

ALCO LOCOMOTIVE BOGIES

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Objectives

- Role of a bogie
- Bogies nomenclature & its types in IR
- Maintenance of bogies
 - Cast Steel.
 - Fabricated.
- Locomotive wheels
- Maintenance Management
- Ready loco checking and quality control
- Enroute attention

Role of bogie- static condition

- Supports loco body (sprung mass)
 - Static load
 - Impact loading
- Hold together the unsprung masses.
 - Part weight of traction motors
 - Wheelset
 - Axle box & Axle mounted equipment
 - Gears & Gear cases.

Sprung & Unsprung mass

- Sprung Mass:
 - The weight of the locomotive components supported on the primary suspension.
 - Bogie frame.
 - Secondary suspension arrangement.
 - Part weight of Traction Motor.
 - Entire weight of super structure
- Unsprung Mass:
 - Directly connected to rail.
 - Should be minimized.
 - Detrimental for track.

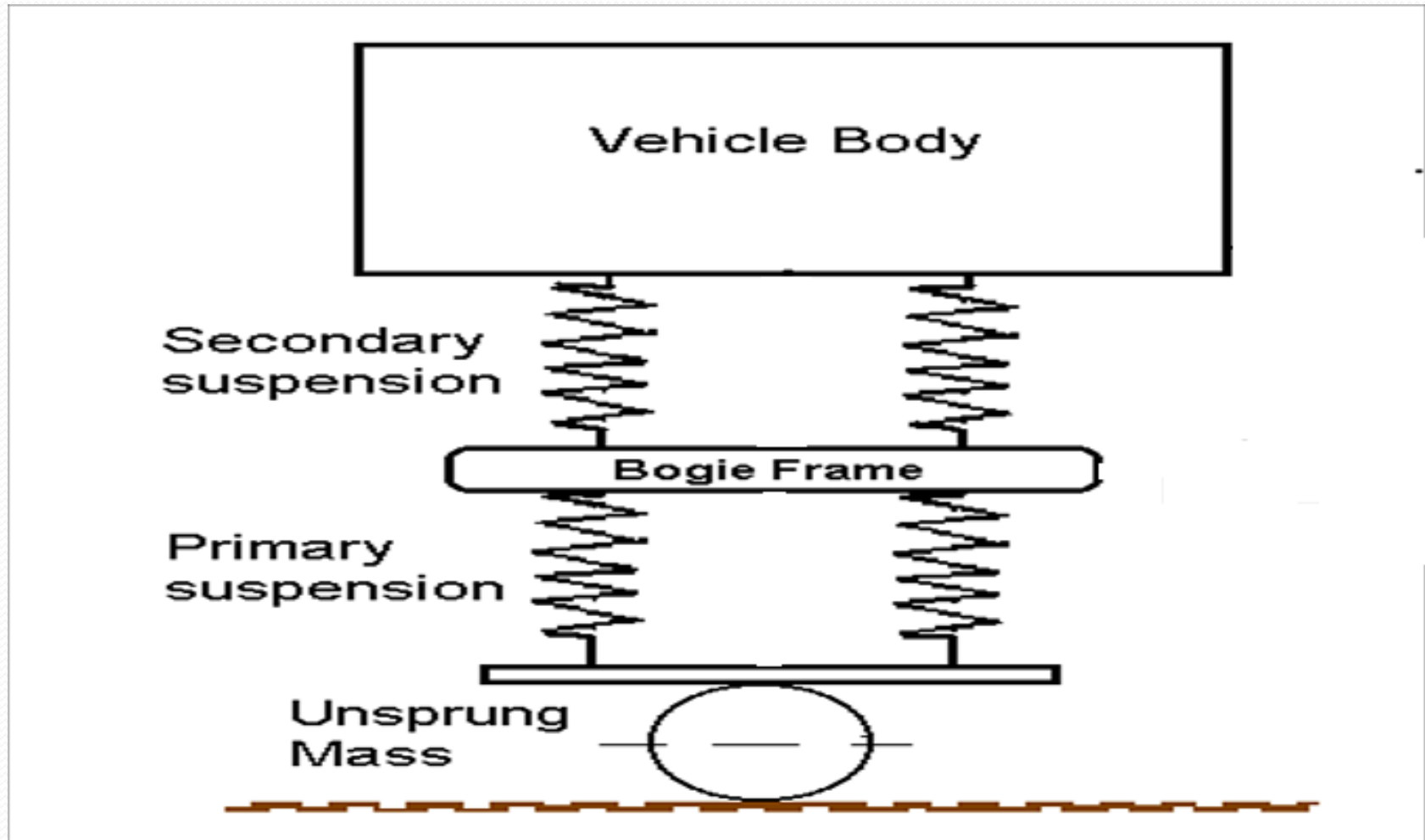
Role of bogie- Dynamic condition

- Transform and control vibration inputs from track
 - Vertical
 - Lateral
- Regulates Dynamic loading
 - Starting
 - Braking
 - Controls Axle load transfer

Overall dynamic performance

- Controlled behavior on-
 - straight
 - curved tracks
- Control adhesion.
- Pivoting action

Primary & secondary suspension



Movements to be cared of

- **Yawing/Nosing:**
 - Movement of bogie about vertical axis
- **Rolling:**
 - Movement of bogie about longitudinal axis
- **Pitching:**
 - Movement of bogie about transverse(lateral) axis

Bogies nomenclature & types

Maintenance of cast steel bogies



Maintenance of fabricated bogies



Loco wheels & common defects



Maintenance – management concept

Checking of ready loco

Enroute out of course attention

- Maximum permissible speed for a wheel lifted locomotive
 - Trimount Bogies: 20 kmph on straight track and 15 kmph on curves as per RDSO's instruction bulletin No. MP-IB-VL-01.02.07 (Rev.00) circulated vide L/No. SV.IB dtd. 24.03.09
 - ATHS Bogies: 20 kmph on straight track and 15 kmph on curves as per RDSO's instruction bulletin No. MP-IB-VL-01.05.07 (Rev.00) circulated vide L/No. SV.IB dtd. 24.03.09
- Wheel set trolley as per Drg No. SK.VL 215 to 218..
- Movement in night is not recommended.

Towing equipment

Working Demo of Towing Equipment.



Old Design



New Compact Design

Fitness of accident involved locomotive

- Guiding document
- Rly Bd's L/No. 2003/M(Safety)/7/2/S/2 dtd 17.07.2003.
 - Permitted to move from site after visual inspection by
 - ART Supervisor
 - TXR
 - Driver (in order)
 - Can be allowed to next yard/station or beyond as
 - Dead
 - Light
 - With load
 - Regular use only after fitness from shed.

THANK YOU