CASNUB BOGIE

CAST STEEL FRICTION SNUBBER BOGIE

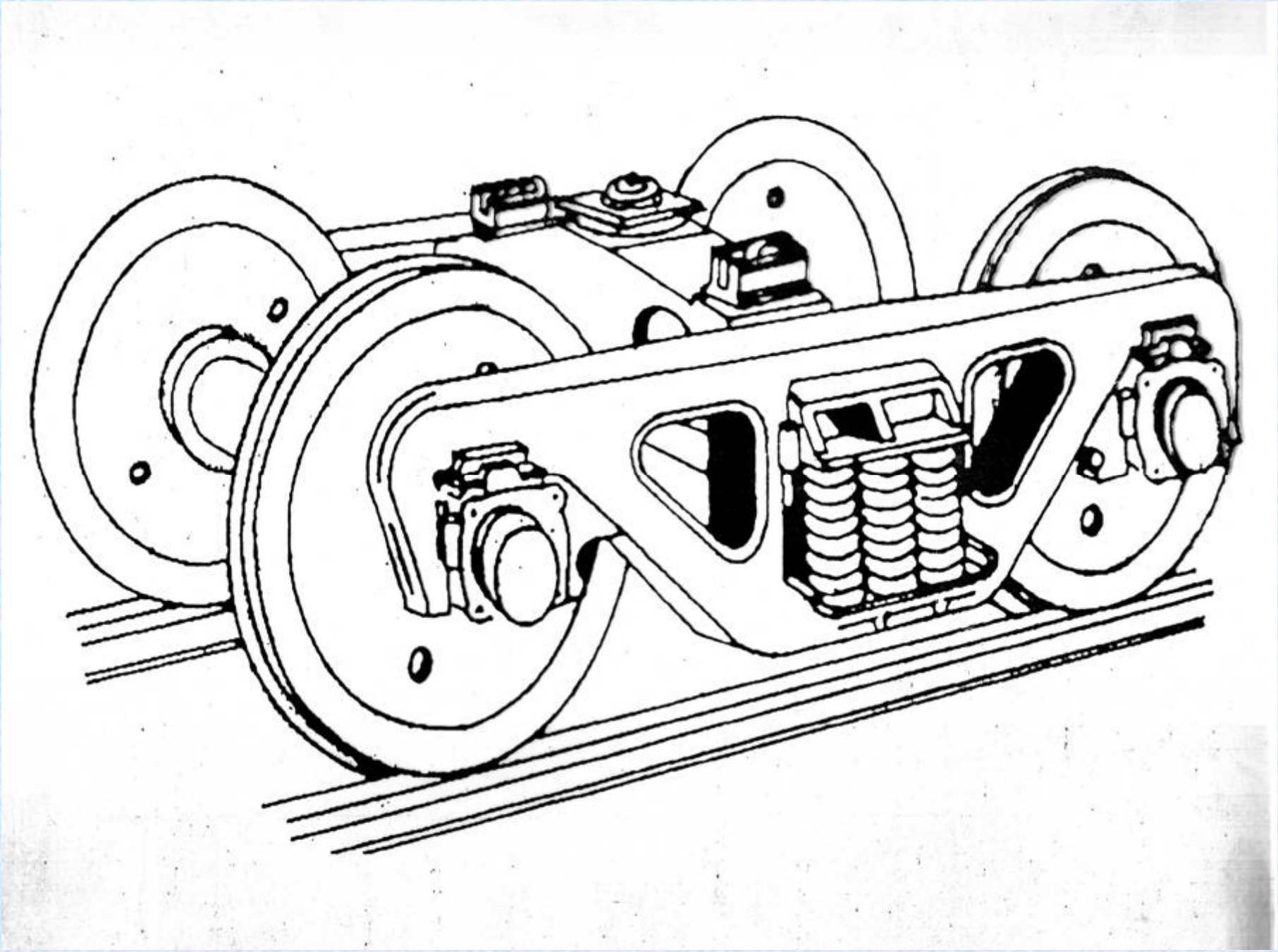
1972-FITTED ON BOI (TESTED UPTO 110 KMPH)

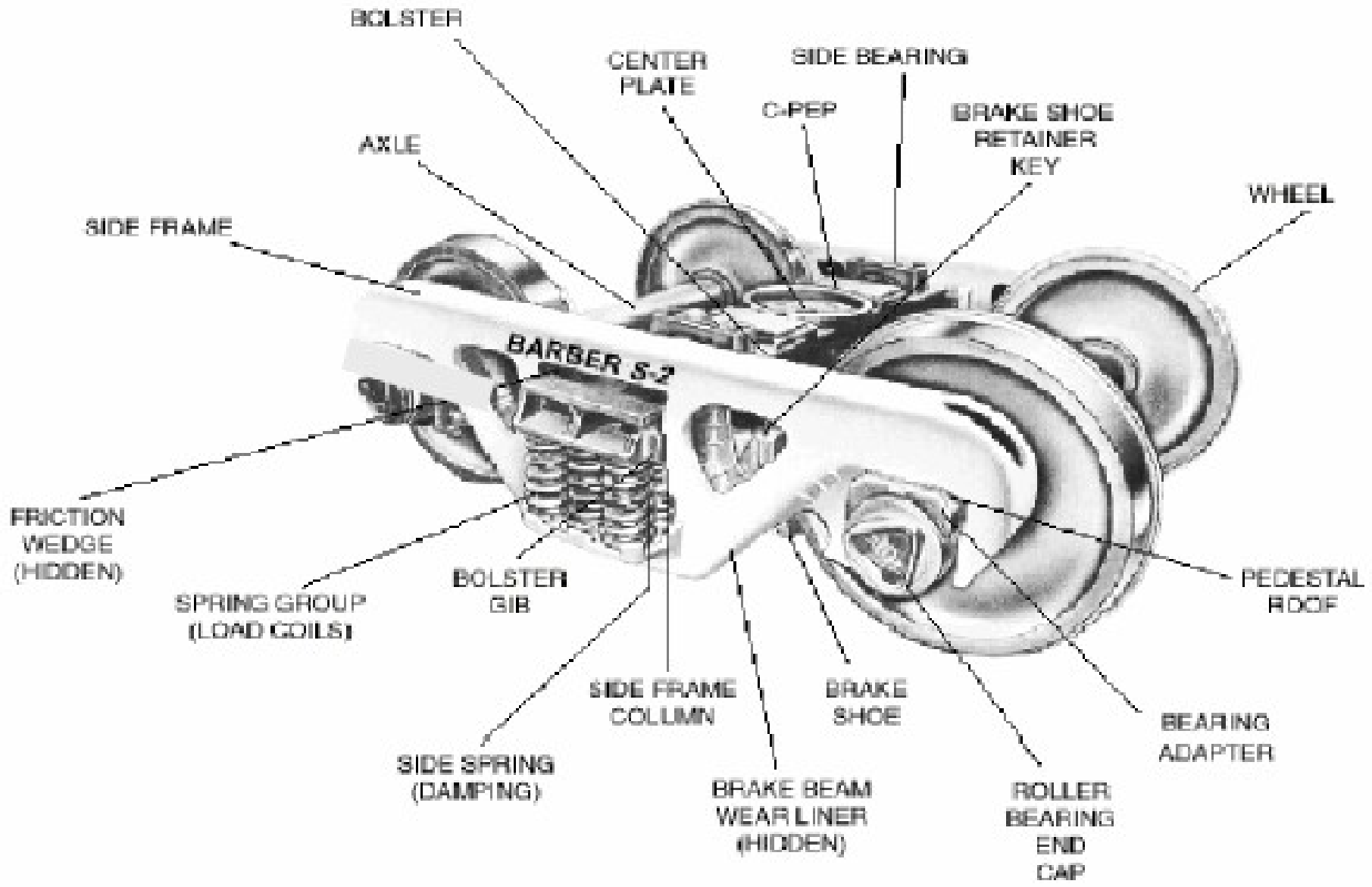
1981-FITTED IN BOX – N (TESTED UPTO 90 KMPH)

CASNUB Contd…

VARIOUS BOGIE VERSIONS

1. CASNUB-22W
2. CASNUB-22W(Retrofitted)
3. CASNUB-22W(M)
4. CASNUB-22NL
5. CASNUB-22NLB
6. CASNUB-22HS(AT 100 Kmph)




BOLSTER
CENTER PLATE
SIDE BEARING
C-PEP
BRAKE SHOE RETAINER KEY
AXLE
WHEEL
SIDE FRAME
BARBER S-2
FRICTION WEDGE (HIDDEN)
SPRING GROUP (LOAD COILS)
BOLSTER GIB
PEDESTAL ROOF
SIDE FRAME COLUMN
BRAKE SHOE
BEARING ADAPTER
SIDE SPRING (DAMPING)
BRAKE BEAM WEAR LINER (HIDDEN)
ROLLER BEARING END CAP

CASNUB Contd…

Two cast side frames and a floating bolster

- Bolster supported on side frames through two groups of springs which also incorporate load proportional friction damping. Side frames connected by fabricated mild steel spring plank
- Fitted in BOXN, BCN, BCNA, BRN, BTPN, BTPGLN Wagons. Max. Population on BOX N Wagons
- Hunting at 90 kmph

CASNUB Contd…

- **CASNUB BOGIE/BOX 'N' WAGON**
- **SUSPESION CHARACTERISTCS**

1) The bogie suspension is at the bolster level only. If consists of two cast steel side frames, connected by riveted mild steel spring planks.
2) As there is no primary suspension system, the spring plank is subjected to bending and torsion during the wheels trying to adjust, for negotiating track twist

CASNUB Contd…

3) The cast steel-floating bolster is supported on the side frame through two nests of springs.
4) The springs contain friction snubber for oscillation control. However these snubber springs are not designed to take vertical load of the wagon
5) The positive features of these bogies are lightweight, shorter overall length, ease of maintenance, high reliability and higher capacity of payload of 22.9t axle load

CASNUB Contd…

6) The salient features of this bogies are –

Wheel Diameter:	1000mm (new), 925mm (condemning)
Wheel base:	2000mm
Type of pivot:	IRS spherical
Type of roller bearing:	Standard AAR tapered cartridge bearing
Anti rotation features:	Anti rotation lugs have been provided between bogie bolster and side-frame

CASNUB Contd…

7) CASNUB 22-W (M) is an improvised version of model CASNUB 22-W. In these version elastomeric pads at the side bearer level and at the axle box level have been provided, this reduces hunting proneness of the bogie and biased wear of the wheel flanges.

8) The bogie is fitted with two groups of helical spring nests. The number of springs in a group can vary for various axle load is as under:

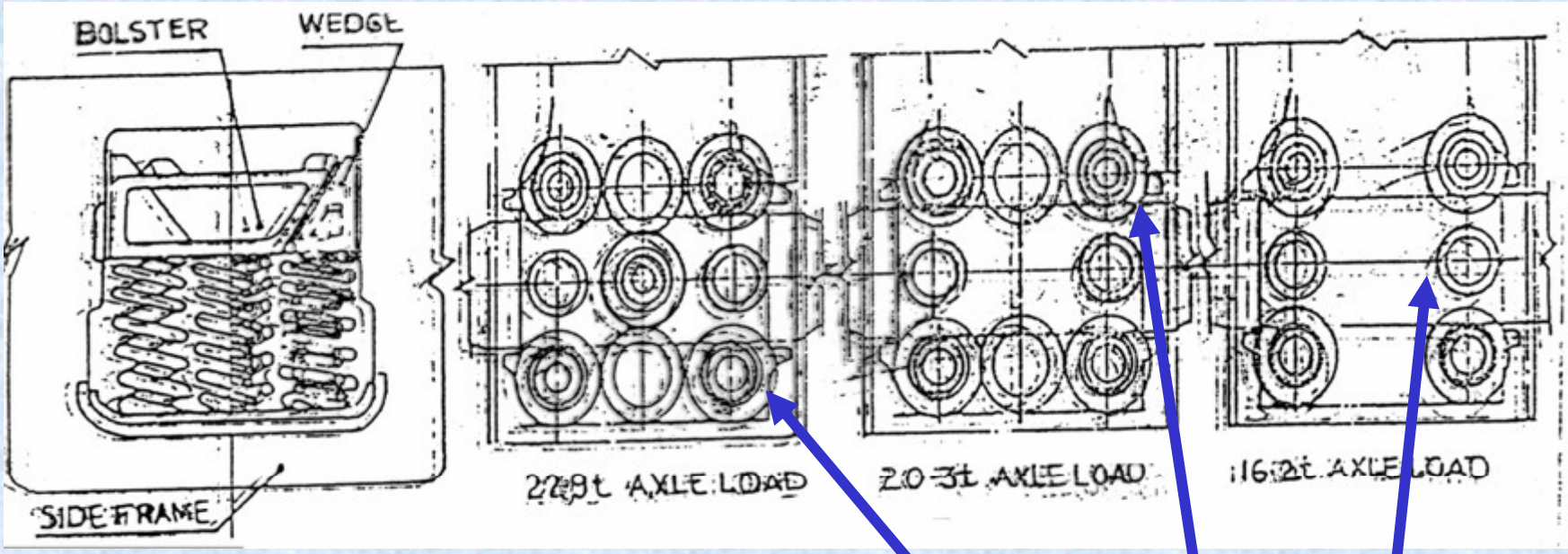
CASNUB Contd…

Axle load	No. of springs		
	Outer	Inner	Snubber
22.9t:	14	10	4
20.3t:	12	8	
16.3t:	8	8	4

CASNUB Contd…

10) Each bogie is provided with four friction snubbers for the purpose of damping of the oscillations. These snubbers are in the form of triangular cast steel, which is supported at the snubber springs. The springs should be replaced if minimum spring height is at or less than shown below:

CASNUB Contd…

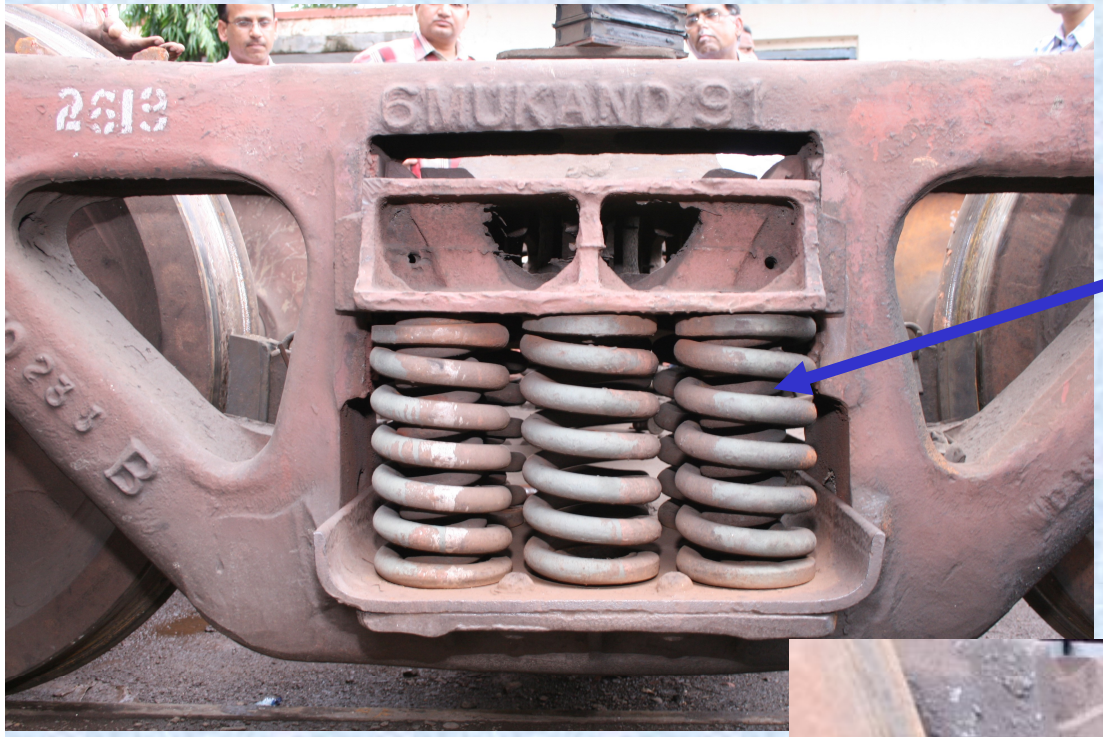


NOTE: 1) Snubbing arrangement & snubber Springs are same for 22.9t, 20.3t & 16.21 Axle Load

2) Details of the springs are as per Drg,No.WD-83069-S/1

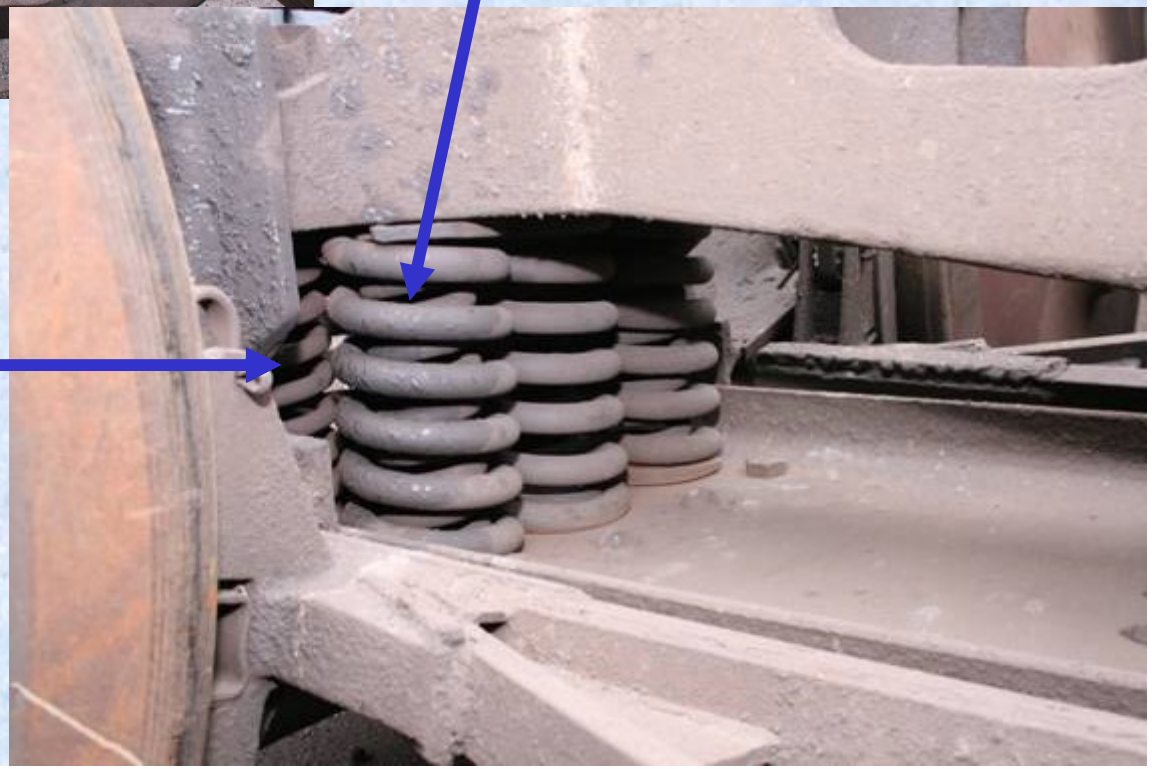
AXLE LOAD	No. of springs required		
	Outer	Inner	Snubber
22.9t	7	3	2
20.3t	6	4	2
16.2t	4	4	2

DETAIL OF SNUBBING, SRING GROUP ARRANGEMENT CASNUB BOGIES (EXCEPT CASNUB-22 HS BOGIE



NESTED
SPRINGS

FRICTION
SNUBBER
SPRING



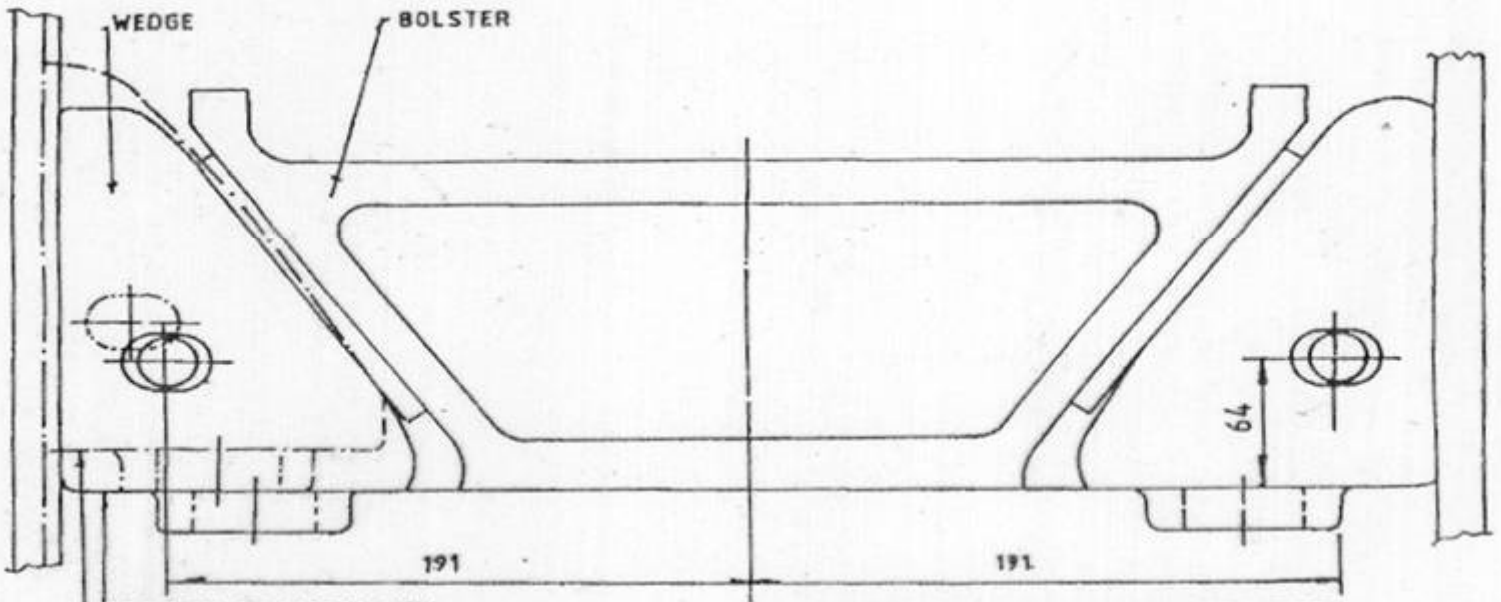
CASNUB Contd…

Spring	Free height nominal (mm)	Recommended condemning free height (mm)
Outer load spring	260	245
Inner load spring	262	247
Snubber spring	294	279

Matching of both load and snubber spring is important. The springs should not have free height variation more than 3mm, assembled in the same group.

CASNUB Contd..

Fig.No.3.69



PROCEDURE FOR CHECKING THE COMBINED WEAR OF BOLSTER, SIDE FRAME LINERS & WEDGE.
(casnub-22w bogie)

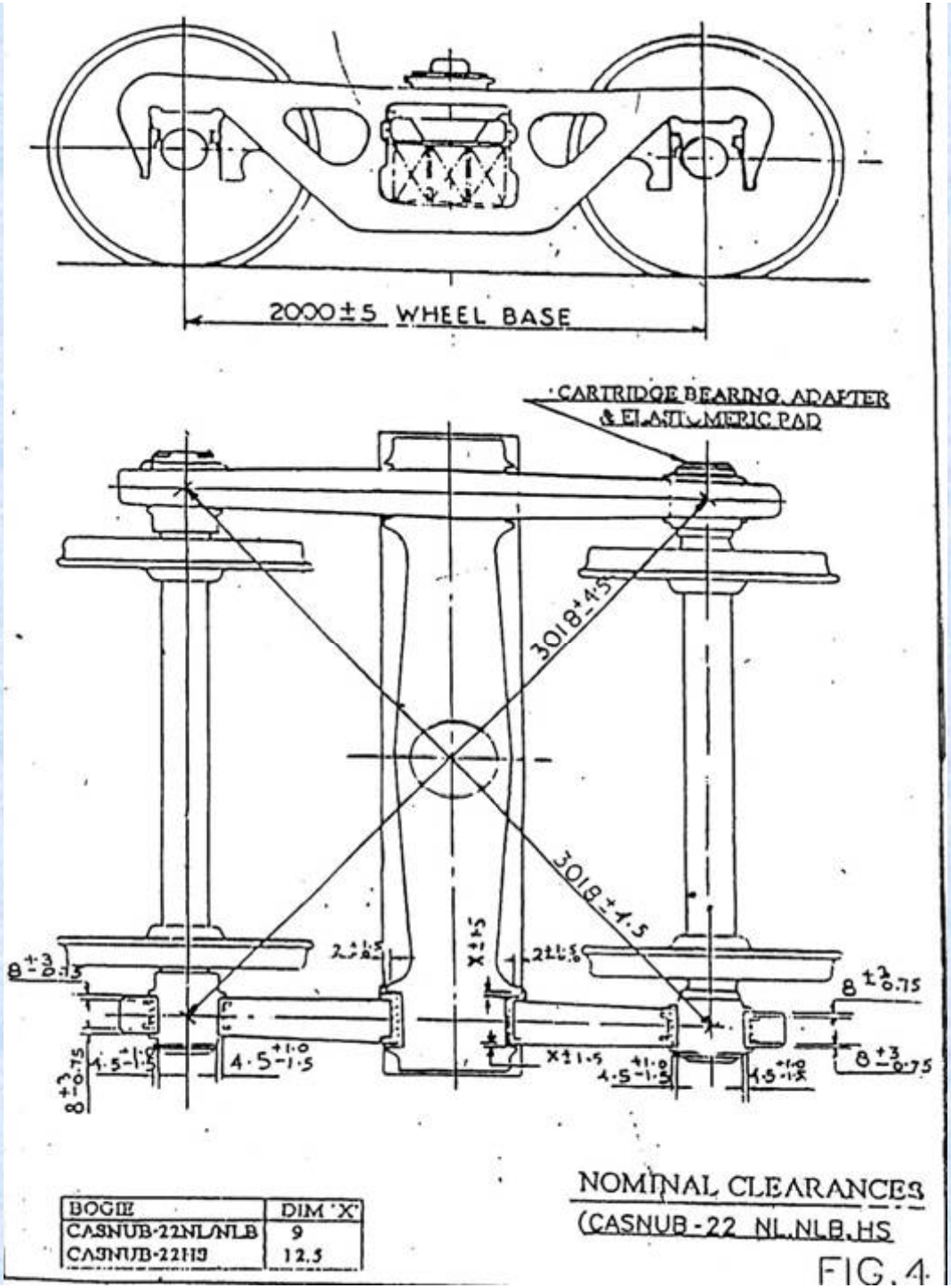
FRICTION SNUBBER

WEARING SURFACES

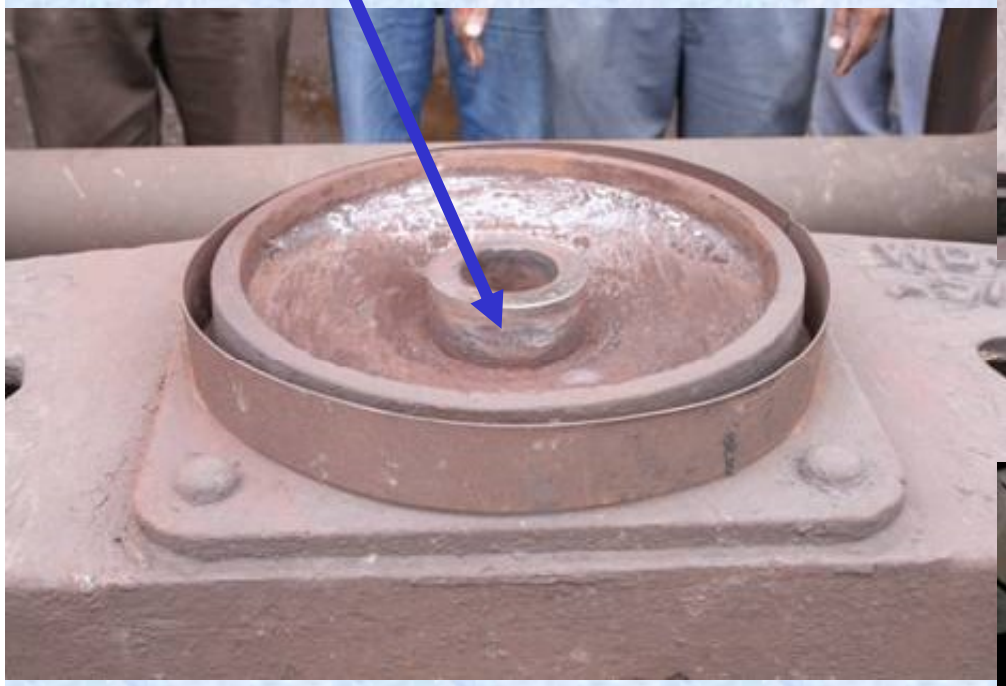
CASNUB Contd..

11) Body weight is transferred to the bogie through IRS spherical centre pivot. Centre pivot is to be lubricated with graphite grease.
12) CASNUB 22-W bogie is provide with a roller type side bearer, it has now been modified to constant contact metal bonded rubber pad
13) The main clearance of bogie assembly is placed as under.

CASNUB Contd…

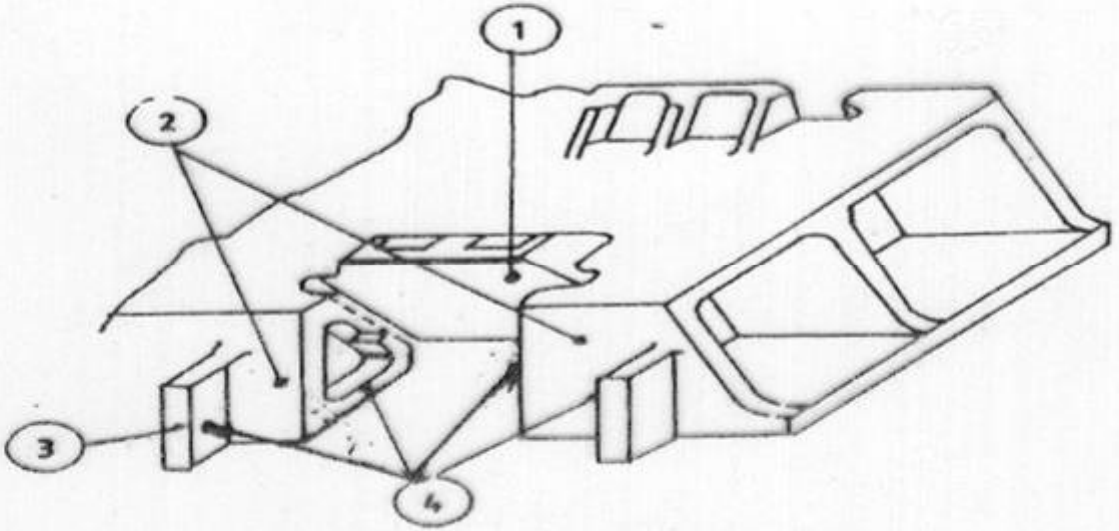


UNEQUAL WEAR



CASNUB Contd..

Fig.No.3.70

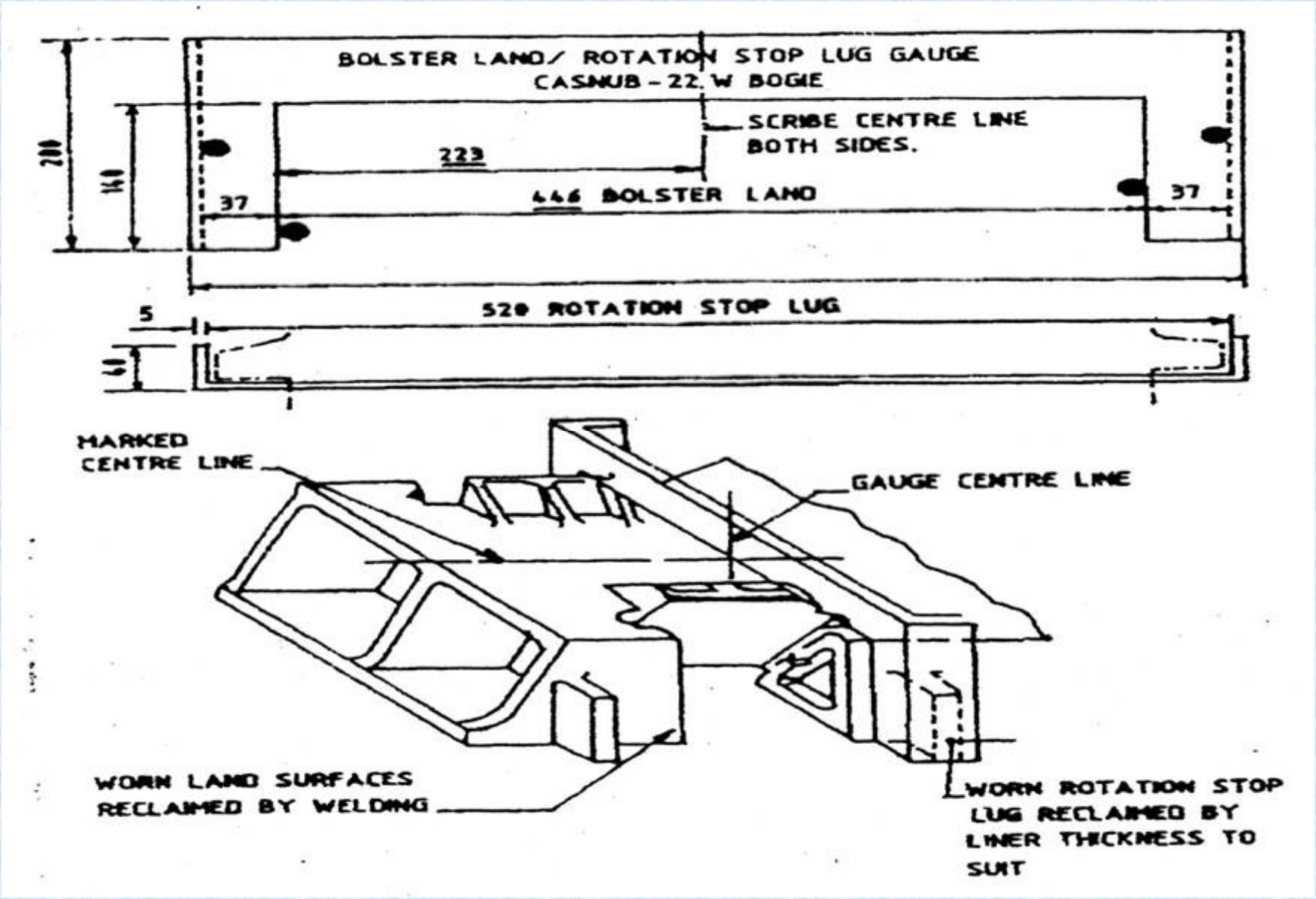


LOCATION TO BE RECLAIMED:

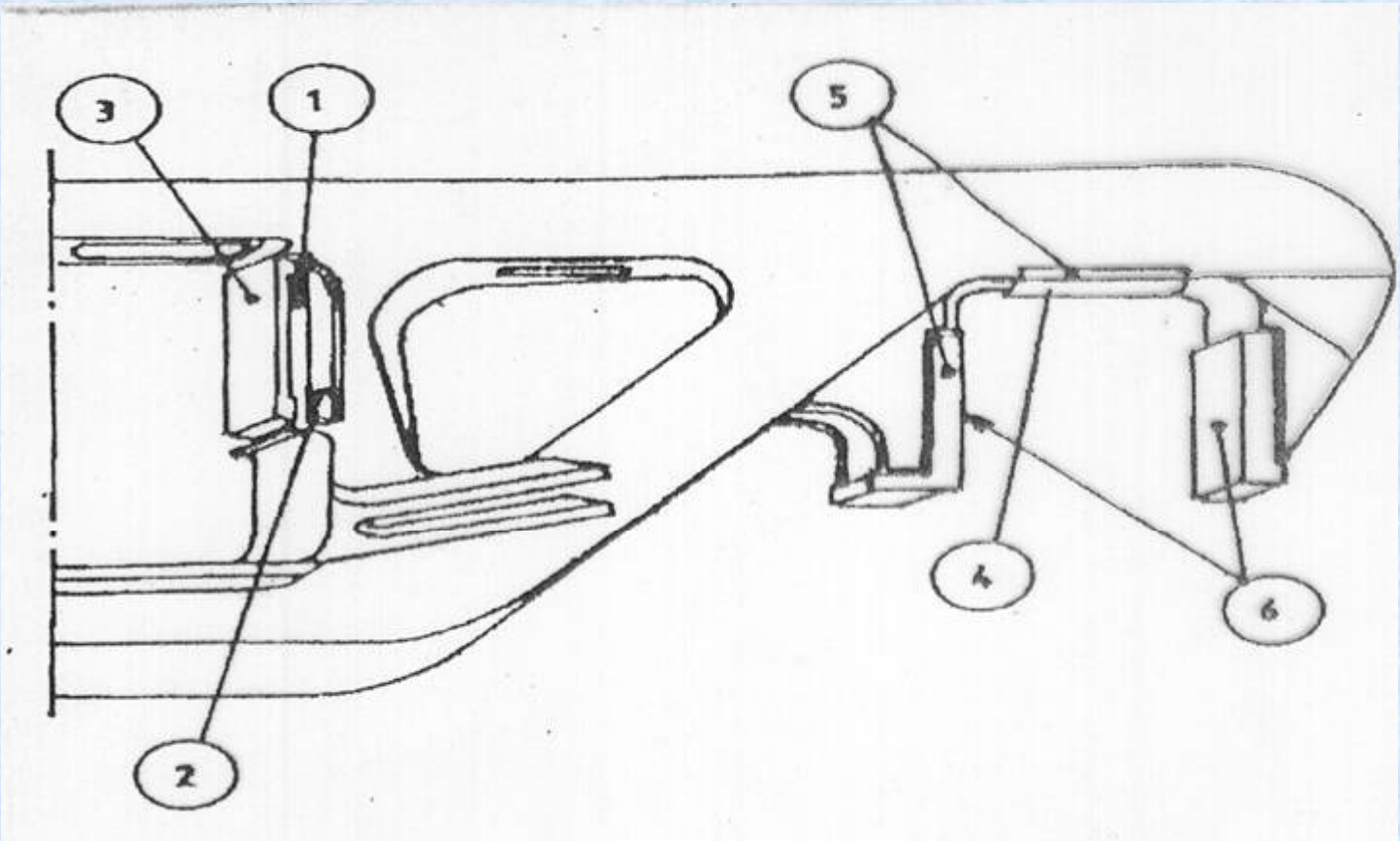
1. BOLSTER POCKET SLOPE SURFACE LINER.
2. BOLSTER LAND SURFACES.
3. ROTATION STOP LUGS / LINER.
4. BOLSTER COLUMN GIBS. (INNER AND OUTER)


SMUKLAND 91

CASNUB contd..



CASNUB contd…



1. Side Frame Column Sides
2. Anti – Rotation lugs
3. Side frame friction liners
4. Pedestal Crown Roof
5. Pedestal Crown Sides & Pedestal Sides
6. Pedestal Jaws

LOCATIONS OF WORN SIDE FRAME –Fig. No.3.73

CASNUB Contd…

14)	Clearances of Bogie Assembly (Fig.8.23)	Cylindrical roller bearing axle box	Cartridge type unit adapter
(1)	Lateral clearance between side frame and bolster	18mm	18mm
(2)	Lateral clearance between side frame and axle box adapter	25mm	25mm
(3)	Longitudinal clearance between side frame and axle box adapter	2mm	2mm

CASNUB Contd…

	Clearances of Bogie Assembly (Fig.8.23)	Cylindrical roller bearing axle box	Cartridge type unit adapter
(4)	Longitudinal clearance between side frame and bolster	6mm	6mm
(5)	Lateral clearance between side frame and axle box crown	7mm	7mm
(6)	Clearance between Anti-rotation lug and bolster	4mm	4mm

CASNUB Contd…

15) CASNUB bogie assembly consists of side frames, spring plank, bolster, friction shoes, load bearing spring, snubber spring, centre pivot, wheel set with roller bearings.

CASNUB Contd…

SPECIAL BOGIE FREIGHT STOCK

1. Bolster – Wearing surface of the bolster are shown in fig. 3.70. The limits of wear are as under:

Item	New (mm)	Worn out (mm)	Wear limit (mm)	Fig No	Condemning Procedure Using Gauges
a) Bolster Pocket 35±° slope surface (liner)	8	3	5	--	The 8mm thick manganese steel liner welded with pocket slope can be permitted in service upto a thickness of 3mm

CASNUB Contd…

1. Bolster –Contd…

Item	New (mm)	Worn out (mm)	Wear limit (mm)	Fig No	Condemning Procedure Using Gauges
b) Bolster land surface	444	438	3mm on either side	3.71	With gauge placed centrally I.e. its central line matching with that of the casting (bolster), a 4mm shim should not get inserted between the gauge and Land Surfaces or Rotation.

CASNUB Contd…

1. Bolster –Contd…

Item	New	Worn out	Wear limit	Fig No	Condemning Procedure Using Gauges
c) Rotation Stop	518	512	3	3.71	Stop Lugs on the Bolster with two shims used simultaneously on both surfaces

CASNUB Contd…

1. Bolster –Contd…

Item	New (mm)	Worn out (mm)	Wear limit (mm)	Fig No	Condemning Procedure Using Gauges
d) Bolster Column Gibs					With gauge in position, if a 6mm shim could be inserted between gauge and Outer / Inner gib, condemning limit is reached
Outer gib	234	244	5	3.72	
Inner gib	136	144	5		

CASNUB Contd…

1. Bolster –Contd…

Item	New (mm)	Worn out (mm)	Wear limit (mm)	Fig No	Condemning Procedure Using Gauges
e) Centre Pivot	--	--			To be used for integral / separate type CP bottom bolsters. Placing gauge in position, if surfaces marked on gauge starts touching the bolster surface at any point or a 6mm shim can be inserted between Vertical wall of CP and gauge, it has reached its condemning
Vertical side	--	--	5.5	3.68	
Seat	--	--	4	--	

CASNUB Contd…

2. SIDE FRAME – The wearing surfaces of the side frame are shown I fig. 3.73 – The lmits of wear are as under:

Item	New (mm)	Worn out (mm)	Wear limit (mm)	Fig No	Condemning Procedure Using Gauges
a. Side frame column Friction Plate	10	6	4	--	The 10mm thick Manganese steel liner welded with column may be permitted in service up to a thickness of 6mm.