RAIL CANVAZ

A TrainTrackers' Initiative

January 2024

RRTS – The Game Changer

EDITOR'S DESK

"The magic in new beginnings is truly the most powerful of them all." —Josiyah Martin.

A New Year implies a new beginning with an array of new hopes, desires and expectations. Likewise, the citizens hailing from the different strata of our multiverse society of this great nation expects the national carrier to come up with something new and powerful that may change the way of travel altogether. After introducing a gamut of Vande Bharat Trains throughout the last year, the obvious question that pops up is "What's next?" Two answers have come up from the transporter-in-chief – the first one is RRTS or the Regional Rapid Transit System and the second is Amrit Bharat Trains.

As we step into 2024, we set out to annotate on the new journey that the Indian Railways has embarked on with the introduction of an all-new way of travel – RRTS or RapidX. It is about a whole new world of opportunities that is set to revolutionize intercity rail travel across the nation with faster speed and higher capacity wrapped in a promise of a sustainable development focussing on a cleaner, greener commuting experience. **Saurabh Kumar Yadav** explores RapidX in our Cover Story *RRTS-The Game Changer* where the author assiduously expounds the facts and figures in a know-all writeup with intricate details of point-to-point regional travel at design speed of 180 km/hr along dedicated pathways facilitating seamless multi-modal integration with railway stations, bus depots, airports and metro stations. **Arkopal Sarkar** also adds to the subject with his photo story *RapidX – The New Era* which is set to redefine mass transit soon, a future that we have all dreamt of.

In the age of Vande Bharat Trains which has wooed the middle and higher classes, a social divide from the people of lower stratum was on the anvil and this was clearly evident as they have been robbed off multiple Sleeper and General Class coaches from many a train after their LHB-fication and substituted with Economy Class AC 3-Tier or 3E. Secondly, exclusive focus on Vande Bharat trains and their maintenance of punctuality, sometimes at the cost of the run time of other trains, had begun to irk the majority. Things were not exactly looking rosy. Feeling the pulse, IR added impulse to its response by introducing the Amrit Bharat Trains with Sleeper and Second-Class coaches exclusively in their consists. It has been touted as a new genre of trains to serve the commons offering services that are provided mostly in premium trains. The trains wear the looks of trainset with two WAP5 locos with ergonomic designs powering both ends to cater to the Push-Pull Technology. But having said all, a couple of queries cross the inquisitive mind as well –
Does not the aerodynamic design of the WAP5s for the Amrit Bharat Trains remind us of the two WAP5s earlier manufactured for Push Pull Tejas Express?
Does not the genre remind us of Antyodaya Trains which have same features including a higher fare structure but for unreserved category?
These uncanny similarities though do not have any bearing on the fact that the newly introduced services have already garnered good overall patronage and the masses are reasonably happy with these new trains which is surely going to win many more hearts in future. Thus, the debate about these new trains being repackaged products or not takes backseat. **Anamitra Bose** delves on this matter in his article *Amrit Bharat Trains*.

Just as our present holds the key to our future, similarly our past is also inextricably intertwined with both with our present and future. Thus, discussing the present and future of IR invites some exploration of the bygone days of the national carrier as well. We have Jakob Stilling and Joydeep Dutta taking us on a time travel to some four-five decades back with their respective offerings in *Last Days of Punjab Steam (Part-III)* and *A Train without a Toilet* which give deep insights to the way the state railway was run and what facilities it offered back then. Three more nostalgia evoking writeups – *Siliguri Town-The Forgotten Train Station* by **Kaushik Majumdar,** *A Tearful Farewell to the Katwa-Bolgona NG* by **Tapan Pal** and *Gone with the Green* by **Pavel Ghosh** complete the genre. Kaushik Majumdar recalls his childhood days while lamenting about the lost importance of the Siliguri Town station, Pavel Ghosh brings to light one of the lost tramways of the country which have gone into oblivion and Tapan Pal revisits the heartbreaking farewell event of a narrow-gauge service in West Bengal that used to be the lifeline of the locals around there.

Changing tracks, we have got **Somanko Tiru** scripting twin reports in *A New Era of Rail Connectivity of Badampahar* and *40th Birthday Celebration of Purulia Express*. The first one is a dream-come-true event for the small township of Badampahar in the Mayurbhanj District of Odisha which had a long-standing demand for better connectivity until the Hon'ble President of

Happy New Year !!

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India – Smt. Droupadi Murmu paid heed and acted upon to inaugurate a handful of new train services. The second report is about how local ferroequinologists celebrated the 4-decade old dedicated connectivity to Purulia from the City of Joy. Then we have **Sanjoy Mookerjee** penning *Rescue* for our Fiction genre which is about a real-life incident of a train full of passengers, especially children, trapped in a tunnel at the onset of flash floods triggered by incessant downpour. The author refers to an occurrence dating back to 1978 which saw a team led by Mr. Robinson – an Anglo Indian PWI who braved all the odds to successfully evacuate the passengers to safety in a scintillating show of skill, dedication and perseverance.

Moving on to the technical front, **Anamitra Bose** presents his second article which is *WDG5 – The Dethroned Lions*. It is about the 5500 horsepower locos which were built as successors of WDG4s but did not quite live upto the expectations. In this tell-all article on the mammoth locomotives, check out how the cons of the locomotive got bigger than its pros which ultimately pushed these potential machines to the brink of becoming a 'powerfully-powerless' species.

We start a new genre "My Book" with this new year issue where **Dr. Santulan Mahanta** introduces his maiden book Louhapathagami Paribrajakar RAIL PURAN, written in Assamese language, which is an ensemble of different experiences and happenings in and around us about the wheels of the nation. It is surely an invaluable addition to the collection of Railway Literature in the vernacular sect. With all these writeups of varying flavours from different esteemed authors, we close out this New Year issue with our regular sections of Railway Sketches by **Dr. Sudakshina Kundu Mookerjee** and **Sambit Chatterjee** along with Photo Junction and News Station.

We convey our warm wishes of a Very Happy and Prosperous New Year 2024 to all our followers keeping in mind the words of Gilbert K. Chesterton – "The object of a New Year is not that we should have a new year. It is that we should have a new soul...".

Somsubhra Das

Photo by : Arkopal Sarkar

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Its Time to Act Now

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Write to WB Govt. to revive this most eco-friendly mode of public transport

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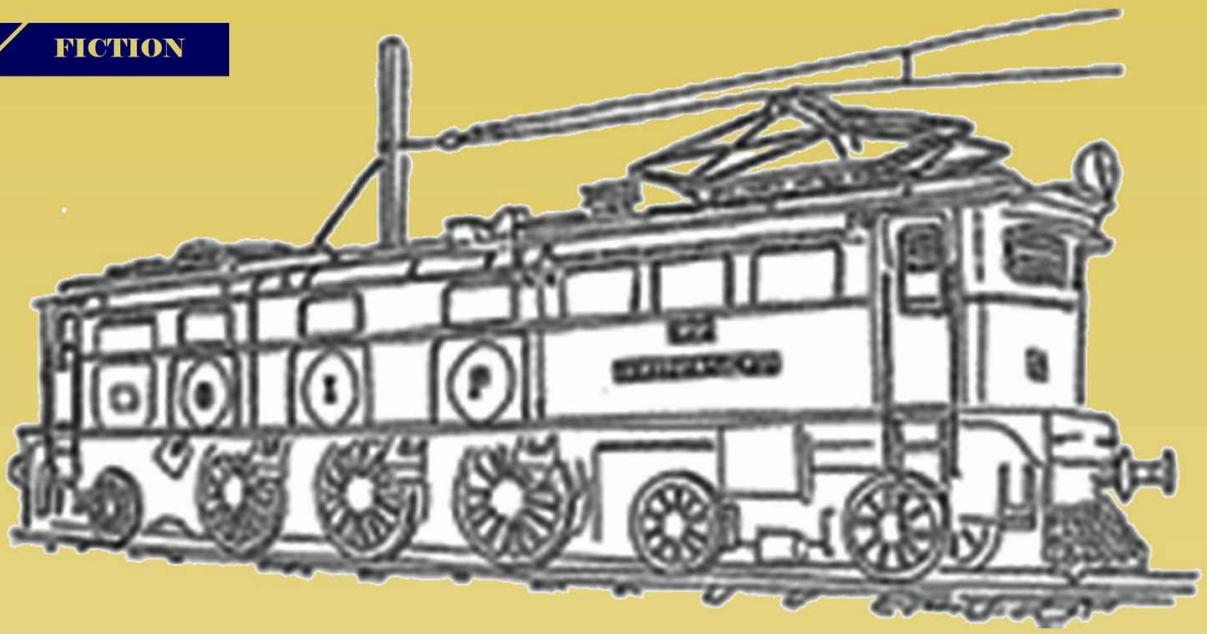
Calcutta Tram Users' Association



Rescue

Sanjoy Mookerjee

a 1978-batch IRAS, former Financial Commissioner (Railways) and ex-officio secretary to Govt. of India. Earlier, he was posted as Director General of National Academy of Indian Railways in Vadodara. His tenure as Financial Commissioner is marked by Railways managing the burden of the VIIth Pay Commission, unprecedented external borrowings for infrastructure works, and economy measures within the organisation. He is now heading the Kolkata chapter of Rail Enthusiasts' Society. He has penned several books which include Train to Darjeeling, Howrah Junction etc.

The year was 1978; it was late September. Unprecedented flash floods had inundated most of north India. This was indeed the worst monsoon fury of the 20th century. The Indian Railways, the so-called lifeline of the Nation, had ground to a halt when it was most needed to transport relief supplies to far-flung, flood-affected corners of the country. More than six thousand kilometres of its main arteries lay below surging flood waters. Hundreds of passenger trains carrying helpless travellers lay marooned at places so remote, that it would take several hours for the Railways to reach food and medicines there and days to evacuate them.

This is a tale of such an evacuation, and the dedication that goes with it.

A group of probationary engineering officers of South Eastern Railway were undergoing training at Kharagpur Division, when flash flood hit the Railway system early one morning. They were at once despatched to the various disaster affected sections to assist the nominated relief teams. One of these probationers was sent to assist a rescue team which was trying to extricate a passenger train stuck inside a tunnel in the dense jungles beyond Chakradharpur on the Calcutta-Bombay main line. The probationer, excited at having been selected for such a responsible

assignment, left Kharagpur instantly for the site by the next available train. But this train could take him only upto Chakradharpur, reaching early next morning. Thereafter, the track was still breached and no train movement was possible.

Not to be outdone, the enthusiastic officer armed himself with a raincoat, water bottle and whatever dry food he could find under the circumstances and set off over the railway track towards his point of duty. After a few hours' trek through steady downpour and deep forests, seeking directions from the Railway gangmen repairing the track en route, the utterly drenched and exhausted young engineer finally reached his destination late that afternoon. On arrival he found that the train was still stuck inside the tunnel; but, to his relief, the repair to the damaged line had almost been accomplished.

He dutifully sought out the senior-most functionary of the relief team, who turned out to be a burly, weather-beaten Anglo-Indian Permanent Way Inspector (PWI), a rare relic of the British Raj, complete in Khaki shorts and Sola-Hat. The PWI introduced himself as W. A. Robinson. Without further ado, Mr. Robinson requested the officer to assume charge of one of the maintenance gangs working inside the tunnel.

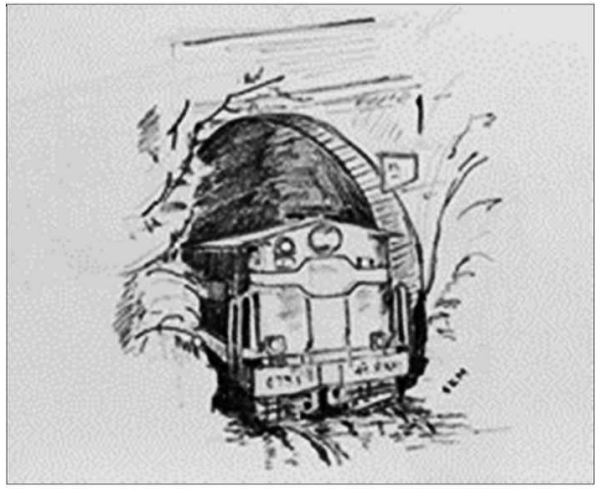
Once inside, our engineer was amazed at what he saw and heard. The supervisor of the maintenance gang narrated to him that the train contained over 200 passengers, of which several were children. For a full day, the railways could not reach any food to the passengers! When Mr. Robinson and his team reached the marooned train, they could only bring some dry food and milk, just sufficient to feed the children. Luckily no passenger had suffered any serious illness. Meanwhile, the railway doctor accompanying the rescue team had managed to purify the drinking water harvested from the rain. This was their only lifeline, as no roads existed within miles of the tunnel! Mercifully, a mobile diesel generator brought by the railwaymen could light up the tunnel to some extent and the restoration work began. The gang got into its act post haste and started lifting the sunken track to its normal height, in order to ensure safe passage of the train out of the tunnel.

Working night and day in the torrential rain, by sheer grit and determination, the railway workers managed to manually stabilize the track inside the tunnel, since it was impossible to bring or utilise any machinery in the hilly terrain. In a rare display of synergy, the passengers chipped in under the able guidance of Mr. Robinson. Soon the land subsidence in the line ahead was also set right.

Now the big question in everyone's mind was, "Will it hold?" The engine driver insisted that a trial run was necessary. So, the giant locomotive was uncoupled from the train and was slowly made to move towards the tunnel exit, while the entire railway gang and the assisting passengers held their breaths. With prayer on their lips, the anxious crowd watched as the engine gently rolled over the damaged track.

And to everyone's relief, the ground held fast!

Outside the tunnel, the fury of the downpour had also abated



and the faint rays of the afternoon sun gave heart to one and all. It was at that point of time that our young engineer arrived at the site, utterly exhausted!

But there was no rest to be had. The job had to be completed since time was running out and sunset was only a couple of hours away. While the sleepless and hungry passengers waited anxiously, the train was gradually drawn forward under the watchful eyes of Mr. Robinson, his dedicated maintenance gang and our young engineer. The metallic screech of the wheels suddenly transformed itself into shouts of joy and relief from the railwaymen and the passengers alike, as slowly but steadily, the train emerged from the tunnel, victorious and proud! A feverish round of back-slapping, clapping, cheers and hugging ensued; women shed tears of happiness and thanked the Almighty for their deliverance. Children shrieked in unbridled glee at the sight of emerging daylight, completely forgetting their hunger pangs!

Our young engineer had never experienced such a sight before. In college, no professor had ever prepared him to face a situation such as this. He was simply overwhelmed!

After collecting its passengers scattered around the tunnel, the

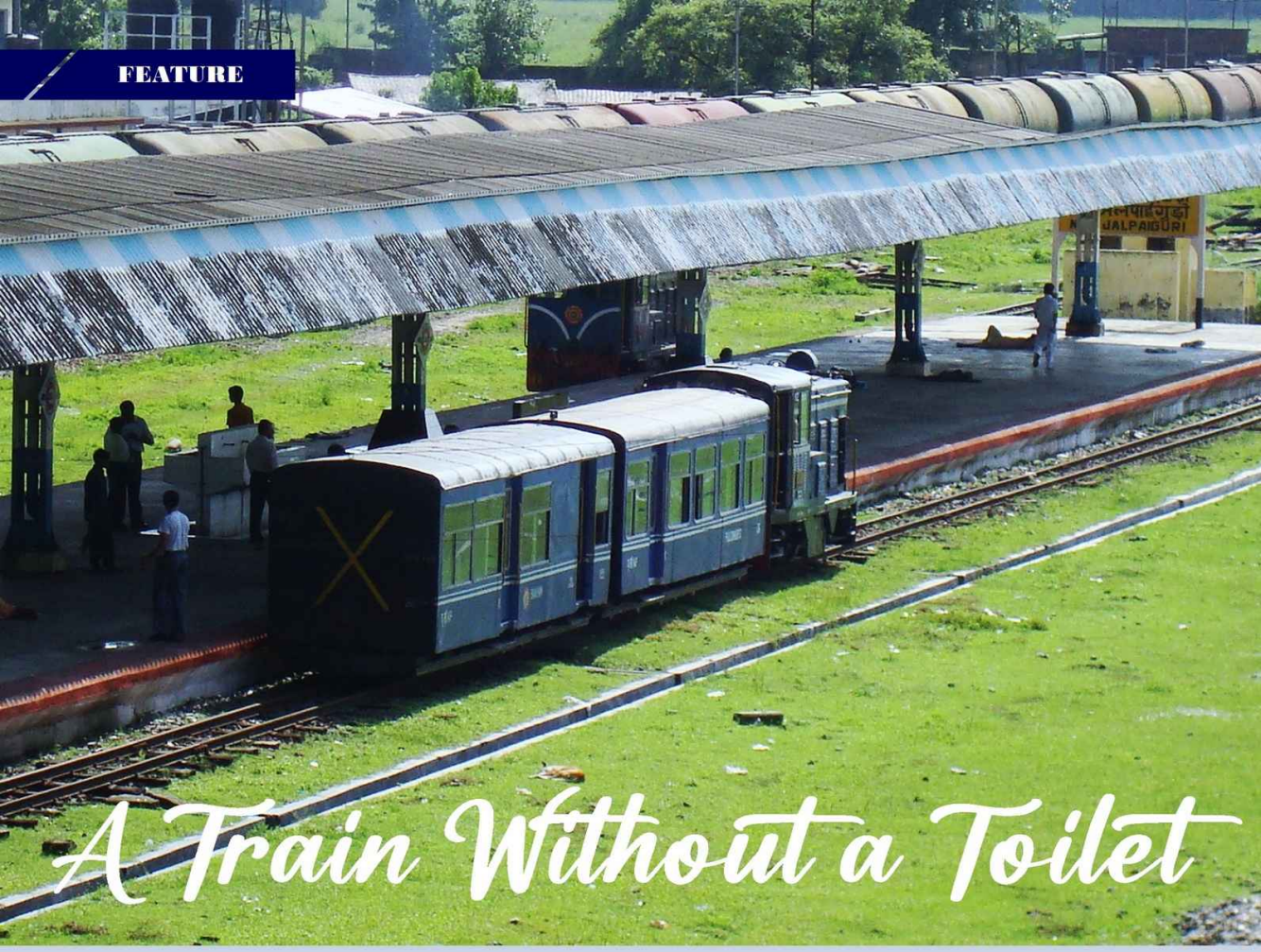
train finally trundled off towards its destination, leaving an eerie silence behind. The stillness of the forest was punctuated only by the pitter-patter of raindrops on leaves. Each person sat ruminating; some were silent, others smoking a wet 'bidi' or cigarette which they had quietly preserved, dry and secure, within the folds of their work- clothes, perhaps as a reward to themselves for a task well done!

Mr. Robinson invited our young engineer into his tent for a cup of steaming, hot tea, which he had brewed himself for his 'boys'. The men gratefully accepted their boss's concoction acknowledging his endearing "Shabash!", with disarming smiles, their faces aglow with pride! The PWI ordered one of his men to collect the rice, lentils and potatoes from the kitchen store, so that 'Khichhri', a broth- like dish consisting of rice, lentils and vegetables can be cooked for the famished railwaymen. Promptly a fire was lit, using the spare kerosene available and the few remaining pieces of dry wood. A couple of enterprising chaps dived into the bushes in search of Jungle fowls so that a befitting celebration dinner could be organised.

Only after his staff had drunk their tea, did Mr. Robinson take up his cup. Our young probationer took this opportunity to ask a question, the answer to which had been bugging him for a while. "Mr. Robinson", he said, "I was told that you and your men have not eaten for two days. But I see that you did have some basic rations with which you could have fed your staff. How can the men labour so hard without food? Indeed, why did you keep them hungry at all?" Mr. Robinson looked at the young officer searchingly and replied, "My son, did you notice the passengers of that train carefully? There were dozens of mothers travelling in it, clutching their terrified infants to their breasts. None of them had eaten for the past two days. But each worried mother was confident that someone responsible is maintaining this railway track and will eventually rescue them. And, this noble duty has fallen upon our lot. Our foremost responsibility was to evacuate them speedily, so that they can reach home safely and in good health. In these circumstances, do you feel that any of my relief boys could even think of touching food till our task was successfully completed? Certainly not!"

At that instant the young officer realised, that this in fact is the ethos which drives the Indian Railways!

All sketches used here were the artwork of author's better half Sudakshina Kundu Mookerjee.
Cover sketch artwork courtesy: Shri Mohit Sinha, DG/HR, Railway Board.



A Train Without a Toilet

Joydeep Dutta

A Professor at the Department of Economic Sciences at the Indian Institute of Technology Kanpur. He has been previously a faculty member at the Department of Mathematics and Statistics at the same institute. He was the founder head of Economic Sciences. He has been a lifelong railway enthusiast and primarily interested in diesel locomotives. However as a resident of Siliguri since his childhood he remains fascinated by the DHR. He has a several articles on various aspects of railways and also a book co-authored with S. M. Sharma (IRSME) on Indian ALCO diesels to his credit. He is one of the founder members of the Rail Enthusiast Society and it's current Vice President.

It was a warm summer afternoon sometime in the mid-eighties, me and my brother had just finished a sumptuous lunch at the house of an uncle, who happened to be a cousin of my mother; we heard the distant shrill of a steam locomotive. Both me and brother heard understood that whistle was of the tiny yet mighty steam locomotive which has climbed down through the hills from Darjeeling. Both of us immediately decided that we must take the "great little train" to return home to New Jalpaiguri, rather than to the boring cycle rickshaw. The uncle in question lived in a railway quarter near the Siliguri town station, where the train was approaching and would be there in a couple of minutes. We somehow convinced our mother and ran to the station, crossed the narrow gauge (2 ft.) track and went straight to the ticket counter. We asked for two tickets on the "toy train" to New Jalpaiguri. The booking clerk gave a strange look at the demand of these two school boys. We ignored it and he gave us the ticket. As we were so excited to see the little train with three blue coloured coaches with white stripes that we forgot to take a careful look at the Siliguri town station which always appeared as a haunted building when seen from distance. We made

Cover photo courtesy: Somsubhra Das

Siliguri Town Station *Photo by Sanjoy Mookerjee*

sure that we got up on the second-class coach just as the tickets demanded. It was the coach in the middle. In fact, no one got down at Siliguri town, only we two brothers got up. This was our first ride on the toy train, and thus on the DHR which is expanded as Darjeeling Himalayan Railway. The coach was full and we had no option but to stand. Amid curious looks of the passengers, the driver blew the whistle and the puffing little steam locomotive started hauling us out of the decrepit Siliguri town station which was locally just called the "town station". Soon we paralleled the meter gauge line which also connected New Jalpaiguri with Siliguri Junction. I was excited enough to go near the

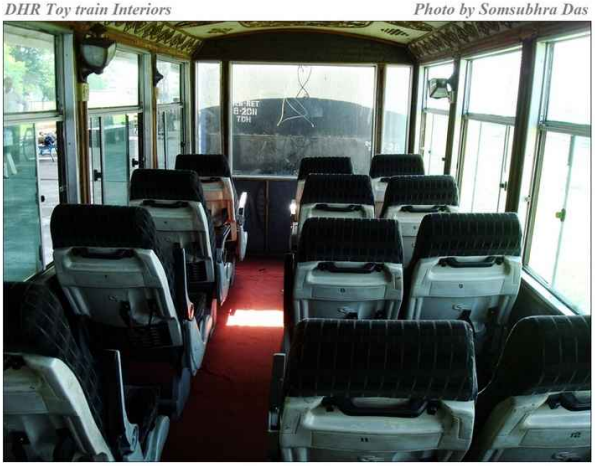
Siliguri Town Station *Photo by Sanjoy Mookerjee*

Siliguri Jn. with MG, BG & NG alignment *Photo by Rudranil Roy Chowdhury*

door and peep out to smell the steam and was surprised to see a man sitting almost on the right edge at the very front of the locomotive. I had no idea then who that person was. I simply thought he was up there for a free ride and I made up my mind to do the same one day.

As the train rolled along at a speed which could be easily beaten by a bicycle, my brother noticed two facts. The coach had a slight oval shape at its end with one end having windows and his second and most horrifying discovery that this coach had no toilets. We were dismayed at this "great" discovery and wondered what shall we do if we take this train upto Darjeeling. Looking at its speed on the

DHR Toy train Interiors *Photo by Somsubhra Das*



A DHR Toy Train @ Siliguri *Photo by Rudranil Roy Chowdhury*

A DHR Toy train crossing with BG train *Photo by Arkopal Sarkar*

plain we argued that it would be almost travelling at a walking pace on the hills so can just get down, finish our task and run back to catch the train. This was okay for the shorter break but were worried for the longer one. In that case we decided we must shout and ask the guard to stop the train or bear the pain till the next stop.

As train rumbled down the sharp curve near the huge New Jalpaiguri station, a steam locomotive hauling a few coaches passed by on the parallel meter gauge track and went towards Siliguri Junction. It was called the New Jalpaiguri-Siliguri Junction shuttle with the guard's compartment in the middle. As I write this, I realize that unknown to most, the railways were running a steam commuter rail service through the sleepy town of Siliguri and this service served the paying and the non-paying passengers equally. As our little train stopped on the platform four of New Jalpaiguri, designed specifically for the DHR, we jumped on to the platform and moved towards the locomotive to take a careful look. Around five people were attending it and we could not figure out who the driver was and I wondered where the free-rider has gone. Most of the other passengers rushed off to platform number 3, in order to take the broad-gauge trains to Calcutta, and mostly they would use the good old legend, the Darjeeling Mail. After taking a careful look at the steam engine we took a cycle rickshaw back to our railway quarter allotted to my mother who was a 'railway woman'.

A Siliguri bound MG commuter service *Photo courtesy: Roger Morris*

New Jalpaiguri NG Platform *Photo by Somsubhra Das*

Many years later, I was walking around the Siliguri town station with Terry Martin, I realized the historical value of the station. Terry at that time was researching on his fabulous book on DHR, "Halfway to Heaven". As I told him excitedly about my first journey on the DHR, he began telling me about the history of Siliguri Town and what a busy station it once was. As he kept on telling me about Siliguri Town, my mind conjured up vivid images of a by-gone era, where in the early morning mist the Darjeeling Mail pulled up on the meter gauge platform and passengers of all types, rushing towards the narrow-gauge platform in order to catch the train without a toilet to Darjeeling.

Steam hauled Toy train service @ DHR *Photo courtesy: Subhadyouti Bose*

PART-III

LAST DAYS OF PUNJAB STEAM

In part two of this account, we were about to leave Haridwar on a midday train bound for Laksar. After making rather slow progress and waiting for crossing trains in several stations en-route, our diesel-hauled train pulled into Laksar. As our train was running via Saharanpur, we would have to change trains to go to Moradabad, and quickly deposited our bags in the luggage office. Opposite the platforms, there was a small running shed, some offices and workshops and, two tracks with pits and watering and coaling facilities, where several WP and WG were parked.

The shed area was quiet and pleasant and the staff friendly and not too busy. We managed to get nice shots in the Sun of a WP facing east, and several WGs that would later haul trains up the branch towards Haridwar and Dehra Dun/Rishikesh. Our timetable showed a stopping train that was likely to be steam-hauled, and the train duly arrived hauled by a Moradabad WP. The WP was substituted by one of the WGs, which then departed north.

We had done well during our brief stay, collected our bags and boarded a south-bound, diesel-hauled express that would take us to Moradabad. With a fresh supply of hot *chai* in clay cups we settled down in a first-class carriage to enjoy the setting Sun as we rolled across the plains, passing several large rivers on the way.

It was dark by the time we reached Moradabad. The retiring rooms were situated in a separate building and we were allotted a nice double room. After shopping in the stores across the main road in front of the station and getting a haircut, we decided for a basic meal in the station restaurant, and then took out the tripods for a few night shots of steam-hauled trains about to depart, before retiring not too late for the night.

Jakob Stilling

Lawyer from Denmark, born 1961. Passed as a volunteer guard 1984 to work main line steam specials for Railway Clubs and the Danish National Railway Museum. Started photographing trains in 1974, has travelled most European countries as well as India, Pakistan, Indonesia, China, Sri Lanka, Eritrea, Zimbabwe, South Africa, Syria and Jordan, Cuba and the USA in search of (mainly steam) locomotives. Multiple visits to East Germany and Poland for steam before 1989. First tour of Northern India in 1993, with further trips also covering Pakistan in 1994 and 1995. Came back for tours of India with his wife from 2017, visiting KSR and NMR and some of the remaining NG lines.


WP


लोको शेड लक्सर जंक्शन
गौरव
लक्सर जंक्शन
LAKSAR JN.

The following morning, we were ready to go as soon as the Sun rose. The morning mist was still covering the very long centre-platform as the early morning trains rolled in, carrying milk-vendors whose jugs were hanging from the windows before being taken to the market. After a few shots, we hitched a lift on a WP to the shed, and were offered tea and a chat by the duty shed-master after our permit from Delhi had been scrutinized. The shed staff numbered about 1,800, including fitters, drivers and firemen. The shed-master was expecting steam to last another few years. As it was, by August 1994, the Moradabad shed had been closed and steam would no more be running in this part of the Northern Railway.

Moradabad had been on our bucket list from the very day we started planning for the trip. With a large allocation of mainly WPs, but also a sizeable contingent of WGs, its engines worked up the mainline towards Ambala, turning round in Laksar and Saharanpur, worked a few fast and stopping trains into Delhi Junction as well as trains on the branch lines around Moradadad and eastwards to Bareilly. The shed

was the last roundhouse on Northern Railway, with an impressive 36 shed roads around the turntable. Although roundhouses were and are common in Europe, this was the biggest I had ever seen! It being 100% steam, several rolls of film were used on engines rolling from the shade of the shed onto the turntable, the toil of shed staff manually pushing them round on the turntable, and on the servicing roads where small repairs and boiled washouts were taking places. The resident cow quietly watched the action. By early afternoon as the Sun was directly overhead, the light for photography had deteriorated, and we decided to move on.

After checking out of the retiring room, we caught a very full eastbound express for Bareilly, where we hoped to connect to an MG overnight express that would bring us into Agra by morning the following day. There was little BG steam action in Bareilly Junction, but in the MG platforms, we saw a YG shunting and several steam-hauled MG passenger trains. Upon arrival, we had spotted a number of MG engines in the shed of Bareilly City, about 2 kms west of the Junction. We went by rickshaw to the other station and were duly caught by the railway police as soon as we entered the station. Our permit actually stated 'Bareilly City', and it took us a while to reach an agreement that the permit did authorize us to take pictures in the MG shed. There had been reports in railway magazines that eager railway policemen had harassed photographers if the permit only stated 'Bareilly'. Thus, after being nicely treated to tea and chair in the platform, we were allowed to walk round the MG engine shed, where a number of steam engines stood idle, but in light steam. A YG hauling a guard's van arrived and departed, but there was little real action, and as the railway police were obviously keen to see us out, we boarded the first southbound train and went up to Bareilly Junction, where we started negotiations for a reservation of two first class berths on the MG night train, 5312 Kumaun Express to Agra Fort. The Bareilly quota was exhausted, but the duty manager put us on a waiting list and exerted his influence with the train crew and by the time our train departed there was a first-class compartment and bedrolls waiting for us. Softly tucked in we rolled through the hot and humid night towards Agra.

Dawn broke as we arrived in Agra Fort Station, nearly on time. The shunting maneuvers in the MG terminus were still in the hands of two YG, which were duly photographed in front of the mosque, which had obviously been there long before the railway line, calling for some very tight angles on the MG track to get around the minarets.

A visit to Agra of course called for some tourism. Therefore, we deposited our bags and hired a motor rickshaw for the day, starting with a visit to the far side of the Yamuna for sunrise picture of a bullock ploughing the fertile riverbed with the mausoleum in the background. After breakfast in a hotel, we paid our respects to the station's namesake and of course to the Taj Mahal. After a lot of sightseeing it was time to move on. As we came back to Agra Fort Station, the YG was shunting the light yellow train formation of the Palace on

Wheels train, in preparation for the evening departure of the tourist train.

In the winter of 1993/94 the Palace on Wheels, which was of course then still an MG thing, included some original maharaja's saloons. The train was diesel-hauled for most of the Rajasthan tour, but some steam was employed on a short section into Jaipur. Rewari depot employed two very smartly turned out engines for this service, an YG +YP double-header. This leg was covered mainly during the night, and our only chance of seeing the train by day would be to catch it in arrival near Jaipur. Incidentally, the two Rewari 'super-engines' are still in existence and are kept in the Rewari Museum.

Our notes suggested that an afternoon MG passenger towards Bandikui, train no. 101, would be steam-hauled, and indeed a YP was heading the train. The crew were happy to invite us to travel on the engines, and our bags were stored in the tender. We were looking forward to making nice portraits of the train in the wayside stations, and were a bit frustrated as a group of passengers joining the train in Idgah tied a big metal trunk in the available space under the smokebox of the engine! As we travelled west, the more arid lands of Rajasthan started unfolding around us, with local residents fetching water from the wells in the stations, watched by groups of vultures perching in the platform trees. After a few hours on the engine, we changed trains and caught the evening superfast express to Jaipur (exhausting the stations quota of two first class seats), enjoying a good hot meal and an ice-cold Pelican beer en route (supplied by the train caterer in spite of the signs forbidding the consumption of alcohol on the train!).

The retiring rooms in Jaipur were full, so we spent some late evening time finding a hotel at a price which we could agree on. On our first day in the Pink City, we awarded ourselves to half-a-day of tourism, with a morning trip to the Amber Fort, the Palace of the Winds and some other sights. After lunch, we were back in the station to visit the shed area and watch the shunting operations in the carriage sidings. All shunting was done by steam, and only the express trains were diesel-hauled. Thus, all local trains, especially toward Loharu, were steam-hauled and easy to photograph in the afternoon light in the western part of the station. When it turned overcast, we opted to do some souvenir shopping in the Emporia before treating ourselves to G&Ts on the terrace and dinner in the Rambagh Palace (which was much cheaper then!).

The following morning, we made our way to the station to catch the arriving Palace on Wheels, and then went to the shed again to see the engines being turned and serviced. BG was yet to reach Jaipur, but work had started on the BG formation, and trains from the east were being shunted in and out of the station.

By mid-morning, we decided that we had seen most of what Jaipur Station had to offer and made our bold move forward: In a German magazine we had seen pictures of MG steam by the city walls of Udaipur. The main problem was that the journey time from Jaipur in those days was 10 hours by the fastest train of the day, the Pink City Express, and that my return flight from Delhi was not too many days ahead. My companion was staying on for several weeks and thus had plenty of time on his hands.


छत्रपति
मुरादाबाद

The reservation office kindly supplied us with first class seats for the Express, and by ten o'clock that evening we reached Udaipur, where we found an overpriced hotel for the night. Our master plan was to cover Debari city walls and Rana Pratapnagar MG shed as well as the southbound steam-hauled train 85/86 to Ahmedabad in two short days, and the plan worked.

By leaving Udaipur City on the early morning train 222 at 06:00, we arrived in Debari at 06:35 with sufficient time to walk back along the track to the city walls to catch two steam-hauled passenger trains 85 Pass, at 07:30 and 132 Pass at 09:20 passing through the short tunnel under the city walls.

After that, we went to the shed and saw hand coaling of the MG steam engines, and then went into the city for a bit of sightseeing and to watch the sunset by Lake Pichola. We had found a cheaper and better hotel overlooking the lake.

The following day we arranged for an ambassador to take us south of Udaipur for pictures of the northbound train 85, and I had secured a reservation for my return journey to Delhi on the overnight MG train no 9616 Chetak Express, leaving Udaipur at 18:10 and due into Delhi Junction at 14:10 the following day, running via Ajmer, Jaipur, Alwar and Rewari.

As we parted at the platform in Udaipur – my companion travelling south, myself returning to Delhi to catch my flight back to Europe – we agreed that we had done well, travelling on three gauges and seeing 5 types of steam engines. We had covered the last three BG steam centres, travelled on the Kalka-Shimla line, and seen MG steam in Rajasthan.

We were not in doubt that we would be back – and indeed the following autumn we were again on the road for Indian steam....

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by Saurabh Kumar Yadav

RRTS – The Game Changer

Introduction

In the heart of India's National Capital Region, where the pulse of progress beats fast, a transformative journey is underway. Introducing the Regional Rapid Transit System or RRTS – a visionary project by the National Capital Region Transport Corporation, spanning over 800 kilometres. The RRTS network is set to redefine intercity travel with high-speed, high-capacity, and high-frequency rail services designed to combat the challenges of urbanization – like congestion and pollution – the RRTS promises a cleaner, greener and faster commuting experience. Imagine covering distance of 100 kilometres in just under 50 minutes! The RRTS makes this possible with cutting-edge technology and seamless multi-modal integration. Each station is a gateway to comfort and convenience with state-of-the-art amenities and universal accessibility. The RRTS is not just a transit system, it's a commitment to sustainable development, economic growth and an enhanced quality of life....

But how all this started! Let's start from the start.

Welcome to the National Capital Region, an expanse of over 55,000 square kilometres, home to a bustling population of over 46 million people and a combined GDP of an estimated $370 billion. But with progress comes challenges. The NCR has been grappling with severe traffic congestion, leading to long commute times every day as millions of commuters spend hours on the road – a time that could be easily spent with family, at work or in pursuit of passions. Not only that it also contributes to some of the highest levels of urban air pollution in the world.

Enter the RRTS – a transformative solution designed to alleviate these challenges.

What is RRTS?

The Regional Rapid Transit System is a new, dedicated, high-speed, high-capacity, and comfortable commuter service that connects regional nodes in the National Capital Region (NCR) of India. It is designed to provide reliable, high-frequency, point-to-point regional travel at high speeds along dedicated pathways. The RRTS is different from conventional railways as it caters to passengers looking to travel relatively longer distances with fewer stops and at higher speeds. With a design speed of 180 km/hr, the RRTS is a transformational regional development initiative aimed at significantly reducing pollution and congestion in the region. The network is planned and spatially oriented to ensure seamless multi-modal integration with railway stations, bus depots, airports, and metro stations, offering world-class commuter transit services that are safe and reduce commuter journey times. The RRTS project is managed by the National Capital Region Transport Corporation (NCRTC) and represents a strategic intervention towards an environmentally sustainable development of the NCR.

What is NCRTC?

The National Capital Region Transport Corporation (NCRTC) is a joint venture company of the Government of India and the states of Delhi, Haryana, Rajasthan and Uttar Pradesh. It is mandated to implement the RRTS project across the NCR ensuring a balanced and sustainable urban development through better connectivity and access. The NCRTC is responsible for designing, developing, implementing, financing, operating and maintaining the RRTS to provide comfortable and fast transit to NCR towns and to meet the growth in demand for rapid transport options in the region. The corporation was established in 2013 and is a key player in transforming the regional transportation landscape of the NCR with the RRTS – a next-generation green mobility solution aimed at significantly reducing pollution and congestion.

Background

Under the direction of the Secretary of the Ministry of Urban Development (MoUD), the Planning Commission established a Task Force in 2005 to design a multimodal transit system for the Delhi National Capital Region (NCR). This was covered in the NCR 2032 Integrated Transport Plan which placed a focus on the RRTS that connects regional cities.

The Task Force designated eight corridors among which the Delhi-Meerut, Delhi-Panipat, and Delhi-Alwar corridors were given priority for implementation. The Delhi Integrated Multi-Modal Transit System for Delhi-Meerut and Delhi-Panipat and M/s. Urban Mass Transit Company Limited for Delhi-Alwar was chosen in March 2010 by the National Capital Region Planning Board (NCRPB) to conduct a feasibility study and create a detailed project report.

The Corridors

The NCRPB has recommended a total of eight RRTS corridors to connect various important towns of NCR with a high-speed rail-based commuter transit system, three of which are high priority corridors and are part of phase 1 construction as below –

1. **Delhi-Ghaziabad-Meerut RRTS Corridor : 82.15 km**
2. **Delhi-Gurugram-SNB-Alwar RRTS Corridor : 164 km**
3. **Delhi-Panipat RRTS Corridor : 103 km**

In addition to these three priority corridors, the NCRPB has recommended 5 more corridors which include –

4. **Delhi-Faridabad-Ballabhgarh-Palwal RRTS Corridor : 60 km**
5. **Delhi-Bahadurgarh-Rohtak RRTS Corridor : 70 km**
6. **Delhi-Shahdara-Baraut RRTS Corridor : 56 km**
7. **Ghaziabad-Khurja RRTS Corridor : 83 km**
8. **Ghaziabad-Hapur RRTS Corridor : 34 km**

In addition to this, a 72 km long corridor to Jewar airport was also announced recently.

Delhi - Meerut RRTS

Out of all planned RRTS sections, Delhi - Meerut RRTS is of highest priority as it passes through one of the most crowded regions of NCR. The entire stretch of the RRTS will cover 82.15 km connecting multiple localities. A total of 22 stations are planned, strategically located to serve the maximum number of commuters. It will start from Jangpura & will end

at Modipuram Depot Station. Here is a detailed map of Delhi - Meerut RRTS.

This section also happens to have the first operational RRTS in India which is the 17 Km priority section between Shahibabad and Duhai. Services on priority section of Sahibabad and Duhai were inaugurated on 20th October, 2023. The service was named as **RapidX** and the trains were named as **'Namo Bharat'**. The remaining 65.15 km is under construction and as per recent reports trials had already begun till Modi Nagar.

Apart from 22 stations, this section has 2 Depots for maintenance of the Train Sets, one in Duhai and the other in Modipuram. While Duhai is a smaller depot but already completed, Modipuram is a much larger Depot and is still under construction.

Duhai Depot

The Duhai Depot is a pivotal facility for the Delhi–Meerut RRTS providing comprehensive support for the operation and maintenance of the RRTS rolling stock. The depot is strategically located near the Eastern Peripheral Expressway's interchange with NH-34 on the northern end of the 18 km priority corridor section (Sahibabad – Duhai).

The Duhai Depot also includes an Operational Control Centre which serves as the nerve center for the entire RRTS network, overseeing train movements, scheduling and

ensuring seamless service for commuters. The depot's state-of-the-art facilities, modern systems, labs, simulator rooms and various equipment rooms support the rigorous demands of maintaining a high-speed rail system. As of now, 10 x 6-coach Alstom RRTS are being maintained in the Duhai depot.

Deutsche Bahn (DB), through its subsidiary DB International Operations (DB IO), has been awarded a contract to manage the operation and maintenance of India's first high-speed commuter transport project, the RRTS. Entrusted with a 12-year contract for the operations and maintenance of the RRTS, DB is set to enhance the efficiency and safety of this rapid transit network. DB IO's role encompasses a wide range of technical and operational responsibilities including the operation of 40 trains on the RRTS corridor. They are also tasked with maintaining the railway infrastructure which includes 25 stations and two depots. DB IO's involvement includes the training of drivers and station staff, organizing the depots and drawing up schedules. They have been methodically preparing the trains, stations and other facilities for operation.

Modipuram Depot

Still under construction, the Modipuram Depot is located at the northern end of the 82.15 km Delhi – Meerut RRTS line, the depot is designed to accommodate 20 x 9-coach Alstom RRTS trains and 36 x 3-coach Alstom MRTS trains for local Meerut Metro services on a 20 km route between Partapur – Modipuram.

RapidX / RRTS Trainsets 'Namo Bharat'

Alstom's state-of-the-art trainsets for India's RRTS are a marvel of modern engineering and design. These advanced modular regional commuter and transit train cars are being manufactured at Alstom's factory in Savli, Gujarat while the propulsion systems and electricals are being manufactured at Alstom's Maneja factory in Gujarat. The contract includes 30 regional commuter train sets of six cars each and 10 intra-city mass transit train sets of three cars each, all designed to operate at a semi-high-speed.


ncrtc

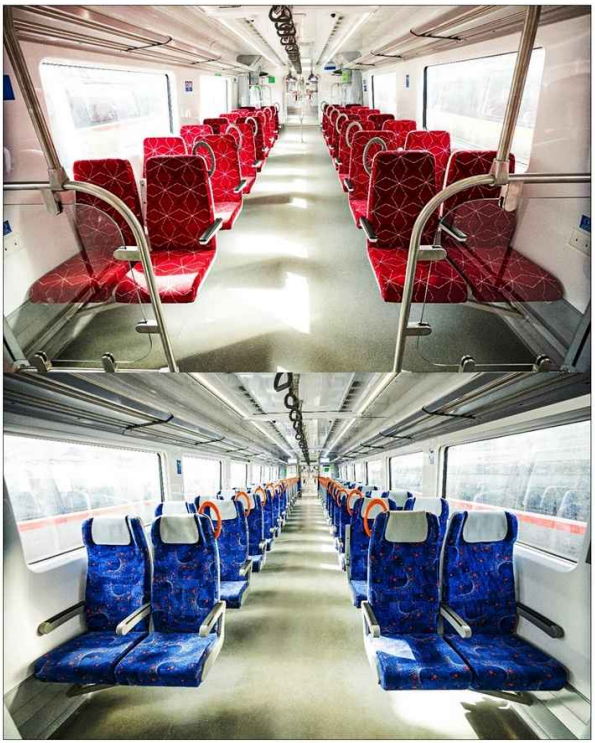
Inspired by Delhi's iconic Lotus Temple, the RRTS trains are designed to be aerodynamic with a width of 3.2 meters and a length of 22 meters per coach. The trains have been manufactured by Alstom and have a stainless-steel body. These energy-efficient, semi-high-speed aerodynamic trains have the latest tech features to provide a superior passenger experience which includes the specially-abled as well. They are equipped with ergonomically designed 2×2 transverse cushioned seating, wide standing space, luggage racks, CCTV cameras, laptop/mobile charging facility, dynamic route maps, auto control ambient lighting system, Heating Ventilation and Air Conditioning System (HVAC) and other amenities.

Alstom's scope of work also includes designing, supply, installation, testing, and commissioning of Signalling & Train Control, Supervision, Platform Screen Doors and Telecommunication Systems for the 82.15 km corridor. This line will be the first in India to adopt the European Train Control System (ETCS) hybrid Level 2 signalling system which is the core signalling and train control component of the European Rail Traffic Management System (ERTMS).

Signalling

The Regional Rapid Transit System (RRTS) has implemented a state-of-the-art signalling system that incorporates the latest advancements in train control technology. The core of this system is the European Train Control System Level 2 (ETCS L2), which operates over a Long-Term Evolution (LTE) communication backbone. ETCS L2 includes sub-systems such as Automatic Train Protection (ATP), Automatic Train Operation (ATO), and Automatic Train Supervision (ATS), which work together to enhance safety, optimize speed, and ensure efficient operation of the trains. The ATP system prevents collisions by enforcing safe speeds and train separations, while the ATO system manages the traction, braking, and stopping of trains for smooth operation. The ATS system monitors both trackside and train-borne equipment to facilitate timely maintenance and prevent disruptions.

Furthermore, the RRTS will be the world's first to deploy a combination of the latest ETCS standard, the latest Digital Interlocking, and ATO over an LTE radio system. This



innovative approach not only provides high-speed data transfer and low latency but also supports mission-critical voice communication requirements. The LTE system is future-proof, with the capability to upgrade to 5G, Alstom India has been entrusted with the design, supply, installation, testing, and commissioning of this cutting-edge Signalling & Train Control, Telecommunication & PSD Systems for the Delhi-Ghaziabad-Meerut RRTS Corridor.

My First Ride in RapidX

Two days before the inaugural date, a visit was organized by NCRTC for media persons, influencers, railfans, etc. to get an exclusive ride in the RapidX and I was lucky to be a part of it.

The day started at around 10 in the morning at Sahibabad RapidX station, where we were all asked to gather before the ride. At around 10:45 in the morning, the station gates were opened and we all entered the soon-to-be inaugurated Sahibabad station. The entrance gate directed towards the stairs and the escalators that are installed parallelly. The first floor featured many different spaces very similar to DMRC's Delhi Metro stations like automatic ticket vending machines, manual ticket counters, information desks, toilets and ample open space. To proceed further, you need a valid ticket, which will be scanned along with you and your luggage but as it was a special visit and as the service was yet to be inaugurated, we proceeded further without any checks to the second floor. The second floor hosts the platform where the RapidX service arrives. The platform was like DMRC's Airport Express stations where platforms and tracks are separated by automatic platform screen doors. It was already 11 o'clock and our ride was approaching the platform from the Ghaziabad end. As soon as the train halted at the platforms and the safety gates opened, everyone got inside the train. After a moderate halt at Sahibabad RapidX station, our journey started to Duhai. Soon after departing the station, the train picked up speed and touched almost 135 kmph before approaching Ghaziabad RapidX station. As Ghaziabad approached, we thought that the train would halt here, but to our surprise, the train skipped the station at a caution of 80 kmph. We also spotted extra lines and platforms that are for the planned Ghaziabad-Hapur RRTS. Soon after skipping Ghaziabad, the train again picked up speed and touched almost 145 kmph. This time, we were excited for it to touch its top operational speed, i.e., 160 kmph, but due to the short span between stations, it was not able to achieve that speed. The next station was Guldhar, which we skipped again at a caution of 80 kmph, and then it again accelerated for one final time towards the last stop, i.e., Duhai. The speedometers on our phones were all set and soon it crossed the 130 kph mark, 140, 150 and it was almost about to hit 160 kph, it started retarding after touching the 157 kph mark. Finally, we reached Duhai station, the train halted there for a while and then started its journey back to Sahibabad. Soon, we were back in Sahibabad where our

short yet exciting journey ended.

Now it was time to bid RapidX a good-bye wishing it all the best for its service to the nation. We proceeded towards the first floor where NCRTC staff presented us with a memento that included a RapidX-branded bag with a cup, a diary and a pen in it. We were also offered refreshments which we enjoyed with other delegates before heading out of the new spectacle.

Meerut MRTS

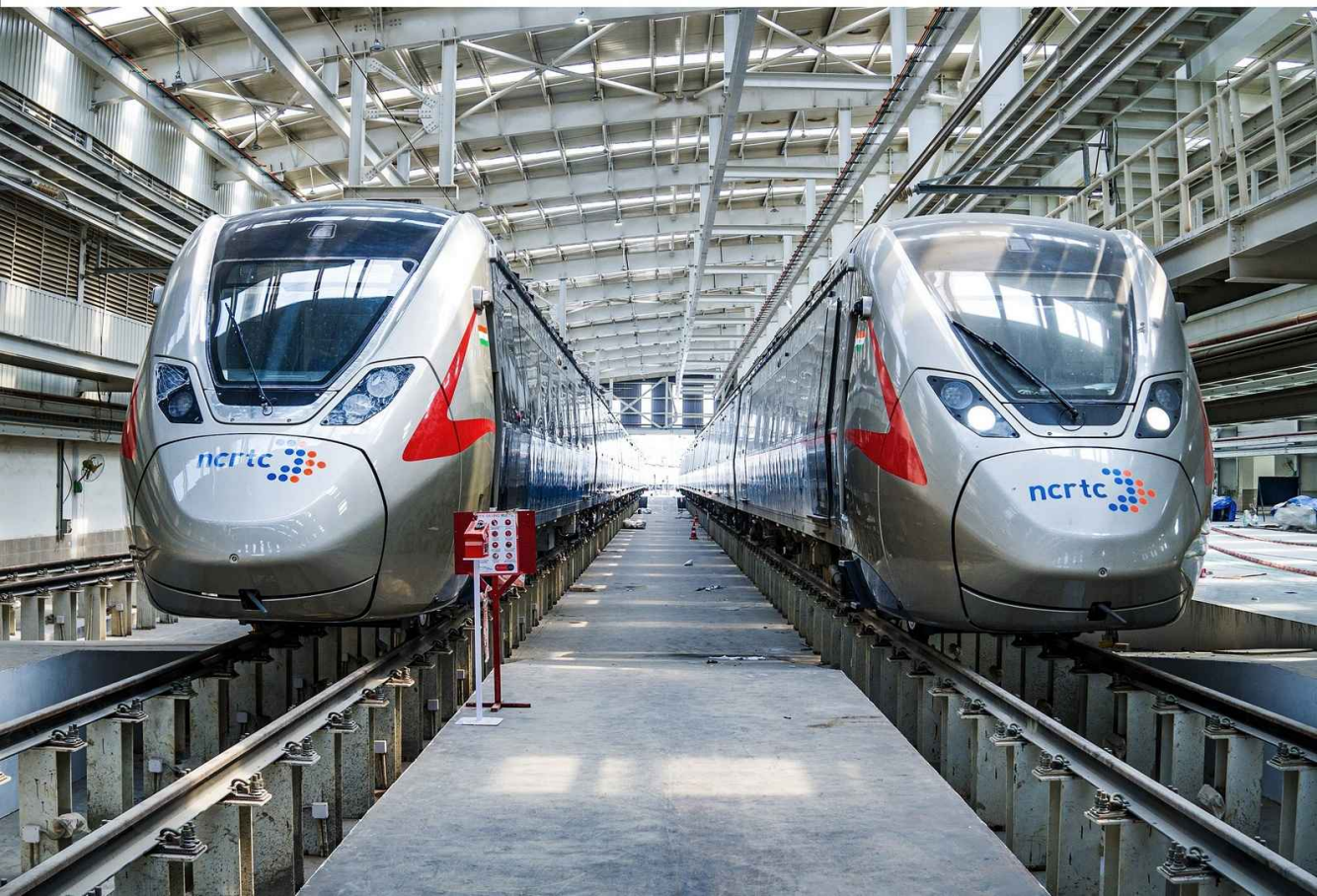
The Delhi-Meerut RRTS corridor will also integrate with the Meerut Metro which is an under-construction for urban metro system in Meerut. The Meerut Metro will have two lines, Line 1 and Line 2, with a total length of 35 km and 25 stations. Line 1 will share the infrastructure of the Delhi-Meerut RRTS corridor and will have 8 metro-only stations and 4 interchange stations. Line 2 will be a separate elevated and underground line, connecting the eastern and western parts of the city. Starting from Meerut South, MRTS will have Partapur, Rithani, Shatabdi Nagar, Brahmapuri, Meerut Central, Bhaisali, Begum Pul, MES Colony, Daurli, Meerut North and Modipuram as stations out of which Meerut South, Shatabdi Nagar, Begum Pul & Modipuram will be both RRTS & MRTS stations working as exchange between both services.

Meerut-MRTS will also have different kind of train set operating on the route than the RapidX train sets. The length of these trains will be shortened, the design will be keeping in mind the short distance and more capacity. While the RRTS has a current frequency of 15 mins, the frequency of RRTS beyond Meerut south will be 30 mins and MRTS will be every 10 mins.

Conclusion

RRTS is one such project which we can call a game changer in urban connection not only being one of the most convenient but environment friendly as well. In the coming years, we will surely see more of such RRTS projects being implemented across the nation.

Saurabh, born and brought up in Mughalsarai, a small town in Uttar Pradesh, is currently working with one of India's biggest IT firms as a software engineer. Train have been his passion since childhood, and he has been exploring them both virtually and physically ever since. As a railfan, he is glad to be a part of such a wonderful community spread all over the world.



Gone with the Greens

The Gorakhpur Forestry Tramway

Pavel Ghosh

A Wildlife Biologist by profession, and a Rail Enthusiast by passion, he has been working across several Tiger Reserves and other protected areas since 2017 as an intern and 2019 as a full time professional. Mostly worked in Duars, Sundarbans and Terai Landscape. Currently working as a Wildlife Officer with Wildlife Trust of India at Valmiki Tiger Reserve, Bihar. Being in Terai-the former haven of metre-gauge railway networks in India, and a metre-gauge lover, he often try to explore abandoned alignments, old railway relics and things related to metre-gauge railway, whenever he gets some time off from the forest job.

Covered under the lush green Sal canopy of Sohagi Barwa Wildlife Sanctuary (SBWLS) in the heart of Maharajganj District of eastern Uttar Pradesh, lies an untold piece of history that many railway enthusiasts are unheard of, half engulfed in the depths of the soft Terai *bhabar*, while the remnants are waiting for a similar fate. This is the story of the ill-fated Gorakhpur Forestry Tramway or GFT, more commonly.

The British Government had set up Imperial Forest Service back in 1867, as a measure to create forest administration, in order to generate revenue from the rich forests of British India in the form of timber. Prior to independence, the forests of SBWLS were part of the erstwhile undivided Gorakhpur Forest Division. Like any other typical Terai forest, these forests were also rich in timber-producing trees. As an initiative to extract the timber wealth of the forest, the British Government had taken up the project to build a 2 ft wide narrow-gauge trolley-way or tramway, from a place called Chauraha under present SBWLS to Ekma, where it was to be connected to the then metre-gauge Pharenda (now Anand Nagar) to Nautanwa Section of Bengal and North Western Railway (BNWR). The metre-gauge section of BNWR was opened on 2nd December 1925, i.e., at almost the same time stretch when GFT started operations. Mentioned as "Laxmipur Forestry Tramway" or "Lacmipur Forestry Tramway" in some documents, this tramway was under operational jurisdiction of the then Gorakhpur Forest Division of erstwhile United Provinces Forest Department. Trolleys pulled by steam locomotives and loaded with timber had been chugging through the forest until 1982-1983.

Dilapidated wooden bridge near Tedhighat Forest Office

Minor bridge with masonry works near Ikma Yard

Map of Gorakhpur Forestry Tramway (approximate alignment)

Due to recurring financial losses, while after 5 years, the given forest area was declared to be a wildlife sanctuary and all felling activities came to a complete halt. Ever since then, the line is experiencing a slow demise process. Tracks of the route were uprooted for building purposes or even as electricity transmission poles, while some of them were smuggled out. The remaining pieces of the track are slowly sinking along with the alignment, in the soft bhabar soil, and maybe in some next few years, all signs of existence of the tramway will be lost forever.

One can find, some of the abandoned trollies of the tramway at the Ekma or Ikma GFT yard, just northeast to the present Lachhmipur Railway Station of the Anand Nagar-Nautanwa BG Section under Lucknow Division of North Eastern Railway. Four of the locomotives along with some other rolling stock materials, which have been refurbished in the recent past are housed in a loco shed, north of the yard. Some of the rolling stock was relocated to Lucknow Zoo in 2009. Several bridges and other masonry work still stand intact, few meters east of the yard. However, the wooden bridge at Tedhighat is in a complete state of dilapidation while the other two spanning across the Rohini and Pyasi rivers have completely vanished from the face of the planet. One water tank near the present Tramway Chauraha is the

Abondoned Trolleys at Ikma Yard

Locomotives at Ikma Shed

last standing structure at the Chauraha Terminal of the former tramway.

While most of the line now stands wiped out, some of them can still be seen in front of Tedhighat Forest Office or Ikma Yard. During 2015-2016, GFT was declared as a Heritage Site, but no signs of actual care can be witnessed. Some initiatives taken to restore parts of the line as a joyride for tourists have been heard of, but on-ground reality is yet to be seen.

Towards an uncertain future...

Siliguri Town

The Forgotten Train Station

Kaushik Majumdar

is working as an R&D engineer in the areas of electronic product design & development with more than 15+ years of industrial experience in designing various kinds of systems and instruments for the industry. He is an active rail enthusiast and a member of Rail Enthusiasts' Society.

Save the DHR, Save the mountains....

Save the station, Save the town....

Save the Siliguri Town Station....

The bonhomie between the mountains and toy trains is inseparable; the emotion that builds up has played havoc in the lives of many and, at the same time, has pulled like-minded people across the globe.

Siliguri Town Station was opened in 1880, and this station gives a magnificent view of the Great Himalayas and the snow-capped Mt. Kanchenjunga peak at times. I do remember from my childhood memories crossing the narrow gauge railway tracks of Siliguri Town Station while going to school in the morning and having a glimpse of the steam engine (Darjeeling-bound toy train), which would wait at the station for its scheduled halt. The historic station building still stands in its glory with many memories to be shared. Some old structures still lie behind and remind it of its glorious past. I still feel the emotion the

Cover photo courtesy: Sanjoy Mookerjee

station has in it.

The Siliguri Town Railway Station is the oldest in the region and was also the originating station for another historic train – the Darjeeling Mail which connects Siliguri to Calcutta (now Kolkata). With the passage of time, the station has lost its importance and has become a stop for some passenger trains.

Town Station is situated in the heart of Siliguri and the adjoining areas form Hawkers Corner which also makes the place very crowded. Though Siliguri Town and its adjoining areas belong to the Indian Railways, the vast majority of the areas are not utilised for any railway operations. Mahabirsthan, which is within a 5-minute walk, is the oldest settlement and business hub of the town. Some coal dealers used to have their businesses in these areas and used to supply coal to the Tea Gardens.

An enormous opportunity lay behind this historic station, which was built a century ago and was used by eminent personalities across the globe. The Old Station building, which still has a narrow gauge platform and a heritage metre gauge platform (non-functioning and partially preserved), if maintained properly, can reclaim its lost glory. Three tracks – Narrow Gauge (DHR), Metre Gauge (a portion preserved) and Broad Gauge still exist to make this station unique in itself. At present, the areas in and around Siliguri Town Station need proper maintenance and infrastructure development to get this station back to business.

Let's save Siliguri Town Station....

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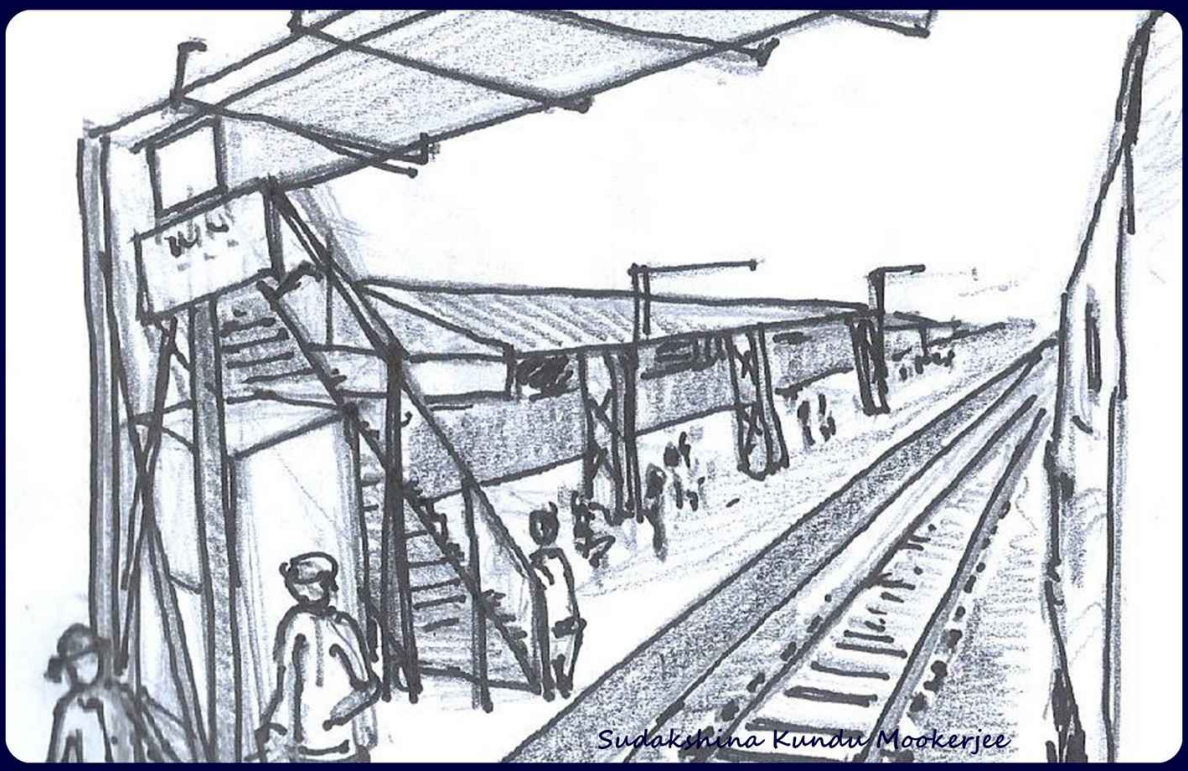
Sambit Chatterjee

Railway Sketches


Sudakshina Kundu Mookerjee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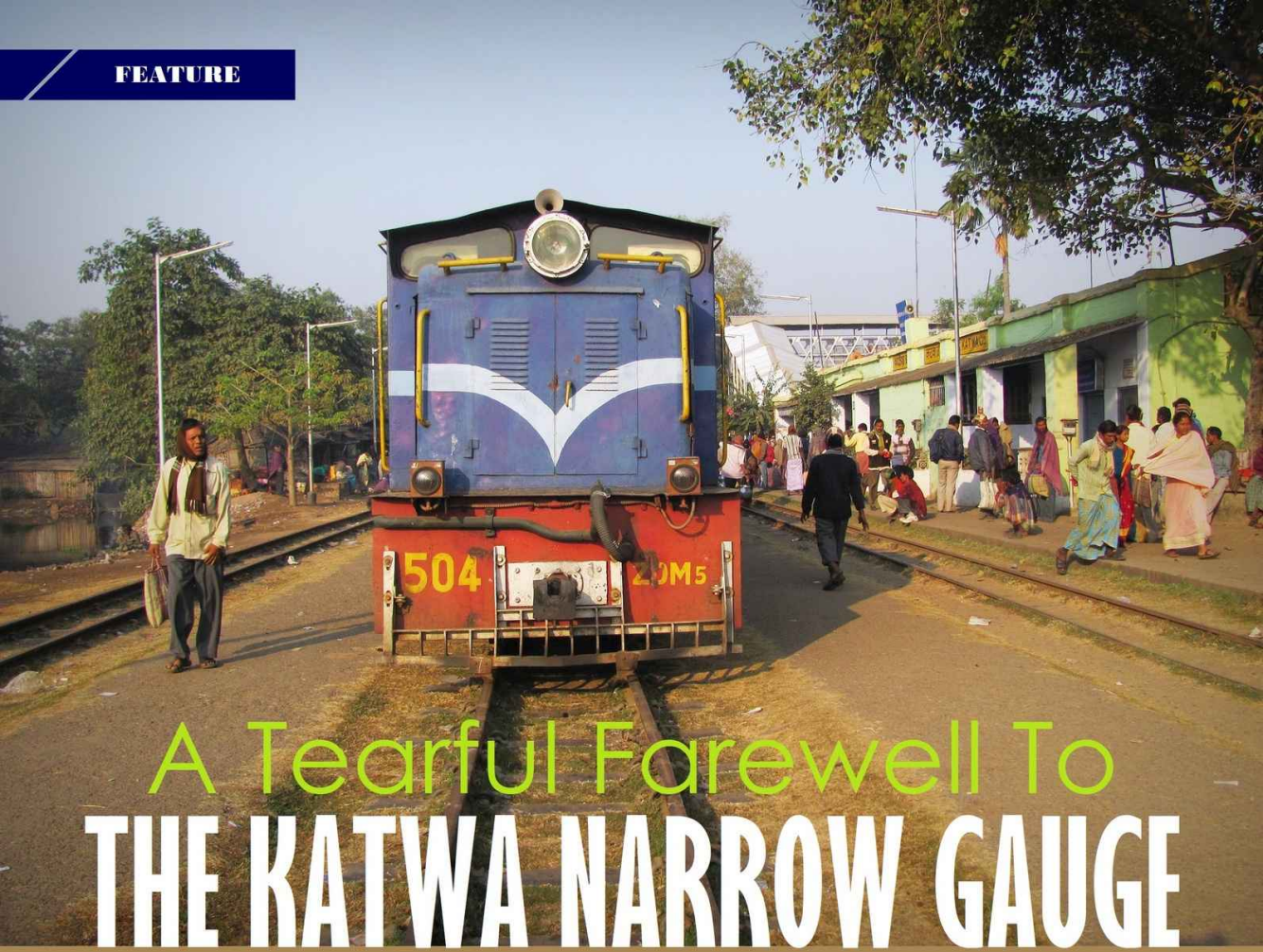


A Tearful Farewell To THE KATWA NARROW GAUGE

Tapan Pal

He did his Post Graduation from Calcutta University in 1980. He joined West Bengal Audit & Accounts Service the same year to retire in 2019. Bappa to his railfan friends, he is a an avid railfan whose area of interest lies on rail history and rail-accounting and rail - economics. He is also a member of Bombay Natural History Society.

On 30th November 2014, I went to Katwa to bid farewell to the last Narrow-Gauge Train Service of the Bengal plains. The Katwa-Balgona stretch which was the residual part of the Katwa-Bardhaman Narrow-Gauge stretch that had already been converted to Broad Gauge, was inaugurated on 1st December 1915 and was shut on 30th November 2014. Katwa was a Junction just by virtue of its Narrow-Gauge (2'6"). Their establishment shows it and the Narrow-Gauge personnel were very keen to maintain their discreet identity, as my many trips to the Mecca of Narrow-Gauge had shown.

HISTORY

Ahmedpur Katwa Railway was built and operated as part of McLeod's Light Railways. This Railroad was started in 1917 and closed on 13th January, 2013 for conversion to Broad Gauge. McLeod & Company operated Bardhaman Katwa Railway, Bankura Damodar Railway, Kalighat Falta Railway and this one. In 1966, its ownership shifted to Eastern Railway of Indian Railways (IR).

Steam hauled Bardhaman-Katwa NG train *Photo courtesy: Duncan McEvoy*

Bardhaman Katwa Railway used to be a 2'6" Narrow-Gauge section. Gauge Conversion, along with electrification, is completed in respect of the 26 Km Bardhaman Jn.-Balgona stretch. The remaining 27 Km, from Balgona to Katwa Junction was left with its Narrow-Gauge. The purpose of gauge conversion and electrification was to facilitate coal carrying to the then proposed Katwa Thermal Power Plant of National Thermal Power Corporation (NTPC). It would provide Broad Gauge connectivity to the proposed Plant. The cost of such conversion, we had heard, was agreed to be shared between IR and NTPC. But as the work of the plant got locked in land trouble, NTPC was not keen to have the line laid. The 27 Km Balgona Katwa Junction Narrow-Gauge stretch has intermediate stations in Saota, Nigan, Kaichar, Bankapasi, Shrikhanda and Shripat Shrikhanda – often too close to each other. Earlier, it had a crossing point at Balgona station. The line runs dead straight through pleasant agricultural countryside, often following a low embankment among rice fields. The straightness of the track all along indicates that in those days, land acquisition was no problem.

In 1913, the Hooghly Katwa Railway was constructed Broad Gauge from Bandel Junction (a station coming up with the inauguration of the Jubilee Bridge on 16th February, 1885) to Katwa and the Barharwa–Azimganj–Katwa Railway made Barharwa Azimganj Katwa Loop Line (BAK Loop, the other Loop being Sahibganj). Electrification of the Bandel-Katwa line was completed with 25 KV AC overhead system in 1994-96.

Photo by Rudranil Roy Chowdhury

THE EVENT

So, when Souroshankha Maji, the Narrow-Gauge freak called me up to tell that the last Narrow-Gauge Service in Bengal plains is going to be shut on the 30th November, 2014, I decided to attend. It seemed to me that it is like witnessing the history and be a bystander to it - something to talk about to your grandchildren.

THE JOURNEY

As Katwa has no Express connectivity in morning, I decided to go by car. By hindsight, it proved to be a wise decision. Started at 8 in the morning with my family car and halted twice on the way, once to refill the car and once to refill myself. Reached Katwa Narrow-Gauge Terminal at 12 noon. It is nearly 160 KMs from my home and I went through Bardhaman to run along the Narrow-Gauge alignment.

Photo by Rudranil Roy Chowdhury

Photo by Rudranil Roy Chowdhury

THE FESTIVITY

The entire Narrow-Gauge Terminal wore a festive look. A ZDM loco was idling and a four coach Narrow-Gauge rake without loco, immensely decorated, was waiting to start as 12:50 hrs. service. Souro was trying to look like a professional cameraman, with three cameras hanging from neck like millstones and accessories like Tripods and all those.

Cultural Function was going on a makeshift stage. The rail personnel were in their regalia. I asked a Loco Pilot what he will do from tomorrow. He replied, 'I will operate EMUs'. A Scout Troop was playing band, reminiscent of the eight-member band of Wallace Henry Hartley on-board the Titanic on 15th April 1912, knowing that it is the last call. Lots of local people came to witness history with kids. There was a noticeable presence of media, print and electronic. The day's Anandabazar Patrika, a leading Bengali daily, published a feature on it including an interview with Souro. There were lots and lots of people, everywhere.

Sometime later, the ZRB Rail Bus arrived from Balgona, with lots of festive people on roof, including two long time railfans of Durgapur, Milan and Kaushik Sir.

The feel was festive with very little mourning. Initially, I was surprised. How men can be so materialistic. But then, to my dismay, I grasped the socio-cultural reality. The Rail, obviously, had failed to keep pace with the times. Roads came up, the State Highway runs parallel to the track, and no one now a days like to travel in a mass transport system with Maximum Permissible Speed of 25 Kmph. Everyone is hoping that the Service will be resumed within two years at best in its new avatar – Broad Gauge; and a Katwa Howrah Local via Bardhaman Chord may be a reality in near future, cutting down travel time.

Daily Passengers Association of the line organized the 'Show' at Katwa as well as at all wayside stations. Local businessmen came forward to sponsor the Event and there was very little involvements of rail authorities in the hoopla, craze and associated extravaganza. I owe my gratitude to them, if for nothing else, for giving the 'Service' a farewell, something she deserved badly but proudly.

Photo by Rudranil Roy Chowdhury

Photo by Rudranil Roy Chowdhury

Photo courtesy: Sourosankha Maji

The final hour was nearing. The Scout Band marched before the loco (504), and brought it to the platform from Shed. People were hanging all around her. The fourth and extra coach added for the occasion for performers, journos and railfans was already full to the brim. So, we altered our earlier plan to go to Balgona and be back to Katwa on board. Instead, we decided to chase the train on car and get snapshots. The Plan worked wonderfully!

When Katwa Ahmedpur Line was operational, that line operated rail buses while the Katwa Balgona stretch operated ZDMs. With the closure of Katwa Ahmedpur Line, they operated ZRBs and ZDMs on alternate days. On the final day, they decided to operate both.

The train exited and we four got paradropped on car seats to have a rendezvous, if not more, on the way. Are not rendezvous better than last rides?

THE FIRST SIGHTING

We put ourselves on a Level Crossing, on the outskirts of Shripat Shrikhanda Station. A gangman was inspecting the tracks, and tightening pandroll clips (jilipis in local parlance)

Photo courtesy: Joydeep Roy

as if there is still tomorrow. Local womenfolk and menfolk came to wave hands to the decorated train. Who knew there was so much love left for the iron machine! The train, with lots and lots of people inside and on roof, crossed us at a great speed, approximately beyond 30. Souro later explained that the fourth and additional coach was recently POH-ed, and the trial run of the loco with the coaches was at 45 on the previous day. Siddhartha, a young railfan who was then in Jadavpur University studying Chemistry was protruding from Guard's Door – I do not know how he managed - with a big smile and a bigger camera.

AND THE SECOND

The second rendezvous spot was Bankapasi Station, a few yards walk from the nearby Level Crossing where we kept our car. There too was festivity, and rural womenfolk came with diyas and conchshells to observe the parting rituals usually associated with daughter's going to her in-laws' place on the morning next to the marriage evening. The craze was infectious; so was the hoopla. Young men on the roof of the train just shouted and danced.

But the pall of gloom was just beneath the skin, awaiting a scratch. After the train passed by, we were returning and so was a group of local women who were on their way home. An elderly lady told us that it was their pride that the station is close to their home and their life revolved around the trains. While the whistle of the first train of the day wakes them up, the last one is an indication to call it a day. From tomorrow, everything will turn mute. I do not know how heavy that silence will be – she lamented. Surprisingly, Joydeep Dutta Sir told me the same words, years later, in 2023 – that the day of Siliguri Town residents used to start with the whistle of incoming Darjeeling Mail and end with the whistle of the outgoing Darjeeling Mail.

While we were walking along the track to be on the car, we saw an elderly man sitting on the track. 'Hi Uncle, for whom are you waiting now. Go home', I shouted. He affectionately called me near and asked me to sit on the track by his side. He was visibly weeping. While I tried to console him saying

Photo courtesy: Sourosankha Maji

Photo courtesy: Sourosankha Maji

Photo courtesy: Sourosankha Maji

that the pause is temporary and the big (bŌrŌ) train will be here within a year or two, he said, can old things be replaced so easily? Does your mind accept those replacements? Have you ever thought of replacing your parents just because they have turned old?

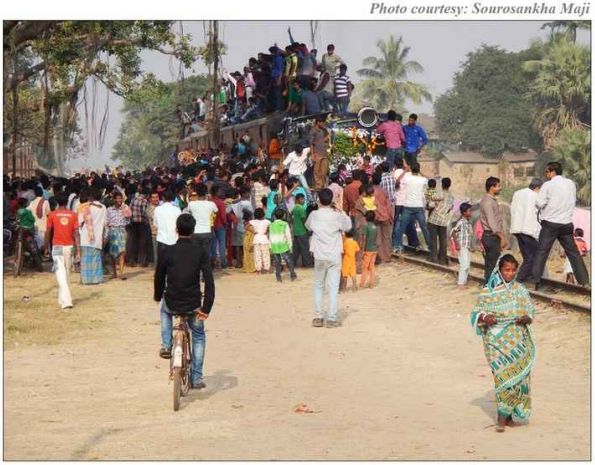
Then he came to his senses, wiped the tears, and said 'You see. None can ever be the replacement of anyone. Everyone is unique in his or her own way. This train moves slowly, and my daughter is wed in a village with practically no road connectivity. I sent paddy and vegetable to her by this train and I just push the sacks before her home. Will a faster moving bŌrŌ rail give me that facility?

We had no answers. We walked to our car with our heads down only to discover Milan missing. A phone call confirmed that he had boarded the train, without ticket, like everyone else. 'I will join you at Nigan', he said.

THE FINAL PORT OF CALL

It was Nigan. We reached before the arrival of the train. Here the hoopla was high, with Daily Passengers' Association asking everyone to wait upto 4 to witness the Return Run of the rake. There are two really large trees on the station, likely to be cut to make way for Broad Gauge. The train entered. For the preceding hundred meters she was escorted by a band party and Milan danced merrily to its tune on roof.

Photo courtesy: Sourosankha Maji



AND BALGONA

We reached Balgona after the arrival of the train. Souro decided to return to Katwa by that train and Milan and Kaushik Sir decided to go to Bardhaman on the awaiting EMU for onward journey to Durgapur.

I climbed up the FOB of Balgona Station. The decorated train was at a distance. I bid 'pronaam' to it and rode the car with wet eyes and a heavy heart. It was 16.14 hrs....

JOURNEY HOME

Drove to Bardhaman and then took Durgapur Expressway. Halted at an eatery near Gurap while rewinding the historic events of the day. Did have some food but the melancholy still lingered....

Photographs provided by the author unless mentioned otherwise. All photos are subject to copyright.

Photo courtesy: Sourosankha Maji

RAPIDX - The New Era

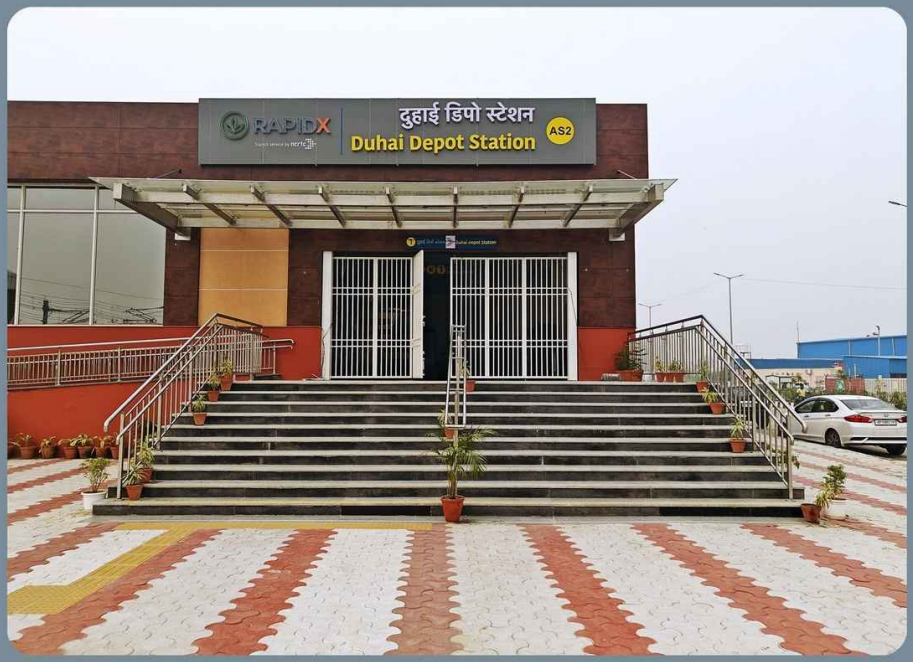
Arkopal Sarkar

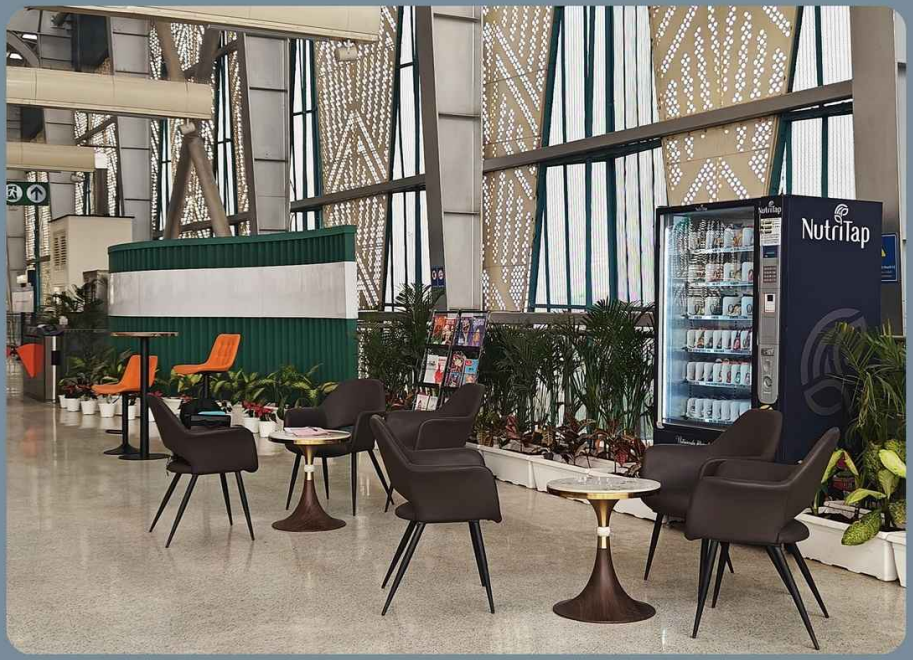
RapidX is a first-of-its-kind Rapid Regional Railway Transit System for the National Capital Region which is designed, constructed and operated by the NCRTC. At present, the section from Sahibabad to Duhai Depot of the Delhi-Meerut corridor is open for commercial operations. Let's explore the fantastic world of RRTS which is the future for faster and greener commute.

NCRTC -- National Capital Region Transport Corporation, the Special Purpose Vehicle formed under MoHUA, Government of India and the states of Delhi, Haryana, UP, Rajasthan is entrusted to implement the Regional Rapid Transit System in and around the NCR

Entry point of Premium Lounge: To enter into the premium lounge one needs to purchase the premium class ticket and scan it twice (one at the Primary entry point and next in just before entering the lounge). Facilities like paid refreshments, cushion seats are provided for premium class travellers.

This is the entry gate of Duhai Depot station, the southern terminal station at present. RRTS depot is situated just behind this station.





A view of the Premium lounge at Sahibabad station.

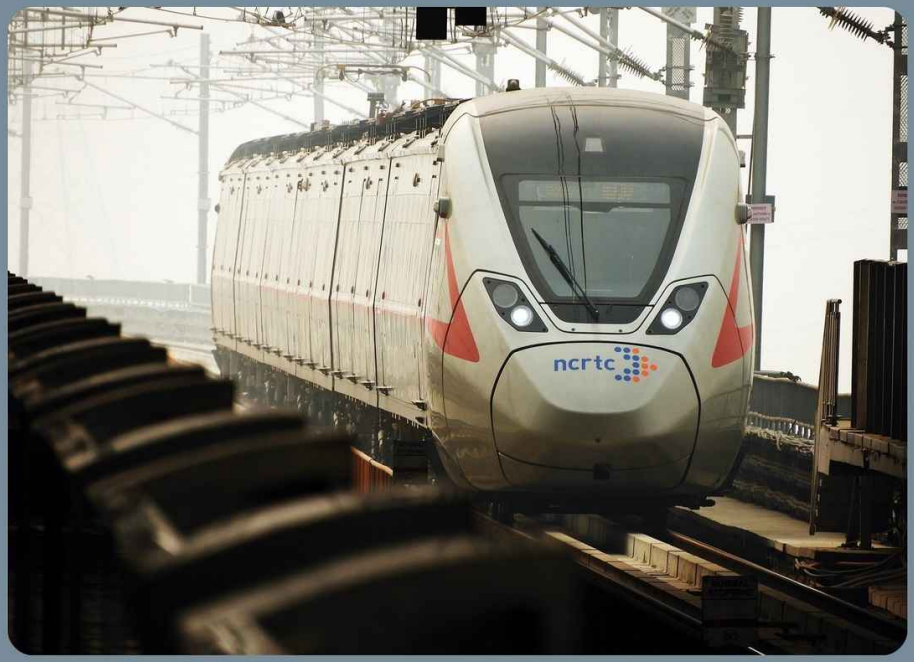
A view of Sahibabad RapidX Station

A view of Ghaziabad from the double discharge platform.

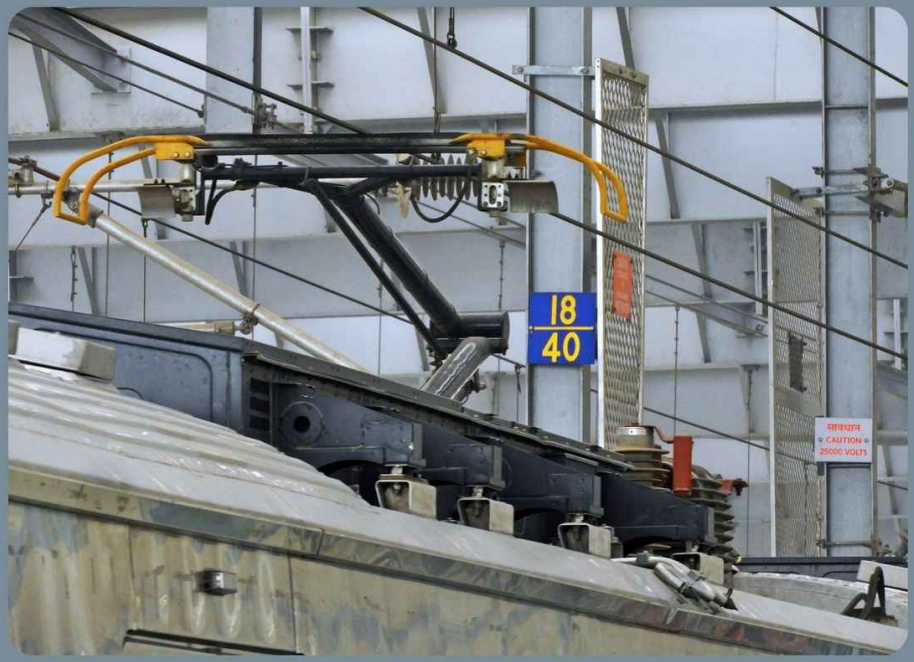
Passenger information board at Duhai Depot RapidX Station.

Route maps of RRTS and passenger guide at Sahibabad Station

A RapidX train leaving for Sahibabad from Duhai Depot station.

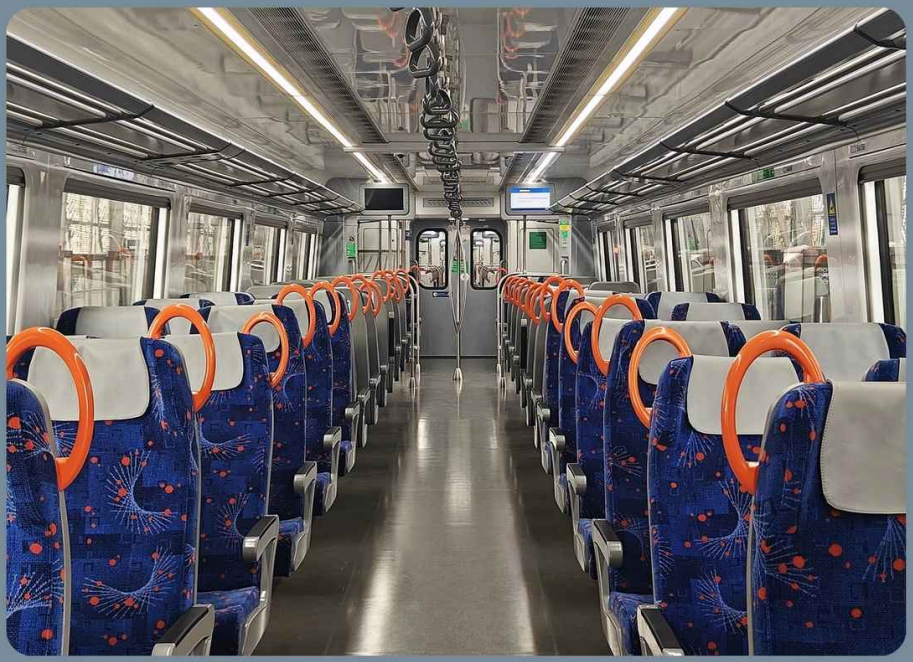


A RapidX train heading towards Duhai Depot entering Ghaziabad station.



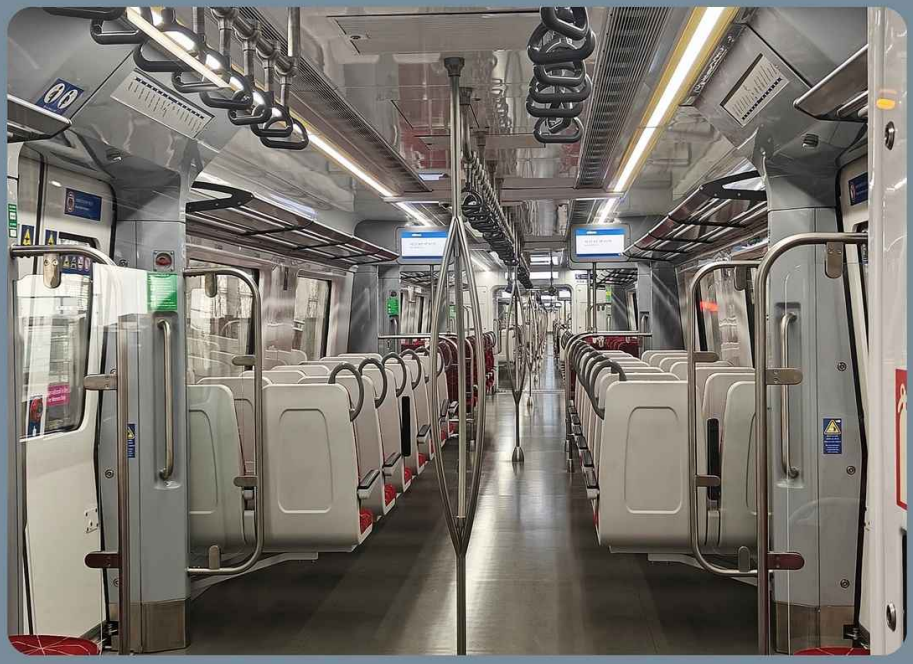
Faiveley (now Wabtec) Single Arm LX 2600 pantographs fitted in RRTS rakes. The pantograph is double pan single arm collecting traction from 25Kv 50Hz overhead catenary system.

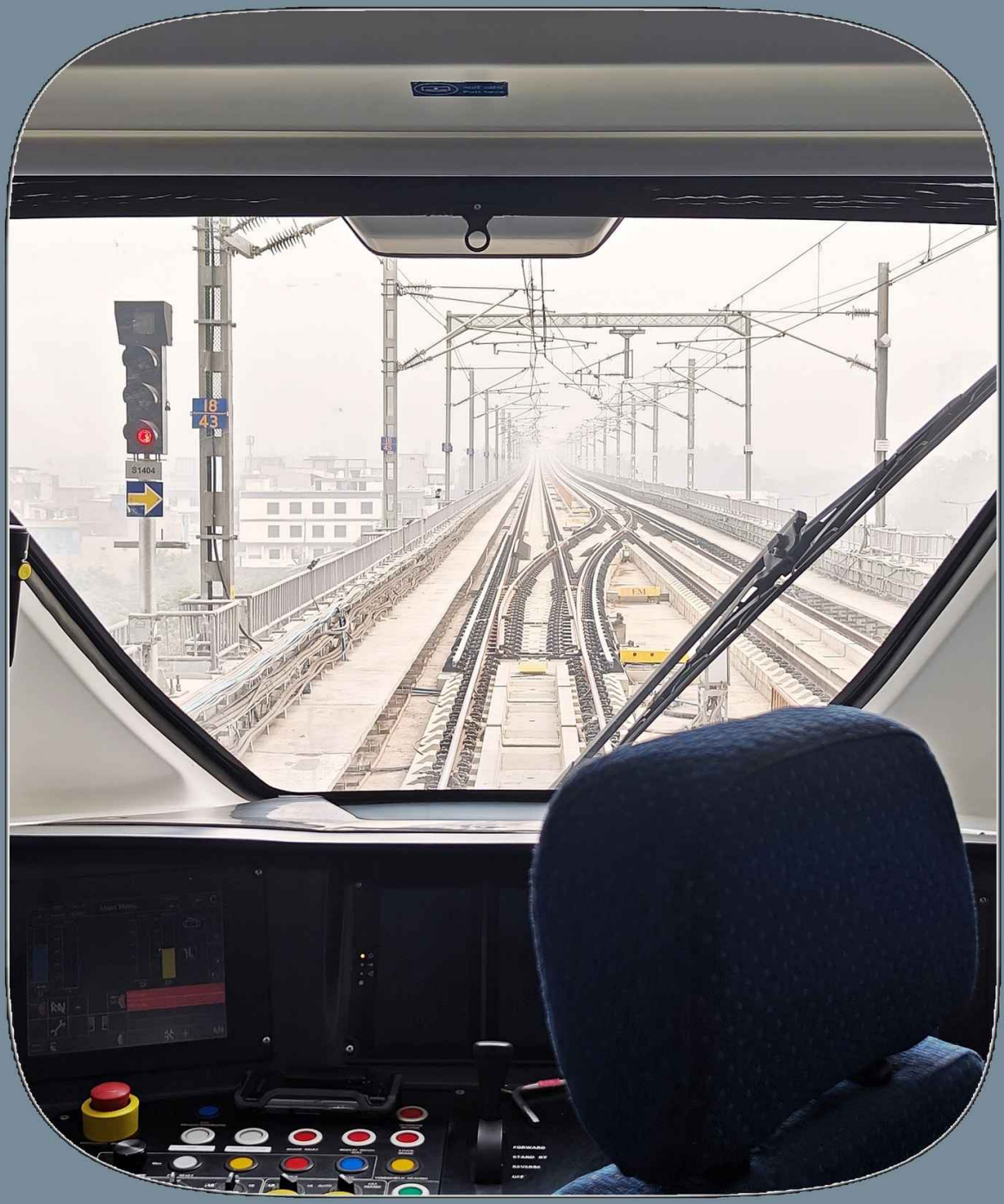
Doors of RapidX rakes are wide, spacious, wheelchair accessible and automatic (currently self-operated).



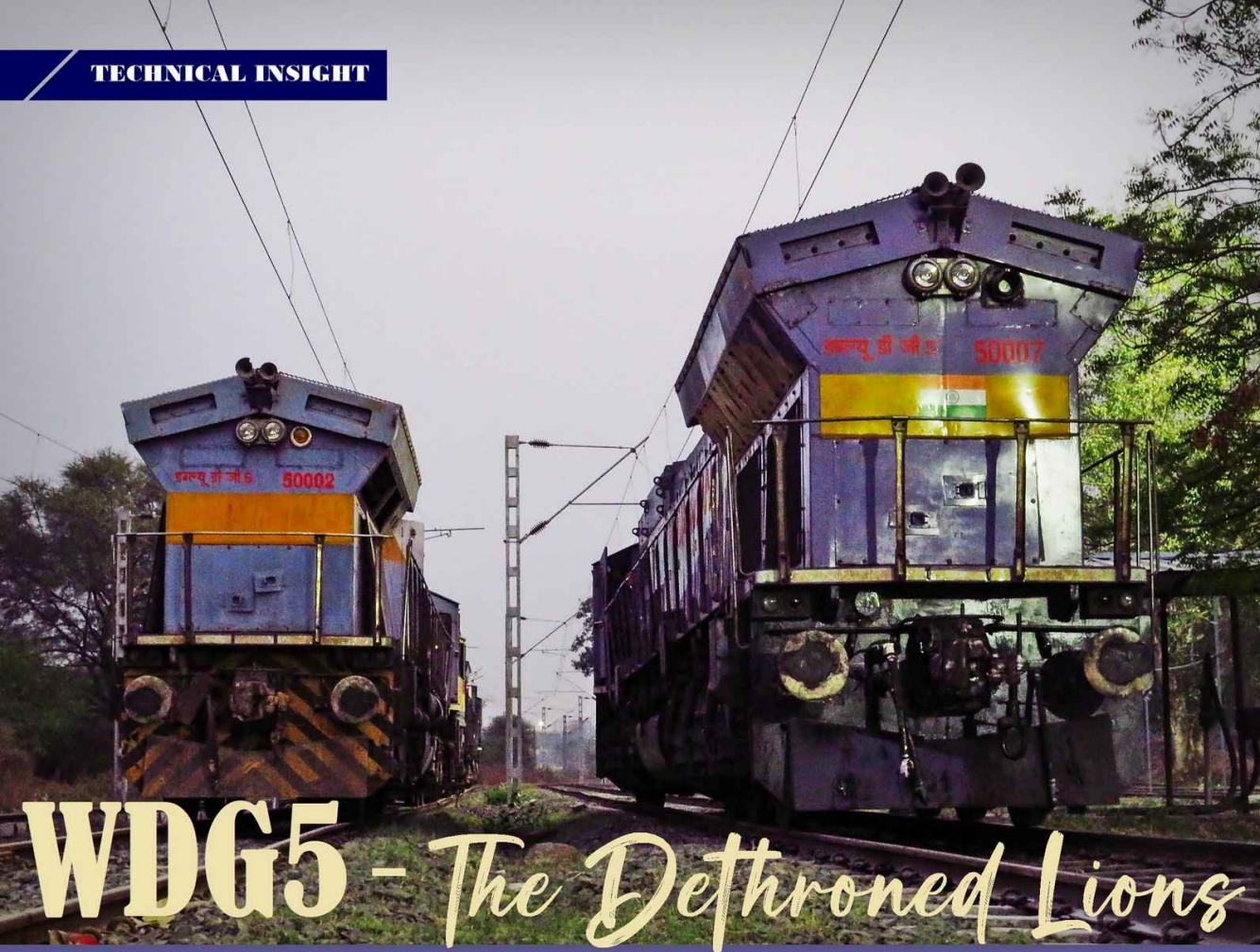
Interiors of the RapidX Premium class coach.

A view of the economy class of RapidX





A cockpit view of the tracks ahead from the cab of a RapidX train.



WDG5 - The Dethroned Lions

Anamitra Bose

It is a spring afternoon and Ronit is on a railfanning session in and around Ahmedabad to spot double stack container rakes with diesel locomotives which was in his bucket list for long. He was eagerly waiting near Viramgam Junction with his photo capturing tool and a heart full of high hopes to spot a handful of towering consists. Since morning he has spotted quite a few double stack rakes with either a GeVo or a WDG4 locomotive. During the course of train spotting, he has picked up a great conversation with a friendly trackman working alongside who was utterly surprised to know the existence of ferroequinology. As the 'new found friend' of Ronit showed immense interest in this unique hobby, he also shared some invaluable experiences from his career in railways. Ronit was all ears to his companion in the railwayman who has suddenly opened up with his repertoire of tales and anecdotes.

After a delicious lunch together, they set forth to each other's path. The man has duty bound as Ronit continued with his second phase of the day's spottings. Suddenly he saw a unique looking locomotive approaching the yard with a huge double stack container load in tow. Ronit has always been more interested in freight trains and their operations thereby finding the regular discussions on locomotives less engaging unlike other rail aficionados. Thus, he was a bit aware of the rare locomotives hurtling across the network here. The sight of a humongous locomotive in its truest sense pulling into the yard with a freight train pulverized Ronit. Amazed by the sheer size and elegance of the locomotive, he decided to Google his query about the whereabouts of the giant locomotive. He was promptly answered that this locomotive in focus is the WDG5 Class of Diesel Locomotive and is exclusively spotted in these parts of India as it is homed by **the prestigious Sabarmati Diesel Loco Shed only.** Google further added that this is the only 20-cylinder equipped diesel locomotive of the nation making it one of the most powerful diesel locomotives. This intrigued him to carry out a detailed study about the history and technicalities of this mammoth locomotive.

:: PROLOGUE ::

In the 1995 contract between the Indian Railways and the General Motors for supplying 31 High-horsepower

Locomotives to India with ToT (transfer of technology), there was also a clause to further develop the existing GT46MAC platform to more powerful version for heavy goods haulage. After WDG4s started running successfully throughout the country with its desired capabilities, Railways felt the need to upgrade them to state-of-the-art IGBT inverters and increase the power at axles, giving birth to a new variant of the WDG4, GT46ACe as per the nomenclature of the General Motors.

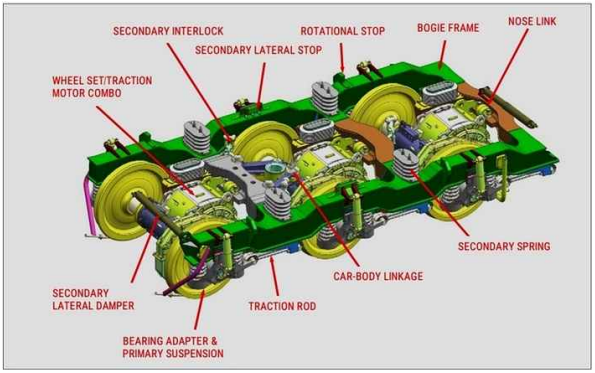
In the mid-2000s, Diesel Locomotive Works gradually took on the project of producing a 5000+ horsepower diesel locomotive for Indian conditions. They asked General Motors Electro Motive Diesel division for a joint project. Gradually, the joint venture took off for design, production and commissioning of a 20-cylinder diesel engine with an output of 5500 horsepower. Accordingly, DLW, Varanasi; Research Standardization and Design Organisation (RDSO), Lucknow and EMD worked together to produce India's first 20-cylinder diesel locomotive – the WDG5. The first unit was named after Bheem, the Pandava brother from the Indian epic Mahabharat portraying immense might, power and strength.

:: A MECHANICAL MAGIC ::

On the dimensional front, this diesel monster measures about humongous 22.62 metre in length – a metre lengthy than its predecessor WDG4; the maximum height of the locomotive is 4.38 metre – 0.1 metre higher than WDG4 and the locomotive weighs 134 tonnes – a good 8 tonnes more than the WDG4. The weight per axle is 22.3 tonnes.

Underframe :

WDG5 is a platform type locomotive. All the hoods are designed to transfer the equipment load to the underframe. The underframe is made up of lightweight high strength material with buff capacity of 400 kN. The underframe carries all the equipments such as cab, E-Locker, Cooling hood, Dynamic braking hood, Engine hood, Inertial hood, Sanders, batteries, cables, wires, compressors etc. The



underframe has an anti-climbing feature. The car body has two slip joints at two ends of engine hood.

Bogies :

The locomotive is equipped with two High Tensile Cast Fabricated (HTCF) bogies which support the weight of the locomotive and provide the means of transmission of power to rails. The rigid steel fabricated frame uses a bolsterless secondary suspension system.

The car body weight is transferred to bogie frame directly through four rubber compression spring assemblies located at corner positions where longitudinal beams and cross beams intersect. Bogie frame is supported by twelve soft primary coil springs kept on a journal bearing adapter. Each bearing adapter have two coil springs which improves ride quality and equalization of loads on track.

The damping at the primary stage has been provided by four hydraulic dampers fitted between the bogie adapters and the bogie frame. Two lateral dampers complement the secondary stage damping by rubber springs at two ends of the bogie frame. These dampers are provided between bogie frame and underframe to ensure maximum stability at high speeds.

Primary traction rod is fitted between bearing adapter and bogie frame to transmit generated traction from bogie to wheel set. Axle boxes are fitted with taper roller bearings with an integrated bearing adapter. Journal bearing adapter joins the journal bearing and primary springs to maintain the vertical load between bogie frame and axle. Axle hung nose suspended three phase AC traction motors are oriented in the same side of each axle within bogie frame. Unitized tread brake units acting on one composition brake shoe per wheel provide the braking power of the locomotive. The units are compact and have integrated slack adjuster that compensate wheel wear and brake shoe wear. It has been fitted on middle axles of each bogie. Spring applied and air released parking brakes have been fitted on one wheel end axle of bogies.

:: THE ENGINE SYSTEM ::

Engine :

The WDG5 or GT50AC has the heart of Electro Motive Diesel


डब्ल्यू डी जी 5
50002


50004
WDG5
50004

20-710G3B-ES engine which is the 20-cylinder version of the EMD 710 series prime movers. It is the only other locomotive except American SD80MAC to use the EMD V20-710 engine on a locomotive. The EMD 710 is a relatively large medium speed two-stroke diesel engine that has 710 cubic inches of displacement per cylinder and maximum 900 RPM engine output. For information, two stroke engine is a IC engine which completes one power cycle of crankshaft revolution with two piston strokes (up and down movements).

The 710 engine is a 2-stroke 45° V diesel engine with 11-inch stroke length. The engine is uniflow scavenged with four poppet exhaust valves in the cylinder head.

Turbo Supercharger :

The function of a turbocharger in a internal combustion engine is to increase fuel efficiency and increase engine power output by best utilization of exhaust gasses. The concept of a turbocharger is to compress the intake air with the help of exhaust air and forcing the air to the engine, to increase power output for the same amount of displacement.

The key difference between turbo supercharging and turbocharging is that turbo Supercharger is driven by the engine with a mechanical connection to the engine whereas a turbocharger is powered by kinetic energy of the engine exhaust gasses.

In WDG5, turbocharger is a single stage turbine with a connecting gear train. The connecting gear train is necessary when situations like engine starting, light load operation and rapid acceleration where exhaust gas has insufficient heat to drive the turbine fast enough. At this point, the engine is actually driving the turbo Supercharger through a connecting gear train assisted by exhaust gas energy. When the engine reaches full load, engine exhaust gases reach temperatures near 1000°F. It is now hot enough to drive the turbocharger without help of the engine. Now, a overrunning clutch in the gear train disengages and disconnects the gear train from the engine. Now the assembly is running as a turbocharger.

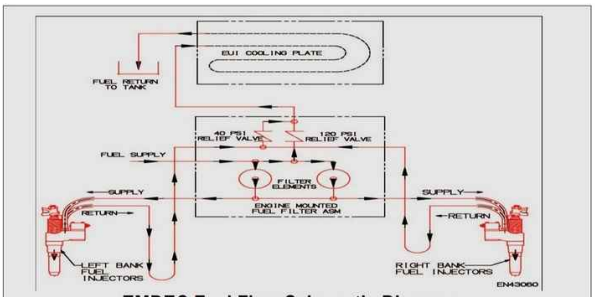
Main components of turbocharger are turbine wheel, doweling assembly, gear drive assembly, impeller, sun gear, turbine blades, nozzle ring etc.

There is a functionality called Exhaust Manifold which extracts maximum exhaust energy from engine and supply to turbocharger to maximize utilization. The assembly contains exhaust chamber, turbo screen adapter, expansion joint etc.

Fuel injection system :

The EMDEC system is an electronic engine speed control and fuel management system. It is designed to control critically turbocharged engine functions such as emission, fuel economy and smoke. The system also protects the engine from extreme operating conditions such as high temperature or low engine oil.

The onboard subsystems of EMDEC system include Electronic Control Module (ECM), Electronic Unit Injectors (EUI), Engine sensors and Wiring components.



EMDEC Fuel Flow Schematic Diagram

During engine operation, fuel from the fuel tank is pumped by fuel pump through suction strainer and primary fuel filter before reaching the engine mounted filter, to get into the engine fuel supply line and injector inlet filter at each cylinder into the injector. A very small amount of fuel is injected into the filter and is pumped into the cylinder at a very high pressure, through needle valve and spray tip of the injector. In a EMDEC controlled engine, the quantity of fuel injected by EUI is calculated by integral solenoid operated poppet valve, controlled by ECM. The excess fuel flows through the injector serving as both lubricant and coolant. The fuel leaves injector through fuel return filter, continues to fuel return line to injector inlet filter, which restricts its flow. Finally, it gets back to the fuel tank. The fuel return filter prevents the return fuel to enter into the injector maintaining a backward pressure.

Lubricating oil system :

The lubricating system in 20-cylinder engine combines three systems, viz., main lubricating system, piston cooling system and scavenging oil system into one system using a single high-capacity oil pump.

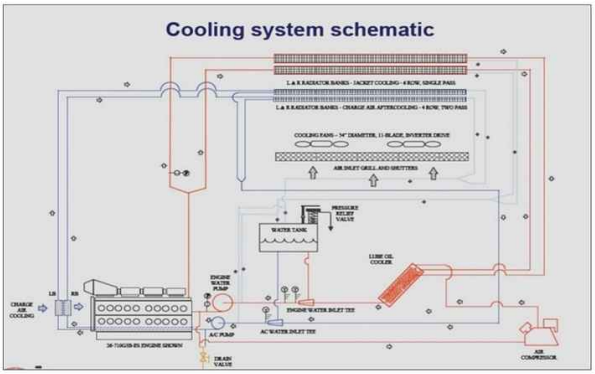
The pump is fitted on lower right side of assembly drive housing and is driven by assembly drive gear. The pump scavenges oil from the engine oil pump through the supply manifold and strainer assembly, then it is pumped through off-engine lube oil filter and cooler assemblies. Oil is returned to engine through a Y-branch manifold which divides it proportionally between main lubricating system and piston cooling system.

Filters :

Inertial Filters : On either side of the locomotive, there are two separate inertial Filters made up of a series of tubes to produce a cyclonic action. Outside air is drawn through the tubes which contain specially designed vanes that induce a spinning action motion to the contaminated incoming air. Dirt and dust particles, heavier than the air, are cleaned up by scavenge blowers through loco roof and clean air enters the compartment.

Other filters are mentioned below:

Engine intake air filters



Lube oil filters
Turbocharger oil filter
Soak back oil filter
Fuel filter

Cooling system :

The engine driven cooling system consists of engine driven centrifugal water pumps, replaceable inlet water manifolds with an individual jumper line to each liner, cylinder head discharge elbows and an outlet manifold through which cooling water is circulated. In V20 engines, the pumps are placed on accessory drive assembly and driven by accessory gears. Each liner is individually supplied with coolant water from water manifold through a water inlet tube assembly. Deflector is used in each liner to prevent the water impingement on the inner tube walls. Water enters the cylinder through 20 discharge holes at the top of the liner. A counterbore around each hole accommodates a heat dam and water seal. A water discharge elbow is bolted with each cylinder to provide a water passage which extends along top of crankcase. EMD and Young radiator has together developed a four pass after cooler which recycles the water before discharging to increase cooling capacity.

Cooling water is circulated in a counter flow direction after passing through aftercoolers located in turbocharger air duct to cool the air before it enters engine air box. The discharge water flows through an external cooling system to dissipate the heat taken up in the engine. Coolant after coming from the aftercoolers and power assemblies is collected in the main water chamber in top center of the engine. From the chamber, water is directed in Y pipe to the radiator assemblies. Electrically driven cooling fans move air through the radiators which absorb heat from the coolant. Water temperature is controlled through shutter and control fan operated by temperature sensors and microprocessor units.

The cooling water returns from the radiator to the lube oil cooler where it absorbs some of the excess heat from the lube oil. From the cooler, the coolant water goes back to the aspirators to repeat the cycle. When engine is cranked initially, water is drawn from the expansion tank as radiators have no return flow of water at that point. After some time, water level in the tank stabilizes. The water used for cooling air compressors, runs whenever engine is running and returns to tank for recirculation.

Coolant :

The coolant is circulated through the engine to transfer the heat generated from the engine to the radiators. The coolant is a mixture of water and corrosion resistant. The coolant has following characteristics –

- Adequately transfer heat energy
- Does not form sludge or slack deposits
- Prevent corrosion
- Does not damage seal or gaskets of cooling system

Engine Protection Device (EPD) :

Low-water and crankcase pressure protection: A low water detection system of EPD, balances water pressure against air pressure. When water pressure falls, the device pumps out fuel from the governor supply line causing engine shutdown.

When engine is shut down, water pressure must act against spring pressure (when there is no air box pressure) to keep the engine latched in. The device must be reset every time the engine is started.

Radiators :

There are two radiators with after cooler separate cooling system. The radiators are having 200" length and 45" width core with 10 row tube stacked configuration; 6 row tube single pass for engine cooling upper side of the radiator and 4 row tubes for separate after cooling systems with two pass, each one at water in and water out at of the lower sides of the radiators.

:: THE ELECTRICAL MACHINES ::

The brain behind the GT50AC monster is the electrical machinery and generator along with the muscles pulling the loaded rakes in adverse conditions are the traction motors. All these are at par with advanced electronics and energy efficient three phase traction motors. The crankshaft of the diesel engine is connected to the Traction Alternator assembly which supplies three phase electrical power to the traction motors and auxiliaries, thus completing the cycle of conversion from mechanical energy to electrical energy to kinetic energy in the wheels.

- **Traction and Companion Alternator :** The diesel engine drives the Generator assembly, which comprises Traction Alternator, Companion Alternator and Rectifier assembly in a single housing. The traction alternator converts mechanical power from diesel engine to electrical power. The rectifier assemblies convert AC power to DC power before going to the next stage.

1. Rotor assembly : The rotating field of traction alternator consist of series connected field pole coils (10 pole electrically connected to slip rings #3 and #4) which are bolted to a

drum type spider. The spider connects to the shaft which is supported by a bearing mounted in the end housing of the main generator assembly. The 16-pole companion rotor for the companion alternator is connected to the main alternator rotor. Series connected field poles of companion rotor are electrically connected to slip rings #1 and #2. The other end of complete rotor assembly is supported through coupling by engine crankshaft.

2. Traction Alternator (TA20MBF) : It consists of two interwoven but electrically isolated stator windings excited by a common rotating field. The stator winding #1 three phase output is connected to traction rectifier bank #1, producing DC output through DC link capacitor which is applied to IGBT inverter #1 The stator winding #2 three phase output is connected in the same manner to the traction rectifier assembly #2 and the IGBT inverter #2. AC output from traction alternator is of frequency range 16.7 to 75.3 Hz for speed range 200 to 904 RPM of the diesel engine.

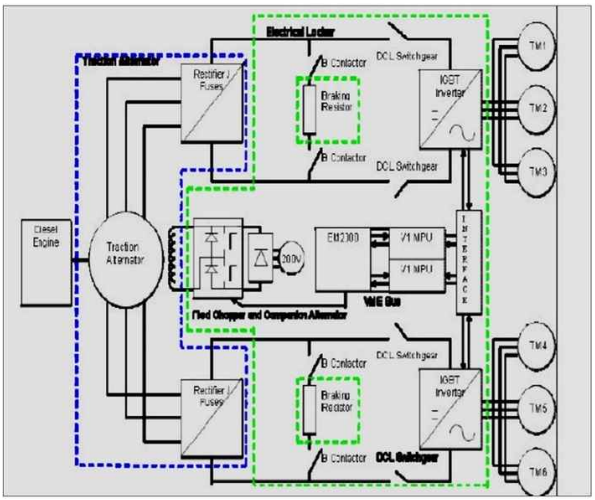
3. Companion Alternator (CA9E) : It consists of two isolated stator windings with a common rotating field winding. From companion alternator stator #1, a) output is 400V AC,50 A, 346 KVA (at 904 RPM) is provided to locomotive blower motors and cooling fans; and b) 200V AC,80A, 28 KVA is provided through its half tap winding for excitation of traction alternator field via chopper. The companion alternator stator #2 output is connected to Auxiliary Power Converter (APC - phase controller) which produces the low voltage DC power (72-78 V DC) required for control system, battery charging and companion alternator excitation, thus eliminating the need for an auxiliary generator.

4. Air Box : The two rectifier assemblies and Slip Ring assembly are located in the Air Box which forms a part of Generator assembly. Rectified traction alternator output is rated 1650A and max 2700V DC.

5. Traction and Companion Alternator Blower : The main generator blower has provided cooling air to traction and companion alternator and then provided pressurization on the loco carbody. The blower has pulled initial filtered air from inertial compartment. The blower has operated in power mode via a single winding 4-pole motor.

- **AC Transmission System:** The AC-AC traction system typically comprises the Electrical Locker, FIRE Display Hardware, FIRE displays/computers, FIRE power supply, two cooling fans, crash hardened memory, PC card reader, COM 600 module, Traction motors and associated cables.

1. Electrical Locker: The electrical Locker or GT Locker consists of Locomotive Control Computer (LCC) system along with all control, protection and indication equipment like sensors, relays, breakers, indicators, EMDEC control modules, power supply, EMDEC interface board, auxiliary power control, auxiliary inverters. The Electrical Locker consists of two main cabinets, Inverter cabinet and Control cabinet supplied as a single welded unit, pre-wired and tested. The electrical locker is applied above the underframe and behind the cab and is



welded into the underframe. The essential building blocks are similar to WDG4 locomotive, however same packaged into a single cabinet instead of 5 separate cabinets, reducing the space required. The E-Locker replaces the ECC1, ECC2, ECC3, TCC1 and TCC2 cabinets (ECC = Electronics control cabinet, TCC = Traction Control cabinet) with a single cabinet while retaining the functionality.

2. Traction Inverters : The two traction converters situated inside the inverter cabinet of E-Locker are IGBT-based Pulse-width modulated converters, which convert DC input voltage from traction alternator assembly and convert into three phase AC voltage to drive three traction motors on each bogie (operating in parallel).

- The software of the inverter control system is fully compatible with LCC software including propulsion control, slip slide control, fault diagnosis etc. The inverter system has its own protection and control logic
- The Traction control cabinet consisting of inverters with their control systems, blowers, transducers are supplied as complete frame with door and covers. The control system is integrated in the LCC.
- Individual bogie cut out is provided to isolate defective traction motors or dynamic brake grids in case of failure. The control system is designed to automatically reduce locomotive power so that remaining inverter and motors are not overloaded.
- The traction inverter and LCC use traction motor speed sensors and temperature sensors.
- IPS (Inverter Protection System) is used to protect the inverter from over-voltage and overcurrent conditions on supply as well as load side.
- The main power semiconductor device used for switching voltage and frequencies is Insulated Gate Bipolar Transistors (IGBTs).


INDIAN RAILWAYS
50001
WDG5
BHEEM
WDG5
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साबरमती


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साबरमती

- The main power semiconductor device used for switching voltage and frequencies is Insulated Gate Bipolar Transistors (IGBTs)
- Evaporation bath cooling is used for phase modules of the traction inverters. Air for the secondary cooling of phase modules of each inverter and cabinet cooling comes directly from ambient supply by a forced-air inverter-cooling blower. This blower is a 3phase AC induction motor with power supply taken from loco's companion alternator

3. Auxiliary Inverters : The inverter cabinet portion contains the following –

- Auxiliary inverters for: Engine cooling fans, Truck blower motors.
- Main Generator Field supply chopper: provides rectified and regulated current to the traction alternator as requested by LCC.
- APC Phase controller
- Battery charge resistors
- 6 phase modules

- **Locomotive Control Computer (LCC):** The LCC is made up of an EM2000 control system. EM2000 is a 32-bit computer based on Motorola 68020 microprocessor running at 16 MHz with a math co-processor and communication through RS-232 serial cable. The traction control computer receives data from EM2000 via RS485 serial link. The LCC contains mainly these components to control the WDG5 locomotive –

- **Traction Alternator Excitation :** Traction Alternator field excitation comes from Companion Alternator output, which is rectified to DC by a chopper circuit controlled by LCC
- **CPU :** The heart of the system is a 32-bit microcontroller, controlling all functions via programmed software and interfaces
- Digital I/O interfaces

- Analog input interface
- Non-Volatile Memory
- **Display Unit (TFT Screens) :** Two FIRE display screens are provided on each control console. They replace the conventional analog gauges and indicators on the control stand. Also, they act as Driver interface to the locomotive.

The Functionally Integrated Railroad Electronics (FIRE) system is an electronic system that is used to both interconnect and host locomotive command and control functions. The FIRE computers integrate and manage the overall locomotive control. The main functions include –

- It provides the user an interface to access locomotive's functional subsystems
- It routes communication between functional subsystems that do not communicate directly
- It systematically integrates and coordinates the locomotive functional subsystems

FIRE system has a built-in locomotive event recorder system. These event recorder data can be downloaded through PC card or Laptop serial.

The major functions of the proposed LCC are depicted below –

1. Engine Control : The LCC receives driver's operating requests through throttle handle and adjusts the diesel engine RPM to specified level. Electronic control of a fuel injection system aids in improved fuel economy, and reduction in exhaust emissions. The metering and timing functions are controlled by the EMDEC system. The ECMs of EMDEC receives input from :

- Locomotive computer control through interface
- Temperature and pressure sensors
- Timing and reference sensors reading crankshaft position and speed

When injection is desired, ECM energizes the injector

solenoid to control operation of the poppet valve. This valve controls operation of the injectors high pressure pump. When energized, fuel is pressurized for injection. When de-energized, fuel in the pump chamber is bypassed to fuel return passage.

2. Auxiliary Power Control : With Auxiliary Power converter, this control system provides 74V DC upto 32kW, irrespective of the engine speed.

3. Traction Alternator Control

4. Traction Control : The LCC computes engine power capability, kilowatts reference, DC link voltage reference, locomotive torque, torque reference for individual traction motor and TA field current reference, depending upon various operational limits of the equipment on the locomotive and operating demands of the driver through the throttle handle. At lower speeds, the tractive effort limitation decides the operating point on the TE vs speed curve. At higher speeds, the engine power limits determine the operating point. Based on this torque references are generated and sent to traction inverters.

5. Dynamic Braking Control : When the throttle handle is in dynamic braking, the LCC measures 24T trainline voltage through an isolated voltage sensor and computes the braking effort level required by Traction inverters. The LCC energizes respective B contactors to connect Dynamic braking grids across DC link. The power generated by traction motors acting as generators gets dissipated across DB grids.

6. Wheelslip Control : To maximize adhesion performance, a controlled-creep philosophy is used. Speed sensors mounted on the traction motors provide the speed signals. Whenever a loco is under coasting in a specific band of speed range and dynamic brake or pneumatic brake is not applied, sand is applied automatically according to sand level. During dynamic braking, controlled creep system is used for wheel slide control.

7. Auxiliaries Control

8. Fault Diagnostics

9. MU Operation

10. Communications

11. Automatic Engine Start/Stop : Auto-start is a micro-processor controlled system that allows automatic shutdown and restart of the diesel engine to save fuel consumption and emissions.

- **TRACTION MOTORS :** In WDG5, EMD made A2921-6 three phase, asynchronous type 4-pole force cooled electrical machine. The gear ratio is 20:91 and maximum power output is 645 kW. Its stator winding is star connected. The motor converts three phase electrical power into mechanical power to the shaft. The rotor is a squirrel cage rotor which is very rugged and maintenance free. AC traction motors are highly reliable, maintenance free, have high tractive effort and very high energy efficiency. During dynamic braking, the motors act as generators and power is fed back to DC link via two inverters and gets dissipated in DBR grids.

:: WDG5 vis-à-vis WDG4 ::

Ronit is left mesmerized with the engineering marvel that this V20 locomotive is, with all the massive generator assemblies and modern electronics bringing the loco control in one E-Locker cabinet. To compare with WDG4, the locomotive's predecessor, he found some interesting points.

- Compared to WDG4, WDG5 has a 20-cylinder engine resulting in a 1000 hp increase in power output.
- WDG5 has many advanced technologies like E-Locker cabinet, Elimination of Auxiliary generator, FIRE system, Auto engine start-stop over WDG4.

- While WDG4 was largely preferred by operating and engineering departments for the ruggedness coupled with ruthless performance, WDG5's new design and huge weight made many railway men skeptical about its large-scale use.
- Despite being heavier and more powerful, WDG5 produces only 20 kN more tractive effort on the wheels than the WDG4.
- Due to the 20-cylinder engine, the fuel efficiency is not satisfactory and lags far behind of WDG4.

Photo courtesy: Subhabrata Chattopadhyay

:: EPILOGUE ::

Thus, it is obvious from above, that WDG5 has not exactly become a true successor of WDG4 thereby forcing the Indian Railways to switch over to the more globally accepted General Electric diesel locomotives for its high horsepower applications for future operations. Though like all single-cab General Motors locomotives in IR fleet, WDG5 is largely comfortable for crew with cushioned seats, ergonomic controls, interactive driver panels with touchscreens along with Air-conditioning for better operational comfort to combat the torrid Indian summers, yet clouds of uncertainty veiled the future and feasibility of the joint project of IR with Electromotive Diesel as the former wanted a move-on. In 2019, Indian Railways commissioned the first General Electric (Wabtec) WDG6G locomotive which produces 6000 hp with a 16-cylinder 4-stroke engine, giving it an overall edge over the EMD GT50AC. Also, WDG6G runs with an Evolution series fuel-efficient GeVo engine and is UIC-1 emission compliant.

Albeit the introduction of a path breaking feature in accommodating a toilet or washroom with a urinal and a wash basin for the very first time in any locomotive across the IR, the colossal flaw in the overall design which includes the critical problem of driving this giant in Hood End Forward (HEF) mode for it being lengthier than a WDG4 with a considerable bulge, made this class a nearly failed one. Thus, this revolutionary leap in amenity in the locomotive stock history of IR especially designed for the crews serving long hours could not quite overcome the safety aspect for loco pilots in case of detecting upcoming signals and signages with HEF mode of driving.

Now Ronit has his doubts cleared as to why being such an advanced locomotive and one of the modern GM EMD locomotives across the globe, WDG5 has been specifically restricted to Ahmedabad and Rajkot divisions of Western Railway. Even if Gooty and Siliguri DLSs had received the locomotives, ultimately Sabarmati Loco Care Centre takes care of the beasts and does the major or minor schedules as per requirement. With the mandate on 100% electrification and induction of the more modern GE diesels for regular freight operations, the heydays of WDG5 locomotive have not arrived yet and will not probably ever making it one of those ill-fated locomotive classes of the system with an immense potential that never got translated into performance!

Photographs provided by the author unless mentioned otherwise. All photos are subject to copyright.

References :

- *Motive Power Directorate, RDSO Diagram*
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EXCLUSIVE

AMRIT BHARAT TRAINS

A New Genre to Serve the Commons

Anamitra Bose

Amidst all the popularity and craze about Vande Bharat Express, there was always an underlying stream of discontent about the excessive focus on the upper and upper middle strata of the society when it came to introducing newer train services. Somehow, it was felt that the demands of the commons making up the lowest stratum had taken a backseat which was vindicated by the fact that most of the trains began to heavily lack in the number of Sleeper and General compartments post LHB-fication and AC 3-Tier Economy Class has taken their place. This has resulted in untoward instances of unauthorized AC travel across the nation. In order to generate more earnings, the needs of the under privileged class had taken a beating for sure. Somebody had to remind the Indian Railways that it is the mass connector of this huge nation and is meant to serve all layers of the society. At this crucial juncture, in came the Amrit Bharat Trains or the Vande Sadharan Trains, as it was initially named. With the plethora of Vande Bharat trains connecting various states, the proposal of a Non-Air conditioned train with better amenities meant for the commons may just be the saving grace.

Photo courtesy: Arkopal Sarkar

Photo courtesy: Somsubhra Das

The Integral Coach Factory, Chennai has prepared two full rakes, composed of sleeper and general class coaches with matching SLRs in an Orange-Grey-Black livery. But do not the Amrit Bharat Trains remind us of another genre of train meant for the have-nots – Antyodaya! Those are unreserved trains, some even superfasts with an enhanced fare with same LHB consists! Here also, the Amrit Bharat Trains are having a 30% higher ticket rates than normal trains.

:: THE LOCOMOTIVES ::

Interestingly, the premium Vande Bharat Trains are based upon Electrical Multiple Unit technology with a distributed traction system.

Photo courtesy: Arkopal Sarkar

For Amrit Bharat Trains, Railway Board decided to adopt Locomotive Push-Pull technology with two WAP5 class of locomotives at its either end. Again, doesn't it sound familiar! Yes, you are right, nothing new in this as well as once the Mumbai Rajdhani of WR used to be a Push-Pull Rajdhani among other trains. The Mumbai Rajdhani of CR still runs on this Push-Pull setup with WAP7 at its helm.

The WAP5 class of locomotive was initially chosen for those Rajdhanis as well and for it being a high-speed locomotive, originally designed and imported from Adtranz, Switzerland. The locomotive has IGBT based three phase propulsion system and Bo-Bo bogies with a rated top speed of 160 kmph. For Amrit Bharat Express, 4 WAP5 locomotives (2 pairs) bearing road numbers **35027**, **35028**, **35029** and **35030** were manufactured by the Chittaranjan Locomotive Works with some unique characteristics compared to normal WAP5s which are listed below –

- One cab is designed as aerodynamic and another cab is flat-faced, resulting in both the cab profiles being different from normal WAP5s
- The locomotives are equipped with TCAS transponders

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

- On the aerodynamic side, the driver desk is designed with much similarity to Train18, with consolidated Driver Display Unit (DDU), speedometer and TCAS display screens in a single panel. The windshield is single and grill-less
- On the non-aerodynamic side, the driving consoles are normal WAP5-like
- Both the cabs are airconditioned
- MU and Hotel Load UIC ports, buffers are absent on the aerodynamic side.
- On the non-aerodynamic side, there are total 4 ports, two MU ports A and B with 22 pins for push-pull connection. The normal MU port with 18 pins and Hotel Load UIC port.

Look and design-wise, these WAP5s also remind us of the two WAP5s (#35012 & #35013) earlier manufactured for hauling Tejas Express Trains which are housed by the GZB ELS. So, the uncanny similarities continue….

WAP5 #35027 and #35028 have been commissioned and maintained by the Howrah ELS are powering the 13433/13434 Malda-SMVT Bengaluru Amrit Bharat Express while the WAP5 pair of #35029 and #35030 are commissioned and maintained by the Ghaziabad ELS and are the nominated power of the 15557/15558 Darbhanga-Anand Vihar (T) Amrit Bharat Express. Apart from these locomotives, the HWH ELS has also painted another pair of WAP5

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das

30190 and **30191** along with a pair of WAP7 **39263** and **39265** in Amrit Bharat livery as backup locomotives for the train. Ghaziabad ELS has also got 4 of its WAP5s and 4 of its WAP7s fleet painted in Amrit Bharat scheme. While the GZB WAP7s viz., **39291**, **39296**, **39297** and **30662** along with one its WAP5s viz., **35005** carry the exact Amrit Bharat livery, other 3 WAP5s bearing road numbers **35014**, **35026** and **30187** have some subtle differences in livery.

Rudra Bihari

:: THE COACHES ::

Each rake consists of 8 General Type coaches and 12 Sleeper coaches with 2 SLRs, making it a 22-coach consist. The coaches are LHB type, manufactured by the Integral Coach Factory having salient features like –

Ankit Sam

Rudra Bihari

Aman Tuteja

Lalit Yadav

Rudra Bihari

Photo courtesy: Somsubhra Das

Photo courtesy: Somsubhra Das (Top Left) & Arkopal Sarkar

- The coaches are equipped with CCTV cameras
- Each berth has been provided with AC output point with mobile holder
- The toilets are modular with bio-vacuum toilets and sensor-based taps
- The berths are equipped with reading lights in sleeper coaches
- The vestibules are equipped with sealed gangways, ensuring hassle free movement between the coaches
- The coupler between the coaches are semi-permanent couplers which reduces jerk to a greater extent. On both ends of SLR, CBC connection is provided to facilitate loco attachment
- Snack trays have been amended in Sleeper coaches

Photo courtesy: Somsubhra Das

On 30th December 2023, both the trains were inaugurated from Ayodhya Dham through virtual conference by the Hon'ble Prime Minister. Both the trains have been categorized under Mail/Express category as their average speed is below 55 kmph. 13433/13434 Malda-SMVT Bengaluru Amrit Bharat will have 32 stops enroute while 15557/15558 Darbhanga-Anand Vihar (T) Amrit Bharat will have 20 stops.

The so far introduced Amrit Bharat Trains have garnered good overall patronage and will definitely climb up the ladder of popularity in no time. At last, the Indian Railways has got something to offer to the masses with facilities of premium trains sans air-conditioning with a negligible pinch to the pocket. This genre is sure to touch the hearts of the third estate in a big way.

A New Era of

Rail Connectivity of Badampahar

Badampahar is a small town in the Mayurbhanj District of Odisha. Badampahar Railway Station serves the people of Badampahar and its nearby area. It is the last station of Tatanagar - Aunlajori - Badampahar branch line under South Eastern Railway's Chakradharpur Division. The line was first opened for traffic till Gurumahisani in 1911 which was later extended to Badampahar in 1922. The density of traffic in this route is very low with freight plying once or twice a day and had only a pair of DEMU for the commuters, until a second one was introduced in 2019. After Electrification of the line, one of the DEMUs was replaced by MEMU. It was a long-time demand by the people of Badampahar for a connectivity to the nearest Metropolitan City, i.e., Kolkata and improve the rail connectivity within the state of Jharkhand.

The demand got proper attention when Smt. Droupadi Murmu – the Hon'ble President of India, looked into the same. Smt. Murmu belongs from Rairangpur of Mayurbhanj District. She asked the Railway Officials to check the feasibility of the demands so that Badampahar and the neighbouring areas get linked with Kolkata through Railways.

Connecting Badampahar with Kolkata was very much needed. Students, businessmen and other

working-class people can reach Kolkata in a short time. Patients can travel to Kolkata for medical consultation & can easily access other parts of the country from Kolkata and Tatanagar. On the other hand, any new train will also encourage tourists from West Bengal and Jharkhand to explore and enjoy the picturesque landscape and dense forest of northeastern parts of Odisha.

After checking the feasibility, South Eastern Railway proposed two Mail/Express Category trains from Badampahar. Shalimar - Badampahar - Shalimar Express and Badampahar - Rourkela - Badampahar Express. Both the trains were planned in such a way that only one rake will serve both the services.

Shalimar - Badampahar Express to depart Shalimar on Saturday nights and reach Badampahar the next mornings. The same rake will go to Rourkela from Badampahar as Badampahar - Rourkela Express and be back to Badampahar in the same evening. On Sunday nights Badampahar - Shalimar would depart Badampahar and reach Shalimar on Monday mornings. The pair of trains received the necessary clearances from the Railway Board as Badampahar got its first Mail/Express train in more than 100 years, 109 years to be exact.

Along with the two pairs of Mail/Express, one more pair of MEMU between Badampahar and Tatanagar along with one pair of MEMU service between Tatanagar and Rourkela got approved. (The Tatanagar - Rourkela MEMU was in demand for a long time by various passenger associations and other public institutions).

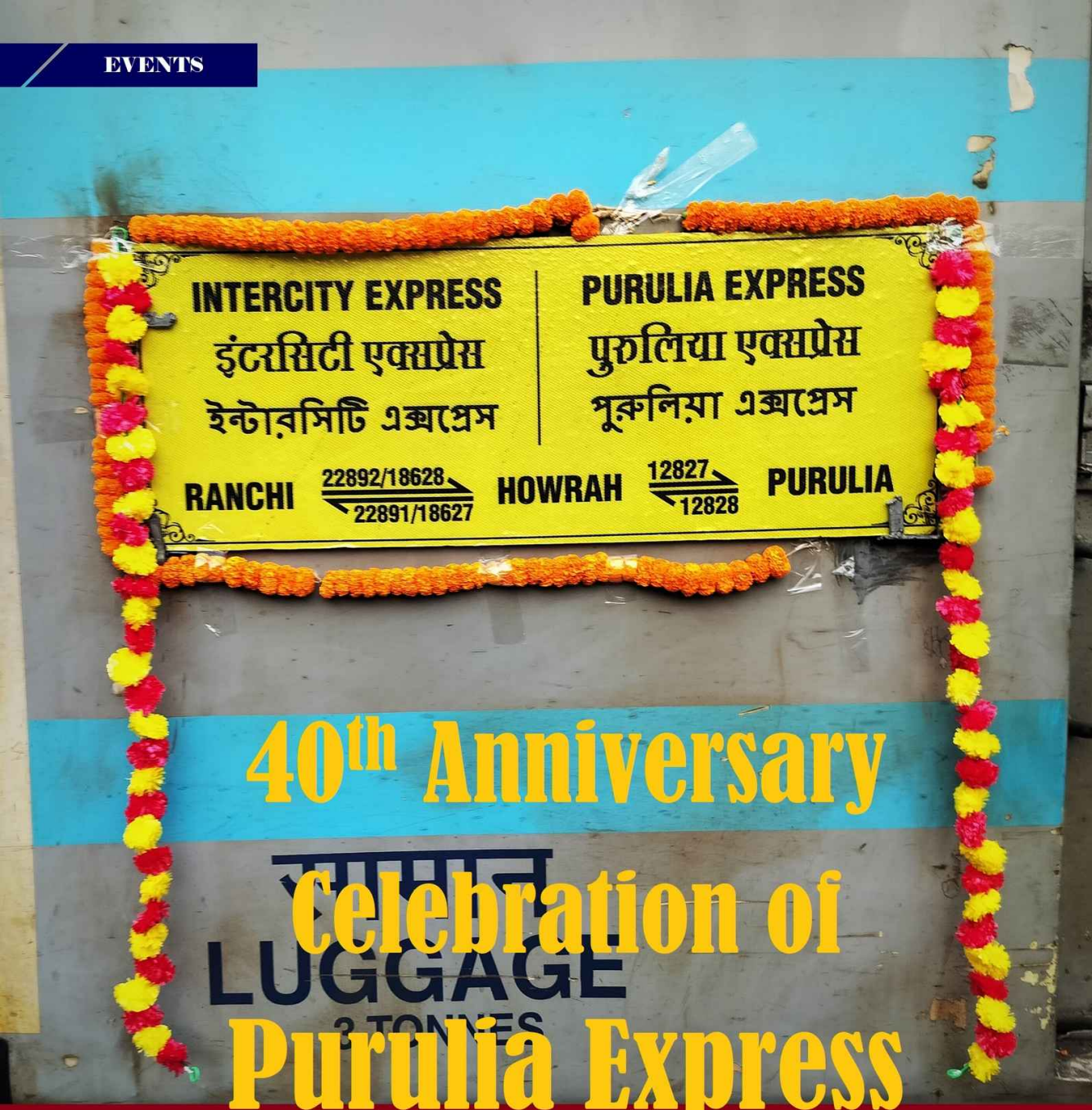
Smt. Murmu – the Hon'ble President of India, was on a 2-day (20th and 21st November, 2023) tour of Odisha and Shri Ashwini Vaishnaw – the Hon'ble Railway Minister who was also on tour of Odisha and Jharkhand inaugurated the new trains from Badampahar on the 21st November, 2023 as the trains were flagged off by Smt. Murmu in presence of Shri Vaishnaw. Other notable dignitaries of Odisha and PHoDs of South Eastern Railway were also present in the programme. The foundation stone for the Redevelopment of Badampahar Station was also laid.

First train to be flagged off was the Badampahar - Tatanagar MEMU Inauguration Special (08152), followed by the Badampahar - Rourkela Inauguration Special Express (08153) and the Badampahar - Shalimar Inauguration Special Express (08154).

Smt. Murmu also took ride in the Badampahar - Shalimar Inauguration Special Express, in the specially arranged Saloon Car for her, from Badampahar to Rairangpur, from where she inaugurated the New Rairangpur Postal Division and released a Commemorative Special Cover of Department of Posts.

RCF made Medha Propulsion MEMU was used as the Badampahar - Tatanagar MEMU's inaugural run. Bondamunda WDG 4D 70758 and Tatanagar WAP 7 37209 were selected for the Badampahar - Rourkela and the Badampahar - Shalimar respectively. The staff of Chakradharpur Division played a great role in the mega Inauguration Programme and the rakes and locomotives were beautifully decorated by them.

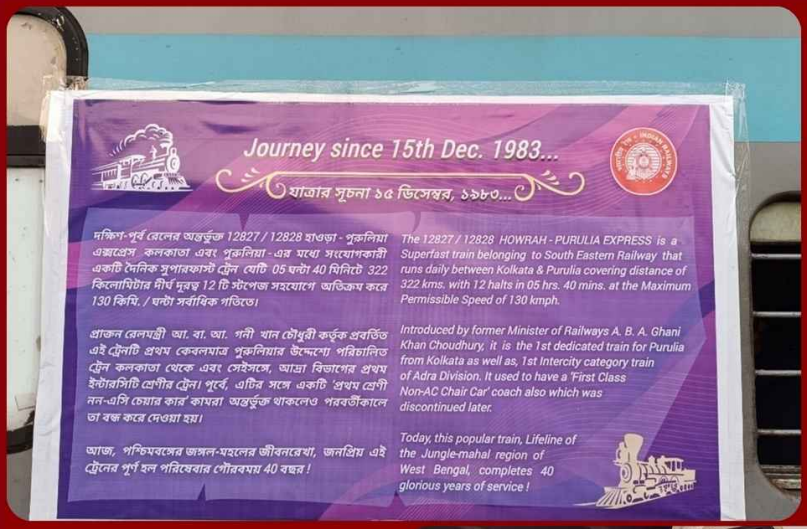
We express our sincere thanks to the Sr. DCM / Kharagpur for all the necessary permission and order. We express our gratitude to the Ex. AGM / SER, Shri Atulya Sinha, now CAO / RWP Bela, for encouraging the Railfans for taking part in the celebrations and for the refreshments and other arrangements.



40th Anniversary Celebration of Purulia Express

Somanko Tiru

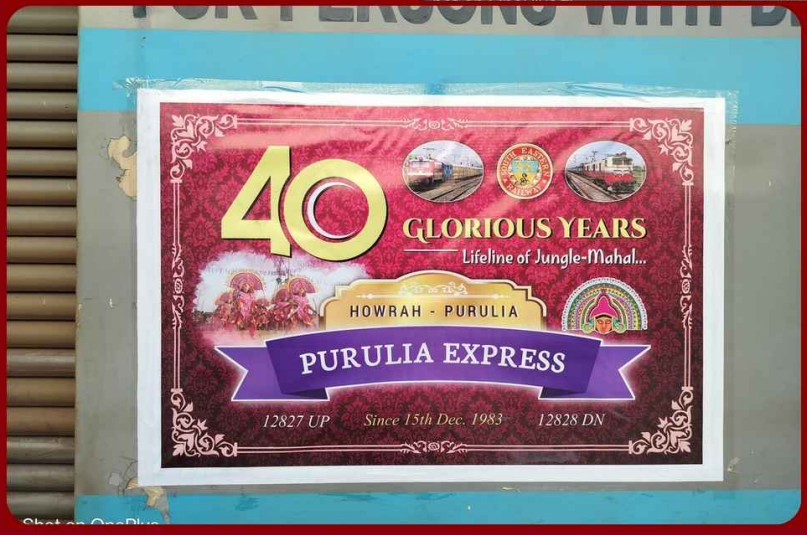
Former Railway Minister, the late A B A Ghani Khan Chowdhury had introduced many trains in West Bengal during his tenure as Railway Minister and on the 15th of December 1983, Purulia Express was one of the trains to be flagged off under his regime thereby making it the first dedicated train for Purulia and the first train of Intercity genre of the Adra Division. With the passage of time, the once dedicated ICF rake gave way to the modern LHB rake hailing



from the Hatia base with a 'Rake Sharing Arrangement' with the Ranchi - Howrah Intercity Express.

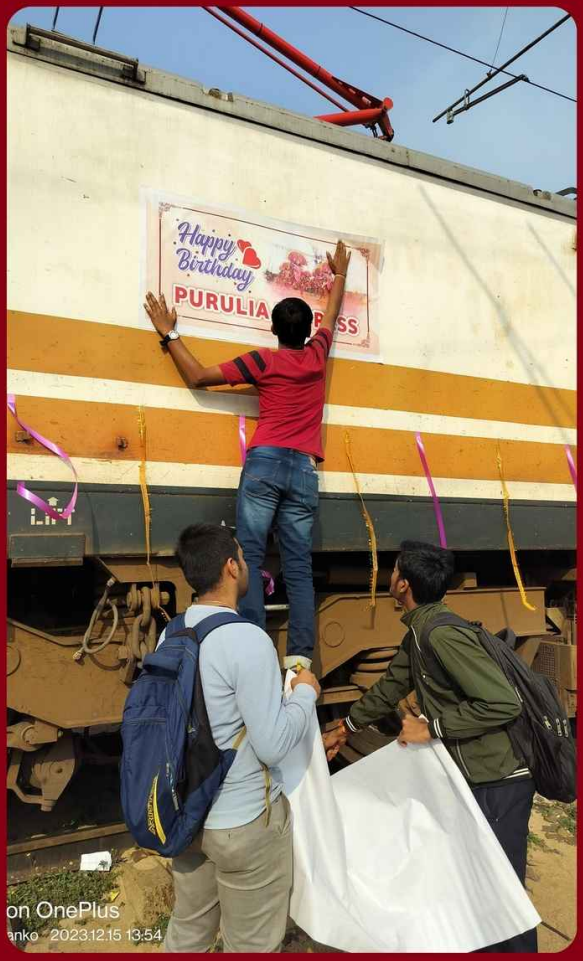
The train is very popular amongst daily passengers and tourists who visits Purulia and surrounding areas which is also popular as 'Lal Matir Desh' (Land of Red Soil). Amongst all the South Eastern Railway InterCitys, Steel and Purulia Express enjoyed the maximum priority till 2018 as per official reports. The train offers AC 3-Tier, AC Chair Car, Second Class Reserved and Unreserved Classes of accommodation.

On 15th December, 2023 the train completed its 40 Years of glorious service. SER Fanatics – a Rail Enthusiasts' Group belonging to Kharagpur Division, in association with the South Eastern Railway celebrated the iconic feat in Howrah. Members of Team Tatanagar, Rail Enthusiasts Society and other railfans also took part in the celebrations.



The celebration commenced by decorating the Locomotive in Santragachi ETS. Ghaziabad WAP 5 bearing road number 35023 was nominated as the power for 12827 Howrah - Purulia Express for the D-day. Rail Enthusiasts decorated the locomotive


35023
GZB
Celebrating
40
GLORIOUS YEARS


Happy
Birthday
PURULIA
on OnePlus
2023.12.15 13:54


FIRE
hot on OnePlus
2023.12.15 13:59


35023
40

with grace and later they went to Howrah Station where the rake of Purulia Express was parked at platform number 17. Banners and Flex with the History of Purulia Express was placed on the coaches and the Train Destination Board was also decorated using flowers. A cake was cut commemorating the occasion by the Loco Pilot in the presence of railfans, CLI, RPF and other passengers. The celebration ended with the felicitation of the Crew as the train departed on time.

Photos taken by Somanko Tiru and Suvodeep Bhattacharya.

Louhapathagami Paribrajakar RAIL PURAN

A Collection of Railway Narratives on Various Topics in Assamese

Dr Santulan Mahanta

The work has been attempted as one of its kind in the sense that it encompasses a wide range of subjects surrounding the railways – travel experiences, narrator's anecdotes, thoughts on life on the platforms, revisiting the Anglo-Indians, looking back at the lost heritage of the metre gauge, about the people who keep the wheels moving and a few anonymous but true railwaymen's anecdotes as parts of the chapterisation.

The onset of the book begins with the emphasis on the role of the railway in building the nation. This has been no new discourse. There is a whole body of synchronic and diachronic studies on this. However, the shortcoming of all these studies has been the one-sided perspectives. The effect of the railway is felt far and wide, far places which are hundreds of miles away from the nearest railway track. This is an oft-told and realised fact and yet seldom we see something on the presence or representation of railways in folk songs and ballads. When we pick up or take up any literary or academic work on railways, somehow everything ends up covering an area within a few miles from the study area which is a railway hub. No study till now has focused on the fact that the railway has assumed the role of a cultural metaphor in Indian languages, literature and the overall culture. As the sculptor of modern India, the presence of railways is indispensable. But just think, how many of us think of the sculptor when we see a sculpture? At best we remember the person who commissioned the sculpture. The Taj Mahal is an example, isn't it? This is the shortfall of two dominant approaches to railway studies – the first one is from the perspectives of the policymakers who are more inclined towards the economic side and thus their studies put sole emphasis on technical aspects to boost the economic profits for the organisation; the other perspectives are led by the academic studies of various kinds which have singular objectives for each and every study and are all bound by academic approaches with various limitations. As a result, some other kinds of studies and works of literature have not been able to grow to their maturity. For instance, the travel literature has not taken a proper shape in the subcontinent where every single day a

portion of the population equal to the entire population of Australia is on trains! Due to improper attention in academics, travel literature in India has taken a turn towards *sthala purana* or place anecdotes where the traveller just arrives at a place and starts describing that place, sometimes every moment and every corner of it. But the main ingredient, the travel, is absent from that. When we call something as 'travel literature', it ought to have the journey experiences as well. Our journey times are longer sometimes than the duration of our stay at the destinations. And when we speak of a culturally and linguistically diverse India, those journeys are the moments of realising and observing that diversity. A tourist destination, in fact, doesn't allow one to know the reality, we just see what they want tourists to see. Therefore, reshaping the travel narrative structure is something we must consider and railways will appear as a facilitator.

Secondly in the vast Indian society, we talk of the social changes – from Nehru to Modi the social changes are the debate and talk. From olden agrarian to the birth of modern cities we have a plethora of works of literature from all possible dimensions of social structure. Social structure before Nehru was not much different either, even if we consider the Partition phenomenon. All the cities and all the villages had been the same. Some changed so little or almost never changed for several centuries. Until the turn of the previous century, we were still awestruck by the town planning of the Indus Valley Civilisation. Meanwhile, in a parallel universe within our vicinity, we failed to notice how the railways formed organised townships. There was an oft-asked quiz in our childhood – which is the first planned township in India and the answer used to be Chandigarh; because we forget or do not notice that railways were the original town planners in our recent history. Everything was planned and properly laid out in a railway township – clubhouses, schools, markets, hospitals, parks, and playgrounds. In fact, places like Tirupati saw its first healthcare facility in the form of a railway hospital. Therefore, railway has been the pioneer of modern town planning in India. And it **could become** a role model for town planners in India. Why was it ignored, well that can be a doctoral thesis that no one bothers to think about in academics.

Much before the millennial generation, railways had the round-the-clock service. Today when we get irritated or shocked by the millennial lifestyle of forgetting the difference between the day and night, we conveniently **forget that the railway** has been working for over one and a half centuries forgetting that difference. The time in a railway township is not dictated by the rising and setting of the sun but by the arrival and departure of the first and the last train of the day irrespective of the position of the sun. The adjacent places to a railway hub have to sync their timings to that of the railway town for all business transactions. If two railwaymen meet at the marketplace, they don't talk about the weather but about the happenings at the workshop that day – weather means nothing to their livelihood even if it's a catastrophe hitting their tracks. Have our academicians and policymakers taken note of that parallel society with a lifestyle and culture formed by the vast network of something perceived as simply acting on two rails?

All these questions lead us to a zero as a response to all of them. Suffice it to say we know nothing about our railways beyond the platform limits. Not during our journey, not beyond the tracks, definitely not realised the railway society and have already forgotten the tribe called Anglo-Indians. Railway in our studies and literature, then, is a pariah or outcaste on whose shoulder we reign but do not notice. We do not even know the people who run the railways, except for their faces sometimes. When a road vehicle runs over someone, we definitely recognise the driver and manhandle him, but when a train runs over we see just the engine and not the person who was inside. Do we even care to know how a train driver feels when an accident of any kind happens? We know absolutely nothing.

As a result of all such voids in railway studies, the writer of this book felt like writing about these for the general masses – first through social platforms. These were found absolute hits and people started asking for the write-ups in the form of a book. At one glance the writings may appear as popular reads. But these are the common stories for railway fanatics and uncommon to a general reader. This is a feeble attempt to fill the void of railway narratives if something there exists as a *railway narrative*.

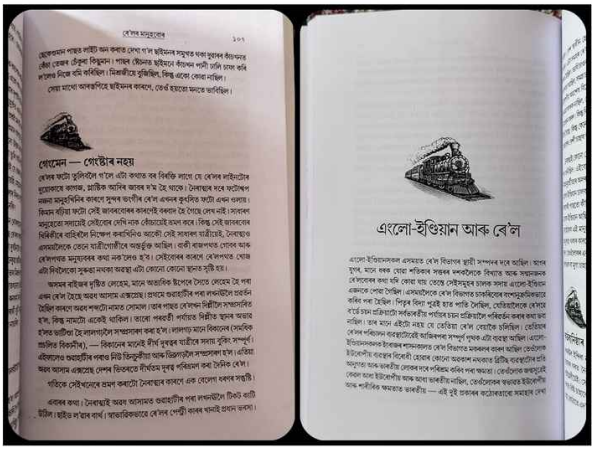
The narratives have a common storyteller named as Nairatmya, which means spiritually disassociated, as the descriptions are common to anyone. The opening chapter begins at a railway platform with a vivid description. A keen railway aficionado may identify the station though the name is not mentioned to give it a general railway platform scene. The platform offers the scene of not only a chaotic place but is also actually the reflection of our country, our people and our behaviour if we think deeply beyond the written words. The disassociated narrator here observes everything on the platform and is speaking to his unnamed, unidentified companion.

The second part has seven short narratives on various incidents from different railway journeys. The first one depicts the crowd in general class compartments of Pushpak Express before its journey from Lucknow Junction station. General class compartments and adjacently put air-conditioned compartments here appear as the stark difference between the rich and the poor in the country – both coexist and both spite each other and yet they exist alongside. The second one is about a journey by the crowded Gomti Express where a person leaves his seat for a toilet break and then upon returning finds it occupied by a ticketless passenger holding a gun! The third story is about

the medical emergency of a co-passenger in the famous Lucknow Mail. The fourth story again takes us to another crowded train – Amrapali Express to Barauni this time. People are standing on unknown feet in the crowd and someone asks Nairtmya if that was his foot which is on his foot – to which Nairatmya asked 'which one' the person replied 'this one' only to be told that it was not. The cramped situation brings laughter to everyone in this conversation of discomfort. Next Nairatmya lands at Ernakulam to walk past the longest railway-only bridge in the country where he foolishly forgets to carry drinking water and an otherwise wonderful expedition that could become a desolate walk that does not end when the bridge ends. The sixth story is about how a gang of rail enthusiasts were making videos inside a train with all the necessary permissions from the authorities and yet a passenger raised the question of privacy and made them delete all the footage even without bothering to check them if those were offensive in any way. The RPF and the on-board TTE were apparently sympathetic to the gang but public demand is something that could worsen the situation if that was not met. It was, however, realised much later that the gentleman feared being caught on camera while purchasing lottery tickets and the women whose privacy had been invaded were not at all related to him. The last story in the chapter narrates the story of a metre gauge train going to interior Uttar Pradesh at night where our narrator was advised by a fellow passenger to shut the window to avoid the chain snatchers. Sometimes fellow passengers may be irritating and some other times like this they can be quite protective and caring when they feel you are a stranger visiting their land.

The next chapter comprises just two stories about two lifeless railway users – coal and milk. Coal which is the highest revenue earner for the railways has its own story of corruption here. And milk without the railways couldn't have led to the White Revolution in India to make it the largest dairy producer in the world. A short history of the dairy revolution in India has been covered here.

The Fourth chapter has a single story about stories from the past – the chapter heading loosely translates as 'thoughts of the steam'. The first story here reminisces about the steam era things – how dear those machines were to their drivers, how those drivers chose sometimes a better name for the engines than their prodigy, how they decorated their engines for black beauty contests and the winner engine used to be the pride of not only its crew but for the entire loco shed. A steam engine used to be the most valuable possession for its driver. But that day came when all these received the blow of the scrap dealer's hammer. What emotion struck those men who operated those engines, who cared for those engines, for whom those engines were no less than some kinsmen? The second story tells about the metre gauge, which once dominated the Indian railway scene. How it came into existence, how easily it could operate through tough terrains, how people-friendly it used to be, and how its demise has worsened the scene for railway users – all these are not just



some questions but it is also the story of the death of a railway gauge in its birthplace. The third story narrates a past journey from the mid-90s where the narrator reminisces a journey by metre gauge train which offered a close glimpse of nature. A metre gauge system could operate without causing much harm to its surroundings, whereas a broad gauge needs much wider clearing. For a child traveller the metre gauge brings an opportunity to experience nature from close quarters, it is as if out there within the hand's reach – all the wildflowers almost brushing against the coach, all those butterflies trying to compete for the speed of the train, or who knows Mowgli might have appeared from the dense trackside forests and the Jungle Book would come alive! All these things are gone now as soon as the broad gauge arrives without giving the metre gauge a chance to prove its worth. In the fourth story, the narrator meets a father-son duo near Alambagh workshop observing the passing trains and the shunting works going on at Lucknow Junction coaching depot, a diesel engine named Prabal doing all the shuntings. This takes the narrator back into his own childhood when one evening he and his father on their way back home take a detour to the Jorhat Junction (not the Jorhat Town). There they find a steam locomotive awaiting a passenger train, the engine had lost its glorious colours, but the father remembers its glorious days and lamented in pity. The kid narrator thought he would know about all these engines when he grew up. He definitely grew up, but by then those steams were gone. He comes back to the present scene; he thinks the kid will also grow up only to find that diesel locomotive in his front a gone story. The narrator captures a picture of the father and son – that moment is eternalised even though those engines are to be retired. The next story describes a wonderful lost tradition of the Northeast Frontier Railway where every steam locomotive used to have a name. This tradition of naming the locomotives was perhaps inherited from the American soldiers who operated the railway during World War II. Bihanga, Mriganka, Chaitali, Aparajita, Pawan Nanadan, Papari, mayor Pankhi, Debajani, Indradhanu, Chandika, Chandrajyoti, Aniruddha, Hidimba,

Ghatotkach, Chitrangada, Pratidhwani etc. Other places in India do not have such a tradition of naming each locomotive apart from the Black Beauty Contests. But the NFR territory of Assam and Bengal had that. No locomotive would exist without a name! And why not? Steam locomotives were more humane than any other traction. With the passage of the steam era that wonderful tradition also went away. The sixth story tells us the story of the ALCo (American Locomotive Company) in India. The narrator sets out on a journey to the Himalayas just to escape the disappointing week at the University. He catches a train led by an ALCo locomotive, just to find solace in the musicality of the locomotive. He carefully listens to the chugging which tells how much effort is being put in by the locomotive – just like a human worker panting as he carries some load. Then there is the musicality of the turbocharger which adds the music of a courtesan's *ghoonghroo* as she dances. And then as the train proceeds with a steady pace, the track sound appears just like the beats of *tabla*. All these combined remind the narrator of the famous song Chalte Chalte Yunhi Koi Mil Gaya Tha from the movie Pakeeza. Can a train journey be boring anymore? The seventh story in the chapter takes us back to British India when there was a dedicated fruit train from the Chaman Extension railway which used to carry fresh fruits from the Northwestern part of the undivided India to all the major cities in India – Delhi, Lucknow, Calcutta, and Madras. How those fruits were loaded and refrigerated in a primitive way to supply them afresh is narrated here. This is a story by an erstwhile General Manager of Indian Railways.

The following chapter focuses on the Anglo Indians. Those were some people exhibiting the utmost degree of punctuality and discipline. Several anecdotes from older-generation railwaymen are narrated here.

The seventh chapter has eight stories to tell, about the people who run the trains. The first one is the story of a lady loco pilot Soumita Roy who narrates what challenges they have to encounter every day while doing a train. The second story is about women as loco pilots in the Indian Railway. The third story describes the incident of a run-over as experienced by an assistant driver for the first time in his career – how it affects them mentally and yet they need to complete what is bestowed upon them. The next story is about the gangmen or track maintenance crew who face all the adversities just to keep the wheels of the nation moving – sometimes rewarded by the passengers of a moving train with a bag of garbage, spitting, and even kicks. The fifth story is about a footplating incident where the narrator strikes a conversation with the driving crew and a shocking revelation of the caste system appears other than skipping some station at full speed and an alarm chain-pulling incident. The sixth story again narrates the story of an engine driver, who despite saving his train from meeting a disaster was punished for not observing the official course of action. The seventh story describes the helpless crew whose train was affected by a flash flood and was almost half sunk in a hilly station. As the passengers were airlifted, the crew in the leading and banking locomotives were left out. They could not leave the engine unless they were ordered to. The four souls were waiting for uncertainty in their roaring engines as another current of flash flood came breaking everything. The last story is about some dedicated workers in Aishbagh who were tending to the metre gauge coaches with utmost love and care, although they knew the end is coming. Yet they loved their work and would keep the rollingstock fit to perfection till the end.

The eighth chapter comprising of three narratives tells us the stories of our attitudes towards railway. The first story is about the homeless orphans at the railway platforms. We get irritated by them as we see their uncouth behaviour and fights, but at the end of the day, they look out for each other. As a civil society, we conveniently distance ourselves from them and chase them away. But unless we find a home for them, who knows when they turn towards anti-social forces and start chasing you? The second story takes us to the phenomenon of stone pelting. The narrator has a few first-hand experiences here to tell. Often it is interpreted as the works of anti-social elements. But have we observed so closely to arrive at such a conclusion? In our childhood days kids used to pelt stones at Maruti cars which were not so common those days. It is a fun activity for some untaught kids to target practice this way. Often, they are not accompanied by elders at those moments to warn them against those acts. When a fellow traveller in Avadh Assam Express was hit by a stone, it was not an act of racial discrimination, and no one knows who is travelling in a moving vehicle. But sometimes these acts provoke a much greater reaction. Therefore, we must educate our children against any such acts. In another incident, a train driver died when a stone hit his head. These acts could be as dangerous as that. The third story in the chapter focuses on the unauthorised level crossings, narrating the events of a transport department office having an unauthorised rail crossing at its front.

The ninth chapter tells the stories of the first railwayman to receive the Kirti Chakra award and the first Assamese railwayman to receive the same. The first one was an Anglo-Indian driver whose firebox blew and the second one was hit by a bullet fired by militants in the Hill Section in Assam. In both incidents they sacrificed their lives to save all others onboard.

The tenth chapter is named Unofficial as it narrates the stories of a few retired railwaymen. These were the men who cared not for fame and the actions they took for the welfare of the common people haven't been published. So, when one sees a grumpy retired railway official, one cannot fathom how much-untold stories of caring they have not told. The chapter also tells a story of the queer case of cattle runover that frequently affected the Frontier Mail during night hours.

The concluding chapter focuses on the development in the Indian Railways and at the same time the loss of a humane approach in the process.

Therefore, the book has a universe of short narratives from different perspectives. It is both from inside and outside a train or the railway system. The journeys are not always pleasant or unpleasant. Sometimes there is humour in the most unpleasant rides. Sometimes one may not board a train and yet can observe the stark reality of travelling inconvenience. Sometimes the picture of a modern train may elate us but a close inspection will reveal pretty much discomfort in journeys. Sometimes we may be critical about the persons who make the decision but may not know what binds them and who they really are. And most of the time we may not realise how many areas of business have come into existence only because the trains are moving. Our journeys are not just leaving and arriving, they are the opportunities for realisation, of learning about the country, its people and its society. The book is not at all comprehensive, but a humble beginning. Many railway enthusiasts would definitely have much more interesting tales to tell. Let there be a new genre of writing about railways to establish a body of literature that can proudly call out its name Railway Literature!

Protkarsh Kumar

Photo Junction

Protkarsh Kumar

Roshan Rajeev

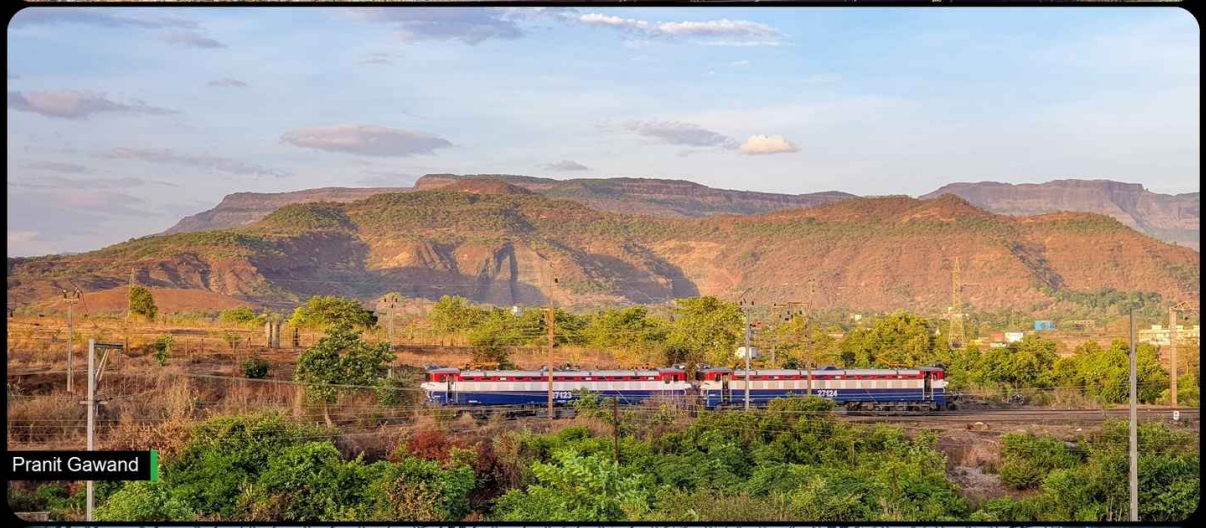
Roshan Rajeev

Nischay Shetty

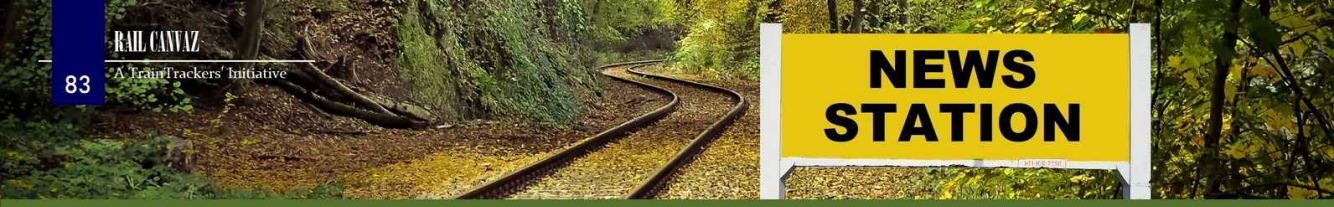
Munna Bellamkonda

Munna Bellamkonda

Nischay Shetty


Pranit Gawand

Protkarsh Kumar



Century old water tank collapses in Bardhaman

On December 13, an overhead water tank above Platform Nos. 2 and 3 of Bardhaman Jn. crashed killing 3 people and injuring many. A portion of the sidewall of the century old water tank collapsed on the platform at around 12:08 pm. Fellow passengers, on duty railway staff and others rushed to the rescue of the affected from the debris. All the injured people were soon shifted to Burdwan Medical College. This unfortunate incident also reported 3 casualties including a woman.

CRS inspection conducted in USRBL Banihal-Khari section

On 6th December, 2023, a MEMU trainset with 6 coaches did a trial run between Banihal and Khari stations in Ramban district. The 16 km section is situated in the Udhampur Srinagar Baramulla Railway Link project. This is an important step towards the commencement of the railway journey from Katra to Baramulla in Kashmir. On 3rd January, 2024, the Commissioner of Railway Safety (CRS) inspected the section before certifying for regular commercial operations.

WR fits waterless urinal in WAG9 Class Locomotives

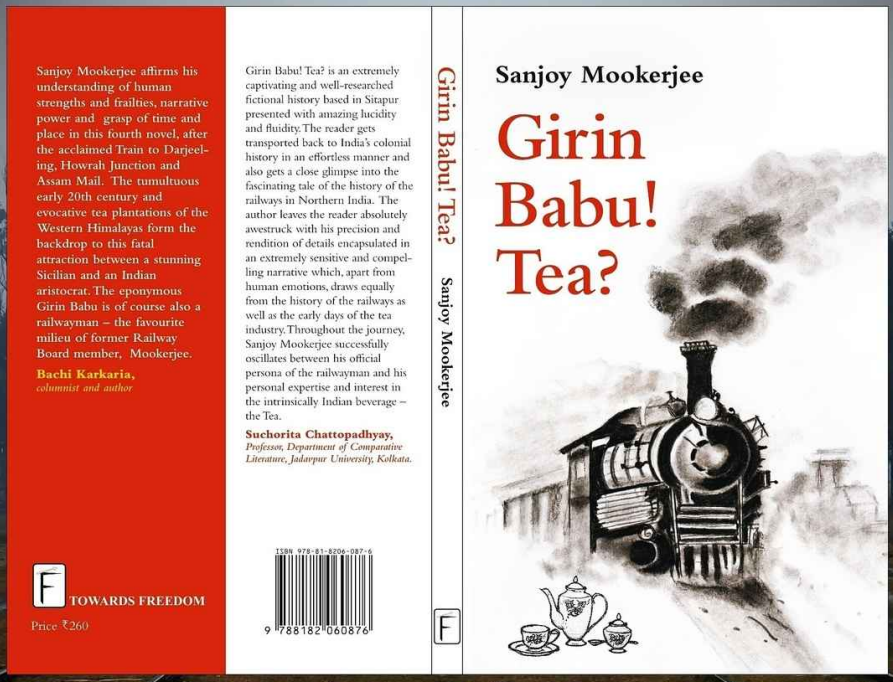
In a first-of-its-kind initiative, the Valsad Electric Loco Shed installed a unisex modular urinal facility in one of its WAG9HC #32408. The toilet has been fitted in rear end of Cab-1 and is waterless and is fitted with silicone membrane to ensure unidirectional flow of water. The design is such that urinal discharge will be to ground through drain pipe arrangement. The door of the toilets will be locked when the speed of the locomotive will be above 1.5 kmph. The salient features of the facility include –

Stainless steel fabricated body with powder coating and smudge proof painting
Fitted with silicone membrane for unidirectional flow
Equipped with strainer to hole naphthalene balls and mats to reduce odour
UV-based sanitisation and disinfection facility
Fitted with proximity-based sanitizer dispenser and automatic timer-based air freshener
Water repellent in nature

Titagarh join hands with Mermec SPA for railway equipment manufacturing

TITAGARH
RAIL SYSTEMS LIMITED

Titagarh Rail Systems Limited (TRSL) will be joining hands with Mermec SPA, an Italian firm through consortium for manufacturing of advanced railway components for the Indian subcontinent. The consortium will produce signalling equipments, asset management and security. On the electrical sector, it will produce traction distribution systems, propulsion equipments and high-speed propulsion systems for the customers.



Sri Sanjoy Mookerjee, the Ex-Financial Commissioner of Indian Railways is at his best once again as he weaves magic by penning another novel complete with a plethora of railway stories, some of which we often come across while some we don't, in our commute by trains.

So, it's time for a cup of Chai and grab the latest offering from him encompassing railways, tea and a slice of colonial history!

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