Signal & Telecommunication (S&T) Department

Signal & Telecommunication (S&T) Department is responsible for installation and maintenance of **Signalling** systems, essential for the safe and speedy movement of trains & **Telecommunication** systems, required for the smooth running of trains and other business functions of the Corporation.

1. Signalling Systems – Salient Features

- Uniform MACL (Multiple Aspect Colour Light) Signalling at all the Train Crossing stations.

- High-speed FOUR-Aspects MACL (Multiple Aspect Colour Light) Signalling system at all stations, with run-through facility via loop-lines, in Kolad to Thokur section.

- Panel Interlocking (PI) provided at 49 stations and Electronic Interlocking (EI) at 19 stations for centralised operations of Signals and Points.

- Data logger system at all stations for enhancing safety in train operations, improving line capacity and helping in predictive maintenance of S&T field gears; using Management Information System (MIS) Reports generated by Data logger servers.

- Fuse Failure Alarm System (FFAS) provided at 66 stations-To alert the SM (through 'audio-visual' indication), in case any fuse of signalling circuit has blown off in the relay room. In addition, it also provides 'auto-changeover' for failed fuses of important circuits like for route initiation, signal clearance, point/signal/route groups etc.

- Safety enhancement by providing 'Biometric identification' of staff authorized for - (a) 'Operating' Signalling Panel in SM's office & (b) 'Opening' of Signal Relay room, at all stations.

- Safety enhancement by monitoring of 'Opening/Closing' of Level Crossing Gates including in mid-sections.

- Integrated Voice and Data Services provided at Tunnel Ventilation Control Rooms of Natuwadi, Parchuri, Berdewadi, Karbude & Tike of Ratnagiri Region and Barcem and Karwar Tunnel of Karwar Region.

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- Replacement of Block instrument by approved type i.e. "Provision of Block Panel along with Universal fail safe block interface (UFSBI) and Block proving by Axle counter (BPAC with HA-SSDAC)" in lieu of Token less Block instrument at Following Block section

    a. ROHA- VEER- Double Line UFSBI and BPAC with HASSDAC (05 Block section)
    b. VEER-TOK - Single Line UFSBI and BPAC with HASSDAC (62 Block Section)
    Cumulatively, BPAC have been provided at all 67 Block sections. 01 block section(MAO-MJO) is Auto signalling working

- Electronic Interlocking (Kyosan make, model No. K5BMC) has been installed at 19 stations namely Kolad (KOL), Indapur (INP), Mangaon (MNI), Goregaon Road (GNO), Veer (VEER), Kharepatan (KRPN) & Sape-wamne (SAPE), Kadvai (KDVI), Kalambani (KLBN), Achirne (ACRN), Veravali (VRLI) in Ratnagiri region and at Udupi (UD), Innanje (INJ), Mulki (MULK), Padubidri (PDD) and Suratkal (SL), Mirjan (MRJN), Madgaon (MAO) and Majorda (MJO) in Karwar region.

- Automatic block signalling has been commissioned in Madgaon-Majorda double line block section.

- Patch Doubling between Roha-Veer section of Konkan Railway has been commissioned.

- Doubling between Madgaon - Chandorgoa section of South Western Railway has been commissioned.

- Podanur make Push button Tokenless block instrument with Universal fail safe block interface (UFSBI) & Single section Digital Axle counter (SSDAC) provided at Majorda-Cansaulim section.

- Built-in Block Instrument in Electronic Interlocking (EI) system has been Commissioned in UD – INJ section on Kyosan make EI as per conceptual scheme of RDSO.

2. **Telecommunication Systems – Salient Features**

- Optic fiber and Quad cable based Communication circuits along the Konkan Railway route connected with its Corporate Office at Belapur, Navi Mumbai.

- KR-Net (Konkan Railway's Intranet) supports Railway Application Package, developed 'indigenously'.

- Commercial exploitation of OFC - Working model: 'RailTel' acts as a business arm of KRCL while KRCL is still 'owning' and 'maintaining' its OFC.

- OFC system provides 'control' and 'administrative' trunk circuits with STD facility between all the Railway telephone exchanges as well as data circuits for connecting KRNet and PRS terminals en-route.

- Quad (Copper) cable caters for fulfilling the communication requirements of Block instruments, LC gate telephones and emergency sockets.

- Konkan Railway's telephone network connected with Indian Railway's telephone network through STD code '019'.

- Telecommunication is a vital infrastructure for managing any transportation network and for this purpose, communication links have been provided for PRS (Passenger Reservation System), FOIS (Freight Operations Information System), COIS (Coach Operations Information System), TMS (Train Management System) and RailNet, from Indian Railways.

- Multi-purpose Emergency Sockets at every Km of the track –
  (a) External Socket - For Portable Control Telephone (with 4W/2W toggle switch), to establish -
    - Communication between Loco Pilot/Guard & Train Controller (4-Wire)
    - Communication between Patrolmen/Watchmen & Station Master of adjacent (south side) station (2-Wire).

  (b) Internal Socket – For Normal 'push button' type auto telephone, to
    - Extend 'Rly phone' at work site/accident site from adjacent station
    - Extend 'BSNL/Land Line phone' at work site/accident site from adjacent station.

- Emergency Socket Location Identification System (ESLIS) has been provided at all EMC sockets, this facilitates exchange of Private Nos. by Station Master with Gateman, Tunnel Watchman in Block Sections at vulnerable cuttings and tunnels, 'Enhancing Safety' in Train operations by provisioning of 'Voice Recoding with Time Stamp' facility.

- Wi-Fi facility (30 minutes for free) has been provided at Madgaon station, for use of passengers through M/s. RailTel Corporation of India Ltd.

- LED Video Wall Display of 9.6 x 7.2 feet is installed at Madgaon station on Platform no. 1.

- Electronic Train Reservation Chart is provided at Udupi station.

- IP Based Video Surveillance System: Provided at 67 stations (including Halt stations) over KR Route.

  Phase-I : Provided at 28 stations The stations are Kolad (KOL), Mangaon (MNI), Veer (VEER) Karanjadi (KFD), Vinhere (VINH), Diwankhavati (DWV), Khed (KHED), Chiplun (CHI), Aravali Road (AVRD), Sangmeshwar Road (SGR), Ratnagiri (RN), Vaibhavwadi Road (VBW), Kankavali (KKW), Kudal (KUDL), Sindhudurg (SNDD) and Sawantwadi (SWV) in Ratnagiri region (16

stations) & Pernem (PERN), Thivim (THVM), Karmali (KRMI), Verna (VEN), Madgaon (MAO), Cancona (CNO), Karwar (KAWR), Gokarna (GOK), Murudeshwar (MRDW), Bhatkal (BTJL), Udupi (UD), and Surathkal (SL) in Karwar region (12 stations).

Phase-II : Provided at 39 stations (including halt stations). The stations are Inadpur (H), Sape-wamne (SAPE), Goregaon Road (H), Anjani (ANO), Kamathe (KMAH), Savarda (SVX), Ukshi (UKC), Bhoke (BOKE), Nivsar (NIV), Adavali (ADVI), Veravali (VRLI), Vilavade (VID), Saundal (H), Rajapur Road (RAJP), Nandagaon Road (NAN), Zarap (ZARP), Madure (MADR) in Ratnagiri Region (17 stations) and at Majorda (MJO), Suravali (H), Balli (BLLI), Lolium (LOL), Asnoti (AT), Harwada (HAA), Ankola (ANKL), Kumta (KT), Honnavar (HNA), Manki (MANK), Chitrapur (H), Shiroor (SHMI), Byndoor (H), Bijoor (BIJR), Senapura (SEN), Kundapura (KUDA), Barkur (BKJ), Innanje (INJ), Padubidri (PDD), Nandikoor (NAND), Mulki (MULK), & Thokur (TOK) in Karwar Region (22 stations)

- Implemented Unreserved Ticketing System (UTS) at par with Indian Railways at all stations (i.e. from Kolad to Thokur) over KR Route.

- Under MoU between IR, RCIL & TEDL (Tata Trust), Free Wi-Fi has been commissioned at 59 stations over KR Route.

- VoIP based control communication has been installed at all station and Central control office.

- As per Railway board guidelines, video recording at Station Master room/Panel room has been installed at all 68 stations with adequate storage which is critical to safety in train operations.

3. Multi-Skilled Cadre

To achieve economy of operations, the concept of **'multi-skilling'** has been implemented by merging of Signal and Telecom Cadres in one. Moreover, S&T department also maintains computer communication Network (KRNet) and Passenger Reservation System (PRS).

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