Chapter 12.
System of Working

- **Time Interval Method**
- **Space Interval Method**

Control over movement of trains

- Trains cannot be steered away as in the case of other transports.
- They are required to follow one another in the same direction on the length of track.
- Another set of diversion track is required to be provided either for overtaking vehicles moving in the same direction or for crossing the vehicles from the opposite direction.

Control over movement of trains

System of working defines the rules in accordance with which the train shall be run between two block station. systems of working used are

- The Absolute Block System
- The Automatic Block System
- The Following Trains System
- The Pilot Guard System
- The Train Staff and Ticket System
- The One Train Only System

Only absolute and automatic block system are widely used, remaining system are used in special conditions.

Control over movement of trains

Time Interval Method

- Different types of trains like, Express/Mail, passenger, high-speed freight and low speed freight shunting trains are running etc.
- The speed of all the trains are not same
- The terrain of the country is not same everywhere
- The brake power, hauling capacity, load of train is not same for all trains; and
- The stopping places of all trains are not the same

Systems of Working

Systems of Train Working | Systems of Working

Control over movement of trains

Space Interval Method

- In this method of "Control over movement", the length of track is divided into sections called "Blocks".

- The entry of a train into the ‘block’ is controlled in such a way that only when it is free, a train can be allowed to enter it.

- This means that between two consecutive trains, there is a definite space interval.

Concept of Signalling

- The space interval system uses the block working wherein the entry of train onto the block section is jointly controlled by the entry and exist points of the block section.
- The driver is authorised to proceed into a section by the signal controlling the entry to the section.
- The main purpose of Railway Signalling Systems is to maintain a safe distance between trains on the same track.

Absolute Block System

❑ Essential requirements of the absolute block system

- Para 8.01 of GR define essential
- no train shall be allowed to leave a block station unless Line clear has been received from the block station in advance,
- Such line clear shall not be given
  - On double lines, unless the line is clear not only upto the first stop signal at the block station at which such line clear is given but also for an adequate distance beyond it.

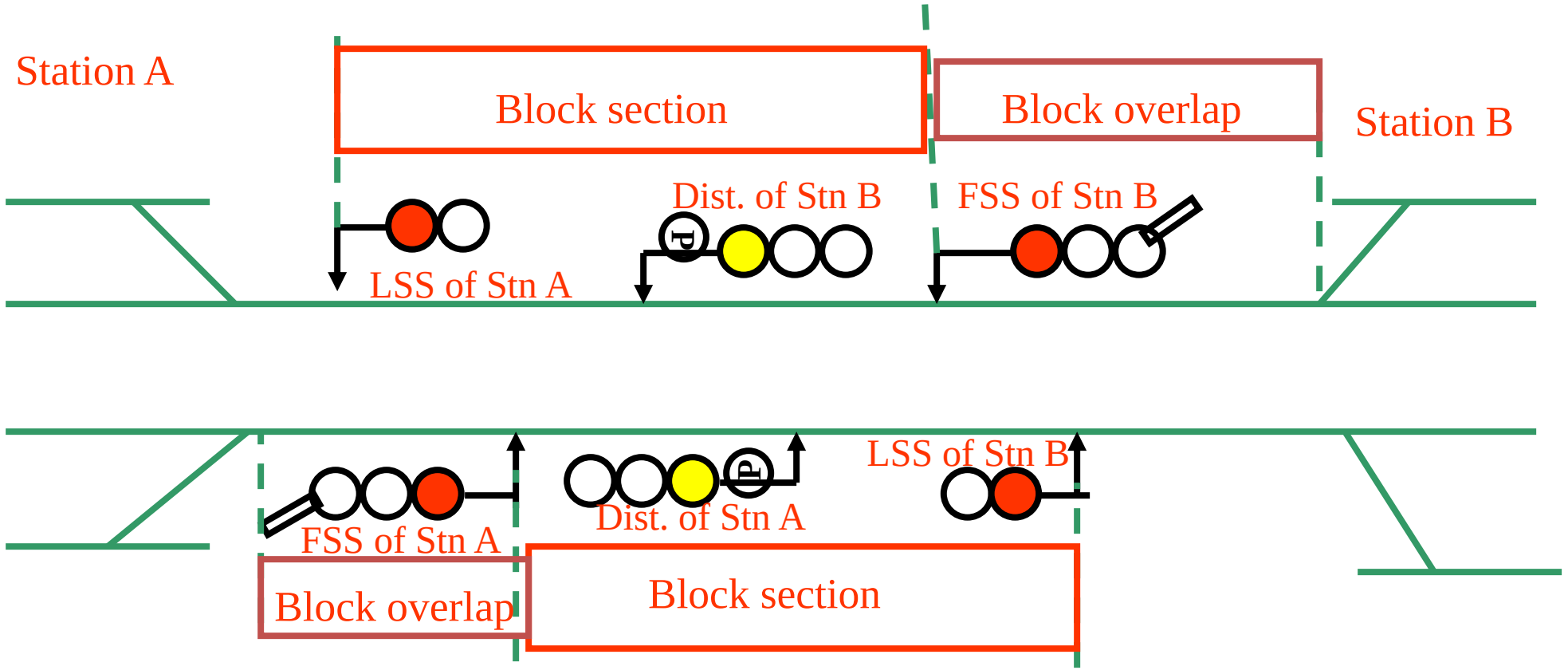
    - On single lines, unless the line is clear of trains running in the same direction not only upto the first stop signal at the block station at which such Line Clear is given but also for an adequate distance beyond it, and is clear of trains running in the direction towards the block station to which such Line Clear is given.

    - All the reception signal behind train are put back to ON

    - Complete arrival of last preceding train

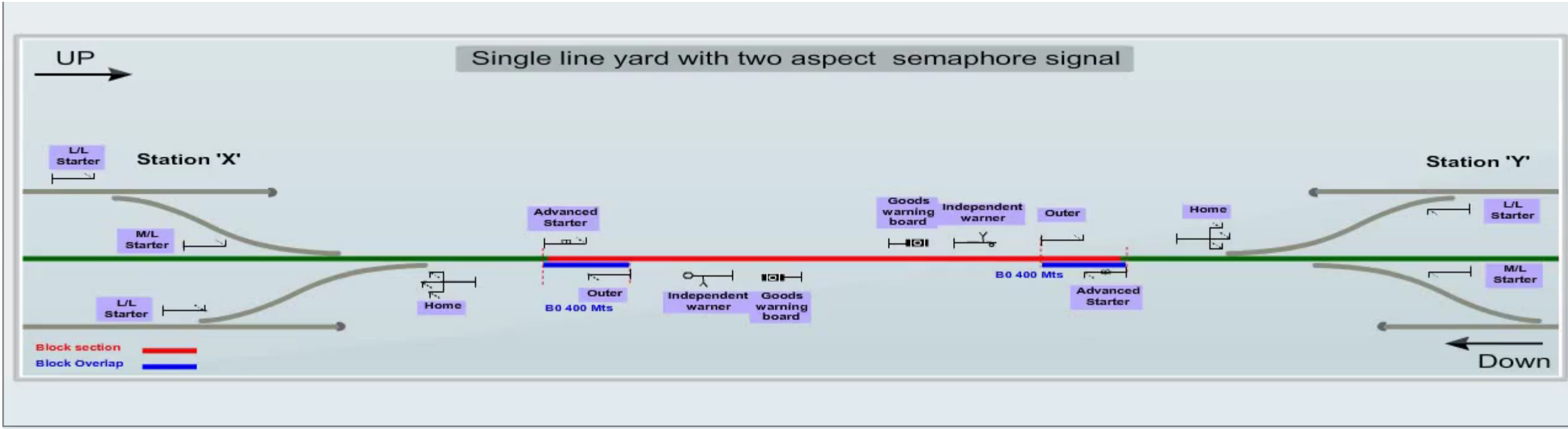
Absolute Block System

❑ Essential requirements of the absolute block system



- Unless otherwise approved under "approved special instructions" (sanction of Commissioner of Railway Safety) block overlap shall not be less than 180 Mts. in MACLS & 400 Mts in two aspect signal.

Absolute Block System



Absolute Block System

- Majority of the stations on Indian Railways follow absolute block system.

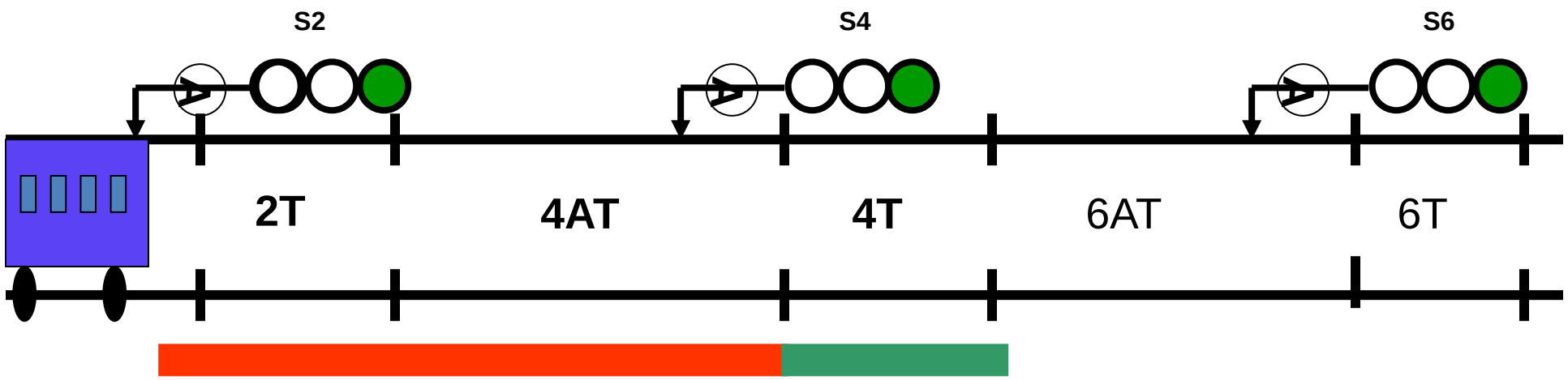
Automatic Block System

❑ Essential requirements of the absolute block system

- Continuous Track Circuits or Axle Counters.
- The line between two stations may be divided into a series of section known as "Automatic Block Signalling Section".
- Colour light Multiple Aspect Stop Signal.
- Track Circuits or Axle Counters should controls the aspects of the auto signal such that.
  - It cannot display the `OFF' aspect unless automatic block section and overlap is clear
  - Signal is automatically replaced to `ON' soon after it is passed by a Train
  - Normal aspect of auto. Signal is proceed.

Automatic Block System

❑ Controlling of aspect of automatic signal by track circuit

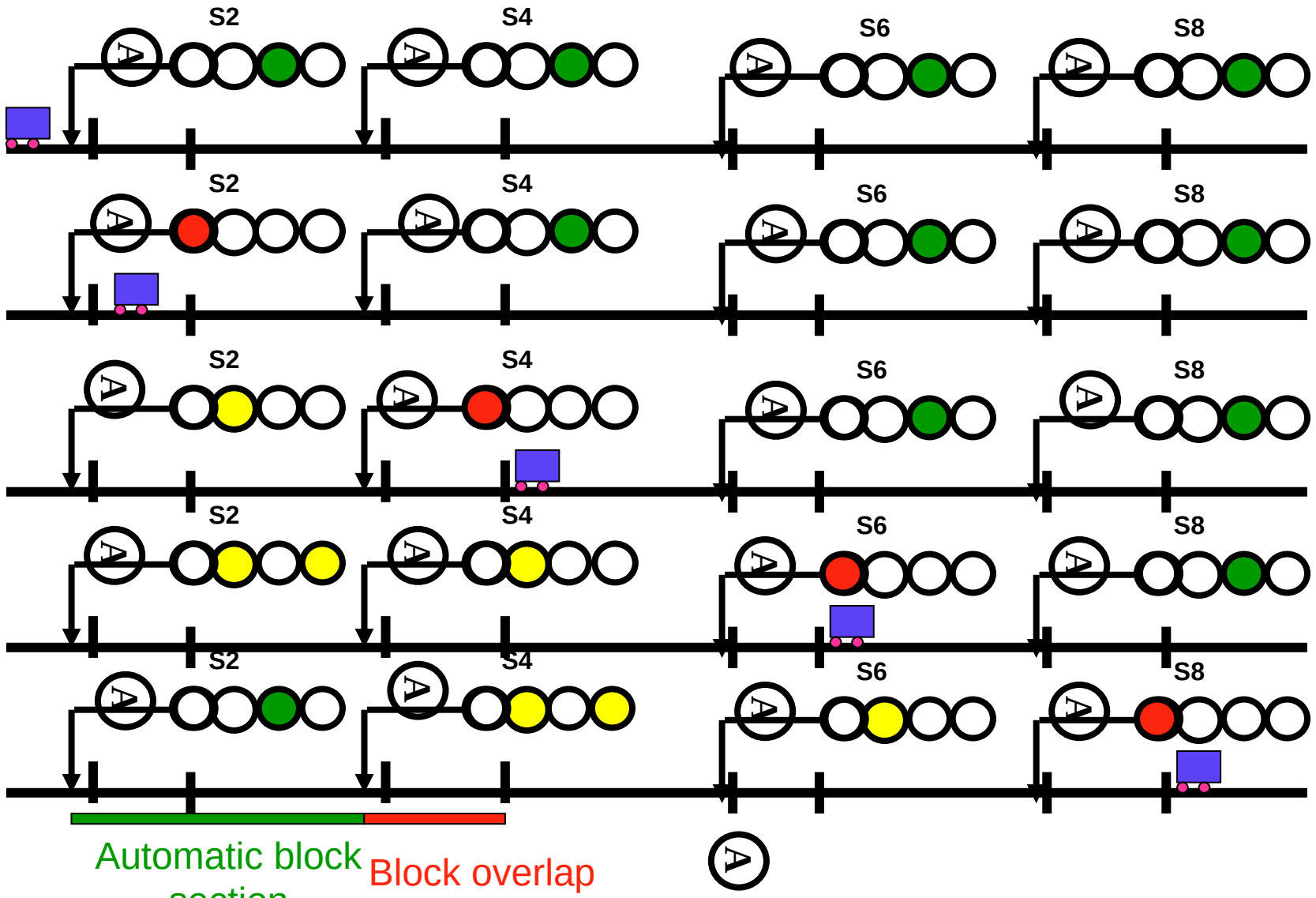


Automatic block section

Block overlap of S2 (adequate distance)

- If automatic block section (track circuit 2T& 4AT) and block overlap (track circuit 4AT) is clear then S2 can assume OFF aspect
- As soon as train crosses signal S2 2T drops causes signal S2 to change to ON

Automatic Block System



Automatic Block System

Automatic Block System

- This system is adopted to deal High density rail traffic, such as Suburban trains in Metro cities and high dense corridors like Delhi, Mathura, etc.


THANK
YOU

Qs..????.