

UNIT 4 TRACTION

Merits of electric traction – requirements of electric traction system – supply systems – mechanics of train movement – traction motors and control – braking – recent trends in electric traction.

Merits of electric traction:

The locomotive in which the driving or tractive force is obtained from electric motors is called Electric traction.

Electric traction has many advantages as compared to other non-electrical systems of traction including steam traction.

Electric traction is used in:

- i) Electric trains
- ii) Trolley buses
- iii) Tram cars
- iv) Diesel-electric vehicles etc.

Traction systems:

All traction systems, broadly speaking, can be classified as follows:

1. Non-electric traction systems:

These systems do not use electrical energy at some stage or the other.

Examples: Steam engine drive used in railways at some stage or the other.

These are further sub divided into the following two groups:

a) Self contained vehicles or locomotives

Examples:

i) Battery-electric drive ii) Diesel-electric drive

b) Vehicles which receive electric power from a distribution network or suitably placed sub-stations. Examples:

i) Railway electric locomotive fed from overhead A.C supply,

ii) Tramways and trolley buses supplied with D.C. supply.

Here power is applied to the vehicle from an overhead wire suspended above the track. Electric traction systems may be broadly categorized as those operating on:

1. Alternating current supply
2. Direct current supply.

In general following electric traction systems exist:

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