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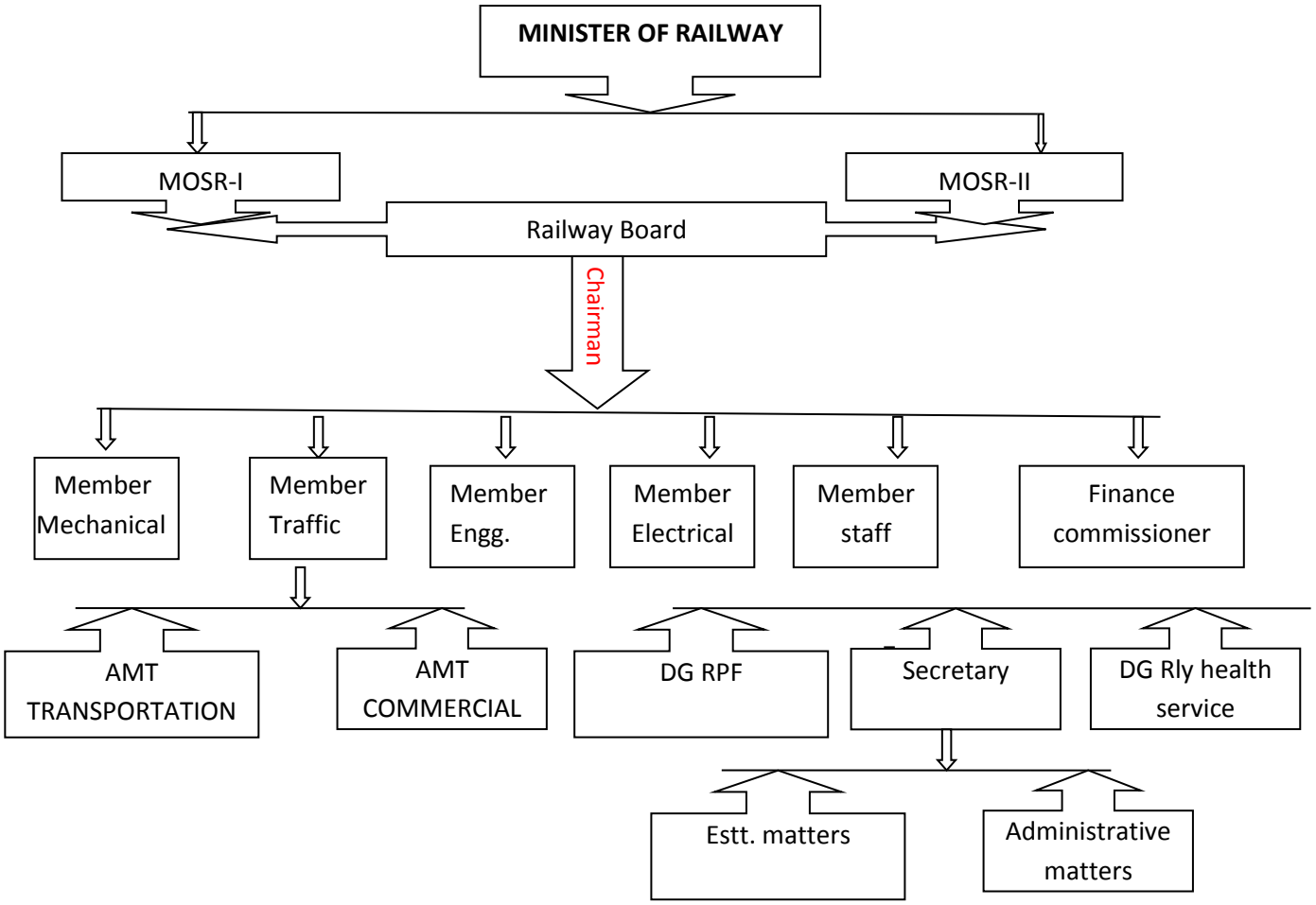
EVOLUTION OF RAILWAYS

- James Watt invented Steam Engine in 1770.
- In 1808 Richard Trevithick gave first public demonstration of Steam locomotive in London.
- In 1814 George Stephenson successfully designed the steam engine and he is also known as father of steam engine.
- First train in the World ran in England between Stockton and Darlington (12 miles) with 30 carriages in 1825.

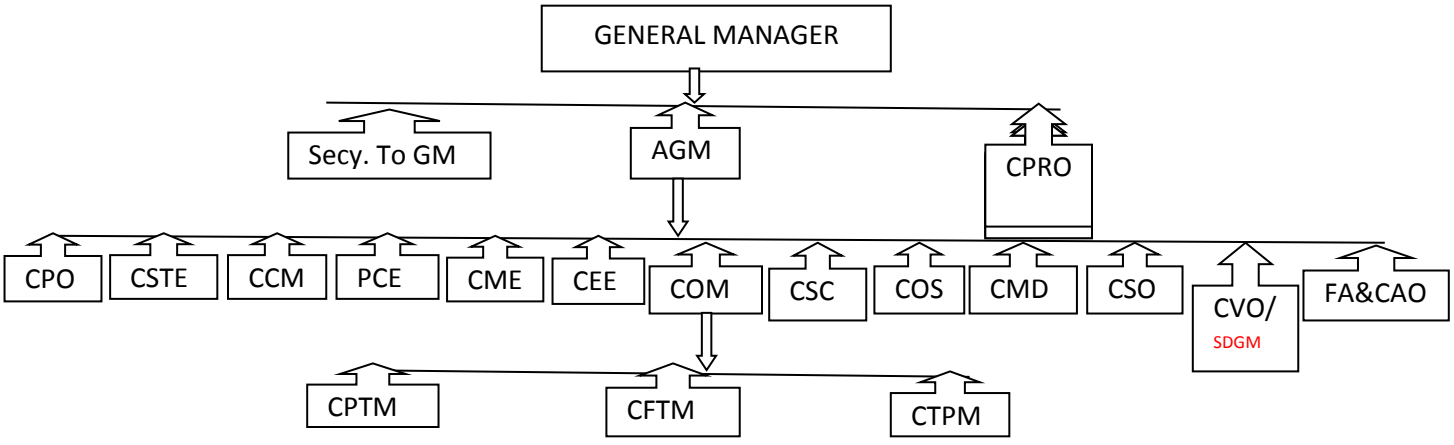
BRIEF HIISTORY OF INDIAN RAILWAYS

- The first railway train in India ran from Bori Bunder (Bombay VT) to Thane (21 miles) on 16th April, 1853 with 14 carriages carrying nearly 400 guests; started Bori Bunder at 15.30 hours.
- Since started as private enterprise, several companies sought for Government support to construct railroads- the pioneers were the East Indian Railway and the Great Indian Peninsula Railway Companies.
- Lord Dalhousie, the then Governor General of India, (1848-1856) incept and endeavoured to develop railways in India. He gave first priority to construct a line from Calcutta to Delhi.
- Line was completed from Calcutta to Delhi in 1866, which included Sone Bridge, Rail cum road bridges over Yamuna in Naini and Delhi.
- Bombay-Bhusawal-Itarsi-Jabalpur route of GIP railway completed in 1867.
- Route from Bombay to Sabarmati, Madras to Raichur and Bombay to Raichur completed by 1871.
- Indian Railway Act came in force from 1 May, 1890.
- Indian Railway Conference Association was set up in 1902 to frame or modify rules and regulations for interchange of traffic between railways.
- Railway Board was constituted in 1905 and the Railway Branch of the Public Works Department was abolished.
- On 3rd Feb, 1925, the first electric traction was introduced on the Bombay VT-Kurla section.
- There were 21 railways operated by the Govt. of India and the Princely States prior to the integration of the Princely states with the Indian Union.
- In 1951-52 the entire Indian Railways were regrouped into six zones- Southern Railway (Madras), Central Railway (Bombay), Western Railway (Bombay), Eastern Railway (Calcutta), Northern Railway (Delhi) and North-eastern Railway (Gorakhpur).
- Subsequently three more zones were carved out- South-eastern Railway (Calcutta) in 1955, North-east Frontier Railway (Maligaon) in 1958 and South-central Railway (Secunderabad) in 1966.
- Ministry of Railway set up seven new zones by 2002.
- Kolkata Metro Railway has been included as a new zone in 2011.

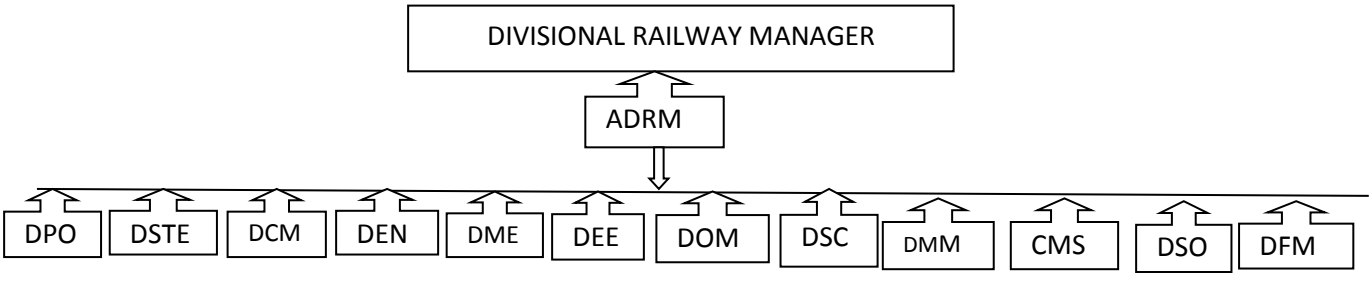
Organisational structure of Indian Railway (Board level)



Organisational structure of Indian Railway (Zonal level)



Organisational structure of Indian Railway (Divisional level)



Significance of rules and rule books

Trains are track-bound i.e. the train can move only along the fixed path made for it and train has right of way which means other transport like road vehicle cannot come in its path except on Level Crossings. Moreover a train cannot be stopped instantly within a short distance like a road vehicle. A minor error or trivial negligence may result in a serious accident in railway. That is why safety rules have to be followed meticulously to run the trains safely.

Provision in Indian Railway Act is that before a Railway is opened, General Rules should be prepare, sanctioned and published so to meet this requirement the Railway Board issues the **General Rules,** on behalf of government of India for regulating working of trains and performing other operations. These rules cannot be violated but can be further restricted by the Zonal Railways. General rules are applicable all over Indian Railways. The object of GR is to ensure the safety of the train running.

There are 18 chapters and IX appendices in GR. In each chapter have numbered indicating chapter no. with serial no of the rules. And a Point being used between them without any prefix with the letter GR. Any correction, alteration and addition is only made by the Railway Board.

As GR are general in nature, not considered the local condition existing in various Zonal Railways. Therefore these rules (GR) are required to be supplemented and clarified by the rules framed by various Zonal Railway are called **Subsidiary Rules**.
SR is framed by Authorized Officer of the individual Railway considering local conditions without infringing the basic object of GR, to ensure better safety. Any correction, alteration and addition is only made by the Authorised Officer of the concerned Zonal Railway. Subsidiary rules are applicable for respective zone only. SR are printed in smaller letter under relevant GR with prefix SR.
Latest amendment slip no. of G&SR is **"Twenty one"**.

OPERATING MANUAL

This manual is prepared and issued by an authorised officer of the Zonal railway. This manual contains rules relating passenger and goods train operation, loads of train, marshalling and attaching of vehicles, shunting, interlocking, operating controlled, working of station generally or running a special train and over dimensional movement.

Latest amendment slip in operating manuals is "**Five**"

ACCIDENT MANUAL

This manual is prepared and issued by an individual Zonal railway. This manual contains rules relating to railway accidents and classification of accidents, dealing with serious accidents, rules for ART/ARME, duties of different staffs in case of accidents, procedure for dealing with in case of sabotage or train wrecking , enquiries into accidents.

Latest Amendment slip In Accident manual is **"Eleven".**

BLOCK WORKING MANUAL

This manual is prepared and issued by an individual Zonal railway. This manual contains rules relating to Block working in single line and double line, condition of granting line clear, Block instrument working in single and double line, Bell codes, shunting rules, private no. etc.

Latest Amendment slip In Accident manual is **"One".**

Station Working Rules(SWR)

Each and every station must be provided with a set of rules dealing exclusively with the local condition of the station in question , in a clear and concise manner . These rules which are called Station Working Rules (SWR) , regulate the safe working of trains in between stations and shunting operation both in normal and abnormal conditions . These rules being in detail and having been framed keeping the local condition in view , ensure greater safety .These rules must be read in conjunction with the General and Subsidiary Rules and legally binding on the staff.

WORKING TIME TABLE

Working Timetable is a gazette issued by the operating branch of each Zonal Railway separately. This is issued once in a year and its currency is from the 1st JULY to 30th JUNE. In our Railway, it is published by the Chief Operation Manager, the principal head of the operating department. The Working time table is published in two banks in N.F.R.--- one is North Bank (KIR,APDJ RNY) and other is South Bank (LMG,TSK).Various information and guide line are given specially for those staff who are involved with the train running duty. Following important information are shown in the WTT: ---

1. Definitions and explanations of signs and abbreviations used,
2. System of working provided on different stations,
3. Particular of engines as regards weight, maximum permissible speed, and axle loads etc.
4. Statement showing the list of trains,
5. Max. permissible loads of the train,
6. Permanent, semi permanent speed restrictions,
7. Rake link and normal composition of trains,
8. Arrival and Departure timing of various trains at different station,
9. List of nominated and notice stations,
10. Standard of interlocking in various stations,
11. Location and composition of ART, BD. Van, and ARME,
12. Jurisdiction of senior subordinates,
13. Recovery times
14. List of prohibited and restricted trains,
15. Minimum and normal running time for different block section, etc.

Besides the above, WTT shall contain various information which guide the staff for safe working of trains very much.

OBJECTIVES OF INDIAN RAILWAYS

Railway is a public utility service as well as a commercial organization. Its main object is to transport passengers and goods under some stipulated condition of time with the highest standard of safety at the lowest possible cost.

CORPORATE OBJECTIVES OF INDIAN RAILWAYS

The corporate objectives of Indian railways are :-

- To increase NET TONNES KM of freight traffic.
- To increase suburban and non-suburban Passenger KM.
- To reduce cost of transportation.
- To ensure proper utilization of railway assets.
- To improve quality and reliability of Passenger and Goods services to international standards.
- To reduce train accidents

OBJECTIVES OF OPERATING DEPARTMENT

A) Better service to rail users-

a) Pass. Train operation**:-**

i) Proper time tabling
ii) Punctuality
iii) Adequate accommodation
iv) Safety

b) Goods Train operation**:-**

i) Prompt, regular and assured supply of wagons & quick turn-round.
ii) Quick and safe transit

B) High productivity of resources:-

i) Locomotives
ii) Vehicles and wagons
iii) Track
iv) Signal and tele-communication
v) Fuel and electric supply
vi) Staff

C) Maximizing loading and unloading:-

i) Maximizing loading by prompt supply of wagons
ii) Attracting high rated and high yielding traffic profitable to railways
iii) Increasing passenger capacities on profitable routes

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D) Ensuring safety:-

i) Safety in train operation
ii) Safety in yard operation and shunting
iii) Safety of personnel
iv) Safety of consignments

E) Timely planning:-

For arranging additional capacity to meet the future growth of traffic efficiently.