



भारत सरकार - रेल मंत्रालय  
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Government of India-Ministry of Railways  
Research Designs & Standards Organisation  
Lucknow - 226 011  
DID (0522) 2450115  
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**No. SV.FIAT Spring**

**Dated: 02.03.2020**

**Principal Chief Mechanical Engineer,**

1. Northern Railway, Baroda House, New Delhi-110 001
2. Western Railway, Churchgate, Mumbai-400020
3. Central Railway, CSTM, Mumbai - 400 001
4. Eastern Railway, Fairly Place, Kolkata- 700 001
5. Southern Railway, Park Town, Chennai - 600 003
6. North Frontier Railway, Maligaon, Guwahati- 781 001
7. North Eastern Railway, Gorakhpur-273 001
8. South Eastern Railway, Garden Reach, Kolkata-700 043
9. South Central Railway, Secunderabad-500 071
10. West Central Railway, Jabalpur-482 001
11. South East Central Railway, Bilaspur-495 004
12. South Western Railway, Hubli-580023
13. East Coast Railway, Railway Complex, Bhubaneswar-751 023
14. East Central Railway, Hajipur-844 101
15. North Western Railway, Jaipur-302 006
16. North Central Railway, Allahabad-211 001
17. Konkan Railway Corporation Ltd., Belapur Bhawan, Navi Mumbai -400 614

**Sub:** Fitment of bio-toilets in LHB Non AC Unreserved Second Class Coaches (LS-3) with coil springs in secondary suspension.

**Ref:** 1) RCF CAI No. MD 21561 dated 17.06.2016, reiterated vide this office letter no SV.FIAT dated 17.12.2018.

2) Decision taken during PCME conference on 30-31<sup>st</sup> Jan, 2020.

Vide CAI under ref(1), instructions for conversion of LS-3 coaches into LS-5 coaches for fitment of bio toilets in subject coaches have already been issued. Zonal Railways at various forums have expressed that bogies with Air springs are not available for converting LS-3 coaches to LS-5 coaches and fitment of bio toilets in LS-3 coaches is being delayed on this account. Urgency for fitment of Bio-tanks in leftover LS-3 coaches was brought out vide ref(2). The issue has since been examined by RDSO.

For addition of 1900Kg for four (04) Bio-Toilets, each secondary spring nest shall bear additional static load of 475Kg & considering 20% dynamic augmentation, each secondary spring nest shall be subjected to additional load of 570Kg. This can be handled with same secondary suspension by providing 6mm thick TPU rings between each secondary outer and inner springs and top and bottom centering discs, in order to ensure sufficient clearances during service while maintaining spring deflections within limits.

Similarly in primary suspension of LHB coach, 6mm TPU rings are to be provided between each primary outer and primary inner springs and top and bottom centering discs to maintain stresses in rubber bump stop within limits.

Trial of 6 mm TPU rings between primary springs & secondary springs and top and bottom centering discs in LHB coach no 181947 is already being conducted by MCF in NWR



since June 2019. As per report submitted by NWR vide letter dated 2-1-2020, performance of TPU rings is found to be satisfactory. Moreover, TPU rings are regularly used under coil springs in Locomotives, including WDP4 & WDG4. Static gross load intensity/unit area on TPU rings is found to be higher in WDG4 locomotive in comparison to load intensities/unit area on TPU rings for primary & secondary springs in LHB coaches.

In view of above, fitment of bio toilets in LS-3 coaches is permitted with present bogies having coil springs in secondary suspension as stop gap arrangement, subject to following conditions:

1. 6 mm thick TPU rings between each secondary outer and inner springs and top and bottom centering discs are to be provided as per drawing no. CG – 20057 Alt. 'Nil' enclosed.
2. 6 mm thick TPU rings between primary outer and primary inner springs and top and bottom centering discs are to be provided as per drawing no. CG – 20049 Alt. 'Nil' enclosed. 4mm thick disc/compensating ring shall be provided between bottom rubber primary bump stop and lower centering disc.
3. TPU rings may be procured from RDSO registered vendors for 'Thermoplastic polyurethane spring pads (Happy pads) for locomotives (Spec no. MP.0.40.99.01 Rev. 03, August 2017)' with the same material specification and having dimensions as per CG – 20057 Alt. 'Nil' and CG-20049 Alt 'Nil'.
4. Adherence to all the clauses of speed certificates and amendments to speed certificates for operation of LS-3 coaches.
5. Secondary Bump Stop gap is to be maintained in the range of 94 to 100 mm.
6. Centering Discs & TPU rings should be visually examined prior to fitment to ensure no surface defects and proper seating.
7. Proper seating of springs on TPU rings is to be ensured during assembly & to be monitored during trip schedule.

Clearance for fitment of bio-toilets in LS-3 coaches with above conditions is a STOP GAP arrangement till bogies with air springs are not available for modification as advised vide CAI under reference. These LS-3 coaches with bio-toilets and present bogies having coil springs in secondary suspension are to be regularly monitored by Zonal Railways, any issue observed should be reported to RDSO immediately. Monthly Performance report of these coaches shall be submitted by Zonal Railways to RDSO.

This clearance is for a period of 6 months from issue of this letter. LS-3 coaches are to be converted to LS-5 within this period as per CAI under reference.

**DA:** As above.

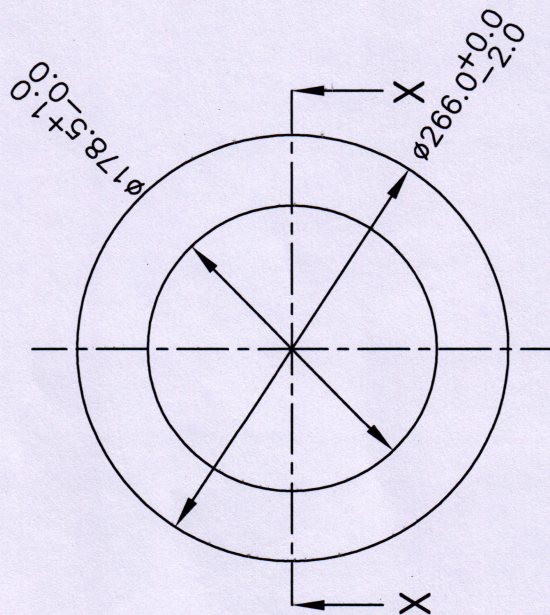
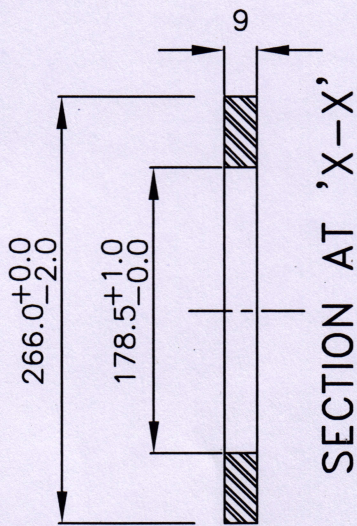
**(Samir Lohani)**

**Executive Director (Standards)/Carriage**

**Copy to:**

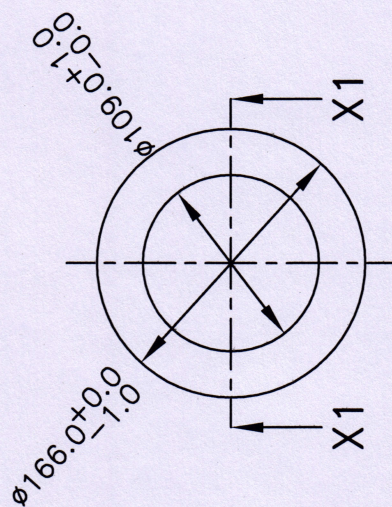
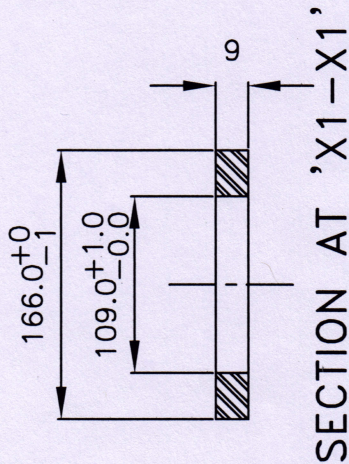
**EDME (Coaching), Railway Board, Rail Bhawan, New Delhi - 110 001.**





DETAILS OF ITEM-2

Note: One TPU Ring on top & one TPU ring at bottom of each coil spring shall be provided.

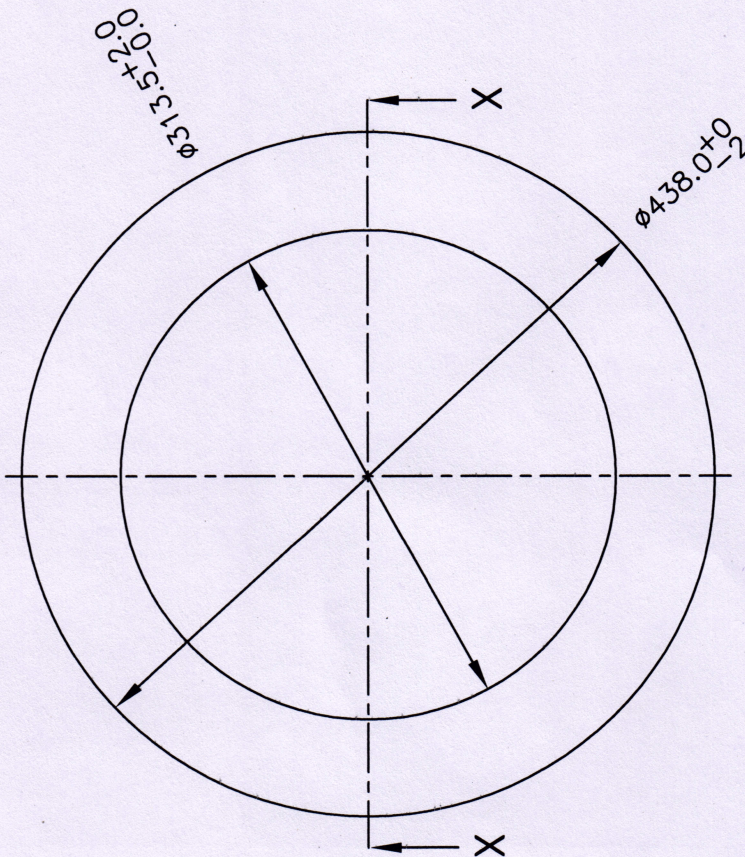
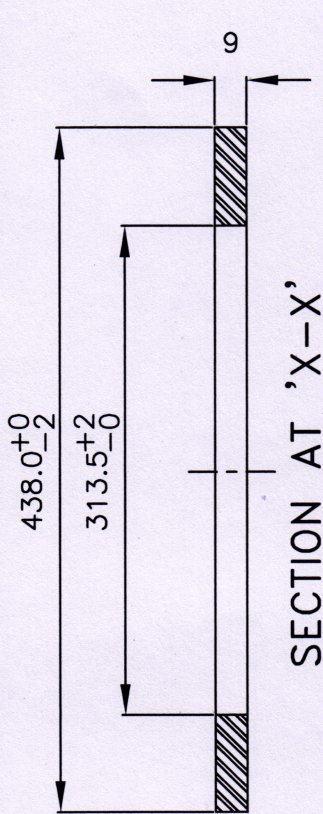


DETAILS OF ITEM-1

2	TPU RING OUTER	16	AS PER RDSO SPEC NO. MP-040.98.1	REMARKS
1	TPU RING INNER	16	AS PER RDSO SPEC NO. MP-040.98.1	
ITEM DESCRIPTION & DIMENSIONS		QTY PER COACH	W.O.F. ONE (cm)	MATL. & SPEC.
SUPERSEDED BY:		INDIAN RAILWAY STANDARDS		
ASSEMBLY DRGS. REFERENCE:-		LHB SHELL ON FIAT BOGIE		
SCALE		TPU RING FOR PRIMARY SUSPENSION OF		
NOT TO SCALE		FIAT BOGIE IN LS-3 COACHES WITH COIL		
J.S. VDG/02/20		SPRING IN SECONDARY SUSPENSION		
CHECK SHEET No.		R.D.S.O. [CG]		
B.G.		CG-20049		

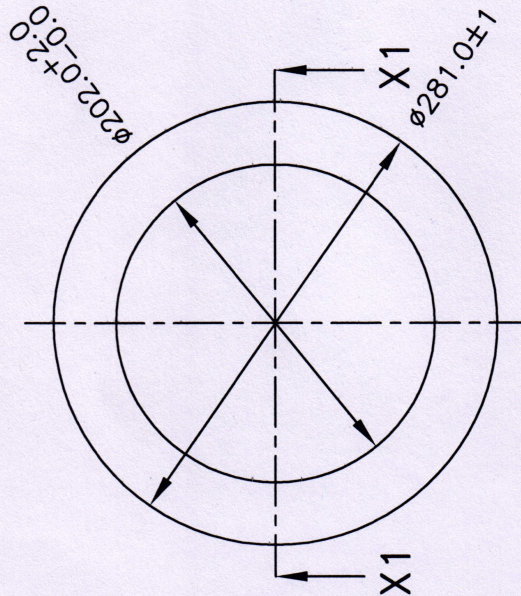
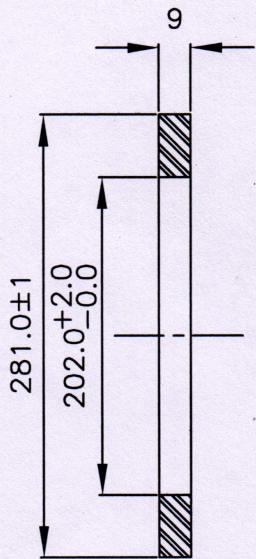
ALT	ITEM	AUTHY.	DESCRIPTION	DATE
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### DETAILS OF ITEM-2

Note: One TPU Ring on top & one TPU ring at bottom of each coil spring shall be provided.



### DETAILS OF ITEM-1

RDSO	ASSEMBLY DRGS.	REFERENCE:-	SUPERSEDED BY:	INDIAN RAILWAY STANDARDS	TPU RING OUTER	8	AS PER RDSO SPEC NO. MP-0.40.98.1
			SUPERSEDES:	LHB SHELL ON FIAT BOGIE	TPU RING INNER	8	AS PER RDSO SPEC NO. MP-0.40.98.1
			SCALE		ITEM DESCRIPTION & DIMENSIONS	QTY PER COACH	MATL. & SPEC.
			NOT TO SCALE				REMARKS
			SCALE				
			J.S. VDG/03/20				
			R.D.S.O.				
			B.G. [CG]				
			CHECK SHEET No.				
			ALT ITEM AUTHY.				
			DESCRIPTION				
			DATE				

CG-20057



3.	Lord Corporation, Mechanical Products Division, 2000 West Grandview BLVD, P.O. Box 10038, Erie, PA 16514-0038, USA (Local contact address: M/s Lord India Pvt. Ltd., A/401-404, 215-Atrium, Chakala, Andheri-Kurla Road, Andheri East, Mumbai- 400093, India)	LordCorpUSA	2,500
4.	Prag Industries (India) Pvt. Ltd., E-7, Talkatora Industrial Estate, Lucknow-226011.	PRAG	3,600

**RDSO Vendors for Developmental Order:**

1.	Frontier Alloy Steels Ltd., Jamni Wala Road, Jamboo Khala, Tehsil Paonta Sahib, Distt. Sirmaur (H.P.)-173025 <b>Quantity permitted for field trial 10 loco sets (Maximum)</b>	FAS	2496
2.	Aryan Exporter Pvt. Ltd., B-1, Industrial Area, Amausi, Lucknow-226 008 <b>Quantity permitted for field trial 10 loco sets (Maximum)</b>	Aryan	5000
3.	MGM Rubber Company, 277 Jessore Road, Kolkata-700048 <b>Quantity permitted for field trial 10 loco sets (Maximum)</b>	MGM	7200

**202. Thermoplastic polyurethane spring pads (Happy pads) for locomotives (Spec no. MP.0.40.99.01 Rev. 03, August 2017),**

SN	item	Unified PL No.
1.	SK.VL-279 for WDP1 loco for bogie of IS:2062	11275984
2.	SK.VL-280 (Item No. 2 of Drg. No. SK.VL-280 is the part of Kit of Spring Pads comprises 03 items)	11983760
3.	SK.VL-281(for WDP1M Loco)	11982986
4.	SK.VL-282 for WAP4 & WAP1 loco	--
5.	SK.VL-283 for WAP4 & WAP1 loco	--
6.	SK.VL-284 for WDP1 loco for bogie of IRS M41.	--
7.	SK.VL-291 for WDM3D, WDM3E	11275868
8.	SK.VL-323 (for WDM3A (ATHS) Bogie)	11276435 (TPL- 9320 Alt-J (item no. 1), 11276319 (TPL- 9320 Alt-J (item no. 2)
9.	SK.VL-458 for WDG3A loco	11275820
10.	SK.VL-459 for WDG3A loco	11275832
11.	DLW Part No. 17171386 / EMD Part No. 40175250	17171386
12.	DLW Part No. 17140997 / EMD Part No. 40087273	17140997

**Approved vendors:**

1.	Aryan Exporters Pvt. Ltd., B-1, Industrial Area, Amausi, Lucknow-226008.	ARYAN	42000
2.	Avadh Rail Infra Ltd., B-12, Industrial Area, Opp. Amausi Aerodrom, Lucknow-226008. <b>Additional Works:</b> Plot No. 105, Sector-7, IIE, SIDCUL, Haridwar- 249 407 (Uttarakhand)	ARL	49920
3.	Basant Rubber Factory Pvt. Ltd., 103, L.B. Shastri Marg, Vikhroli (west), Mumbai	BASANT	86400
4.	Prag Industries (India) Pvt. Ltd., E-7, Talkatora Industrial Estate, Lucknow-226011.	PRAG	180000
5.	MGM Rubber company, Unit-I: 277, Jessore Road, Kolkata-700 048. Unit-II: 18, Galiff Street, Kolkata-700004.	MGM	1,74,000
6.	Rama Engineering Works, Plot No. 768, Phase-I, IDA, Subash Nagar, Jeedimetla, Hyderabad-500 055	RAMA	100000
7.	MCAM Surlon India Limited, Unit I: 54/11, Site IV, Industrial Area, Shahibabad, Distt-Ghaziabad -201010. Unit II- A-39/2, Gate No -1, Site-IV, Industrial Area, Shahibabad, Distt- Ghaziabad -201010	QS	500MT

**RDSO Vendors for Developmental Order:**

1.	Micro Engineers, Plot No.104, Udyog Kendra Extn. 1, Near Habibpur Village, Greater Noida - 201306. <b>(Quantity permitted for field trial 10</b>	Micro	276500
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MP Directorate controlled items



	loco sets (Maximum))		
2.	Electroplast Unit-I (Testing facilities): 1/34, South Side, G.T.Road, Industrial Area, Ghaziabad- 201 001. Unit-II (Manufacturing Facilities): Khasra No. 30/9, G.F, Libaspur, Delhi-110042. (Quantity permitted for field trial 10 loco sets Maximum)	EP	60000
3.	Balaji Rubber factory, Plot No. 54/31, D-II Block, MIDC Chinchwad, Distt: Pune, Maharashtra- 411019, India. (Quantity permitted for field trial 10 loco sets Maximum))	BALAJI	48000

**203. Truck Frame Assembly for HHP Locomotives** (EMD Part No. 40074880, DLW Part No. 17020189 Spec No. EDPS-184, Material specification no. EMS 22, STR No. MP.STR.VL-01.04.12 (Rev-00), April 2015), Unified PL No. 17020189

**Approved vendors:**

1.	Bhilai Engg. Corporation Ltd., Hathkhaj, Industrial Area, Bhilai (C.G.)- 490026.	BECO	300
2.	Electro Motive Diesel Inc., 9301 W.55TH Street, LaGrange, IL 60525, USA. Office in India: M/s Progress Rail Innovations Private Limited, D-149 to 153 & 178 to 182, Hosiery Complex, Noida Phase-II Extn. Gautam Budh Nagar, Uttar Pradesh-201305, India	EMD	600
3.	Hindusthan Engineering & Industries Ltd. Bamunari Plant, P.O. Bamunari, Dist. Hooghly- 712 205 (West Bengal)	HEI	300
4.	Simplex Castings Limited, Plot No. 750, Urla Industrial Estate, Ring Road No 2, Vill - Sarora, Raipur (C.G.)493221	S0793	312

**RDSO Vendors for Developmental Order:**

1.	ISGEC Heavy Engineering Ltd., (Formerly UP Steels), Nara, Meerut Road Distt. Muzaffarnagar. Quantity permitted for field trial 1 loco set (Maximum)	ISGEC	500
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**204. Half Cylinder Wear for HHP locomotives** (EMD Part No. 40075177, DLW Part No. 17453458, RDSO Drg. No. SK.VL-705) Spec. no. MP.0.40.99.02 (Rev.02) Aug' 2017, STR no. MP.STR.VL.04.09.11 (Rev.-00) Oct' 2012, Unified PL No. 17453458

**Approved vendors:**

1.	Electro Motive Diesel Inc., 9301 W.55TH Street, LaGrange, IL 60525, USA. Office in India: M/s Progress Rail Innovations Private Limited, D-149 to 153 & 178 to 182, Hosiery Complex, Noida Phase-II Extn. Gautam Budh Nagar, Uttar Pradesh-201305, India	EMD	1,200
2.	MCAM Surlon India Limited. 54/11 Site IV, Industrial Area, Sahibabad, Distt.- Ghaziabad - 201010	Quadrant GZB	14400
3.	Electroplast, 1/34, South Side, G.T.Road, Industrial Area, Ghaziabad - 201 001.	Electroplast GZB	6,000

**RDSO Vendors for Developmental Order:**

1.	Shree Meenakshi Polymers, 4/27, site-II, Ajanta Loni Road, Mohan Nager, Sahibabad, Ghaziabad-201005. Quantity permitted for field trial 5 loco sets (Maximum)	SMP	75 T
2.	A-One Enterprises Pvt. Ltd, Plot No.131, Sector-6, IMT Manesar, Gurgaon-122050. Quantity permitted for field trial 5 loco sets (Maximum)	AOE	6000 no.

**Motive Power- Loco Under frame Items**

**205. Buffer Assembly, Side, High capacity, Long Life** (Drg. No. SK.DL-4561 Alt.1/ SK.DL-4725(Alt.-Nil) / SK.DL-4748 Alt. 1 / and Specn. No. MP.0.41.00.03 (Rev-01) August-2005)

Unified PL NO. 11663236 for Drg. No SK.DL-4748 Alt. 1 & 11803587 for Drg. No SK.DL-4561 Alt.1