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Mechanical Engineering

Important Depots and Activities

Madurai

- Coach Holding –435 (279 ICF coaches & 156 LHB coaches)
- Coach maintenance- **116 coaches per day**
- Intermediate Overhaul of Coaches @ 16 coaches per month
- SSI attention of LHB coaches @ 4 coaches per month
- Sick Rolling Stock Attention
- A Class ART with 140 T Dsl Crane, Hydraulic Re-railing Equipment and SPART
- PFTR attention. **-128 coaches per day**

Tirunelveli

- Coach Holding – 238 (110 ICF coaches & 128 LHB coaches)
- Coach Maintenance- **54 coaches per day**
- Intermediate Overhaul of Coaches @ 6 coaches per month
- SSI attention of LHB coaches @ 4 coaches per month
- Sick Rolling Stock Attention.
- B Class ART with Hydraulic Re-railing Equipment
- PFTR attention- **141 coaches per day**

Rameswaram

- Coach Holding – 179 ICF coaches
- Coach maintenance-**41 coaches per day**
- Intermediate Overhaul of Coaches @ 10 coaches per month
- Sick Rolling Stock Attention
- PFTR attention **79 coaches per day.**

Tuticorin

- Coach Holding – 84 LHB coaches)
- Coach maintenance **-21 coaches per day**
- SSI attention of LHB coaches @ 2 coaches per month
- Sick Rolling stock attention.
- PFTR Attention - **59 coaches per day.**

MVN Wagon Depot

- Goods train Certification @ 1 rake per day (Premium, Intensive & Department train)
- Sick Attention of Wagons (Avg. 2 heavy repair per month and 10 to 12 wagons per day.)

PFTR DEPOTS

- DG, KKDI, SCT & TCN

Availability of Pitlines

Depot	Pitline No	Capacity	Remarks
MDU	1	26 Coach	With Catwalk
	2	26 Coach	With Catwalk
	3	26 Coach	With Catwalk
	4	24 Coach	With Catwalk
RMM	1	26 Coach	With Catwalk
	2	26 Coach	With Catwalk
TEN	1	26 Coach	With Catwalk
	2	26 Coach	With Catwalk
	3	26 Coach	With Catwalk
TN	1	21 Coach	With Catwalk

Coaching Maintenance

Primary	MDU	10 Exp Trains and 04 Passenger link	435 Coaches
	RMM	06 Trains	179 Coaches
	TEN	05 Exp Trains and 02 Passenger link	238 Coaches
	TN	02 Train	84 Coaches
Secondary	MDU	01 Train	14 Coaches
	RMM	02 Trains	39 Coaches
	TEN	02 Train	63 Coaches
	TN	01 Train	20 Coaches
PFTR	MDU	14 Pairs of trains	209 Coaches
	RMM	08 Pairs of trains	97 Coaches
	TEN	11 Pairs of trains	141 Coaches
	TN	06 Pairs of trains	81 Coaches
	DG	02 Pairs of trains	24 Coaches
	KKDI	02 Pairs of trains	30 Coaches
	SCT	10 Pairs of trains	163 Coaches
TCN	06 Pairs of trains	83 Coaches	
Pass Through	MDU	71 Trains (avg)	
	TEN	46 Trains (avg)	

Disaster management system :

A- class ART at MDU & SPART at MDU

B- class ART at TEN

INNOVATIONS/MODIFICATIONS -

Foldable trolley to carry LHB springs.

Theme of this innovation: springs have to be moved carefully without causing any damages. Any pitting/hit mark during moving of springs may result in breakage of springs. A trolley designed to lift and carry the spring with minimum effort and without causing damages to springs.



Safety Alert alarm device

This system consist of one limit switch located at top point leading to IOH shed which will activate the hooter, whenever shunting takes place through that point. The signal will be transmitted to the hooter located inside the IOH shed through a transmitter available nearby limit switch and a receiver available of 200 m away from the transmitter.



Prototype model of Fire Extinguisher with Anti-Theft Mechanism

M/S ceasefire has developed an anti theft mechanism for fire extinguisher which consists of wire around the fire extinguisher end and other end passes through hooter switch. Any lifting of fire extinguisher will in turn activate the hooter through wire. Since this is not fool proof. CRSE has directed to develop an alternate system in house by MDU division.

In this new designed model two limit switches are used, one at the bottom of the fire extinguisher and another at the side body of the fire extinguisher. These two switches are connected in parallel with the battery and the hooter which is placed inside a fabricated metal box (alarm box) as shown below. The alarm box and the fire extinguisher hanger are screwed in the side body channel of lavatories.

The box is fabricated in such a way that, the hooter circuit and one limit switch are fixed below the fire extinguisher which is a concealed type and it is screwed with allen type screws. Another limit switch is fixed in the side channel of the fabricated box.

If the fire extinguisher is in hanged condition, the two limit switches provided below and side of the fire extinguisher will be in open condition (circuit in open condition so there is no sound). If the fire extinguisher taken from the hanger then the two switches become closed condition (circuit in closed and hooter starts sounding)



Light weight Portable inspection trolley.

A Light weight Portable trolley for under gear Pit examination with LED lighting arrangement was fabricated using available resources. This is having one 15 W, 12V Battery , and 15 LEDs Bulbs.

This facility can be used for under gear maintenance in Pit line for 5 hours after charging. All coaching depots [MDU, TEN, RMM & TN]have developed similar trolley for their use.



CBC Coupling training Model

Teaching aid model to create awareness among C&W staff, LP/ALP and shunting staff regarding proper coupling procedure of LHB coaches. This was fabricated with released CBC couplers.



Hand brake Audio Visual indication device in LWLRRM.

Hand brake Audio visual indication device is installed in Power Car No.17891 & 18867 of Train No.12631/32 to give Audio Visual coach of indication when the Hand brake is in applied condition. The power supply for the device is taken from the battery through MCB, So that it functions even the power car is in off condition. An ON/OFF switch is provided adjacent to the device to switch ON/OFF the device when needed.

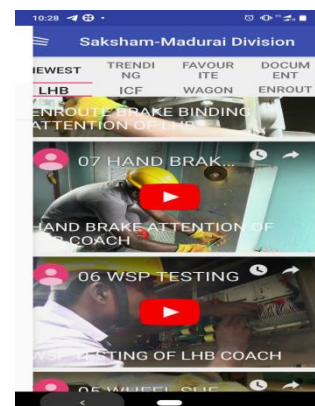
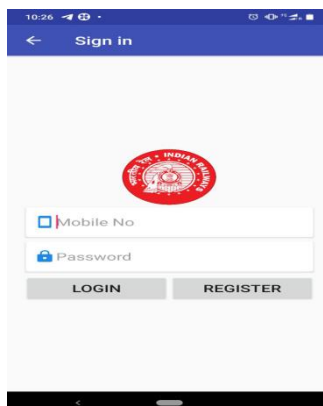


Developing

Android application of "Saksham Madurai".

An APP by name "Saksham Madurai" was developed for the use of authorised users to view/download C&W topics. The Android application design is based on TED application. The Android application is coded using PHP XAMP server (i.e Model and Controller), Android studio(i.e view) for the OS version of 4.4. The XAMP server is hired from Amazon web server. The XAMP server handles the user details, video URLs and document URLs.

On user request through this app, the Amazon XAMP server will connect the concerned youtube or documents uploaded in server for data transfers, hence the app can be able to handle more number of users.



ACHIEVEMENTS of Mechanical Branch of MDU Division:-

1. LHB Conversion:-

MDU Division LHB Coach Holding increased from 92 to 368 coaches.

Depot	Train No. & Name	No. of rakes	Rake No.	Conversion on Date
TEN	22619/20 (TEN – BSP) Exp	01	I	03.06.18
			I	10.07.18
			I	03.09.18
			II	04.09.18
			III	05.09.18
TN	12632/12661/12662/12631 Nellai /Podhigai Exp	04	IV	06.09.18
			I	11.03.19
			II	18.03.19
			III	26.03.19
MDU	12694/12633/12634/12693 Pearl city Exp	04	IV	30.04.19
			I	30.06.19
			II	19.07.19
			II	19.07.19

2. Utkrisht Conversion:-

Depot	Train No. & Name	No. of Rake	Conversion on Date
RMM	16779/80 (RMM - TPTY) Exp	01	18.04.19
	22621/22 (RMM - CAPE) Exp	01	06.06.19

3. Mechanized coach cleaning:-

Outsourced Mechanized coach cleaning under SBD in all coaching depots. (i.e. MDU, TEN, RMM & TN).

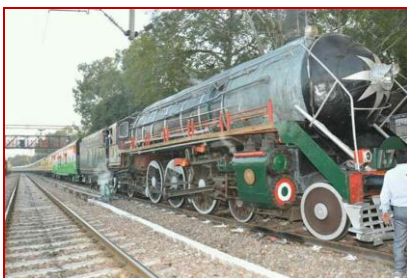
Depot	LOA issued on	Work started on
MDU	01.11.18	01.12.18
TEN & TN	05.10.18	21.12.18
RMM	19.11.18	09.12.18

4. Boot Laundry:-

LOA issued on 08.08.18 for 5 Tons boot laundry of MDU division.

5. Steam loco EIR 21 heritage:-

163 year old steam loco EIR 21 heritage commercial special running between TCN – SUV section on 17.11.18, 25.11.18, 02.12.18 & 09.12.18 18.12.18.



6. Pre-Fab Rolling in Hut:-

Rolling in shelter installed at MDU, RMM, TEN & TN.

Depot	Installed on
MDU	05-01-19
TEN	02-03-19
RMM	16-03-19
TN	25-02-19



8. Annual Safety Inspection:-

Annual safety inspection was conducted by PCSTE, PCEE, CRSE, CPTM, CBE, CCM/PM, Dy.CSO/HQ of RMM and MDU coaching depot on 25.03.19. Demonstration of innovations was done during Annual safety inspection team on 25.03.19 at RMM IOH shed. PCEE has awarded Rs.20000/- for Mechanical and Rs.5000/- for Electrical for the innovation and better upkeep of RMM coaching depot.



09. Bio-Toilet:-

117 Coaches retro fitted with Bio-Toilets during financial year 2018-19, and 99.15% of MDU Division coach holding is having Bio-toilet.

10. Surveillance camera:-

Surveillance cameras installed in MDU, RMM, TEN & TN coaching depots.