

ELECTRICAL TRACTION DISTRIBUTION-RATLAM-DIVISION.



Ratlam TRD Department came into existence on 26th June 1985 with the electrification of Godhra – Limkheda section. The first Electric Locomotive hauled Goods Train was introduced on Godhra – Ratlam section of the division on 29th Nov. 1986. The first Electric Passenger train was introduced in 1987 when 20 UP Dehradun Express hauled by power number 20491 was flagged off on 6th Dec 1986. The first Electric passenger carrying train which came in DN direction was 25 DN on the same day. 1st Feb 1988 is a date to be remembered the most as on this day the Bombay-Delhi route was completed and 20 UP was flagged off.

Electrification work is on progress, section of Ujjain – Indore section (79.23 RKM), Maksi-Dewas section (35.31 RKM) electrified on 30.03.12, 03.12.12 respectively. The most recent sections Indore - Dr. Ambedkar Nagar (20.97 RKM) has been electrified on 31.03.17.

Electrification work in Ratlam – Fatehabad Chandrawatiganj - Laxmibai Nagar section (127.51 TKM), Ratlam – Nimach – Chanderiya section (239.16 TKM), Shambhupura – Chittaurgharh double line section (57.78 TKM), Mathela – Khandwa bypass - Nimarkheri section (55.84 TKM) and Doubling of Gambhiri Bridge (1.83 TKM) have been completed and CRS authorizations have been accorded for all these newly electrified sections.

Presently Ratlam TRD department looks after 946.214 electrified Route Kms which are fed by 25 KV traction supply from 13 different Traction Substations (TSS). These has been drawing electric power supply for hauling passenger and goods trains on electric traction in Madhya Pradesh and Gujarat State area from RGPPL & JIPTL for TSS of MP w.e.f. 22.01.16 & for Gujrat is being procured from RGPPL (w.e.f Jan. 16) under open access scheme.

3. ASSETS

1.	Electrified Track Kilometers	1826.47 TKM (Including newly electrified)
2.	Electrified Route Kilometers	946.21 RKM (Including newly electrified)
3.	Traction Sub Station	13 Nos.
4.	Sectioning and Paralleling Posts	16 Nos.
5.	Sub Sectioning and Paralleling Posts	52 Nos.
6.	OHE Depots	15 Nos.
7.	PSI Depots	13 Nos.
8.	Tower Wagons	14 Nos.
i)	8- Wheeler	05 Nos.
ii)	4- Wheeler Mark-IV	03 Nos.
iii)	4- Wheeler Mark-III	02 Nos.
iv)	4- Wheeler Mark-II	04 Nos.

4. SECTION WISE ELECTRIFICATION

S/N	Section	RKM	Year of Electrification
1.	Godhara – Ratlam	183	1985-86
2.	Ratlam – Nagda	44	1986-87
3.	Nagda – Bhopal	238	1990-92
4.	Doubling Work UJN-BPL	56.81	2007-2012
5.	Indore-Dewas-Ujjain	79.23	30.03.12
6.	Dewas- Maksi	36.04	03.12.12
7.	Indore-Dr. Ambedkar Nagar	20.97	31.03.17
8.	Ratlam-LaxmibaiNagar	112.06	29.07.19
9.	Ratlam-Chanderiya including Shambhupura Chittaurgarh doubling	198.039	22.09.20
10.	Nimarkheri-Khandwa bypass-Mathela	46.185	04.08.20

5. PERFORMANCE**(a) PUNCTUALITY**

Sr. No.	2018-19	2019-20	2020-21 till date
No. of Incidences	NIL	01	NIL
No. of trains	NIL	01	NIL

(b) ENERGY DATA

S/N.	Item	2018-19	2019-20	2020-21 Till Nov.-20
1.	Energy consumed (Crore Units)	41.39	40.35	15.32
2.	Amount paid (Crore)	210.08	208.52	102.28
5.	Average Unit Cost	5.08	5.17	6.67

6. STATUS OF MAINTENANCE WORK

S N	Description	Yearly Target	Cumm. Progress upto 31.12.20	Prog. in %
AOH				
1.	Tower wagon checking (in TKM)	1344.35	938.93	69.84 %
2.	Turnout checking (in Nos.)	400	260	65.0%
3.	Cross over checking (MN LN)	104	68.58	65.38%
4.	Cross over checking (other than MN LN)	151	95	62.91%
5.	Cantilever checking AOH (in TKM)	1010.65	840.73	83.16%
6.	Regulating equipment AOH (in Nos.)	2057	1422	69.12%
7.	Isolator checking	369	259	70.18%
8.	Bond checking (in TKM)	1340.9	1340.9	100%
9.	Earthing check	501	501	100%
POH				
1.	Cantilever (in TKM)	335	184.25	54.92%
2.	Regulating equipment (in Nos.)	602	186	30.89%

Achievements of TRD Ratlam:-

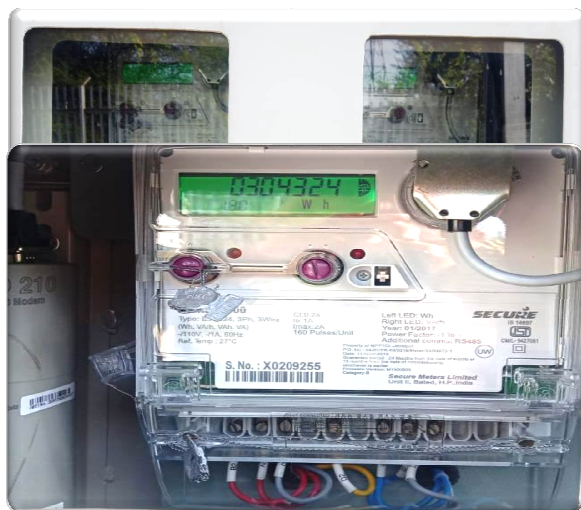
i. Electrification of Diesel Shed Track, Ratlam:

The Electrification work of diesel shed, Ratlam amounting to 3.97 Crore was sanctioned in the material modification of RE work. HQ decided to maintain WAG-5 class locomotives at Diesel Shed, Ratlam to improve mobility therefore contemplating at the exigency and necessity, electrification of 2.12 TKM from Ratlam station to Diesel shed has been carried out departmentally by TRD department of Ratlam Division. The scope of this departmental work involved cutting & pollarding of 154 nos. trees, casting of 42 nos. foundations, loading, unloading, erection & grouting of 36 nos. masts, 39 nos. cantilevers and 08 nos. terminations. Despite of heavy rainfall during the foundation work, daily planning was devised and the electrification work was completed within record time of 29 days and OHE was commissioned on 29.08.19.



ii. Provision of Availability Based Tariff meter at TSS:

The work for providing ABT meters in 08 nos. TSS of MP state have been completed by TRD deptt. The scope of work covered provision of 0.2S Class of accuracy metering CT and PTs with structures & check meters at all the TSS of MP.



iii. Provision of traction energy management server:

In order to facilitate accurate forecasting & scheduling of traction energy under open access regime and provide necessary data to SLDC as per regulations, traction energy management server is being provided at RCC, Ratlam. A modified RTU complying the requirements of new EMS has been provided at DHD/TSS on dt. 07.10.19.



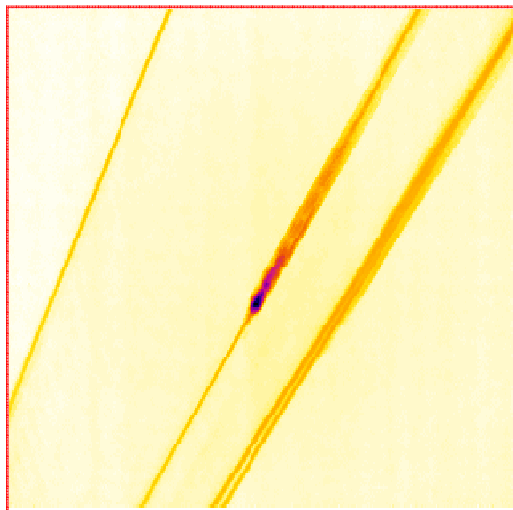
iv. Removal of operational constraint from RTM yard, NAD yard & BPCL siding/MGG:

- 01 no. operating constraint was removed at Nagda yard by providing 180mtrs OHE on dead end no. 2, which will ease and reduce time in shunting of locos while runround.
- 01 no. operating constraint removed at RTM platform no.02, line no. 11 by providing modified cantilever arrangement on dead end, which will permit dead end to place AC locomotive.
- 01 no. operating constraint removed at BPCL siding of MGG yard by providing 9.60 mtrs OHE from Gantry, which will ease placement of rake without guard wagon.
- Modification in existing sectioning arrangement of MGG has been done to ease the movement of goods trains in line no. 1 & 2. Earlier elementary section of both the goods line was common so in case of loading & unloading both lines are affected due to power block. Now after suitable modification, entering & leaving of trains has been eased.

INNOVATIONS OF TRD RTM :-

(i) Online Thermo vision camera :-

For Detection & monitoring of hot spot defects of OHE with the help of On Line Thermo vision Camera. This system can be mounted on the roof of Locomotive or Tower Wagon for detecting Hot-spots.



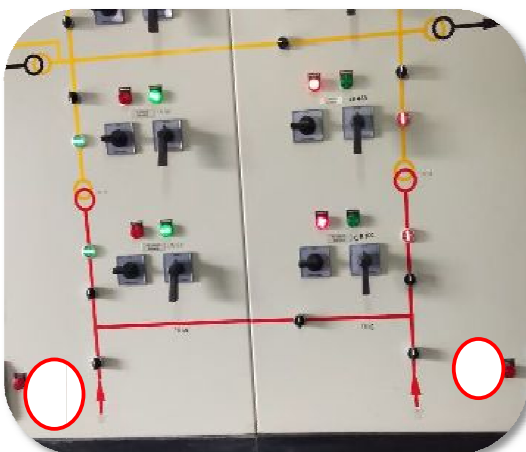
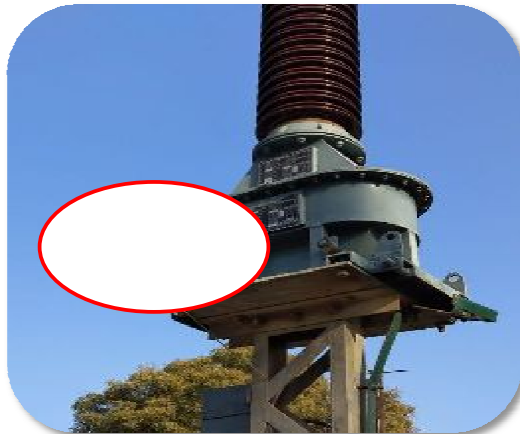
(ii) Provision of Voltage sensing Device in Tower Wagon. :-

To ensure extra safety during the power block, we have developed a voltage sensing device to sense OHE. By providing this, staff may confirm before providing discharge rod on OHE by watching this voltage sensing device indication in tower wagon whenever OHE is "ON or OFF"



(iii) Provision of Voltage Sensing Device in Traction substation :-

In traction substation there is no potential transformer provided in EHV (132 KV) side. In case of failure of 132 KV supply and subsequent restoration, there is no indication of the supply restoration unless the transformer is energized and the staff on manning duty ensures physical humming of the transformer. To overcome this problem, the sensing device has been developed to monitor the availability of the primary supply by the traction power controller at control center away from the substation. Voltage sensing device can be interfaced with remote control units of SCADA system. This facilitates the power controller to take definite prompt action in the event of failure of 132 KV power supply. The system developed is inexpensive and requires minimum maintenance.



(iv) Provision of contact less sensing device in lieu of potential transformer for indication purpose at switching post :-

At UJN/SSP an induction based device has been provided in lieu of PT for catenary indication on trial basis. As such the cost of potential transformer is saved approximate Rs. 75 thousands per AT by provision of this arrangement.

