Bogie Maintenance-Bogie,Wheelset,Wheel disc,Axle mtc,WTA,MSU,CRU,D/Brake Disc,Gen. Pulley,Speed sensor

Objective

- List types of bogie
- Know process of periodic overhauling.
- List wheel profile defects.

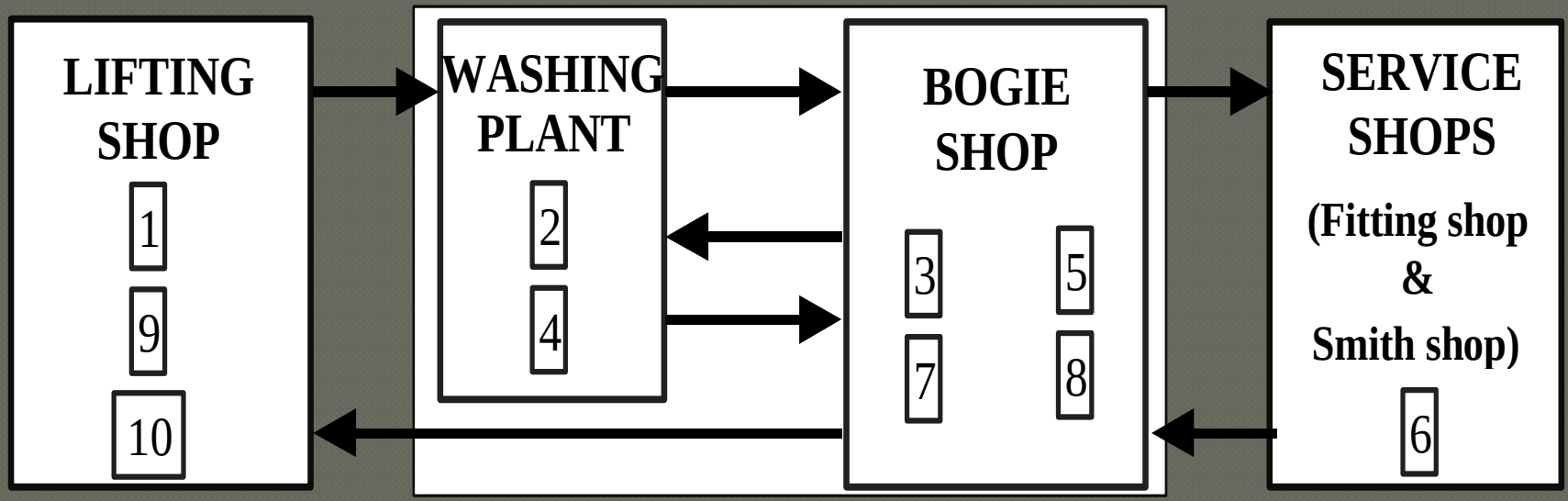
Types of Bogie

- Casnub bogie used in wagon
- ICF bogie used in ICF coach
- Fiat bogie used in LHB coach
- Crane bogie used in 140T crane
- Diesel bogie

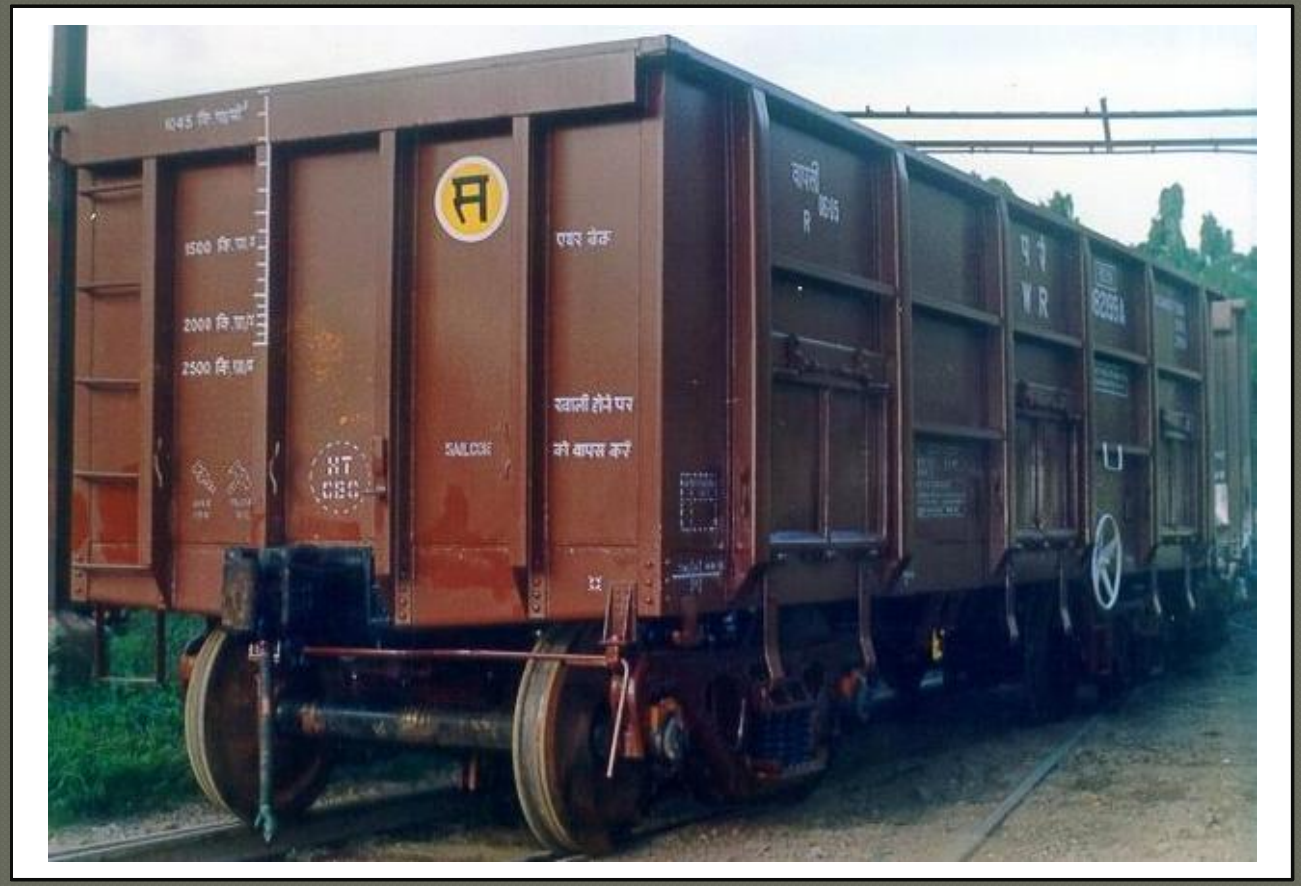
Workshop Activity during POH

1. Wagon/Coach lifting
2. Bogie cleaning
3. Bogie dismantling
4. Components cleaning
5. Attention to components
6. Repair of components
7. Bogie assembly
8. Load testing and adjustment
9. Lowering of Wagon/ coach
10. Final adjustment

Flow Diagram



BOXN Wagon



Casnub Bogie



Casnub Bogie-Bolster





Bogie Cleaning

- Scrapping
- Dry washing with air jet
- Washing with caustic soda & hot water
- Dry in air

Bogie Dismantling

- Disconnect brake gear attachment
- Raise bolster with EOT crane
- Remove outer,inner & snubber springs
- Remove assembled pins
- Slide the bolster in one side
- Take out the side frames & spring plank

Check,Repair/Replace of Components

Bolster

- Body crack near hole.
  - Replace
- Center pivot profile worn out.
  - Weld and make profile/replace
- Centre pivot rivets damage.
  - Rivetted
- Side bearer spring damage.
  - Replace
- Welding done in manipulator.

Side Frame with Plank

- Body bent/crack/heavy corroded.
  - Replace
- Check cross trammeling-3018±4.5mm.
  - Journal-2207mm.
- Side frame friction liner crack/thin.
  - Replace
- Pocket liner crack/thin.
  - Replace

Continued

- Pedestal jaw distance checked
- Plank body rivetting
  - Check & done
- Welding done in manipulator
- All pins & bushes to be replaced

Brake Gear Items

- Brake beam bent/thin/crack.
  - Replace
- Push Rod bent
  - Replace
- Push rod safety strap
  - Rivetting check & done
- Fitted overhauled brake cylinders.
- Brake block wornout/thin/crack.
  - Replace

Springs

- Inner,Outer,Snubber
- Clean
- Check-broken,twisting,free height length
  - Replace

Load/ Snubber springs of CASNUB

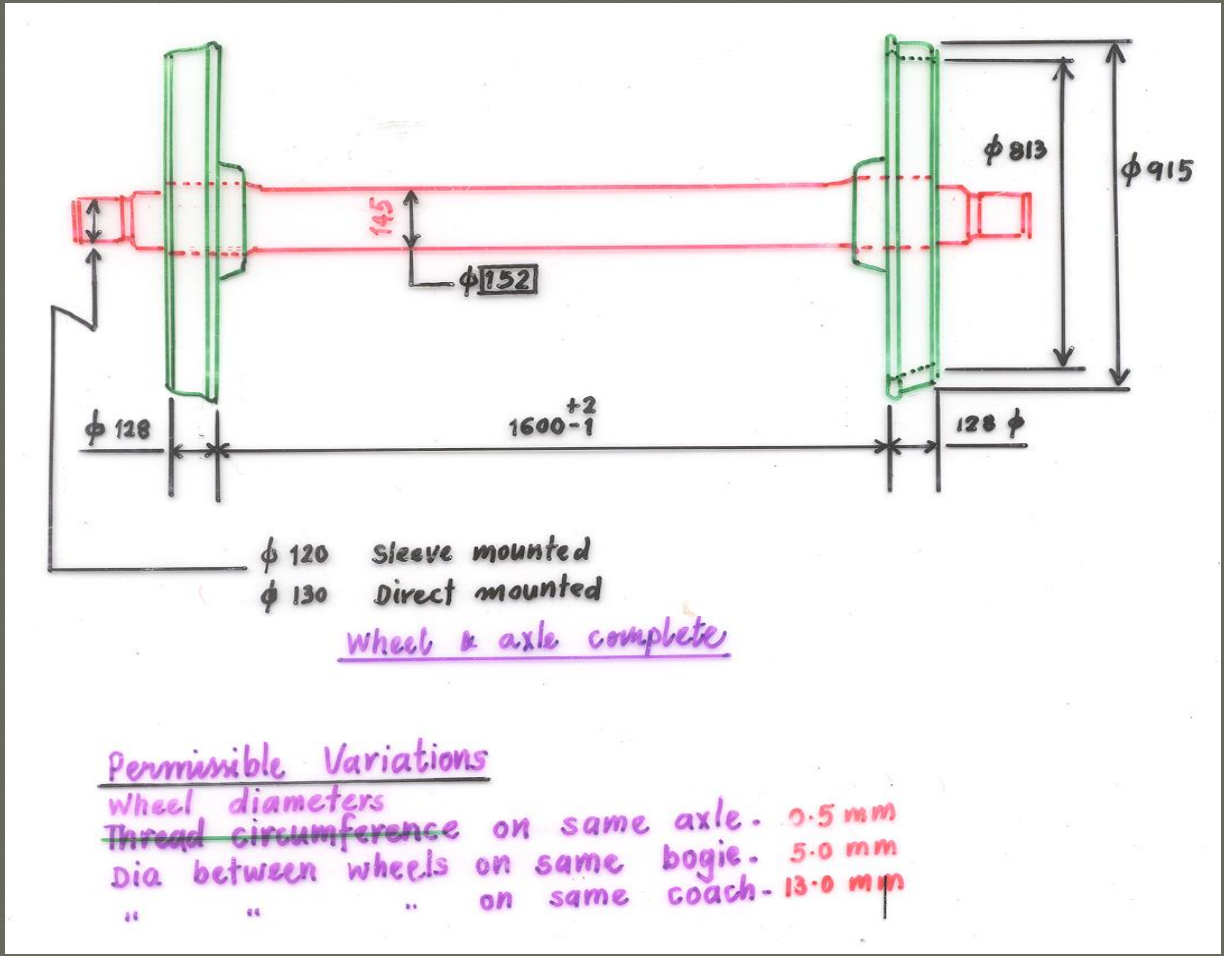
Type of Bogie	Location	Free Height (Nominal mm)	Recommended free condemning height (mm)
All version except CASNUB 22 HS	Outer Inner Snubber	260 262 294	245 247 279
CASNUB 22 HS	Outer Inner Snubber	260 243 293	245 228 278

Bogie Assembly

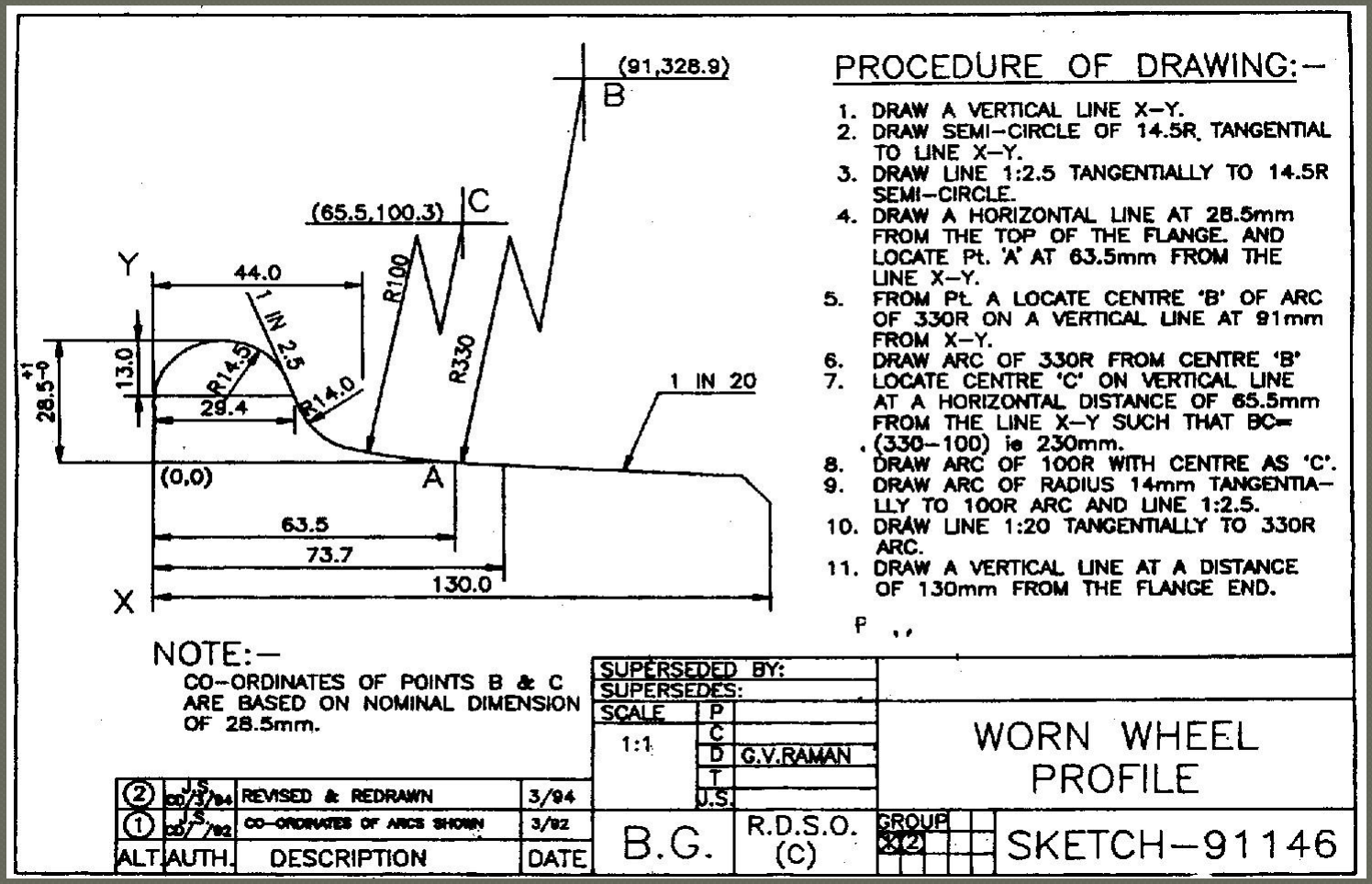
- Assemble the bogie with repaired & new components.
- Check load & snubber springs for proper seating.
- Lubricate center pivot with graphite flakes.
- Check all dimensional measurement of bogie

Wheel & Axle Maintenance

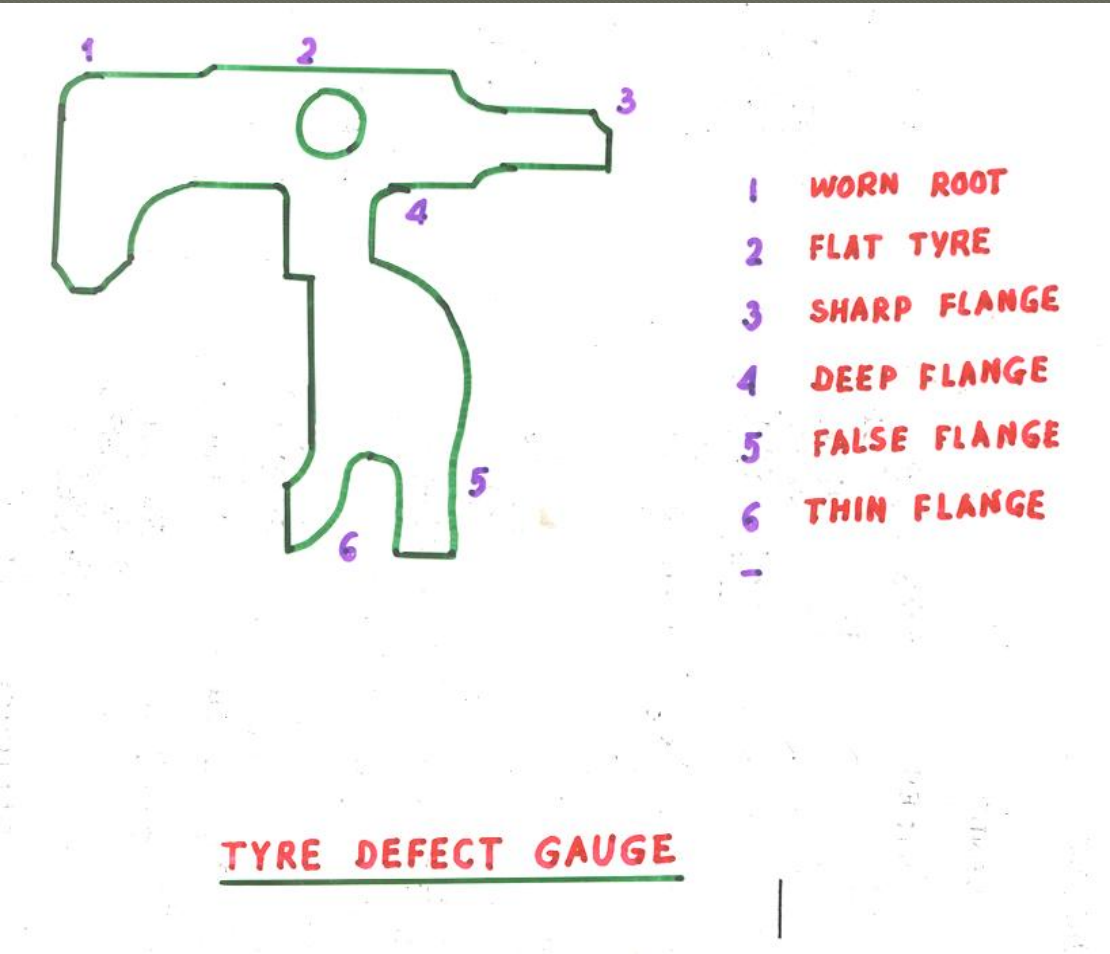
Wheel & Axle Assembly



Wheel Tread Profile

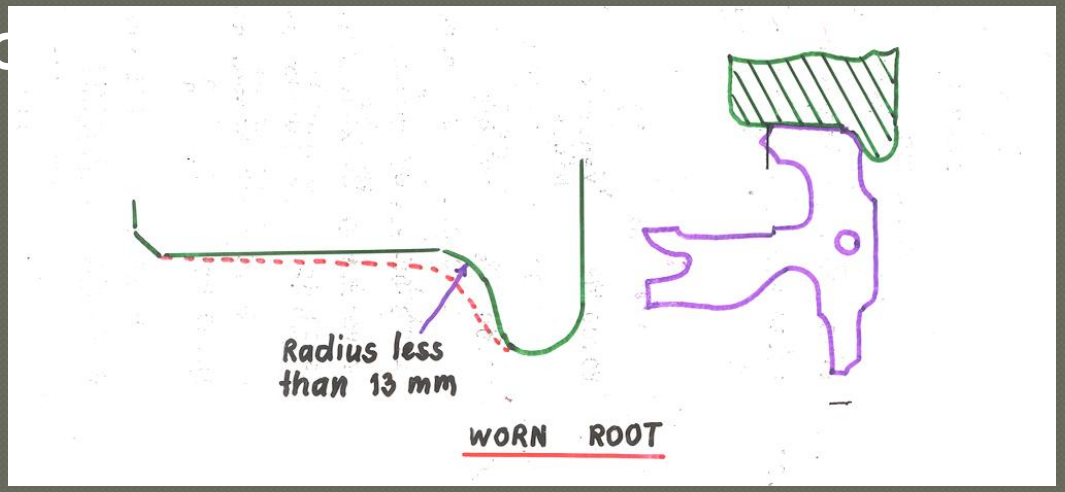


Gauge of Wheel Tread Profile Defects



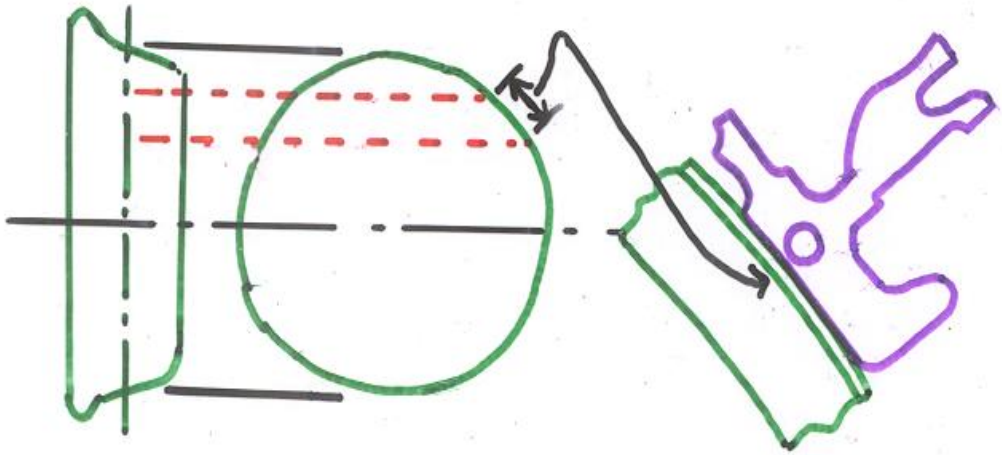
Worn Root

- Maximum wear on curves
- Snacking effects c motion



Flat Tyre

- F
- S



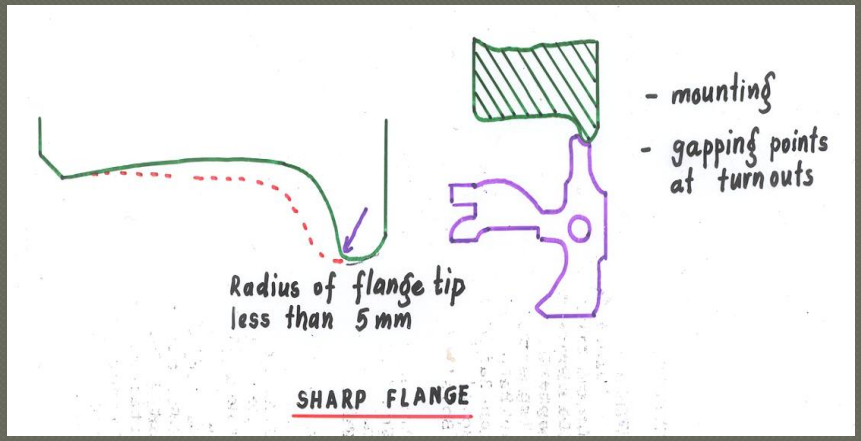
FLAT TYRE

Hammering action

50 mm for ICF & BEML
60 mm for all BG wagons
50 mm for Diesel/Electric

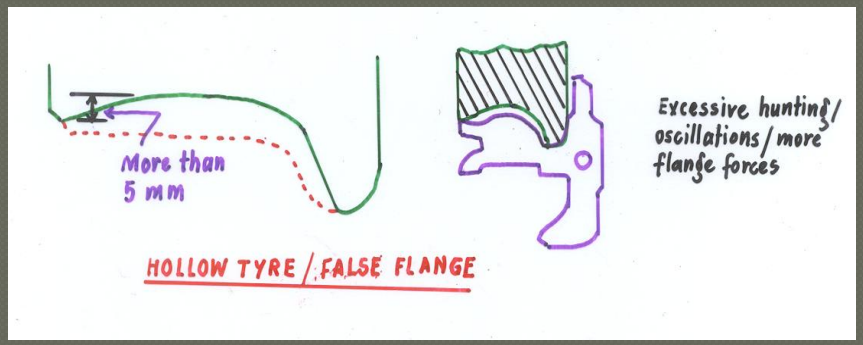
Sharp Flange

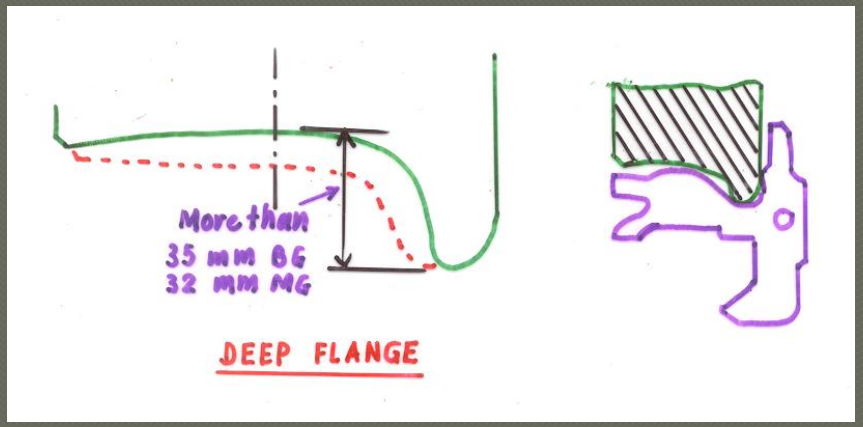
- Continuous negotiation on curves
- Snacking effect of wheels.
- Wear on wheel flanges.



Deep Flange

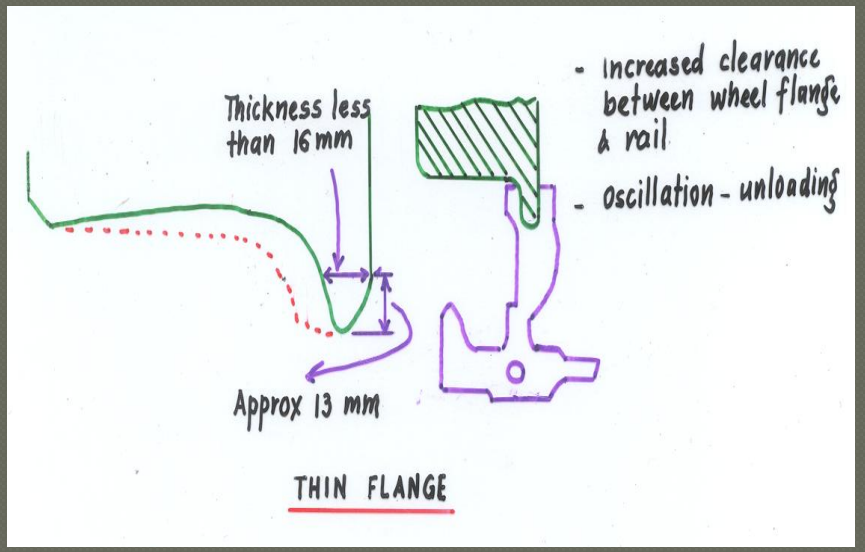
- Constant wear on tread
- Hard brake blocks & rail material





Thin flange

- Negotiation in the curves
- Side thrust on flanges
- Snacking effects



Wheel Defects



Crack in the web portion web portion



Thermal crack and shelling on Tread Surface



showing close view of the shelled area with



Spread Rim

Wheel Lathe



Wheel Requires Replacement

- Existing tread dia ≤ last shop issue size
- Shattered Rim-a fracture on the tread/ flange
- Spread Rim-widens out on the front face.
- Shelled Tread-metal piece breaking on tread .
- Thermal Cracks-appears on tread .

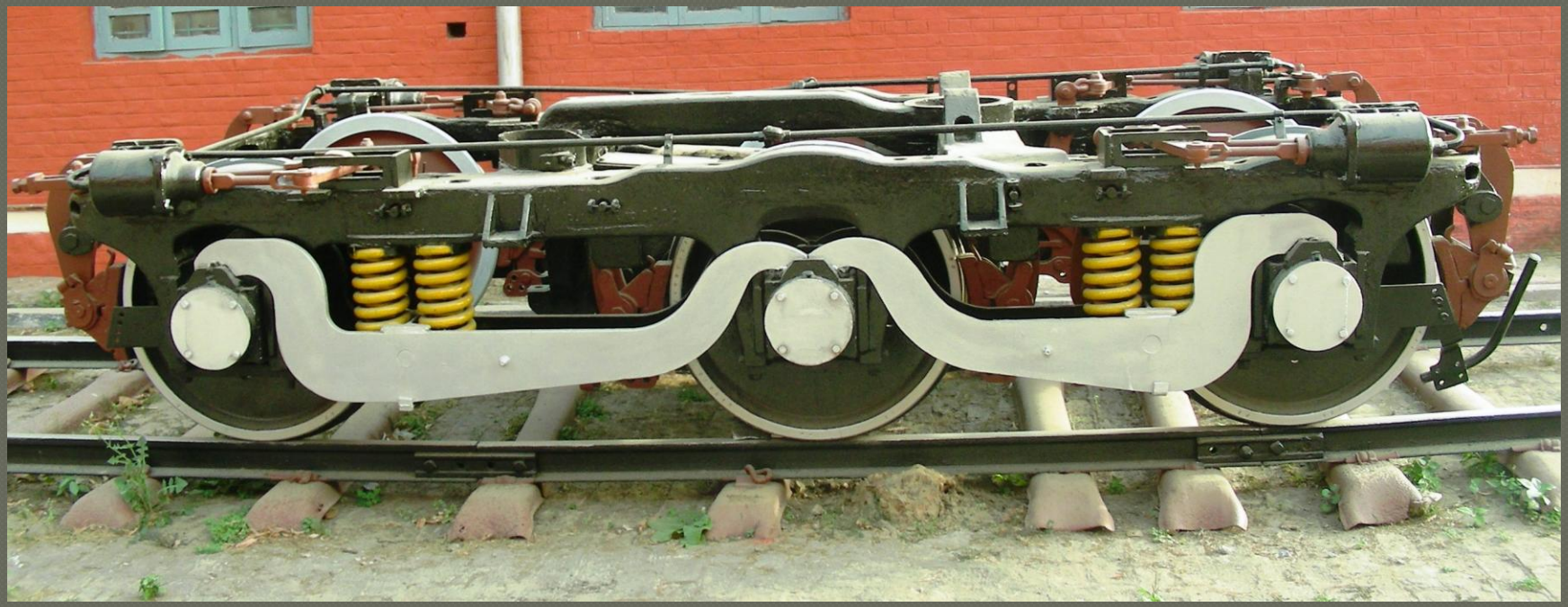
Axle Requires Replacement

- A bent axle.
- Found flawed in ultrasonic test.
- Size deviation on journal/wheel seat.
- Groove marks on axle.

Variation in Tread Diameter

- Four wheeled bogies
  - On the same axle-0.5 mm
  - On the same bogie – 5 mm
  - On the same coach – 13.0 mm

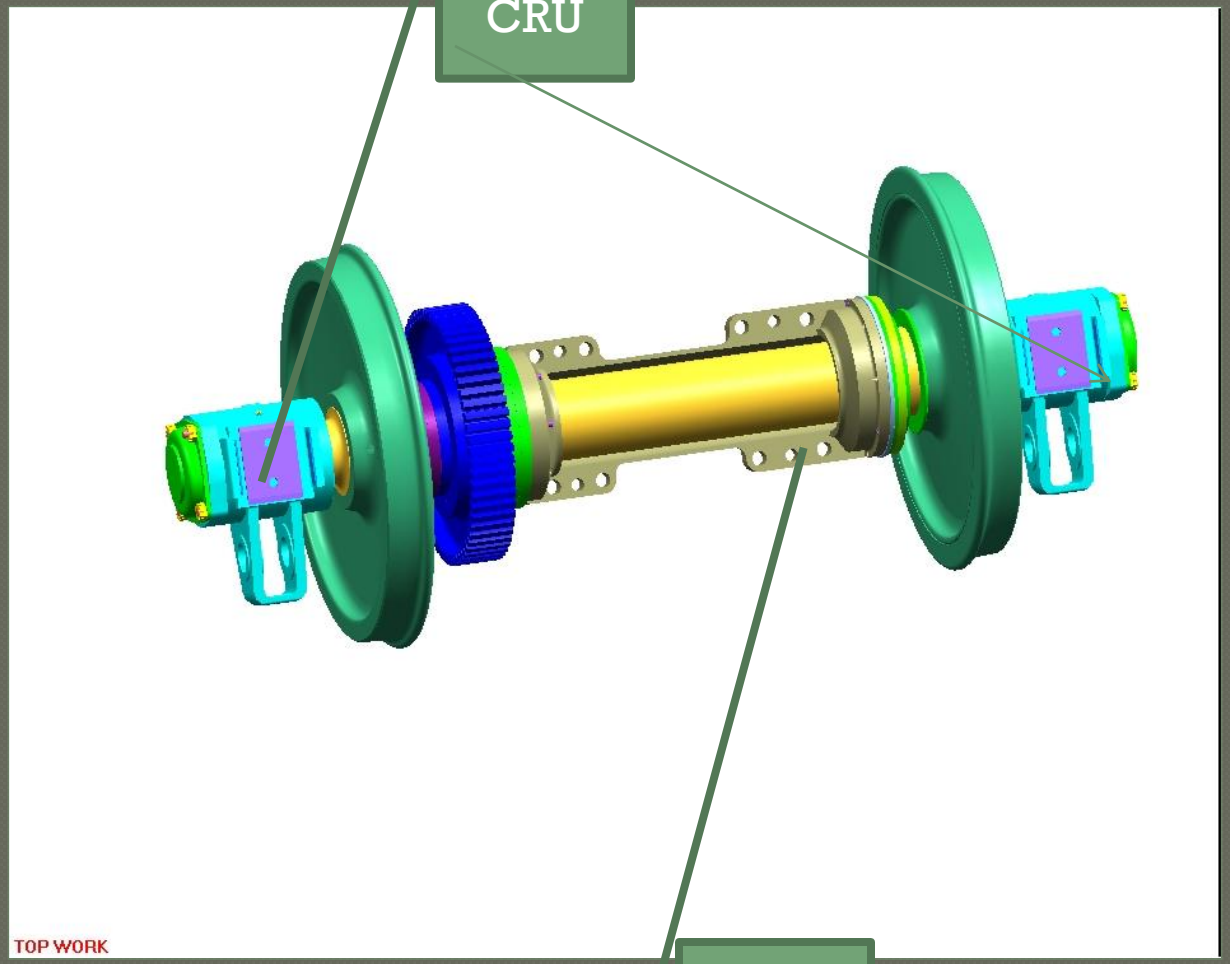
WDM2-Bogie



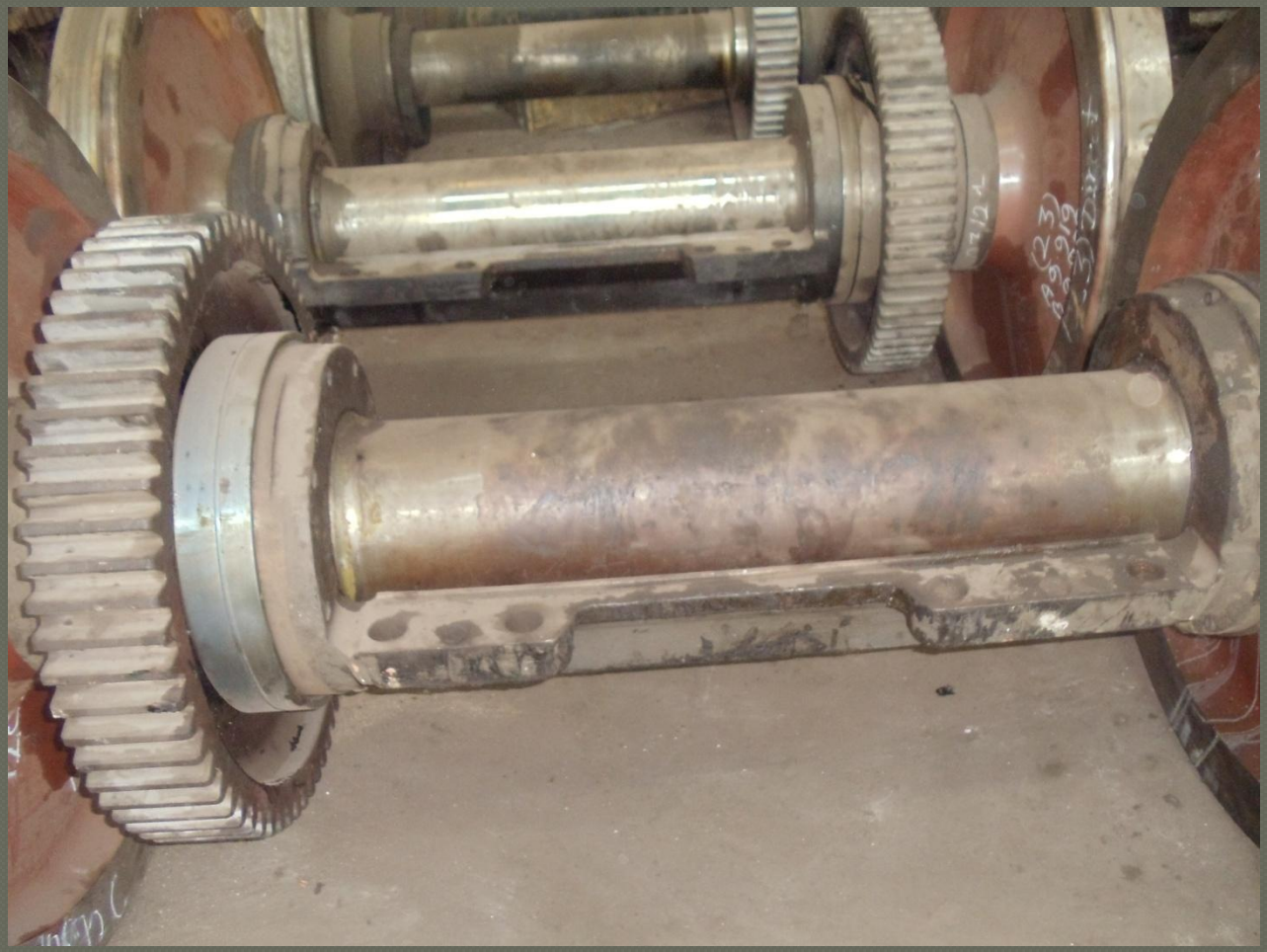
Motor Suspension Unit(MSU)

- Asessories on which traction motor frame of Diesel loco or Electric loco rest on axle.
- Motor suspension unit is fitted on axle between Two wheels.
- Revolve on wheel with roller bearings fitted on both ends.

Wheel Set Assly with MSU



Roller Suspension Unit



Taper Roller Bearing & Bearing Seat





Compact Roller Bearing Unit

- Bogie frame rests on axle with roller bearing unit.
- Casnub bogie frame rests on CTRB in wagon.
- Horn axle guide rests on roller bearing in ICF bogie.
- Diesel bogie frame rests on cylindrical roller bearing .

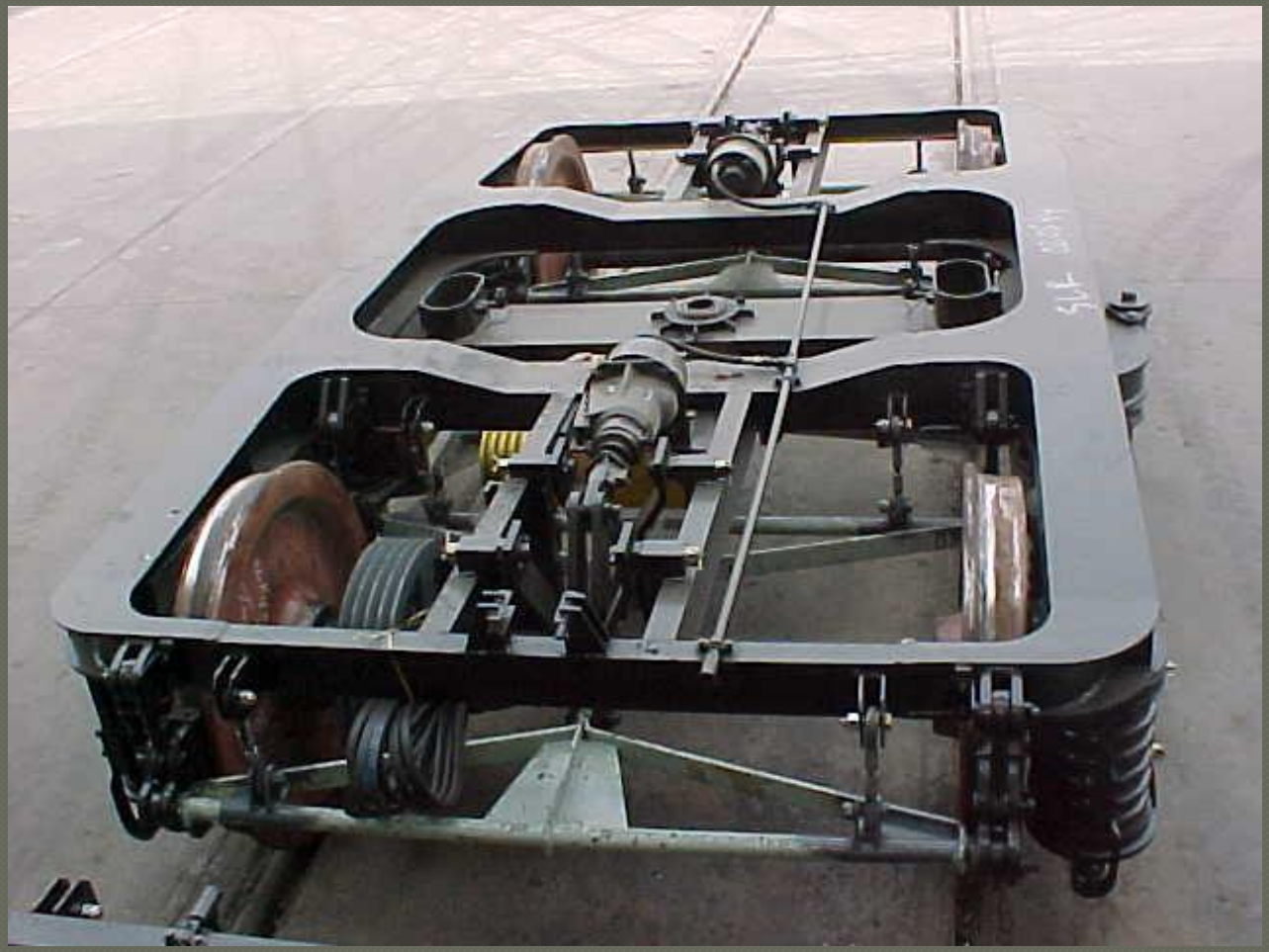
Bearing Extractor



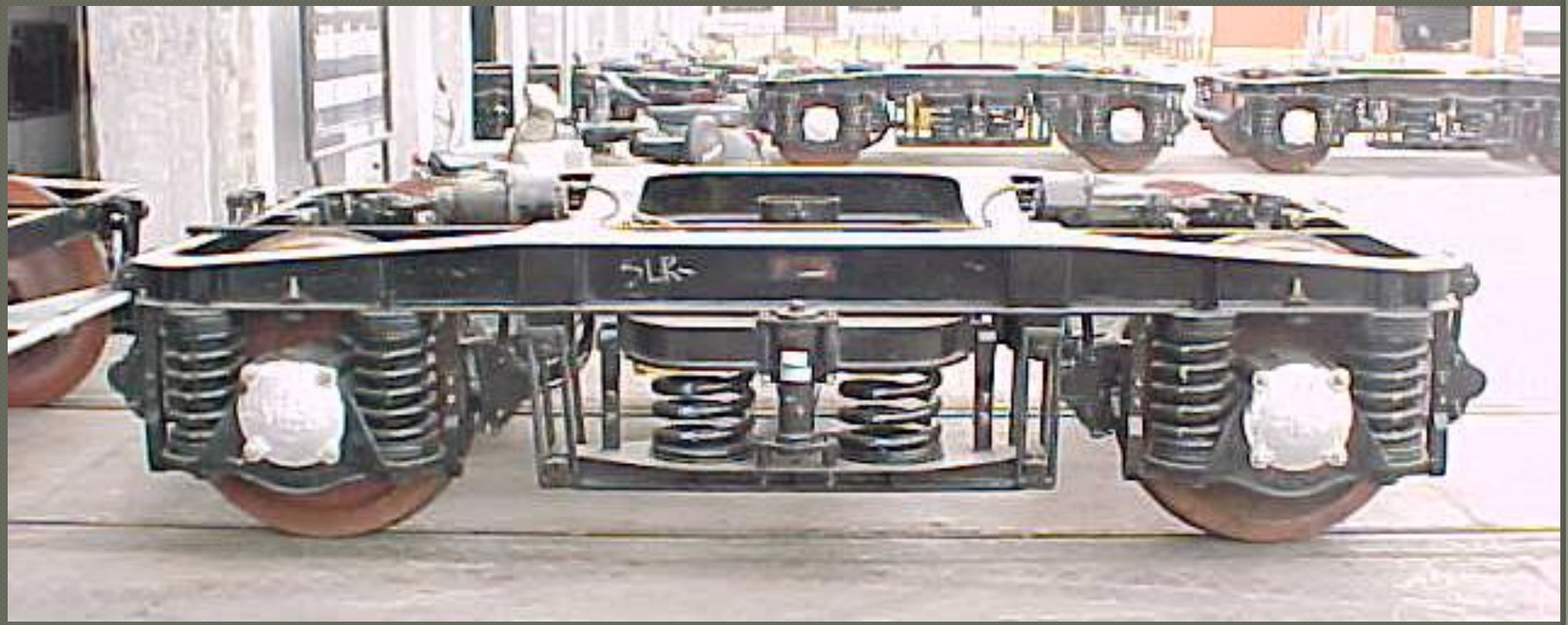
Cartidge Taper Roller Bearing



ICF Bogie-Top



ICF Bogie-Side



Main parts of Bogie

- Bogie Frame
- Wheel and Axle
- Bearing Arrangement
- Bogie Frame – Axle Joint
- Bolster
- Primary Suspension
- Secondary Suspension
- Bogie – Body Joint
- Brake System

Bogie Frame



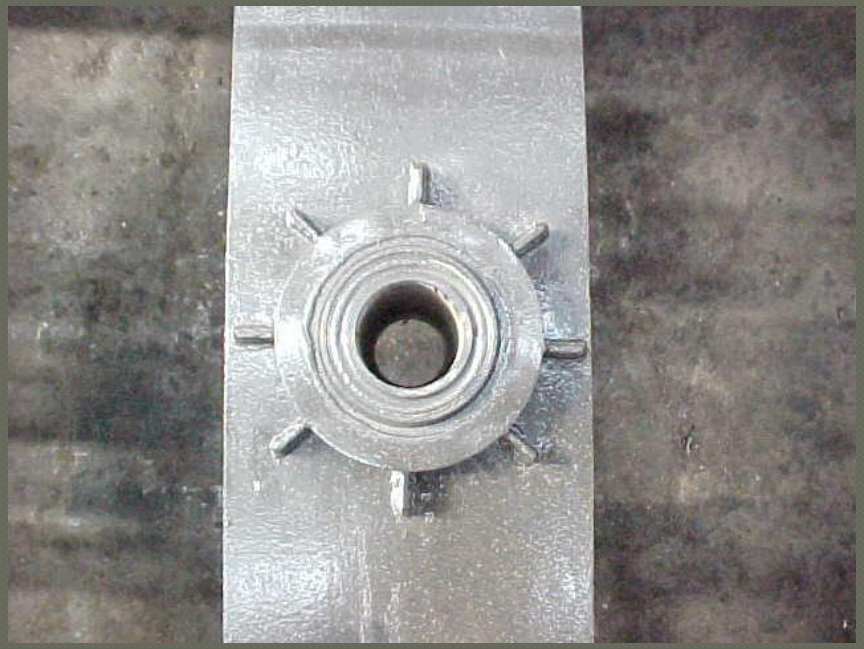


Wheel & Axle





Centre Pivot & Side Bearer

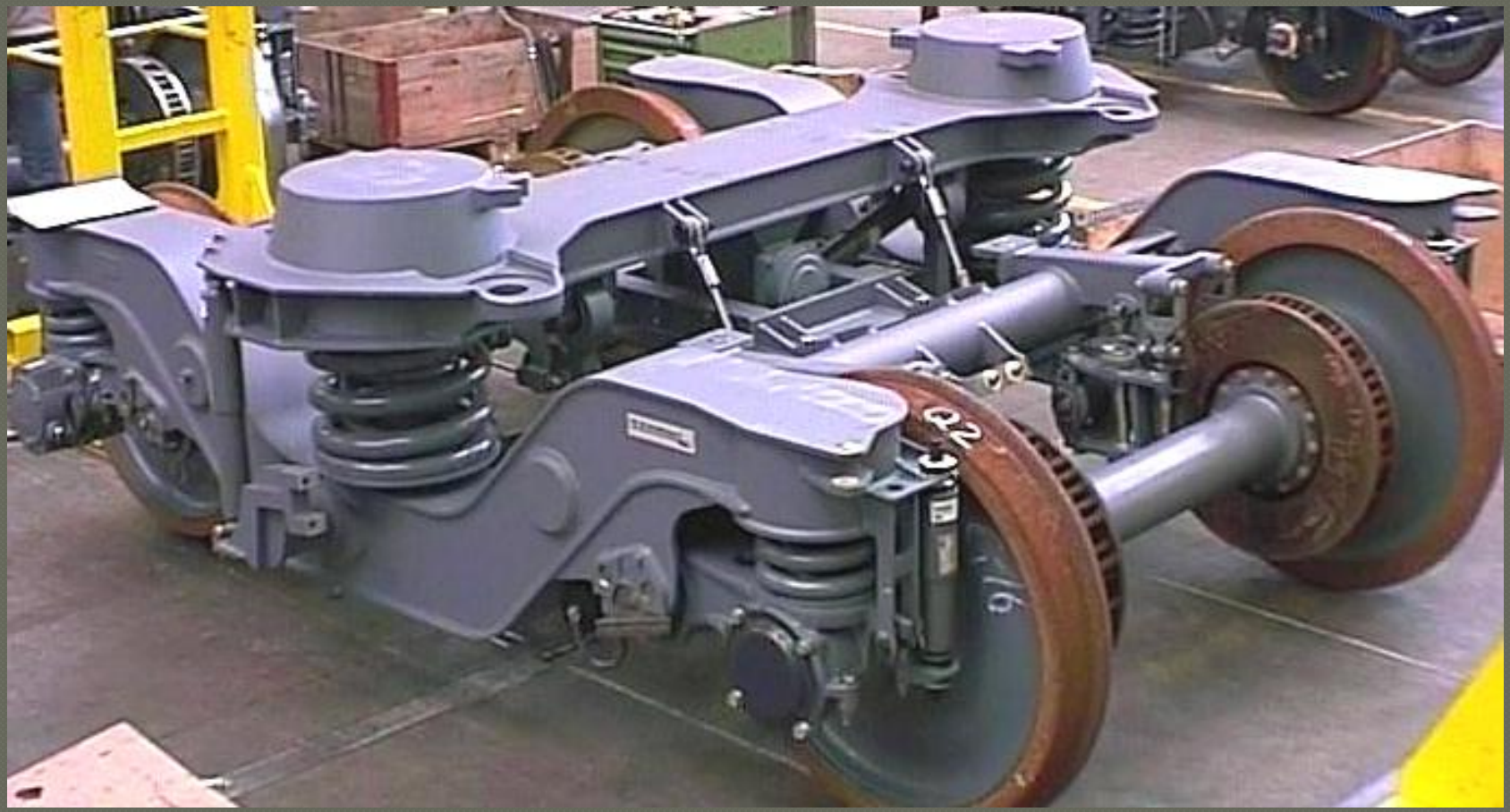




Upgraded Items for Increase in POH Periodicity of Coach

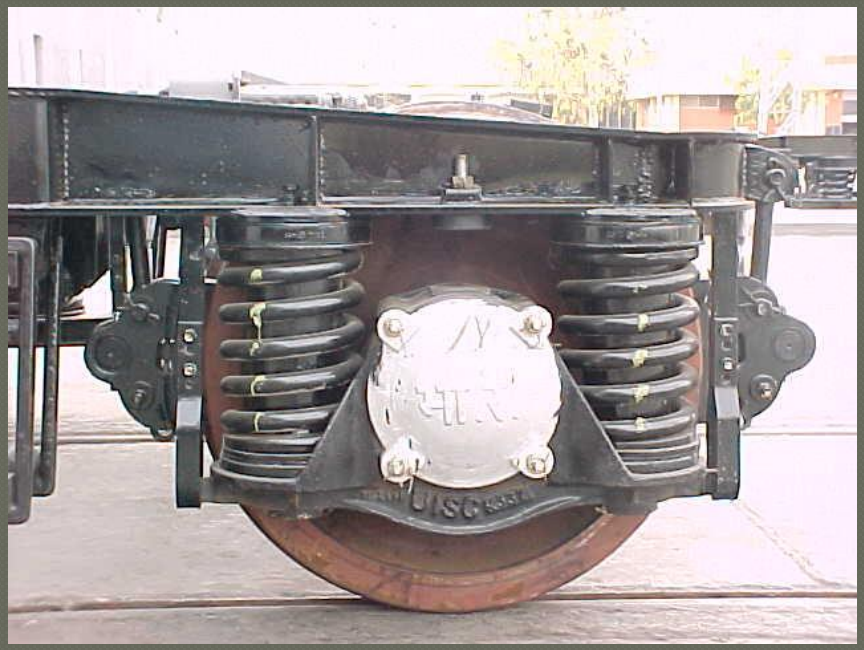
SN	Items	Old spec.	Revised spec.	Remarks
1	PVC	CK-604	CG-12	Furnishing items
2	Rexine	C-9503	CG-16	
3	LP Sheet	C-9602	CK-514	
4	Brake gear bush kit	Nylon-66	Fenolic	Bogie items
5	Upper washer	R-64/98	Hytrel(C-K409)	
6	Lower washer	R-64/98	Hytrel(C-K409)	
7	Silent block	C-9406	CG-15	

Fiat Bogie

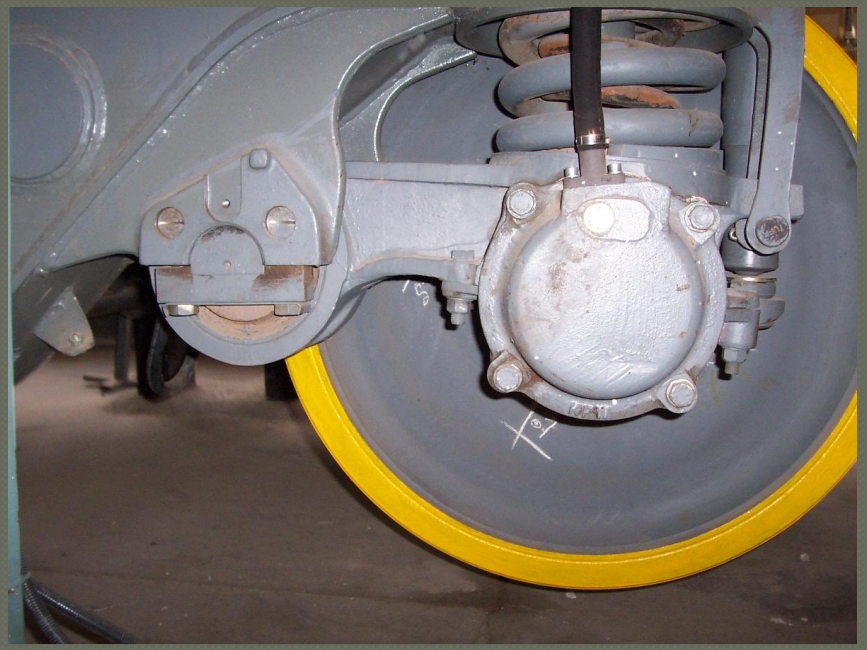


Bogie Frame-Axle Joint

ICF



FIAT



Bolster

ICF BOGIE



FIAT BOGIE

