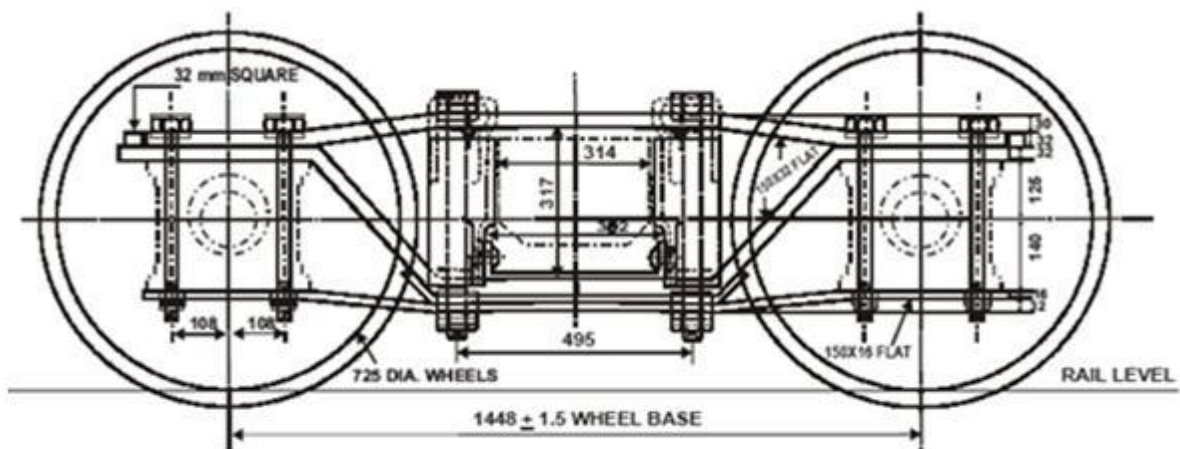


TYPES OF BOGIE

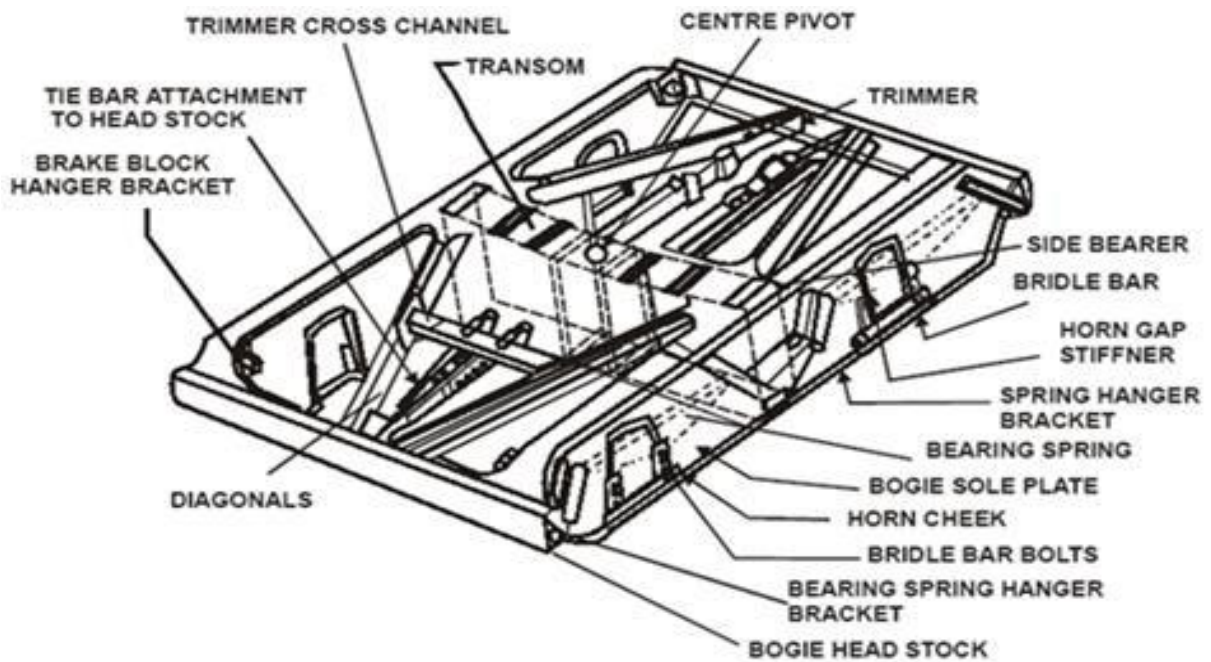
- I) Diamond frame bogie - Used in BFR wagons
- II) Cast steel bogie – Used in BOB wagons
- II) UIC fabricated bogie – Used in VAC. Brake Bogie Stock
- IV) CASNUB Bogie – Used in Air Brake Bogie Stock
- V) LCCF-20(C) Bogie for BLC stock
- VI) LWLH 25T trolley for BOXNS

Diamond frame bogie

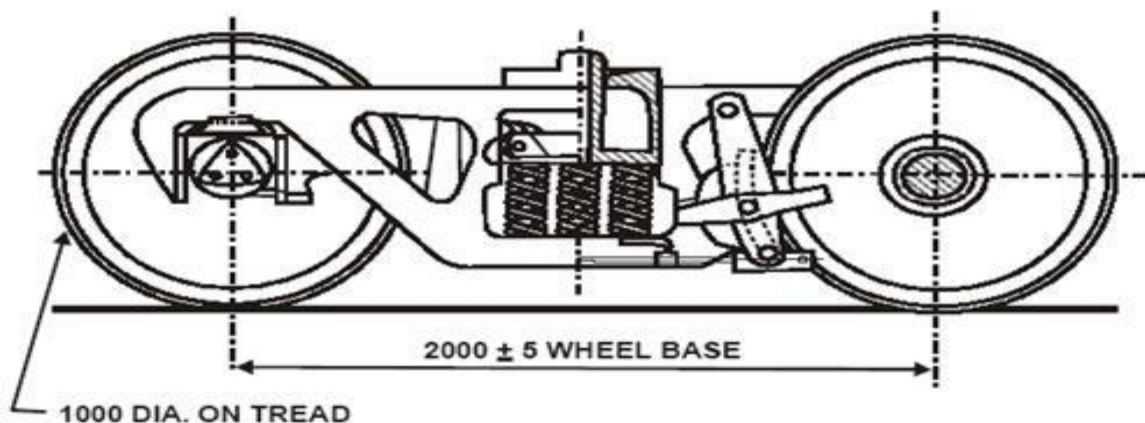


Diamond Frame Bogie Wagons

UIC Bogie



CASNUB BOGIE:



CASNUB BOGIE means Cast Steel Bogie equipped with snubber spring . Bogie comprises of two cast steel side frames and a floating bolster. The bolster is supported on the side frame through two nests of spring, which also incorporate a load proportional friction damping .The side frames are connected by a fabricated mild steel spring plank to maintain the squareness of the bogie. The various bogie versions developed are as under:-

- CASNUB-22W
- CASNUB-22W (Retrofitted)
- □ CASNUB-22W (M)
- □ CASNUB-22NL
- □ CASNUB-22NL M
- □ CASNUB-22NLB
- □ CASNUB-22HS
- □ CASNUB-22NLC

Casnub bogie was first fitted under open BOXN wagons and was designated as Casnub 22W. This was modified as Casnub 22 W(M). Mainly to take care of high wheel wear reported on earlier version. Subsequently Casnub 22 NL (Narrow jaw) and Casnub 22 NLB

(Narrow jaw with fish belly bolster) versions were introduced. Casnub 22 HS bogies have been developed for high speed operation with maximum permitted speed upto 100Km/h.

BOGIE COMPONENTS:

The Casnub bogie assembly consists of the following components:-

- Wheel set with CTRB bearing.
- Axle box/adaptor, & side frame key assembly and retainer bolt in wide jaw adaptor.
- Side frame with friction wear plates.
- Bolster with wear liners.
- Spring plank, fit bolts & rivets.
- Load bearing springs and snubber springs.
- Friction shoe wedge.
- Centre Pivot arrangement comprising of centre pivot top, centre pivot bottom, centre pivot pin, centre pivot retainer & locking arrangement in all bogie except 22WR .
- Side bearers/PU pad.
- Elastomeric pads.
- Bogie brake gear.
- Brake beam.

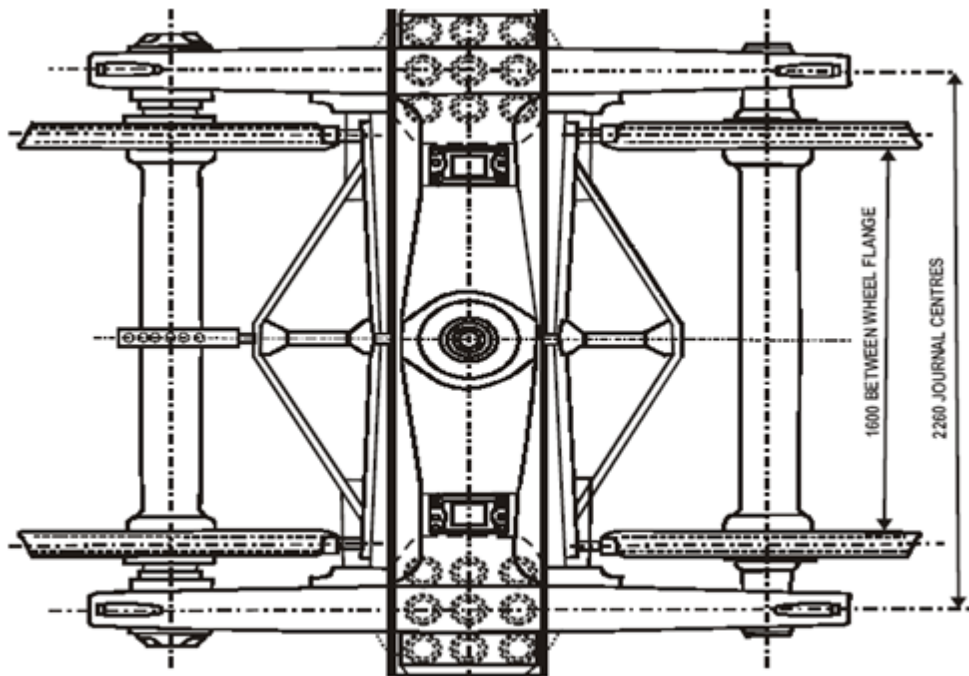
SALIENT FEATURES : Casnub bogie

S. No	ITEMS	DESCRIPTION
1	Gauge	1676 mm
2	Axle load	22.9 T to all except, CASNUB –NLC up to 25 t axle load
3	Wheel diameter	1000 mm new, 956 mm new for 22W (retrofitted) 906 mm condemnation
4	Wheel base	2000 mm
5	Type of roller bearing	Slandered AAR cartridge bearing
6	journal centers	2260 mm
7	Distance between side bearer	1474 mm
8	Type of side bearer	*) Roller type clearance for CASNUB 22 W. a) Spring loaded constant contact for LCCF-20(c). b) Constant Contact type (metal bonded rubber pads for others). c) P U pad for CASNUB 22HS
9	Anti rotation feature	Anti rotation lugs have been provided between bogie bolster and side frame.
10	Type of brake beam	Unit type cast steel brake beam slide in pocket in all bogies except hanger type brake beam suspended from side frames bracket in CASNUB22W(M)
11	Center pivot	1) IRS spherical type for 22W only. 2) Spherical type for others. 3) Flat type in BLC wagons
12	Suspension details	4) Long travel Helical Springs.
13	Elastomeric Pad	Elastomeric Pad has been provided between adopters and side frames pedestal roof to reduce wheel flange wear.

Nominal Clearances of Casnub Bogie :

S. N	Description	Type of Casnub Bogies				
		22W,22W(R)	22W(M)	22NL,N LB	22HS	LCCF-20C
1.	Lateral clearance between side frame bolster	18mm	18mm	18mm	25mm	25 mm
2.	Lateral clearance between side frame and axle box/adaptor	25mm	25mm	16mm	16mm	25 mm
3.	Longitudinal clearance between side frame & axle box/adaptor	2mm	10mm	9mm	9mm	10 mm
4.	Longitudinal clearance between side frame and bolster	6mm	6mm	6mm	6mm	6 mm
5.	Clearance between anti-rotation lug & bolster.	4mm	4mm	4mm	4mm	4 mm

The springs are condemned on the basis of free height. Springs should replace if minimum spring height is at or less than shown below:



BOGIE GENERAL ARRANGEMENT CASNUB 22 W

Version of CASNUB Bogie:

A)CASNUB 22 W (MARK I)

- Introduced in 1972
- Weight 5.35 T
- Provision of adapter retainer bolt in outer jaw
- E M pad not provided
- Provision of wide jaw adapter
- Provision of floating bolster
- IRS pivot riveted and welded or casted
- Clearance roller type side bearer
- Sliding packet type brake beam
- Fitted with CTRB

B)CASNUB 22W RETROFITTED

- Introduced in 1990
- Weight 5.35 T
- Provision of adapter retainer bolt in outer jaw
- E M pad provided
- Provision of wide jaw adapter with 25.5 mm thickness
- Provision of floating bolster
- IRS pivot riveted and welded or casted
- Constant contact metal bonded rubber pad in side bearer
- Sliding packet type brake beam
- Fitted with CTRB

C)CASNUB 22 NL

- Introduced in 1989-90
- Weight 5.5 T
- Narrow jaw adapter provided
- Adapter retainer bolt not provided

- E M pad provided
- Provision of floating bolster
- IRS pivot riveted and welded
- constant contact metal bonded rubber pad in side bearer
- Sliding packet type brake beam
- Fitted with CTRB

D)CASNUB 22 NLB

- Introduced in 1990-91
- Weight 5.4 T
- Narrow jaw adapter provided
- Adapter retainer bolt not provided
- E M pad provided
- Fish belly shaped bolster
- Weight reduced
- Spherical type centre pivot
- Constant contact type mental bonded rubber pads in side bearer
- Sliding pocket type bake beam
- Fitted with CTRB

E)CASNUB 22 HS

- Introduced in 1993
- Weight 5.4 T
- Narrow jaw adapter provided
- Adapter retainer bolt not provided
- E M pad provided
- Spherical type centre pivot
- Spring loaded side bearer
- Sliding pocket type bake beam
- Fitted with CTRB

These bogies are used in BOXN, BCN, BCNA, BRN,, BTPN,, BTPGLN,, BOBR,, BOBRN,, BOBY,, BOBYN,, BFKN

Type of Bogie and its Spring Arrangement

No. Of spring required					
Axle load	Outer	Inner	Snubber	Per bogie	Per Wagon
22.90 ton HA	7	7	2	32 nos.	64 nos.
20.3 ton	6	4	2	24 nos.	48 nos.
16.2 ton	4	4	2	20 nos.	40 nos.
20.3 ton (H.S.Bogie)	7	6	2	30 nos.	60 nos.

Free Height of Outer, Inner and Snubber Springs in Bogies

Bogie	Springs	Free height nominal (mm)	Recommended free condemning height (mm)
All versions Except Casnub 22HS	Outer	260	245
	Inner	262	247
	Snubber	294	279
Casnub 22HS Bogies	Outer	260	245
	Inner	243	228
	Snubber	293	278

Grouping of Spring:

Matching of both, load and snubber springs, is important. It is recommended that springs having not more than 3 mm free height variation should be assembled in the same group. Mixing of new & old springs should be avoided. The 'Casnub' bogie springs are manufactured out of Silico Manganese Steel to IS:3195 Gr.60 Si 7, Gr. 60Cr4V2, IRS Specification R2 & RDSO Specification WD-01-HLS-94 (Rev.1).

CBC HEIGHT ADJUSTMENT IN CASNUB BOGIE FITTED STOCK:

As per Wheel Dia. WEAR 12 mm. and 37 mm. thick metal packing are utilized as under:-
Use of 12 mm. thick packing

S.N	TYPES OF BOGIE	WHEEL DIA	LOCATION OF PACKING
1	Casnub 22 W	943 mm	Between Axle Box adopter and Pedestal Crown
2	Casnub 22 W (R)	910 mm	Between A/B Adopter EM Paid
3	Casnub 22 W (M) & Others	954 mm	Between A/B Adopter EM Paid

Use of 37 mm. thick packing

S.N	TYPES OF BOGIE	WHEEL DIA	LOCATION OF PACKING
1	Casnub 22 W	924 mm	Between EM Pad & Pedestal Crown
2	Casnub 22 W (M) & Others	930 mm	

Adjustment of Brake Gear Pin in Bogie

Wheel Dia.	1000-982 mm	981-963 mm	962-944 mm	943-925 mm	924-906 mm
Hole to be used for Brake Gear Adjustment	'A'	'B'	'C'	'D'	'E'

Comparison between UIC and Casnub Bogie

	<i>UIC BOGIE</i>	<i>CASNUB BOGIE</i>
1.	<i>It is introduced in 1962.</i>	<i>It is introduced in 1972-73.</i>
2.	<i>It is a fabricated bogie.</i>	<i>It is a cast steel bogie.</i>
3.	<i>Weight: 5.5 to 6.0 T.</i>	<i>Weight: 5.35 to 5.45 T.</i>
4.	<i>It comprises sole bar, head stock, longitudinal bar, diagonals, etc.</i>	<i>There is a permanent departure of diagonals and head stock.</i>
5.	<i>It is designed to take axle load of 20.3T.</i>	<i>Except Casnub 22 HS bogie (20.3 T), all version of casnub are designed to take axle load of 22.9 T.</i>
6.	<i>It is utilized in vacuum brake stock i.e. BOXC, BCXC, BRHT.</i>	<i>It is utilized in air brake bogie stock i.e. BOXN, BCN, BRN.</i>
7.	<i>It comprises two no's of wheel set fitted with cylindrical roller bearing.</i>	<i>It comprises two no's of wheel set fitted with cartridge tapered roller bearing.</i>
8.	<i>Axle capacity of cylindrical roller bearing wheel set is 20.3 T.</i>	<i>Axle capacity of cartridge tapered roller bearing wheel set is 22.9T.</i>
9.	<i>Wheel diameter 1000mm (new) & 860mm (condemn).</i>	<i>Wheel diameter 1000mm (new) & 906mm(condemn).</i>
10.	<i>There is a provision of laminated leaf spring primary suspension.</i>	<i>There is a provision of helical springin secondary suspension .</i>
11.	<i>There is a provision of bogie transom fitted with UIC bogie spherical type pivot.</i>	<i>There is a provision of floating bolster with UIC&IRS pivot.</i>
12.	<i>Bogie each fitted with 4 nos. of brake beam suspended with hangers..</i>	<i>There is a provision of 2 nos. of brake beam per bogie sliding in pocket type suspended with hanger.</i>
13.	<i>There is a provision of clasp type brake rigging arrangement</i>	<i>There is a provision of single block type brake rigging arrangement.</i>
14.	<i>There is a provision of metal plate side bearer arrangement.</i>	<i>There is a provision of metal bonded rubber pads side bearer arrangement.</i>
15.	<i>There is a provision of total 36 types of pins.</i>	<i>Only 10 types of pins are used.</i>
16.	<i>There is a provision of 4 nos. vertical floating lever in brake rigging.</i>	<i>Only 2 nos. of vertical floating lever are provided.</i>
17.	<i>Crown packing of 10mm, 20mm, 35mm, and 45mm are used for adjustment of CBC height.</i>	<i>Packing plate of 12mm and 37mm are utilized for adjusting CBC height.</i>

LCCF-20(C)

- (a) These bogies shall be suitable for fitment of 840 mm dia. wheel sets
- (b) Cartridge bearings with wide jaw adapter
- (c) Elastomeric pads
- (d) spring loaded side bearers
- (e) These bogies are to be fitted under low platform BG Container Flat.