



भारत सरकार GOVERNMENT OF INDIA

रेल मंत्रालय MINISTRY OF RAILWAYS

PAMPHLET
On
Arrangement of Springs in Various CASNUB Trolleys
Fitted on Wagons



CAMTECH/M/GWL/2015-16/SPRING/1.0/Sept 2015

<p>Indian Railways Centre for Advanced Maintenance Technology</p>	

महाराजपुर, ग्वालियर – 474 005

Maharajpur, GWALIOR - 474 005

Arrangement of springs in various CASNUB trolleys according to axle load

Type of wagon	Type of trolley	Spring nest arrangement for 20.32 t axle load	Modified Spring nest arrangement for 22.9 t axle load (M1)	Spring nest arrangement for 25t axle load (with NLB trolley only) EL / (BOBSNM1)
BOXN BOXNR BOXNCR BCN BCNA BOBRN BOBSN BOY BOBYN	22W, W(M), NL, NLM, NLB,			
BOXNHS BOXNLW BOXNHL BOST BCNAHS BCNHL	22HS			NA
BOSTHS	22HS (Mod-1)			NA
BOXNHA	IRF108HS			NA
BRN BRNA BTPN BTPGLN	22NLB		NA	NA
BRNAHS BFNS BRHNEHS	22HS		NA	NA
BLCA/BLCB	LCCF20		NA	NA

*NA= Not applicable

Nomenclature of Bogie:

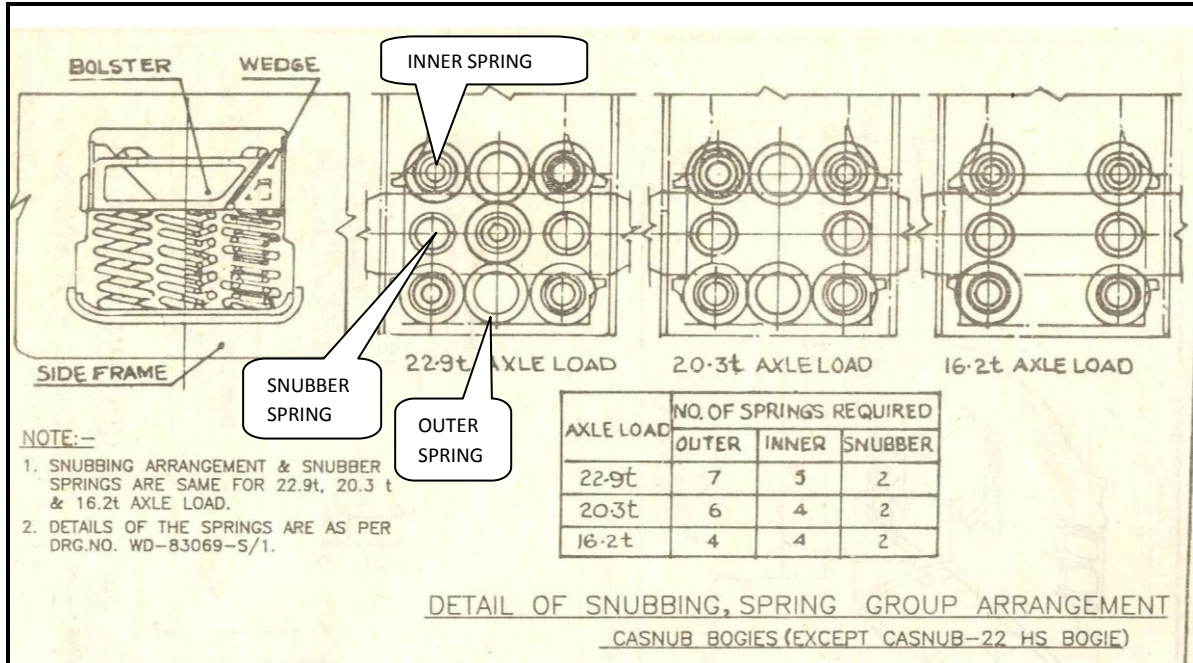
W	M	N	L	B	HS
Wide Jaw	Modified	Narrow Jaw	Light weight	Belly shaped bolster	High Speed

Load Bearing springs and snubber springs:

CASNUB bogies are fitted with two groups of long travel helical springs nests. The spring group for bogie for various axle load application are shown in fig below.

Spring details are shown in WD 89069-S/1 (Common for all versions except Casnub - 22HS Bogie). The spring details for Casnub - 22 HS bogies are shown in WD - 92058-S/5.

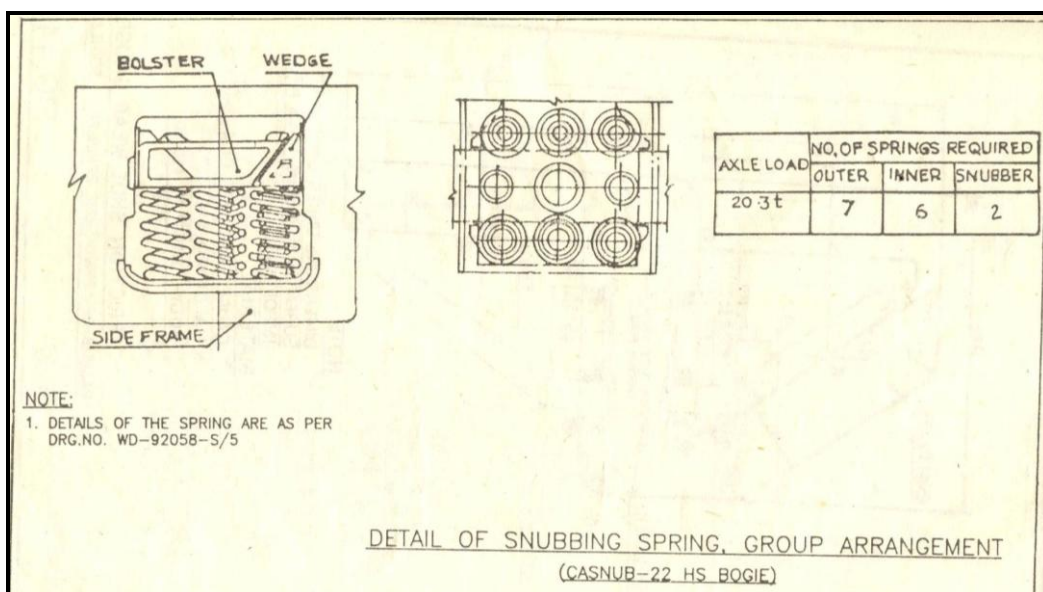
Damping: The suspension is provided with load proportional friction damping arrangement with the help of Mn steel Cast Wedge supported on the snubber springs. The details of the snubbing arrangement are shown in fig below.



Spring nest



spring gauging



Grouping of Springs:

A. Group Colour code for in service springs (Maintenance group)

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.

All versions (except for CASNUB 22 HS)

Colour code	Outer	Inner	Snubber
Green	260-257	262-259	294-291
Yellow	257-254	259-256	291-288
Orange	254-251	256-253	288-285
White	251-248	253-250	285-282
Red	248-245	250-247	282-279

CASNUB 22 HS

Group	Outer	Inner	Snubber
Green	260-257	243-240	293-290
Yellow	257-254	240-237	290-287
Orange	254-251	237-234	287-284
White	251-248	234-231	284-281
Red	248-245	231-228	281-278

CASNUB 22 HS (Mod-1)

Group	Outer	Inner	Snubber
Green	253-250	225-222	304-301
Yellow	250-247	222-219	301-298
Orange	247-244	219-216	298-295
White	244-241	216-213	295-292
Red	241-238	213-210	292-289

B. Group colour code of NEW springs,

Matching of both, load and Snubber springs, is important. It is recommended that springs having **less than 3 mm free height variation** should be assembled in the same group.

All versions (except for CASNUB-22 HS)

Ref: DRG No.WD-83069-S/1

Group	Outer	Inner	Snubber
Green	263-261	265-263	297-295
Yellow	261-259	263-261	295-293
Red	259-257	261-259	293-291

CASNUB- 22 HS,

Ref: DRG. No.WD-92058-S-5

Group	Outer	Inner	Snubber
Green	263-261	243-241	293-291
Black	261-259	241-239	291-289
Red	259-257	239-237	289-287

CASNUB -22HS (Mod-1) BOSTHS,

Ref: DRG No. WD-04017-S/4

Group	Outer	Inner	Snubber
Green	256-254	228-226	307-305
Yellow	254-252	226-224	305-303
Red	252-250	224-222	303-301

** Mixing of new and old springs should be avoided.

Grouping of Springs:

A. Group Band (Coloured) for in service springs (Maintenance group)

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. Coloured band should be provided for easy identification of group height as indicated in the table.

All versions (except for CASNUB 22 HS)

No. of Bands	Outer	Inner	Snubber
I	260-257	262-259	294-291
II	257-254	259-256	291-288
III	254-251	256-253	288-285
IIII	251-248	253-250	285-282
Red	248-245	250-247	282-279

CASNUB 22 HS

Group	Outer	Inner	Snubber
I	260-257	243-240	293-290
II	257-254	240-237	290-287
III	254-251	237-234	287-284
IIII	251-248	234-231	284-281
Red	248-245	231-228	281-278

CASNUB 22 HS (Mod-1)

Group	Outer	Inner	Snubber
I	253-250	225-222	304-301
II	250-247	222-219	301-298
III	247-244	219-216	298-295
IIII	244-241	216-213	295-292
Red	241-238	213-210	292-289

B. Group Band (Coloured) of NEW Springs,

Matching of both, load and Snubber springs, is important. It is recommended that springs having **less than 3 mm free height variation** should be assembled in the same group.

All versions (except for CASNUB-22 HS)

Ref: DRG No.WD-83069-S/1

No. of Bands	Outer	Inner	Snubber
I	263-261	265-263	297-295
II	261-259	263-261	295-293
III	259-257	261-259	293-291

CASNUB- 22 HS,

Ref: DRG. No.WD-92058-S-5

Group	Outer	Inner	Snubber
I	263-261	243-241	293-291
II	261-259	241-239	291-289
III	259-257	239-237	289-287

CASNUB -22HS (Mod-1) BOSTHS,

Ref: DRG No. WD-04017-S/4

Group	Outer	Inner	Snubber
I	256-254	228-226	307-305
II	254-252	226-224	305-303
III	252-250	224-222	303-301

** Mixing of new and old springs should be avoided.

SPRING DATA:

Type of spring	Coil Dia. in (mm)	Free height (in mm)	Condemning limit(In mm)
All visions (except for CASNUB-22HS)			
Outer	25	260	245
Inner	16	262	247
Snubber	16	294	279
CASNUB-22HS			
Outer	22	260	245
Inner	18	243	228
Snubber	18	293	278
CASNUB -22HS(Mod-1) BOSTHS			
Outer spring	21.5	253	238
Inner Spring	16.5	225	210
Snubber Spring	16.5	304	289



Spring Arrangement for Various CASNUB Trolleys

Wagon type	Bogie	Number of springs per bogie	Axle	Speed as per speed certificate (KMPH)	
				Empty	Load
BOXN	Casnub 22 NLB	Outer -12, Inner-8, Snubber -4	20.32	80	75
			22.32	80	60
			22.82	80	60
BOXNM1	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.32	80	70
			22.82	80	60
BOXNEL	Casnub 22 NLC	Outer -14, Inner-14, Snubber -4	25.00	65	50
BOXNHS	Casnub 22HS	Outer -14, Inner-12, Snubber -4	20.32	100	100
BOXNHSM1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.23	90	75
			22.82	90	60
BOXNHA	IRF 108 HS	Outer -14, Inner-14, Snubber -4	20.32	100	100
			22.1	100	100
			22.82	65	60
BOXNHL	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.9	100	75
BOXNLWM1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.32	65	60
			22.82	65	60
BOY	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.86	75	65
BOYEL	Casnub 22 NLC	Outer -14, Inner-14, Snubber -4	25.00	65	50
BOBYN	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	75	75
			20.32	60	60
BCN	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	80	75
			22.32	80	75
BCNM1	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.32	80	75
			22.82	80	65
BCNA	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	80	60
			22.32	80	75
BCNAM1	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.32	80	75
			22.82	80	65
BCNAHS	Casnub 22HS	Outer -14, Inner-12, Snubber -4	20.32	100	100
BCNAHSM1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.32	100	75
			22.82	100	65
BCNHL	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.9	65	65
BOST	Casnub 22HS	Outer -14, Inner-12, Snubber -4	20.32	80	75
			22.32	80	50
BOSTM1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.32	65	60
BOSTHS	Casnub 22HS (Mod - I)	Outer -14, Inner-12, Snubber -4	20.32	100	100
BOSTHSM1	Casnub 22HS (Mod - I)	Outer -14, Inner-14, Snubber -4	22.32	80	60
BOSTHSM2	Casnub 22HS (Mod - II)	Outer -14, Inner-12, Snubber -4	22.32	100	60
BOBSA	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.9	75	75
BOBSNM1	Casnub 22 NLC	Outer -14, Inner-14, Snubber -4	25.00	60	50
BOBR	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	29.32	80	80
			22.32	75	60
BOBRM1	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.32	75	70
BOBRN	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	70	75
			22.32	70	60
BOBRNM1	Modified Casnub 22 NLB	Outer -14, Inner-10, Snubber -4	22.32	80	70
BOBRNHSM1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.32	100	60
BOBRNALHS M1	Modified Casnub 22 HS	Outer -14, Inner-14, Snubber -4	22.32	65	60

	Speed as per speed certificate (KMPH)
--	---

Wagon type	Bogie	Number of springs per bogie	Axle	Empty	Load
BOBRNEL	Casnub 22 NLC	Outer -14, Inner-14, Snubber -4	25.00	65	50
BRN	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	80	75
BRNAHS	Casnub 22HS	Outer -14, Inner-12, Snubber -4	20.32	100	100
BFNS	Casnub 22HS	Outer -14, Inner-12, Snubber -4	20.32	100	100
BTPN	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	80	80
BTPGNL	Casnub 22 NLB	Outer -14, Inner-08, Snubber -4	20.32	80	75
BLCA	LCCF 20 (C)	Outer -14, Inner-12, Snubber -4	20.32	100	100
BLBC			20.32	100	100
BLLA			20.32	100	100
BLCA			20.32	75	75
BLBC double stock			20.32	75	75
BLCAM			Modified LCCF 20 (C)	Outer -14, Inner-14, Snubber -4	22.00
BLCBM Double stock					
BCACM auto car wagon	LCCF 20 (C)	Outer -14, Inner-12, Snubber -4	20.32	65	65
BRHNEHS	Casnub 22 HS	Outer -14, Inner-12, Snubber -4	20.32	65	50

Maintenance Issues of Springs:

1. Stacking System of Springs-

4-Tier system should be adopted for easy placement & removal of springs.

2. Spring loaded dial gauges-

- ▶ Spring height gauges must be kept in spring section section.
- ▶ Spring loaded dial gauges may also be kept inline with NKJ depot.

3. Transportation of set of Springs

For safe transportation from sub-store to shop, rectangular wheeled trolleys should be developed & kept in section (Such trolleys are available in ROH depot TKD & NKJ).

4. Colour Coding/Provision of Band

- As of now, only local colour coding is in practice in zonal Railways.
- Marking of coloured band on springs is most commonly adopted system in ROH depots. It is recommended that marking of bands may be done for easy grouping of springs in the depots.

5. Cleaning of springs

- ▶ Wire brush is being used for cleaning of spring. The practice is useful & be continued.

Disclaimer:

It is clarified that this pamphlet does not supersede any existing provisions laid down by RDSO, Railway Board or Zonal Railways. The pamphlet is for guidance only and it is not a statutory document.

If you have any suggestion or comment, please write to:

Director (Electrical), CAMTECH, Maharajpur, Gwalior (M.P.) – 474 005

Ph.0751-2470740, Fax 0751-2470841