SPRING DETAILS OF LHB COACHES

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SPRING DETAILS OF LHB COACH

4.6.22.6.1 (Ref-Camtech Manual)

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

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PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33503035 (1267411)	**PRIMARY OUTER SPRING**								
	AC Two Tier	5.5	324.5	38	257	181+3/-0	2948	264+ 0/-4	Green
	AC Three Tier								
	Pantry Car								
	AC Ist Class								
	AC Chair Car(Ist)								
	AC Chair Car								

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33500368 (1277142)	**PRIMARY OUTER SPRING**								
	Power Car	5.75	337	40	259	179+3/-0	4825	252+ 0/-4	Yellow

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33503047 (1267412)	**PRIMARY INNER SPRING**								
	AC Two Tier	7.5	324.5	26	164	112+3/-0	1736	264+ 0/-4	Green
	Pantry Car								
	AC Ist Class								
	AC Chair Car(Ist)								
	AC Chair Car								

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33500356 (1277143)	**PRIMARY INNER SPRING**								
	Power Car	7.8	337	27	165	111+3/-0	2690	252+ 0/-4	Yellow
	AC Three Tier								

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33503060 (1269514)	**SECONDARY OUTER SPRING**								
	AC Two Tier	6.6	707	50	418	318+3/-0	4796	512+ 0/-5	Green
	Pantry Car								
	AC Ist Class								
	AC Chair Car(Ist)								
	AC Chair Car								

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33500400 (1268836)	**SECONDARY OUTER SPRING**								
	Power Car Side -II AC Three Tier	7	702	55	427	317+3/-0	6041	515+ 0/-5	Yellow
3350038 1 (1277146	Power Car Side -I	7	708	56	429	315+3/-0	7291	512+ 0/-5	Blue

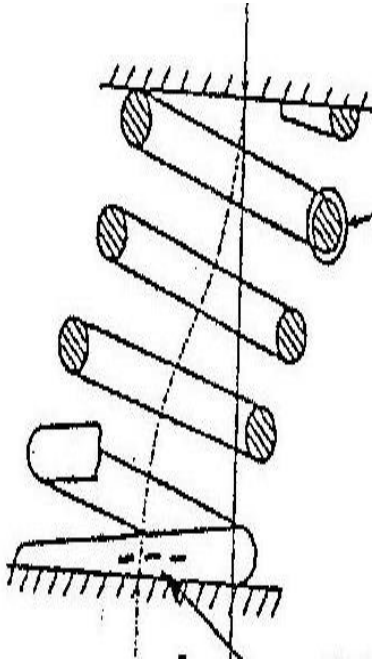
LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load		Colour Code
							KGF	mm	
33503059 (1269513)	**SECONDARY INNER SPRING**								
	AC Two Tier	8.3	663	34	280+ 0/-2	212	2575	468+ 0/-5	Green
	Pantry Car								
	AC Ist Class								
	AC Chair Car(Ist)								
	AC Chair Car								
	AC Three Tier								

LOAD TEST CHART FOR SPRINGS OF FIAT BOGIE OF LHB COACH

PL No. (Drg No)	Nomenclature	No. of Coils	Free Height	Wire Dia	Outer Dia	Inner Dia	Height under Load KGF	mm	Colour Code
33500393 (1268837)	**SECONDARY INNER SPRING**								
	Power Car Side -II	8.5	658	37	280+ 0/-2	206	3488	471+ 0/-5	Yellow
33500370 (1277145)	Power Car Side -I	8.7	664	38	281+ 0/-2	205	3947	468+ 0/-5	Blue

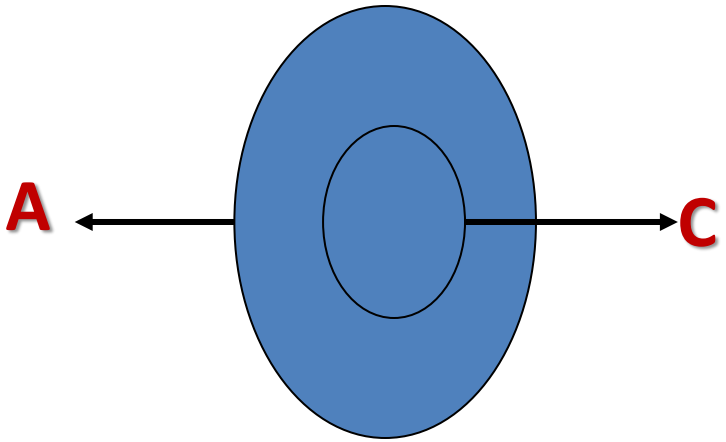
PAIRING OF SPRINGS

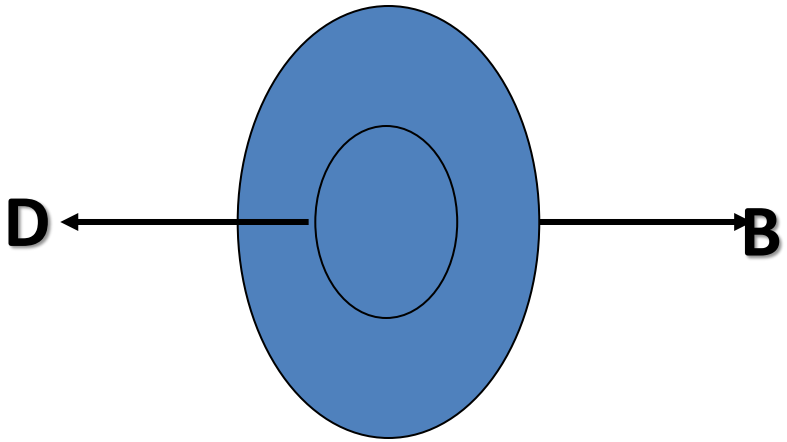


ALIGNMENT DEVIATION

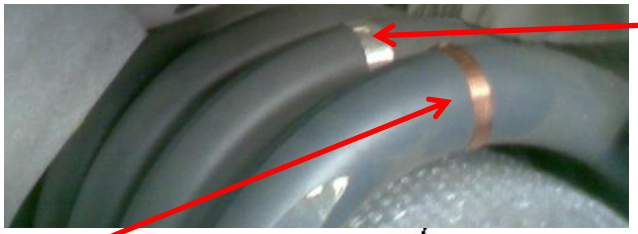
(SPRING PAIRING)

- **The difference between the alignment deviations of the two outer springs not to exceed 4mm and that of the inner springs 8mm.**
  - **A - B = 4 mm max, C - D = 8 mm max**
- **In addition, the outer and inner springs with the greater alignment deviations must be situated in the same spring assembly, that is:**
  - **If A greater than B, C should be greater than D**

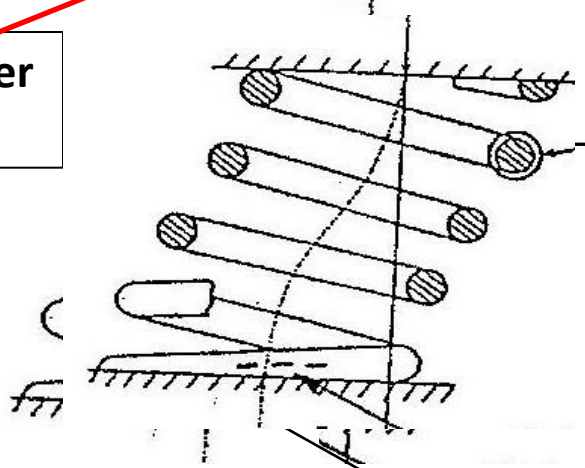




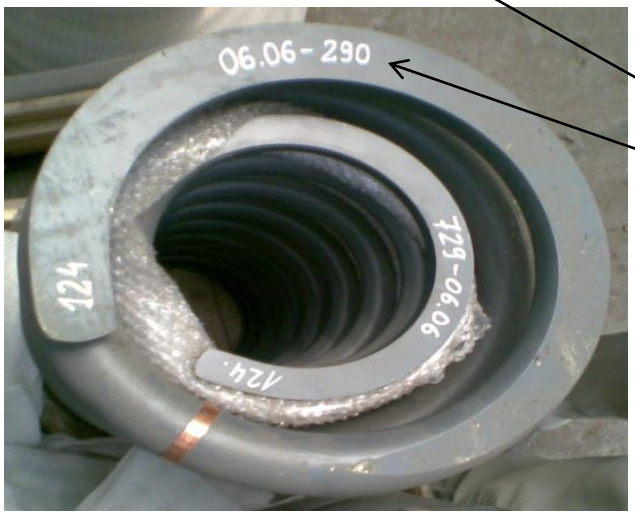
MARKING ON SPRING



Copper Band



Aluminum band



Stamping

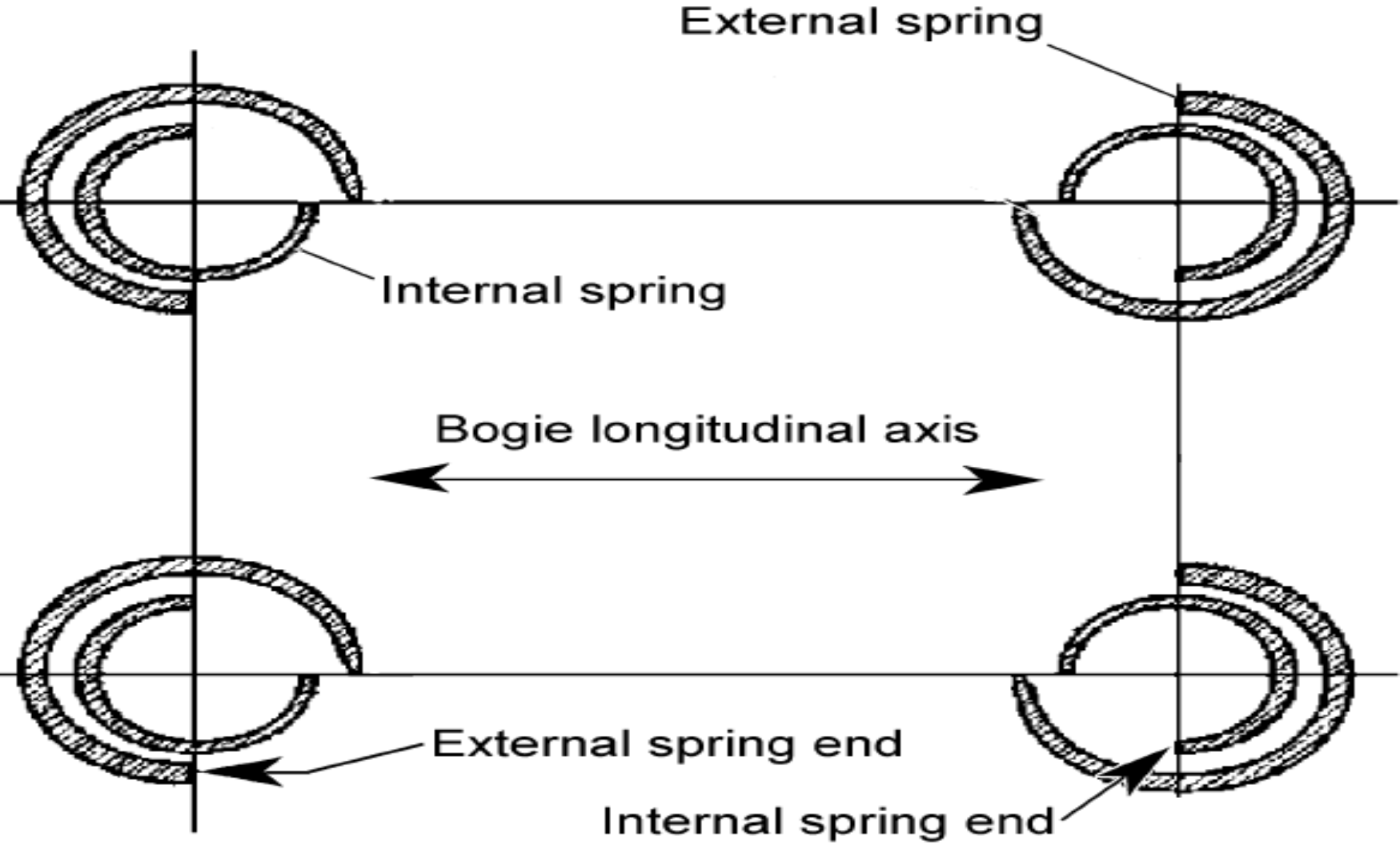
- **ALUMINIUM BAND** – Indicates positive direction of the alignment deviation
- **COPPER BAND** – Gives length of the spring under test load and the value of the alignment deviation
- **STAMPING ON FLAT PORTION** – Gives month & year of manufacture and running serial number.

PAIRING OF SPRINGS

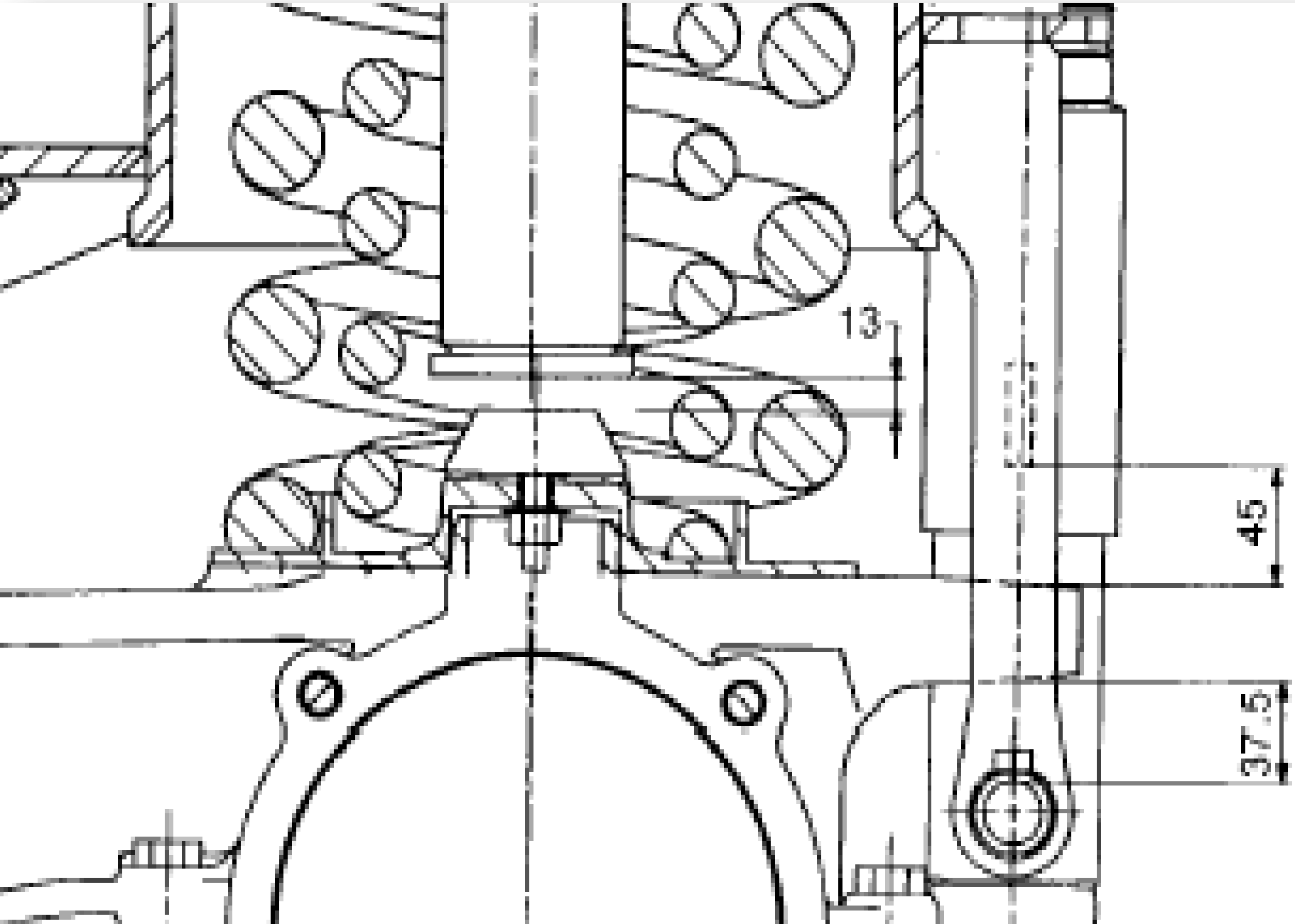
- **Each flexi coil spring is provided with the following markings**:
  - **The positive directions of the alignment deviations is indicated with an aluminum coloured tape (secured tightly and wound twice around the spring)**
  - **The length of the spring under test load and the value of the alignment deviation (in mm) are printed on a copper band.**
  - **Brazing of bands being recommended to the firms**
- **Standard method of marking internationally**

PRIMARY SPRING ORIENTATION

For proper load transfer and to prevent breakage of spring the orientation of spring must be followed as per the diagram



INNER AND OUTER PRIMARY SPRINGS



SPRING SIZES

TYPES	Primary Spring (mm)				Secondary Spring (mm)			
	Inner Spring		Outer Spring		Inner Spring		Outer Spring	
	Free Height	Wire Dia.	Free Height	Wire Dia.	Free Height	Wire Dia.	Free Height	Wire Dia.
LWFAC	**324.5**	**26**	**324.5**	**38**	**663**	**34**	**707**	**50**
LWACCW/ LWSCZAC	**324.5**	**26**	**324.5**	**38**	**663**	**34**	**707**	**50**
LWACCN	**337**	**27**	**324.5**	**38**	**663**	**34**	**702**	**55**
LWCBAC	**324.5**	**26**	**324.5**	**38**	**663**	**34**	**707**	**50**
LWLRRM (Luggage)	**337**	**27**	**337**	**40**	**658**	**37**	**702**	**55**
LWLRRM (Guard Side)	**337**	**27**	**337**	**40**	**664**	**38**	**708**	**57**

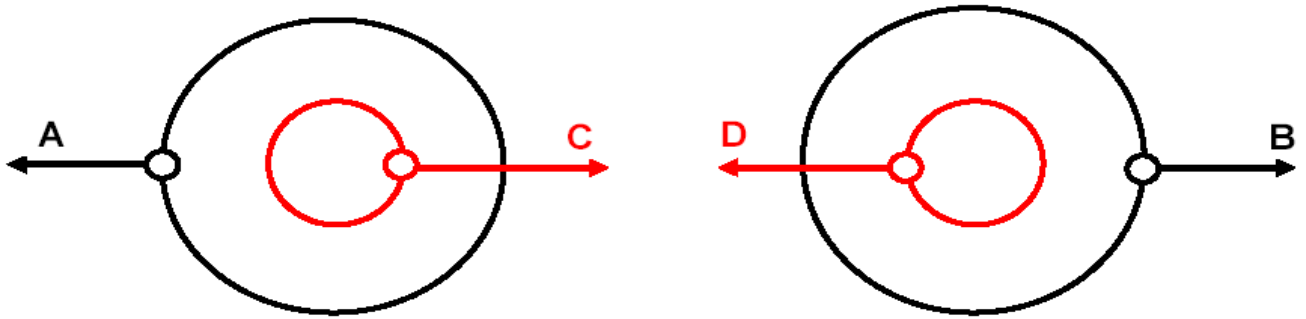
PAIRING OF SECONDARY SPRINGS

- **Alignment Deviation**:

  The difference between the alignment deviations of the springs may therefore not exceed for:

- **Laid Length**:
  - The difference between the "length over test load" of the two outer springs may not exceed 2 mm.
  - The outer & inner springs with the greater alignment deviation must be situated in the same spring assembly

New Springs:	Old Springs:
Outer Springs A – B max. = 4 mm.	Outer Springs A – B max.= 8mm.
Inner Springs C – D max = 8 mm.	Inner Springs C – D max= Must not be taken into consideration



OUTER SPRING
INNER SPRING

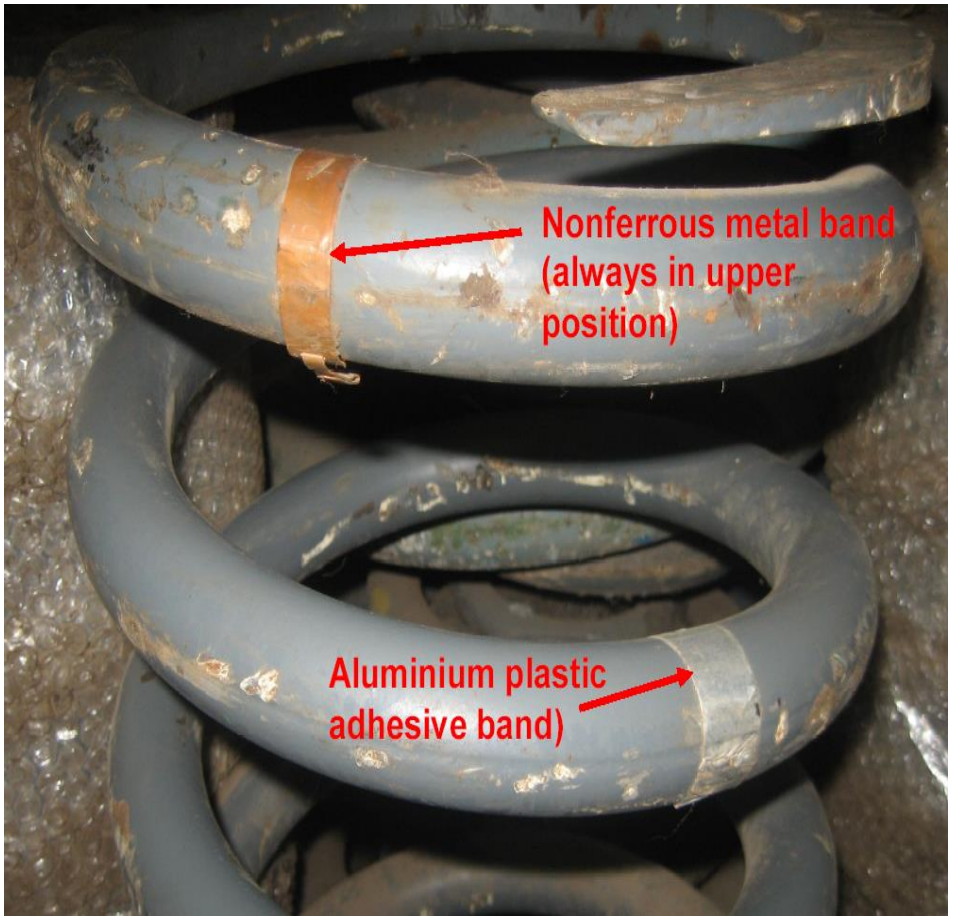
- The above arrangement is of bolster springs (outer & inner) as fitted in one LHB Bogie.
- Aluminum plastic band of outer spring to be kept outer top side & for inner spring to be kept inner top side.

PAIRING OF SECONDARY SPRINGS

SPRING MARKING:

An aluminum plastic adhesive band is secured tightly & wound twice around the spring. It is indicating positive direction of the alignment deviation.

An non ferrous metal band is secured tightly &wound around the spring on which length of the spring under test load & the value of the alignment deviation (in mm) is printed.



Mfg year, Sr. no & trademark is embossed on every spring at bottom coil

Re-arranging missing bands

(Spring Pairing)

- In case, any band is found missing, the spring number should be advised to the manufacturer
- The manufacturers will generate a new band using spring information available with them.
  - This process already being followed by Western Railway.

Any Questions !!!

THANKS