP Switch & 5amps MCB – Take shunt notch, if brake binding released, work by AUTO Brake. If not successful then-

STEP - 2 'OFF' BIVS for 10 sec. & 'ON' BIVS, take shunt notch, if binding released, work normally, if not released then –

STEP – 3 Apply EMERGENCY Brake by Brake Controller handle for 10 sec & released (2/3 times). Take notch after charging BP pressure 5Kg/cm². Take shunt notch, If Brake not released.

STEP - 4 secure the train by providing skid/wedges to avoid rolling down. Inform to Guard to do same and be prepared to apply his brake if the train rolls.

STEP – 5 Find out the affected coach by observing smoke, smell over heat from brake blocks & ensure the brake binding. Note the coach number.

ATTENTION OF BRAKE BINDING ON PF AND NON PF SIDE

If effected coach's BICs are non-Platform side then follow the procedure

Before leaving the cab secure the train to avoid rolling down.

Isolate both BICs (vent type) cocks, observe trapped air from the brake cylinder will exhaust through vent of BICs & brake blocks are released.

Physically check & ensure brake blocks are released.

Back to the Cab. Work normally according to brake power.

If brake not released after isolating both BICs then normal the BICs & isolate the EPIC, then release BC pr. through release chain. Physically check brake blocks are released then isolate both BICs & work the train.

If unsuccessful then normal the both BICs. Isolate ICA. Release full BC pr. or still hissing sound stops by pulling release chain. Check physically, if released, then isolate both BICs & work the train.

If effected coach's BICs are Platform side & LP unable to isolate the BICs then follow the procedure

Before leaving the cab secure the train to avoid rolling down.

Isolate the EPIC cut out cocks which is available on the opposite side of the effected Motor Coach.

Release the brake cylinder pressure by pulling release chain till the complete air is released and brake blocks are released. Ensure the brake blocks are shacking freely.

If not that means AUTO brake binding, **then isolate ICA & pull the release chain again till the complete air is exhausted.**

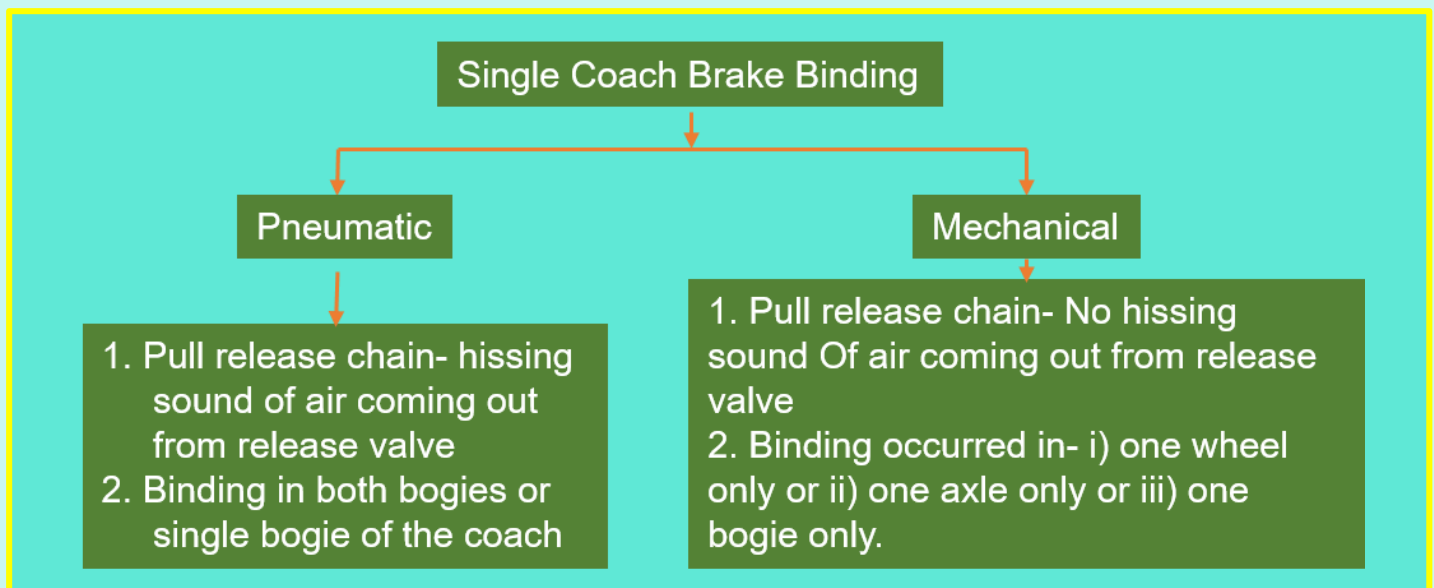
Pull the train up to where effected coach is free from Platform then stop the train, inform to GD. Go to the affected coach again.

Before leaving the cab secure the train to avoid rolling down.

Isolate both BICs, again physically check & ensure brake blocks are released then back to the cab work the train according to brake power and duly inform to TLC and record in the log book.

ATTENTION OF MECHANICAL BRAKE BINDING

1. Open the Pull rod by removing the pull rod pin.
2. Remove brake blocks by opening of split pin & cotter/dagger pin.
3. Ensure two wheels (one pair) are free from brake binding.
4. Bind the pull rod by wire/rope with brake beam/safety loop.
5. Isolate BICs of that coach.
6. Inform to TLC and keep the record in the log book.



THREE PHASE EMU

PARKING BRAKE IN 3-PH EMU

PB are provided in three phase EMU to stable the rake. PB units are provided in DTC & TC/NDTC. There are two (releasing & application) push button and one pressure gauge provided in driving CAB. PB releasing & application status can be detected from HMI. PB automatically applied when DCS key kept OFF position. PB automatically release at speed above 10 kmph. PB should be release before starting the train. Sometime PB stuck on applied condition, at that time speed will not increase more than 20 kmph. Message of PB stuck detection – in HMI. Ensure physically releasing of parking brake in affected coach before reset of parking brake from HMI at override mode.

CAUSES OF PARKING BRAKE BINDING:

- Parking Brake apply command given from DTC.
- MR Pressure less (less than 2 kg/cm²).
- Parking brake MCB (GC-15) in one or more C coaches may be tripped
- Parking brake Cock close under one or more C coaches.
- Parking Brake Magnet Valve de-energized.

INDICATION:

- Parking brake gauge will show zero kg/cm² pressure.
- Parking brake applied symbol will appear on HMI for one or more C coaches.
- PB apply push button may show blue color backlight steady. Message of PB stuck detection.

ACTION:

- Release the parking brakes by pressing the 'parking brake release' push button in D/Cab and observe parking brake status on HMI, parking brake gauge.
- If not successful, apply parking brakes again, wait for 3-5 sec. and again release by pressing 'parking brakes release' push button.
- Ensure all MCBs are 'set' in DTC. (Especially parking brake MCB) If parking brake MCB is found tripped, reset the same. Apply and release parking brakes once and ensure that blue light 'Apply Push Button' is

extinguished. • If Parking Brakes are still not releasing, isolate parking brake of affected coach by pulling the release wires provided on the bogie near dashpot spring and hook it properly near wheel no.1,4,5 & 8 • Make entry in LOG book and Inform TLC.

NOTE:

Parking brakes can only be released from Driving cab where master key is switched ON but **can be applied from any Driving cab/Motor coach without inserting or putting master key 'ON'**. When the parking brakes are applied from motor coach, Parking Brakes will be applied only in the C coach of the concerned basic unit.

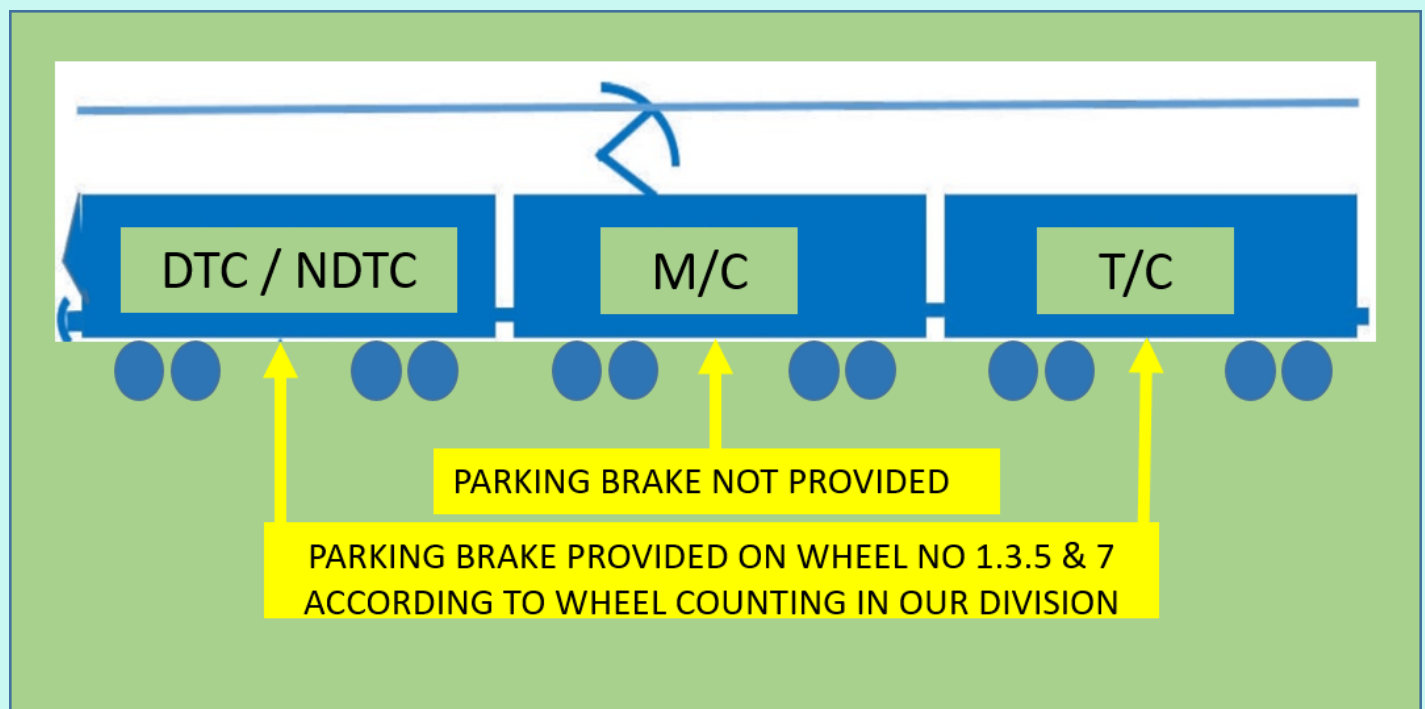
The parking brake units are fitted on the following wheels in Loco and 3-PH EMU as shown below

COMPARING WITH LOCOS

LOCO TYPE	WHEEL POSITION OF PARKING BRAKE UNITS			
WAP5	1	4	5	8
WAG-9	2	6	7	11
3-PH EMU [OUR DIV.]	1	4	5	8

Note: Release the parking brakes of dead loco by Operating solenoid-30 valve in release and lock condition and ensure parking brake are released and PB gauge will show 5 Kg/Cm sq.

MANUAL RELEASING OF PARKING BRAKE FROM HMI



RAKES PROVIDED WITH PB IN OUR DIVISION

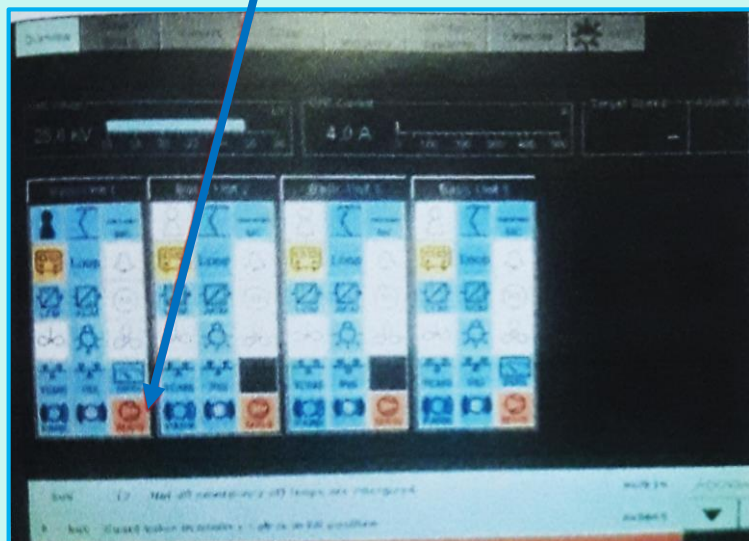
SL. NO.	RAKE NO	PB FITTED
1	13200B+13201B+13202B+13203B	yes
2	13208B+13209B+13210B+13211B	yes
3	13232B+13233B+13234B+13235B	yes
4	13212B+13213B+13214B+13215B	yes
5	13220B+13221B+13222B+13223B	yes
6	13216B+13217B+13218B+13219B	yes

MR PRESSURE NOT BUILD UP IN A 3-PH EMU RAKE

PROCEDURE FOR RESETTING MAIN AIR COMPRESSOR (MAC)

Resetting of Main Air Compressor - MAC through Fault Reset Push Button. In MRVC-II rakes, sometimes all Main Air Compressors (MACs) stopped running due to all “MAC isolations” and “MAC management failure” resulting in drop/reduction of MR and BP pressure. This failure may be due to failure of Air Dryers resulting into isolation of MAC. Therefore whenever, Low MR and BP pressure is observed, during train working, following action to be taken to restore the MR. & BP pressure, in addition to isolation of Air leakages if any.

1. Observe the Overview of HMI.
2. Fault message “Air dryer is faulty, MAC is isolated” appears on HMI and the MAC pictogram is in ‘Red Color’ on HMI. PRESS “FAULT RESET” push button (Blue color) provided on driver’s desk. Compressors will start and MAC pictogram will be turned into ‘Blue’ color.

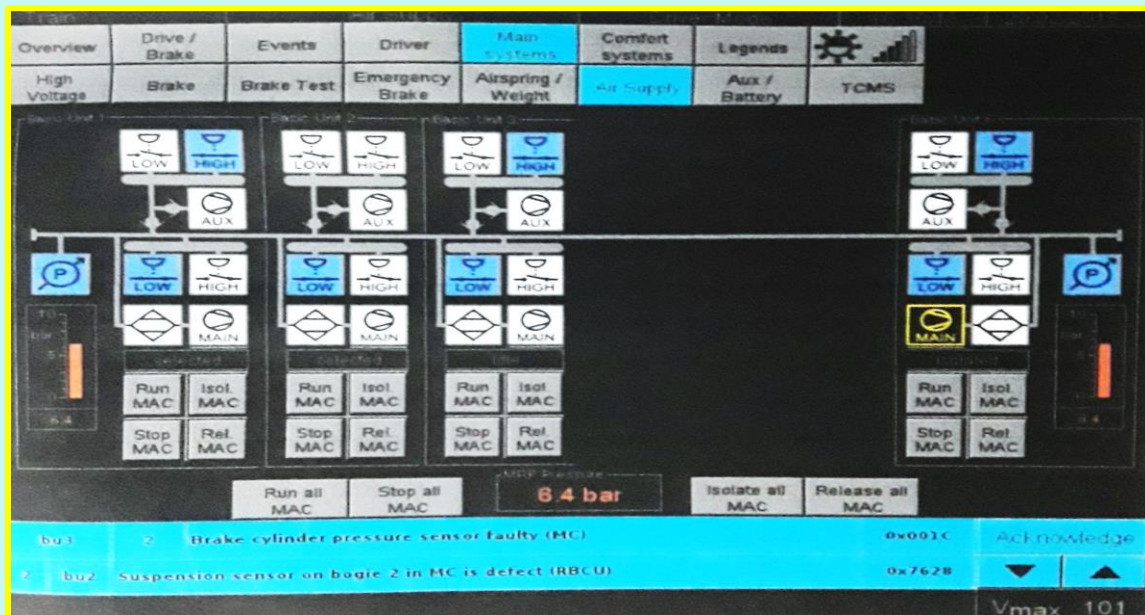


3. If there is no specific message appears on HMI and the pictogram of MAC is ‘White’ and Main Compressors not starting even on ‘Low MR PRESSURE?’
4. Rotate the “Start All Main Compressor” switch (spring loaded) clock wise provided on Cab Rear Wall (CRW) panel. Observe that sufficient pressure is buildup. If ‘Low MR Pressure’.
5. Inform TLC for further assistance.



PROCEDURE TO ISOLATE “MAC” FROM HMI MAIN SYSTEM → AIR SUPPLY → MAC

This screen shows the status of the Air Supply system in different states at train level and provides functionalities to act on the air supply system also. The indication for different states on HMI is explained below.



All Main Air Compressors (MAC) can be Run/Stop/Isolated/Release all together from the air supply screen at train level in Driver, No login and Maintenance mode. The MRP pressure is shown on HMI as an analogue bar graph. It is possible to individually Run/Stop/Isolate/Release Main Air Compressor from Air supply screen at basic unit level in Driver, No login and Maintenance mode from HMI. When the Compressor control is forced ON, a warning shall be displayed on the HMI display “Main Compressor manually operated, check main reservoir pressure” as pop-up message

NOTE: PROCEDURE FOR ISOLATION OF MAIN AIR COMPRESSOR (MAC)

- Main Compressor of one or more units can be isolated from Main Systems – Air Supply screen of HMI.
- If not successful, proceed to the shunting cab of desired motor coach.
- Operate MAC CONTROL SWITCH (Switch provided in E-cabinet of shunting cab to 1 O'clock position to switch off main compressor.

HMI SHOWING BLANK

HMI display dark Causes: HMI supply Secondary TCMS PWR MCB (JE F14) is tripped.

- Display is defective.
- Ring switch to HMI communication failed. Indication: HMI display is dark.
- Train may work normal even if HMI display is dark
- Action: • Ensure that the HMI supply Secondary TCMS PWR MCB (JE F14) in CRW is SET.
- Trip & SET above MCB.
- Inform TLC

CONVENTIONAL LOCO

EXTERNAL FAULT IN SIV UNIT

Indication-

- 1) DJ open (1st LSCHBA glowing, then LSDJ glowing)
- 2) LSSIT glowing
- 3) QSIT permanent energized/dropped
- 4) In SIV panel, external fault lamp glowing
- 5) In SIV display, fault message showing.

Trouble shooting for external fault-

- 1) Note down the fault message on SIV panel display and check the glowing of external fault lamp
- 2) If HRAVT on -"0"
- 3) Check for any smoke, fire and burning smell in SIV panel, EM contactor panel, all auxiliary motors and equipment. If found any abnormalities then isolate the defective equipment and work the train accordingly.
- 4) If not found any abnormalities, check EM contactor panel for all EM contactors opening and defect. If any EM contactor partially/fully closed, open the contactor and try to rectify the defective contactor, if not rectify then isolate the defect contactor by concern switch and work the train.
- 5) If all are normal, reset the QSIT relay / target after press the resetting push button on SIV panel. OFF the BLCP/BLCPD and BLVMT, close the DJ. If success then put ON BLCP/BLCPD and BLVMT one by one if success work the train after check the working of all auxiliary motors. If not success, isolate one by one MCP or blower motors (MVMT-1, MVMT-2, MVRH) and identify the defective motor then work the train
- 6) If not success and fault message regarding "external earth fault" then reset the QSIT relay by pressing the reset push button on SIV panel or by HBA off & on. after that isolate HVSL 1+2, HPH, HVSI 1+2, remove the fuses of CCRA 1+2, CCVT,

CCSPM (if provided), "OFF" the both BLRA 1+2. then close the DJ with off condition of BLCP/BLCPD & BLVMT. If success, one by one motor/equipment put in service and identify the defective motor/equipment and isolate the same and work the train.

7) If not success, then all switches & fuses put in normal position and work the train for 45 minutes. Put in normal position and keep HSIV on "0" and press ELD by pass push button on SIV panel. Work the train for 45 minutes.

NOTES:

- 1) If QSIT energized/dropped after closing BLCP/BLCPD, then check the working MCPs and identify the defect MCP by one by one putting in service and isolate the defective MCP by HCP.
- 2) If QSIT energized/ dropped after closing BLVMT, then check the MVRH & MVMT 1+2 and identify the defective blower by one by one putting in service and isolate the defective blower.
- 3) Before making off the HBA, isolate the IP cock and IP cock should be normal after making "ON" the HBA.
- 4) All direct auxiliary motor switches to be operate after opening the DJ.

PROCEDURE TO BY PASS ELD

- 1) Press the reset switch for $\frac{2}{3}$ seconds on SIV panel and reset the QSIT target if dropped or off the HBA for $\frac{2}{3}$ seconds and again on the HBA and reset the QSIT target if dropped.
- 2) Put HSIV on position "0" in switch panel.
- 3) Press the ELD by-pass push button for 2-3 seconds on SIV panel and check the glowing of ELD by pass lamp.
- 4) Close the DJ as per normal procedure and clear the block section within 45 minutes (time counting start after pressing ELD by pass push button) with sharp observation of working on SIV & all auxiliary Motors/Equipment's.

In between the bypassing time never switch off the HBA & on the HBA otherwise bypassing time will get reduce by 15 minutes in every switching off & on the HBA.

THREE PHASE LOCO

FAULT MESSAGES FOR LOW MR PRESSURE

- BY 3-PH LOCO CORE GROUP

3 PHASE LOCO – Fault message (F 1002P1), if MR pressure is low (< 6.4 kg /cm²)

EFFECT – LSF1 will blink and BPFA will glow TE/BE will not be possible.

DUTIES OF LOCO PILOT –

Bring throttle to zero, note down the fault message, and then acknowledge the fault by pressing BPFA.

CHECK COMPRESSOR

If working

If not working

Check any air leakage from air dryer if leakage persists, isolate air dryer by isolating cock and trip MCB Of air dryer (128.1) in SB 2 panel

Put BLCP to MAN position and wait until MR pressure reaches 6.4 kg/cm² and above

check the MCB of MCPs (47.1/1 for MCP1 and 47.1/2 For MCP 2), If found Trip, open VCB reset MCB once only.

Check leakage from AUTO drain valve (location – near BC1 In under frame), Ensure both MR drain cocks are closed no air leakage from CP delivery pipe and isolate both unloader valve isolating cocks (above battery box no 2 in under frame), if provided For CCB 2 (Knorr type) – UL cock should be closed (horizontal to vertical position) location – in pneumatic panel just beside CB cock. If unloader valve isolating valve not provided – then disconnect cable of EP 26 (location – in pneumatic panel.

Close 136(feed valve isolating cock)- if feed pipe pressure drops. If BP pressure drops, causes of MR pressure isolate VCD. ensure that both cabs assistant loco pilot emergency valve operating handle are closed condition **for E70 type loco** – in rear cab, A9 is in neutral position **For Knorr type loco** – in rear cab, A9 lock in FS position and Mode switch is at TRL position. But if there is no leakage MCB of MCPs are set -still MCP are not working –then switch off control electronics and switch on. If till not success trip VCB, manually trip (127.22/3 location in SB 2 panel). Close VCB and resume traction, when MR pressure reaches 6.4 kg/cm² and above. If not success ask to TLC

OPERATING INSTRUCTION FOR RESETTING OF VCD PENALTY BRAKE APPLICATION IN 3-PH LOCO

RESETTING OF VCD

If one of the following three conditions is achieved, the monitoring cycle is reset and the 60 seconds cycle starts again and VCD penalty brakes will not active in 3 phase locomotive -

1. Within a period of 60 seconds the LP must press the 'VIGILANCE' foot switch.
2. Initiate sanding by pressing 'SANDING' foot switch with in a period of 60 seconds.
3. While train is in motion after the position of the TE/BE throttle in such a way that a difference of at least 3% appears between the first & second value.
4. If neither of these three conditions is fulfilled within 60 seconds period, an alarm is triggered.

REACTION:

An intermittent signal sounds in the LP's cab, from the buzzer BZ-V-O-F. The yellow lamp 'LSVW' lights up.

3 PHASE LOCO – E-70 & CCB-2 LOCO

If Vigilance penalty brake acted then BP pressure drops to 3.0 kg/cm². and msg. will generate F1003P1

TO RECOVER VIGILANCE PENALTY BRAKE –

1. Bring Throttle (TE/BE) to '0' position.
2. Move A9 handle to Emergency position in E-70 brake system & Full Service (FS) in KNORR brake system (CCB2) to avoid MR pressure dropping & after stopping the train keep SA-9 in application position.
3. Without switching 'OFF' Control Electronics wait for 160 seconds in WAG-9/WAP-7 & 120 seconds in WAP-5 loco. If KNORR brake system (CCB2) wait for 32 sec.
4. After waiting, Press 'BPVR' to reset VCD, LSVW will extinguish & buzzer will stop.
5. Press and release VCD 'Foot Switch'.
6. Press 'BPFA' for acknowledging fault message.
7. To charge BP pressure move AUTO/A-9 handle to 'RUN' position.
8. Ensured that BP pressure build up to 5.0kg/cm².
9. After confirming the pressure restored fully (BP/MR) resume traction.
10. Inform to TLC and write remarks in log book

CONVENTIONAL LOCO

LP has to do the following operations for 60 sec otherwise VCD penalty brake will activate –

- a) Progression or Regression by MP or EEC.
- b) Press VCD foot pedal switch.
- c) Operation on MPS (1st notch).

If Vigilance penalty brake acted then BP pressure drops to 3.0 kg/cm².

To recover vigilance penalty brake –

1. Keep MP on '0' position.
2. Move A9 handle to Emergency position to avoid MR pressure dropping & after stopping the train, apply SA-9 in application position.
3. Wait for 32 seconds.
4. Then Press VCD reset button.
5. To charge BP pressure move AUTO/A-9 handle to Release position.
6. Ensured that BP pressure build up to 5.0kg/cm².
7. After confirming the pressure restored fully (BP/MR) resume traction.
8. Inform to TLC and write remarks in log book.

MALFUNCTION OF VCD 3 PHASE LOCO

If LP is acknowledging VCD correctly as per procedure, but till VCD penalty is applying, it is assumed that VCD is malfunctioning. In such cases stop the train, take safety measures, VCD can be



bypassed by keeping switch No 237.1 (SB-1) on '0' position. Remark should be given in log book, inform to TLC & proceed carefully.

CONVENTIONAL LOCO

1. A bypass switch (HVCD) is provided in the switch panel or near main unit, in case of any malfunctioning of VCD, Loco Pilot has to isolate the unit by keeping the bypass switch in '0' position duly entering in the log book and informing TLC.

2.If still not success, HBA OFF/ON and try.

3.No loco to be taken over from main shed/trip shed with VCD in isolated /defective condition.

4.While taking over charge if VCD is found isolated without any remarks, LP should normalize and check its healthiness.



TM ISOLATION STATUS OF IGBT BASE 3-PH LOCO

Isolation of TM in IGBT loco- General procedure – Under running condition –

1. Observe TE/BE meter of both bogie, if difference in reading – clear indication of TM isolation.

2. Observe TM temperature status through DDU (process information – motor temperature) - any major difference in temperature- clear indication of TM isolation.

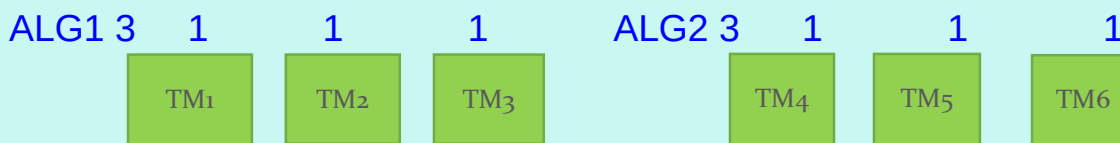
Under stationary condition-

TM isolation or not - clear Browse mode.

TM ISOLATION STATUS IN VARIOUS TRACTION CONVERTERS-

1. **CGL make-**

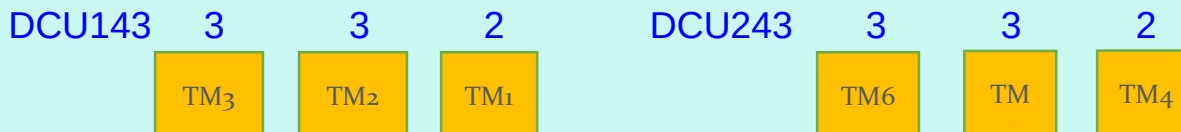
Observe the status on DDU of ALG1 and ALG2



The last three digit "111"of ALG1 stands for TM1, TM2, TM3. and the last three digit "111" of ALG2 stands for TM4, TM5, TM6 respectively. If any TM is isolated condition, then the digit "1 will turn to "F". For an example - if ALG1 shown "3F11"-means TM1 isolated.

2. **BT make-**

Observe status on DDU of DCU1 and DCU2



The last three digit “333” of DCU1 stands for TM3, TM2, TM1 and the last three digit “333” of DCU2 stands for TM6, TM5, TM4 respectively. If any TM is isolated condition, then the digit ‘3’ will turn to “0”. For an example -if DCU1 shown “43032”-means TM2 isolated and other make –

MAKE BY	STATUS TO KNOW	TM IN SERVICE	TM ISOLATE
MEDHA make-	TM status always available on DDU	Gray color	Red color
BHEL make	Through DDU - process information – menu (right side) - motor converter -TM status display on DDU.	Green indication	Orange indication
ABB make-	There is no procedure to check TM isolation status .TM isolation status can only be identified through “Browse mode”.	NIL	NIL

DIFFERENT PICTURE OF DDU



BHEL DDS(GERSYS)



ABB MAKE



MEDHA MAKE



BOMBARDIER MAKE



ARC MAKE



ADV RAIL CONTROL

TIPS & TRICKS

PROPER PROCEDURE TO MAKE MCE "OFF" IN ABB LOCO.

Firstly stop the train/loco, apply SA9, trip, lower pantograph, move BL from "D" to "OFF", wait for node FLG 612, again move BL from OFF to C, node FLG 613 will come. SM & DDU become blank--- this is the right procedure to MCE "OFF" in 3 phase loco with the help of BL key.

ON 3PH EMU IF LP FELT NO TRACTION & MR PRESSURE DROPPING

First LP must check MC close or not. Like conventional, ABB not close after resume of OHE, hence LPP must be alert regarding availability of OHE. He must put ON MC close again.

TESTING LOCO BRAKE POWER

Preamble: Whenever the charge of a locomotive is taken by driver, the Loco brakes are tested to ensure its effectiveness.

1. Ensuring proper position of the cocks: The isolating cocks of A-9 & SA-9 must be open in driving cab & must be close in rear cab of the locomotive
2. Traction test: After closing the DJ, all auxiliaries should be started with the help of BL switches. Loco brake should be applied by moving the loco brake handle in application position. It should be ensured that brake cylinder pressure is about 3 to 3.5 kg/cm² and brake blocks are applied on the loco wheels. Then notching should be done to ensure the LOCO brake power. Notches should be taken in such a way that traction motor current should be 650 A. This amount of current generally obtained by taking three to four notches. The loco should not move in 650 A.

LOCO should move in 850 amp to 900 A

IMPORTANT RULES FOR SHUNTING OPERATION

Preamble: Shunting operation at station or yard is to be performed. Coaching as well as good stock are shunted with the help of engine as per the requirement of train operation. Important rules for carrying out shunting work from the point of view of loco operation are

1. While attaching the engine with the position of the coach or wagons for which shunting is to be performed, the following precautions should be taken. This is also applicable for engine being taken on load.
 - i) While approaching the wagon or coach for shunting purpose, driver must work the engine with leading cab only by which better visibility of the location of coach/wagon to which the engine is to be attached.
 - ii) The engine should be stopped about 20M in advance of the coach/wagon to which engine is to be attached. After this engine should be moved slowly towards the coach/wagon as per the signal of the point's man or guard so that engine is attached with the coach/wagon smoothly without any jerk.

2. At stations where there is a gradient steeper than 1 in 400 falling away from the station within the station sections towards the approaching train, shunting should be performed with the engine leading towards the falling gradient.

ATTACHING/HAULING OF DEAD LOCOMOTIVES BY MAIL/ EXPRESS/SUPER-FAST/PASSENGER TRAINS

1. Only one dead locomotive (diesel/electric) can be attached. **[**As per latest correction of GR/SR(4.21), now two dead locomotive can be attached with one live locomotive, if the section permitted & no locomotive cannot be attached with super first train(like Rajdhani & Shatabdi Exp.)]**
2. Brake power of the train should be 100% excluding dead locomotive
3. As far as possible, brake should work on dead locomotive. However, if it is not possible, then in the case of air-braked train, brake pipe and feed pipe of working locomotive shall be connected to brake pipe and feed pipe of trailing stock and dead locomotive will work as piped vehicle. In the case of vacuum braked train, vacuum pipe of locomotive shall be connected with vacuum train pipe of trailing stock and the dead locomotive shall be treated as a piped vehicle. If the locomotive is fitted with pure air braked system and vacuum pipe is not provided on locomotive then it should be attached with air braked trains only.
4. Attaching/Hauling of dead locomotives by goods trains: Movement of maximum three locomotives (2 working+1 dead) with load is permissible subject to observations of all restrictions on operation of double/triple headed working locomotives in the section provided that brakes in dead locomotives are operational. The above instructions should be strictly followed and it is, therefore, advised that these guidelines be supplemented in the respective Subsidiary Rules also.
5. Escorting of dead Locomotives: Escorting of locomotives (diesel as well as electric) attached to freight and passenger carrying trains is not necessary if the brakes including proportionate are fully operational and the dead locomotive is attached next to the train engine. The dead locomotive will continue to be escorted if attached in the rear of brake van or has defect in under gear equipment.

CREW FRIENDLY SHUNTING LOCO WAS-4 / ASN

INSTRUCTION FOR SHUNTING LOCO

1. SW "ON" battery supply operating by HBA
2. The MCPA will start automatically and will stop after built up pressure in 8 min.
3. Unlock the BL Key by inserting the BL Key. No need to operate A9 & SA9 isolating cocks. It will set automatically.
4. Choose the PT to raise by operating "PT SELECTOR" sw. in CAB-2

5. Press & release the PT UP sw. in BL box. The selected PT will be touch OHE
6. Press the DJ close sw. and release. The DJ will close
7. SW. ON BLCP and BLVMT. Operate MPJ and take notch as usual for shunting
8. To change cab apply brake and lock the BL after switching OFF BLCP
9. No need to trip DJ or lower pantograph
10. Unlock the BL after changing CAB. No need to operate any pneumatic cock
11. Repeat the procedure as mentioned in SL-7
12. At the end of the shunting operation trip DJ sw. and lower the PT by pressing PT lowering sw. in BL box. Apply the brakes and remove the BL KEY. Finally sw. off the battery.

ENERGISING OF SHUNTING LOCO



Switch "ON" battery by HBA → unlock bl. → Select the PANTO through "PANTO selector" switch in cab-2. → Press & release the "PT UP" switch in BL box → Press "DJ CLOSE" switch & release. → Switch "on" BLCP & BLVMT. → Operate MPJ and take notch as usual for shunting

DURING CAB CHANGING

Apply brakes & lock the BL after switching "OFF" BLCP & BLVMT. → No need to trip DJ or lowering pantograph. → Un-lock the BL after changing cab. No need to operate any pneumatic cock

FACILITIES PROVIDED

S N	ON SHUNTING LOCO 21380/WAS-4/ASN	ON OTHER LOCO
1	Rear view mirror for LP to view the rear portion of locoduring shunting.	Not provided
2	Rear cab door open alarm to alert LP.	Not provided
3	Maximum permissible speed of 15 km/hrs. of the locoduring SHUNTING MODE operation.	Not provided
4	Switching of loco from shunting to normal mode of operation through a Configuration Switch (CS).	Not provided
5	Cab changing with minimum operation KEY(is one)	Cab changing with maximum operation KEY (is three)
6	Automatic isolation of A9 and SA9 isolating cocks. No need controlled by IP valve with BL key	Must be isolates
7	Automatic operation of MCPA.	Only manual start & stop
8	CAB Changing time 30-35 sec	CAB Changing time 180-200 sec
9	On cab changing time no need to trip DJ and PT lowering	Need to trip DJ and PT lowering



Provision of Rear View Mirror,



**Provision of Rear Cab Door
Open Alarm System**



**Provision of A9 and SA9 isolating
Cocks**



**Provision of Configuration
Switch (CS)**

GENERAL DISCUSSION
OPERATIONAL NOTE BY OPERATING DEPARTMENT
LATEST GR & SR CIRCULAR ADDENDUM & CORRIGENDUM

- A. No. TG.202/CS/G&SR/Pt. XV Dated: 18.03. 2020
B. 31st Addendum & corrigendum (revised and reprinted 2012/1st Addendum & corrigendum Revised and reprinted 2020/ to the General and Subsidiary Rules book

1. The following shall be substituted for existing GR 1.01.

GR 1.01 Short title and commencement: These rules may be called the Indian Railways (Open Lines) General Amendment Rules, 2020, 2. They shall come into force on the date of the publication the Official Gazette (12-03-2020).

2. Delete the existing GR 4.10 (I) and substitute by the following:

GR 4.10 "(1): The speed of trains over non-Interlocked facing points shall not exceed 30 kilometers an hour 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."

- C. . No. TG.202/CS/G&SR/Pt. XVI Dated: 09.11.2020
D. 32nd Addendum & corrigendum (revised and reprinted 2012/2nd Addendum & corrigendum Revised and reprinted 2020/ to the General and Subsidiary Rules book

Delete the existing SR 3.38/b (1) and substitute by the following SR

SR 3.38(b) where trains are required to run through without stopping the same shall be passed through the straight line of the station. Trains may, however, be permitted to run through a directional loop line adjacent to main line at a speed of 30 kmph without stopping. It approved by specific orders, as incorporated in the working Time (WTT), otherwise trains shall run through a loop line at a restricted speed of 15 kmph. Suitable indication board, at the start and the end of traffic section on which maximum speed of 30 kmph on the directional loop line adjacent to main line is permitted, shall be provided for guiding Loco Pilot/Motorman and Guard.

- E. No. TG.202/CS/G&SR/Pt. XVII Dated: 15. 01. 2021
33rd Addendum & corrigendum (revised and reprinted 2012/3rd Addendum & corrigendum Revised and reprinted 2020/ to the General and Subsidiary Rules book

1. The existing SR 2.01 renumbered as 2.01(ii) and the following shall be incorporated as SR 2.01(i) :

SR 2.01(i): The copy of Rules to be supplied by Railway administration under General Rule 2.01 may be hard or electronic copy of the document

or relevant extracts thereof.

2. Delete the existing SR 4.19[a](ix) & SR.4.19[a](xii) and substitute by the following SR -

SR. 4.19[a] [ix]: Rule Books G&SR Book, Block Working Manual & Accident Manual all with up-to-date correction slips) in hard or in electronic form,

SR. 4.19 [a] [xii): Working Time Table in force of such Divisions he is to work and all correction slips and appendices in hard or in electronic form.

3. The following shall be incorporated as SR 4.19[c](vi):

SR 4.19[c] (vi): G & SR book with up-to-date Correction Slips in electronic form(optional) as personal item.

4. Delete the existing SR 4.19[e](i) and substitute by the following SR:

SR 4.19[e](i) One copy of Loco Pilot's Rule book/G & SR book with up-to-date Correction Slips (in hard or in electronic form)

5. Delete the existing SR 4.19[f](iv) and substitute by the following SR :

SR 4.19[f] (iv) Working Time Table in force of such Divisions he is to work and all correction slips and appendices in hard or in electronic form.

6. The following shall be incorporated as SR 4.19[g](ix):

SR 4.19[g] (ix): G&SR book with up-to-date Correction Slips in electronic form(optional) as personal item.

SAFETY CIRCULAR

SECURING OF RAKE AS PER GR 5.23

Securing of vehicles at stations GR 5.23 –

The Station Master shall see that vehicles standing at the station are properly secured in accordance with special instructions.

SR.5.23

i) Vehicles shall be secured when standing in siding or on running lines, and at least one safety chain and padlocks used for every fifteen vehicles. Where there are brake-vans, the brakes shall be screwed hard on and in the case of goods vehicles all lever brakes shall be put down. At that time both ends fouling marks should be clear at station for safety.

(ii) The new type of bogie wagons for examples, BOX, BOBS, BOI, BRH, &c., are fitted with roller bearings and are liable to roll even on level formation. These wagons stand the same danger of rolling down on a gradient of 1 in 400 as ordinary 4 – wheelers on a gradient of 1 in 133. Special care should, therefore, be taken to secure these wagons while standing in sidings or on running lines.

Following precautions are necessary when BOX wagons are stabled at station.

- (a) At least two safety chains must be used and locked.
- (b) The hand brakes whether side operated or end – operated must be fully tightened. If a rake of BOX wagons is stabled, at least six wagons from each end must have their brakes put on tightly.
- (c) The brakes should be operated by station staff, such as Porters, Shunt man or Points man under the personal supervision of Guard or ASM.

REGARDING GR 6.07

Report of conditions likely to affect running of trains to Controller or Centralized Traffic Control Operator GR 6.07–

Loco Pilot, Guards and Station Masters shall advise the Controller or the Centralized Traffic Control Operator of any known conditions or unusual circumstances likely to affect the safe and proper working of trains. The Controller or the Centralized Traffic Control Operator, on becoming aware of such defect or failure, shall inform the same to the railway servant responsible for the maintenance of the equipment and other railway servants concerned.

66TH RAILWAY WEEK AWARDS - 2021

AWARDEES IN DIFFERENT LEVELS UNDER ELECT. / OP / SEALDAH GM LEVEL AWARD:

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	ARUNAVA PAUL	
2	DESIGNATION	LOCO PILOT PASSENGER(LOCO)	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

This division has witnessed furious agitation and miscreant activities during the period of December -2019 in the name of protest against CAB / NRC. In such a situation Sri Arunava Paul LPP/LOCO was taking rest at KRP running room after working train 53171 UP on 14.12.19. Some of the outsider attacked running room Sri Paul did not lose his nerve in such situation and helped many from the 26 available crew to escape from the running room. He took shelter nearby when the protestors were aggressive and had burnt station building of KRP and as many as six rakes & two Locomotives

But as soon as the protestors receded, Sri Arunava Paul rushed to the rakes when many were afraid to even come close to the station. He ensured to extinguish the remaining fire in locomotive & their securing. His assessment of the situation and damage done helped authorities sitting far in divisional control to plan for the disaster

This show his dedication sincerity and presence of mind and extreme courage by which he was able to help CNL & higher officials to short out a future plane to monitor the situation.

In view of commendable and courageous performance shown by Sri Arunava Paul, his name is being recommended for suitable reward at GM's level, 2020.

GM LEVEL AWARD

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	SANTANU DAS	
2	DESIGNATION	LOCO PILOT PASSENGER	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

On 15.12.2019 while Sri Santanu Das, LPP, SDAH/South was working Train no. 34133, he left from BGB at right time but at about 12:40 hrs. while he was approaching towards AQR he noticed that a large group of people gathered over the track. He immediately applied emergency brake and was able to stop the train before the spot of mob. The agitated people were showing agitation regarding non Railway issue of CAB & NRC and were trying to damage the rake by throwing big stones toward the train. LPP Sri Das kept patience and was convince the agitated people, to control themselves in throwing stones and was able to save the passengers and considerable damage to the rake as well.

This shows his dedication, sincerity and presence of mind by which he was able to control the situation and save the rake from damage and also saved the passengers from a severe loss/hart

In view of commendable performance shown by Sri Das. He is being recommended for suitable reward at GM level, 2020.

GM LEVEL GROUP AWARD

SL. No. -1

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	SRI SITARAM YADAV	
2	DESIGNATION	SR. SECTION ENGINEER-1/CP	
3	DEPARTMENT	ELECTRIC(OPERATION)/SDAH	

SL. NO.-2

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	SRI JITENDRA KUMAR	
2	DESIGNATION	SR. SECTION ENGINEER/NKG LOCO SHED	
3	DEPARTMENT	ELECTRIC(OPERATION)/SDAH	

CITATION

Sri Sitaram Yadav and Jitendra Kumar are working as Sr. Section Engineer under the control of Sr.D.E.E (OP)/SDAH and posted at trip sheds. Shri Jitendra Kumar is also nominated to work at Sealdah Loco Shed, SLSD (erstwhile BGA). During the total lockdown period both of them worked hard and restlessly. On 26.06.2020 Beliaghata Diesel Loco Shed was electrified and 30 nos. State of Art WAP7 locomotives were homed for the first time in history of the shed. Shri Jitendra Kumar had significant contribution in preparing the technical guidelines/manuals for training of staff and supervisor of shed. Upon inauguration, minor inspections (IA, IB, and IC) and testing was led by him single handily with inputs from Shri Yadav. Both are key the persons for troubleshooting of Sealdah based locomotives in shed or in trip inspection. As a result, passenger services are being maintained smoothly for last few months.

Apart from this, the territorial failure of electric locomotives has reduced by 82% despite increased holding and freight traffic which is because of excellent online troubleshooting by the duo. Due to involvement of such dedicated supervisors, the dream of Sealdah division to hold MAINLINE State of the Art locomotives has become successful. They also provide assistance to Maldah CLIs which are new to electric traction.

Their contribution may be recognized by rewarding them suitably at DRM level, 2021.

PCSO LEVEL SAFETY AWARD:

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	TARUN KUMAR DAS	
2	DESIGNATION	LOCO PILOT PASSENGER	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

During inspection of SDAH-KOAA section of Sealdah Division via Bullygunj Jn. on 31.03.21 PCSO/ER observed that Shri Tarun Kumar Das LPP/SDAH who was piloting the inspection car was well conversant of safety rules regarding train operation. He has good knowledge about safe working of trains and was very alert throughout.

Due to his diligent work and sound knowledge about safety rules PCSO consider giving him Rs. 1,000/-{Rupees one thousand) only as cash award.

It is therefore, requested to arrange to send the awardees for reporting to PS to PCSO/E. Rly. / Fairly place (1st Floor; on 20.09.2021 at 11-00 hrs. to receive cash award.

DRM level award:



Chief Crew Controller/ SDAH is receiving the award of Sealdah Running Room for "Best House Keeping" held in Sachhata Pakhwara 2021 from Honorable DRM/SDAH on 2nd October 2021.

DRM level award

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	BINEETA MAITY,	
2	DESIGNATION	HELPER II,	
3	DEPARTMENT	WORKING UNDER CCCR/SDAH	

CITATION

Got 3rd prize in the category of "Best Slogan Competition on prevention of COVID PANDEMIC" held in Sachhata Pakhwara 2021.

DRM level award

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	SUBRATA PAUL	
2	DESIGNATION	RUNNING ROOM BEARER	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

SRI SUBRATA PAL working as RRB under CCCR /DDJ is a very much loyal, obedient & efficient staff, he takes part in all the day to day working activities of DDJ/R/R store and computer works of CCC [R] /DDJ office efficiently. He took a very vital role in the GM inspection at BNJ running room and zonal safety at HNB running room. Apart from this he also supervises the day to day cleaning activities of DDJ/R/R, lobby and supplying of sanitizing and other items to the other running rooms.

Considering his dedicated service and sincere working, he should be rewarded suitably

DRM level award

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	ASHIM SHIRALY	
2	DESIGNATION	HELPER-II	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

Sri Ashim Shiraly working as Helper-II, under CCC(R)/DDJ is a very much loyal, obedient & efficient staff, he takes part in all the day to day working activities of DDJ/R/R store of CCC(R)/ DDJ efficiently. He took a very vital role in the Covid pandemic situation and GM's inspection at KRP running room. Apart from this he also supervised the day to day cleaning activities of DDJ running room office of CCC(R)/ DDJ and lobby sanitization supplying of sanitizing and other items to the other running rooms.

Considering his dedicated service and sincere working, he should be rewarded suitably

APPRECIABLE CASE

SL NO	ITEM	REMARKS	PHOTO COPY
1	NAME IN FULL	SRI SANJIT ROY	
2	DESIGNATION	LPP	
3	DEPARTMENT	ELECTRIC(OPERATION)	

CITATION

On 18.08.2021, SRI SANJIT ROY while working staff SPL. 4122 DN SDAH - BGB local, arrived BLN at 18:35 hrs. from where routes for BGB & SPR directions diverge. He noticed that the starter signal for his train from PF-2 is taken off for SPR direction. He kept patience and did not move his train rather he intimated the fact to the working guard through talk-back. Starter signal of BLN PF-2 was then put back and was lowered route indicator towards BGB at 18:43 hrs.

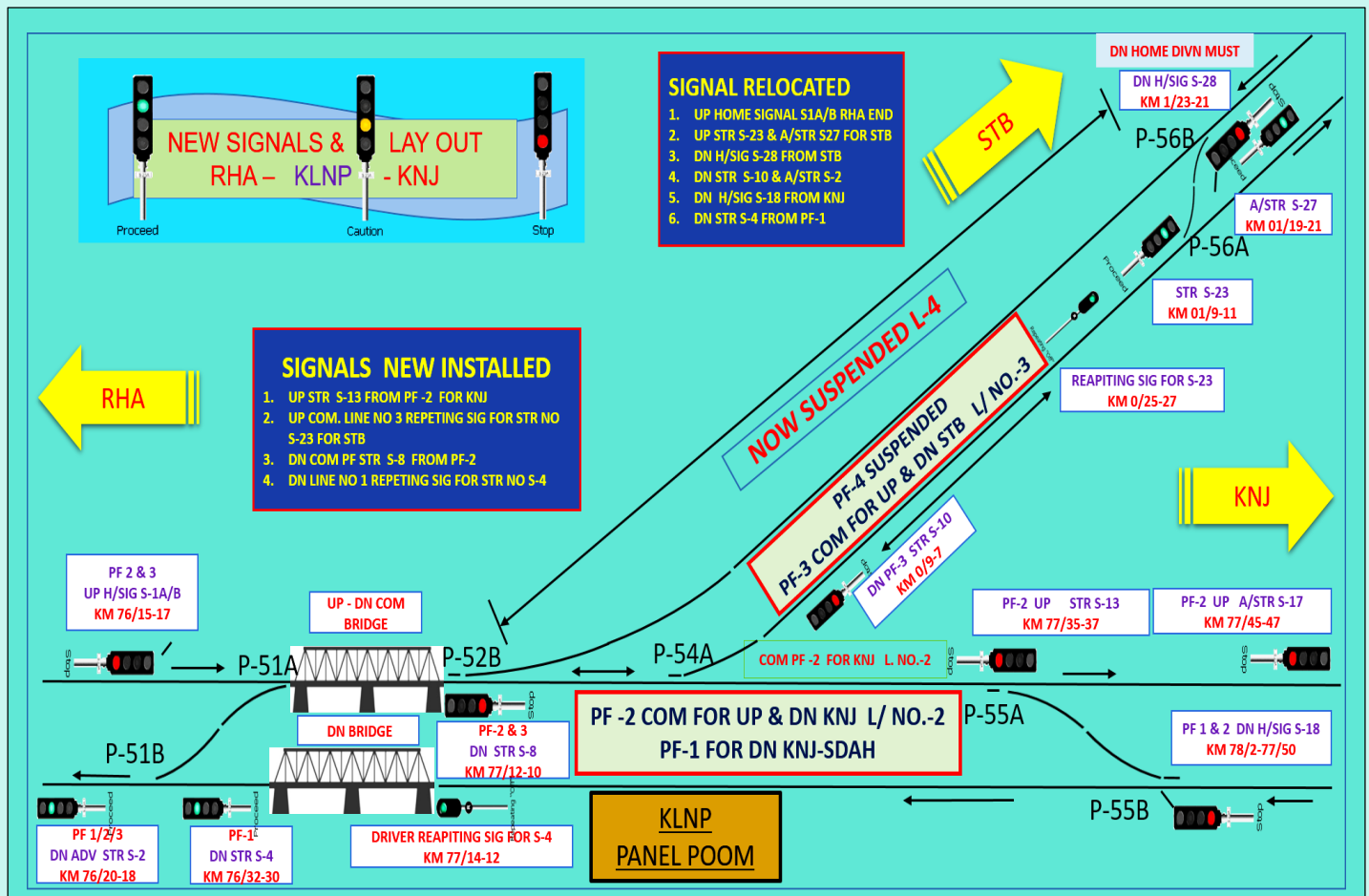
On being authorized by proper signal and guard's bell, Sri Roy departed from BLN. Due to his extreme alertness, sincerity and devotion a major untoward incident with passenger carrying train was saved.

FAILURE CASE

DATE: 03/07/2021

SL.NO	ITEM	REPORT
1	TRAIN NO -	03135
2	LOCO -	37025/WAP7/HWH
3	LINE REPORT -	As reported by LP when he was taken charges at 20.30 hrs. after continuity test done suddenly pressure was showing 0. After putting A9 handle Emergency to RUN position BP pressure increase not more than 2.5 kg/cm2. CLI Sri P K Ghosh attended the train. The Loco was KNORR-BREMSE brake system, due to lack of knowledge of KNORR brake system during continuity test the brake controller handle was put on emergency condition, resulted the BP was showing 0 kg/cm2. After normalizing the brake controller handle, BP build up normally.
4	CONCLUSION -	Lack of knowledge of application of KNORR Brake system by LPM.

NEW SIGNALS LAY OUT BETWEEN (KLNP – STB – KNJ)



NEW SIGNALS LOCATION BETWEEN BDC – RSLR

UP REV. LINE		
NAME OF SIG	SIG NO	AT KM
MUG STR	S-31	46/27
ADV STR	S-41	47/13
DISTANCE	P	52/31
KHN HOME	S-1	53/29
KHN STN		
KHN STR	S-5	55/5
KHN ADV STR	S-11	55/15
GATE	G-14	55/23
DISTANCE	P	58/11
PDA HOME	S-1	59/09
PDA STN		
PDA STR	S-11	60/29
PDA ADV STR	S-21	61/15
GATE	G-17	63/29
GATE	G-18	64/29
GATE	G-19	65/31
GATE	G-21	66/31
GATE	G-22	68/05
BOI HOME	S-1	68/21
BOI STN		
BOI STR	S-11	70/3
BOI ADV STR	S-21	70/19
GATE	G-25	71/29
GATE	G-26	72/19
DISTANCE	P	73/11
GATE	G-27	74/9
GATE	G-28	75/25
GATE	G-29	76/27
DISTANCE	P	77/33
GATE	G-30	79/7
MYM HOME	S-1	80/15
MYM STN		
MYM STR	S-21	82/05
MYM ADV STR	S-31	82/25
GATE	G-35	84/3
DISTANCE	P	85/21
RSLR HOME	S-1	86/21
RSLR STN		
RSLR STR	S-11	87/17
RSLR INT STR	S-21	88/17

NEW SIGNALS LOCATION [MUG- RSLP]		
UP MAIN LINE		
NAME OF SIG	SIG NO	AT KM
MUG LOOP STR.	S-35	MUG/103 1
MUG STR.	S-33	46/15
MUG ADV. STR.	S-43	47/15
DISTANCE	P	49/9
TLO STN		
IBP	(IB)	50/9
DISTANCE	P	53/1
KHN HOME	S-3	54/5
KHN STN		
KHN STR	S-7	55/5
KHN ADV STR	S-13	55/11
GATE	G-14	55/23
DISTANCE	P	58/11
PDA HOME	S-3	59/13
PDA STN		
PDA LOOP STR	S-15	60/29
PDA STR	S-13	60/29
PDA ADV STR	S-23	61/17
DISTANCE	P	62/33
GATE	G-17	63/29
GATE	G-18	64/29
GATE	G-19	65/31
GATE	G-21	66/31
GATE	G-22	68/05
BOI HOME	S-3	68/21
BOI STN		
BOI LOOP STR	S-15	70/3
BOI STR	S-13	70/3
BOI ADV STR	S-23	70/17
GATE	G-25	71/19
GATE	G-26	72/13
DISTANCE	P	73/9
GATE	G-27	74/9
GATE	G-28	75/21
GATE	G-29	76/25
DISTANCE	P	77/33
GATE	G-31	79/7
MYM HOME	S-1	80/15
MYM STN		
MYM LOOP STR	S-25	82/6
MYM STR	S-23	82/13
MYM ADV STR	S-33	82/25
GATE	G-35	84/3
DISTANCE	P	85/21
RSLR HOME	S-3	86/21
RSLR STN		
RSLR STR	S-13	87/17
RSLR INT. STR	S-23	88/17

DN MAIN LINE		
NAMEOF SIG	SIG NO	AT KM
RSLR STR.	S-15	87/28
RSLR INT STR	S-8	87/8
RSLR ADV STR	S-4	86/30
DISTANCE	P	86/6
GATE	G-35	85/6
GATE	G-34	83/24
MYM HOME	S-34	83/8
MYM STN		
MYM LOOP STR	S-16	81/16
MYM ADV STR	S-4	80/26
GATE	G-30	79/26
GATE	G-29	77/10
GATE	G-28	76/8
GATE	G-27	75/2
DISTANCE	P	73/34
GATE	G-26	72/36
GATE	G-25	72/4
BOI HOME	S-24	70/28
BOI STN		
BOI LOOP STR	S-18	69/10
BOI STR	S-14	69/10
BOI ADV STR	S-4	68/28
GATE	G-22	68/20
GATE	G-21	67/22
GATE	G-19	66/14
GATE	G-18	65/28
GATE	G-17	64/12
DISTANCE	P	62/28
PDA HOME	S-24	61/24
PDA STN		
PDA LOOP STR	S-16	60/16
PDA STR	S-14	60/16
PDA ADV STR	S-14	59/18
DISTANCE	P	57/8
GATE	G-16	56/8
KHN HOME	S-14	55/24
KHN STN		
KHN STR	S-8	54/16
KHN ADV STR	S-4	54/22
DISTANCE	P	50/30
IBS	IB	49/30
DISTANCE	P	48/4
MUG HOME	S-44	47/4
MUG LOOP STR	S-16	45/26
STR	S-14	45/26

DN REV. LINE		
NAMEOF SIG	SIG NO	AT KM
RSLR INT STR	S-10	87/10
RSLR ADV STR	S-2	86/30
DISTANCE	P	86/6
GATE	G-35	85/6
MYM HOME	S-32	83/6
MYM STN		
MYM STR	S-12	81/16
MYM ADV STR	S-2	80/26
GATE	G-30	79/26
DISTANCE	P	78/18
GATE	G-29	77/10
GATE	G-28	76/8
GATE	G-27	75/2
DISTANCE	P	73/34
GATE	G-26	72/36
GATE	G-25	72/4
BOI HOME	S-22	70/28
BOI STN		
BOI STR	S-12	69/10
BOI ADV STR	S-2	68/28
GATE	G-22	68/20
GATE	G-21	67/22
GATE	G-19	66/14
GATE	G-18	65/28
GATE	G-17	64/12
DISTANCE	P	62/28
PDA HOME	S-22	61/24
PDA HOME		
PDA LOOP STR	S-12	60/16
PDA ADV STR	S-2	59/18
DISTANCE	P	57/8
GATE	G-16	56/8
KHN HOME		55/24
KHN STN		
KHN STR	S-8	54/16
KHN ADV STR	S-4	54/7
DISTANCE	P	48/21
MUG STN		
MUG HOME	S-42	47/21
MUG STN		
MUG STR	S-12	45/20

OUR NETWORK OF CHALAK PATRA

COMPILED & EDITED BY CONTENTS GENERATION GROUP
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PLEASE MAIL SUGGESTIONS AND COMMENTS TO
chalak.patra@gmail.com

A LONG WALK IN INDIAN RAILWAYS SINCE 16TH APRIL 1853



TRAIN-20



TRAIN-18



WAP-7



WAG-12



STEAM

The history of Indian Railways dates back to over 160 years ago. On **16th April 1853**, the first passenger train ran between Bori Bunder (Bombay) and Thane, a distance of 34 km. It was operated by three steam locomotives, named Sahib, Sultan and Sindh, and had thirteen carriages.

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