



भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

AGENDA

(Discussion Items)

For

CME's Conference

to be held on

26th & 27th October, 2015

at

Mumbai

INDEX

S.No.	Subject	Page No.
1.	Diesel Traction	2-4
2	Coaching Items	5 –7
3	Freight Items	8– 9
4	Workshop & PU items	10 – 12
5	Development Items	13 – 20
6	Project Items	21
7	M&P & Disaster Management Items	22
8	Environment & Housekeeping	23
9	Compliance of last CMEs' Conference	24 - 32

Traction Items

1.0 Quality issues of POH workshops, DMW and DLW:

Failure within 180 days are given below:

180 days failure (in %age)										
	PU			Workshops						
Year	DLW	DMW		All	PR	CB	KGP	JMP	GOC	Total
2011-12	49.31	288.00		100.00	40.48	22.86	56.57	32.10	31.68	51.08
2012-13	47.81	101.85		80.65	93.33	51.26	27.18	38.55	36.75	52.10
2013-14	55.35	98.77		70.59	102.86	57.76	56.31	57.78	33.91	61.59
2014-15	45.60	108.99		112.50	56.34	69.72	52.08	44.44	28.81	57.09
Average	49.52	149.40		90.93	73.25	50.40	48.04	43.22	32.79	55.47
2015-16 (Apr-Jun)	51.32	-		166.67	47.37	61.54	60.87	33.33	21.43	56.93

The following shortcomings are universally prevailing among POH shops:

- a) List of must-change items circulated by RDSO is not complied with.
- b) Compliance of modifications advised by RDSO is not done.
- c) Lack of individual accountability in respect of failures within 180 days attributable to workshop.

Railways and PUs to bring action plan for the above aspects.

2.0 DEMU maintenance policy implementation.

To streamline DEMU maintenance, policy guidelines were issued by Railway Board vide letter no 2014/M(L)/101/2(BG)/Pt.A1 dated 02/09/2015. Railways must ensure compliance and bring details of DEMU sheds along with rake links prepared for DEMU sheds to have holding of 10 or more DEMUs. As per programme submitted by Railways, further allotment of DEMUs will be done.

3.0 Safety and train operation issues.

There have been two recent accidents which have highlighted un-thoughtful modifications. Details of these cases are as under.

- i. Train no. 14266 in LKO/ NR

Date	20.03.2015
Rly./Div.	NR/ LKO
Train no./ Loco no.	14266 / 11129 WDM3D (AMV)
Accident Description.	Train no. 14266 which was received in line No.1/ Bachhrawan (BCN) for scheduled stoppage, Loco Pilot failed to control & stop the train before Dn starter signal and ran into sand hump derailing

	& capsizing T/Engine, and two front coaches no.04445 GS NR & 17220 GSCN NR (1st & 2nd from T/E) in sand hump.
Provisional findings of CRS	The train could not be controlled on account of non-functioning of train brakes from the locomotive due to discontinuity of brake pipe pressure between the train engine and the trailing load of passenger coaches caused by wrong position of additional cut out cock provided in the brake pipe of the locomotive which is not having the safety features specified in the design against inadvertent or unauthorized operation.
Action taken	RDSO issued instructions for the provision of additional BP cut out cocks with vent, which facilitates application of brakes in the formation in case of any unauthorized and inadvertent cock operation (26/27.03.2015).

ii. Charter Spl., UMB/NR.

Date	12.09.2015
Rly./Div.	NR/ UMB
Train no./ Loco no.	Charter Spl. / 703 ZDM3 (KLK)
Accident Description.	Train was running between KLK-TSL section. During run coach no. FCZLR 110-1st from engine with rear trolley, FCZ 635-2nd from engine and CT 012-3rd from engine derailed by all wheels on curve.
Provisional findings	While changing cabs at KLK, Loco Pilot failed to switch ON speedometer automatic cut off switch in the working cab. Due to which speedometer was not working.

Learning points from the above 2 cases are:

- (i) No local modification should be permitted on safety systems.
- (ii) The system should be foolproof and failsafe, so that even human failure may not result into accident.

SPAD cases: Analysis of SPAD cases on Diesel crew are as under:

Period	CR	ER	ECR	ECOR	KR	NCR	NER	NFR	NWR	NR	SCR	SER	SECR	SWR	SR	WCR	WR	TOTAL
2012-13	5	2	2	1	0	1	3	1	3	7	4	1	2	2	3	3	1	41
2013-14	6	1	2	0	1	0	4	0	1	8	2	0	0	3	1	1	4	34
2014-15	3	0	2	2	0	4	4	1	0	8	4	0	0	4	0	2	4	38
1.4.14 to 30.9.14	3	0	0	1	0	2	2	0	0	4	1	0	0	3	0	1	2	19
1.4.15 to 30.9.15	2	0	0	0	0	2	0	2	1	1	1	0	0	0	0	0	3	12

While there has been a reduction in SPAD cases over last year, each case has to be investigated in detail to find out the root cause.

4.0. Diesel Locomotive Coaching Links

Zonal Railways are frequently complaining that their inappropriate locos (freight locos or coaching unfit mixed locos) are being utilised by other Railways in their coaching links. Each railway should develop a system for recording all link failures that take place in their territory and effort should be made to follow the links to the maximum extent. In case of a Loco failure enroute, the locomotive should be replaced with an appropriate coaching locomotive at the terminal.

Railways owning links must ensure that trains are handed over from their territory with proper coaching fit link locomotives.

Railways have also mentioned about shortage of coaching locomotives. As per the Loco holding and passenger links, shortage exists on the following Railways:

SN	Railway	Shortage in coaching holding as compared to link
1	CR	26.5
2	NWR	1.5
3	SR	39.5
4	SCR	47
5	SWR	32
	Total	146.5

5.0 Introduction of dry break coupling for fuelling:

Dry break coupling is a leak-proof coupling for connecting locomotive to the fuel supply at fuelling installations. Such couplings are used invariably on aircrafts and also on most railroads. On IR also, it has been decided in principle to switch over to these couplings. Design of locomotive receptacle is being finalised by RDSO. For the transition period, an adapter would have to be used at fuelling points for adapting different locomotive couplings to different fuel pipe couplings.

6.0 Audit observations on Crew Management System (CMS).

Audit observations were circulated vide letter No. 2015/M(L)/466/Misc./Pt. dated 04.09.2015, in which it has been highlighted that full and proper implementation of CMS is not being ensured by Railways. Necessary data may be updated in CMS and action taken in this regard may be brought for discussion.

COACHING ITEMS

1. Enroute Coach detachments and Roller Bearing Failures:

- Enroute detachments and Roller bearing failures in the past three years including current year is placed at **Annexure-C-1**.
- Zonal railway and Production units to advise corrective action plan for minimizing the enroute coach detachments
- ICF to make presentation on preventive action taken to avoid failure of roller bearing in new manufacture coaches.
- Railways carrying out IOH/POH of LHB coaches to apprise status of availability of requisite facilities and action plan with mile-stones for setting up balance facilities.

2. Jerks in CBC coaches:

- All Railways should ensure provision of shims in CBC coaches as per instructions of RDSO/Railway Board in every trip.
- Uniformity of coupler design in CBC rakes to be maintained especially for CBC with balanced draft gear
- Utilisation of RSP sanction for retro fitment of CBC with balanced draft gear

3. Quality of Painting of coaches

- Compliance of MOMs issued vide letter no. 89/M(C)/137/22/Vol.III dated 08.09.2015

4. OBHS:

- Coverage of trains under OBHS vis-à-vis target in the year 2015-16 is placed at **Annexure C-2**.
- A total of about 150 nos of trains are to be covered under OBHS. Zonal railways to advise the milestones and target dates for commissioning OBHS on these trains
- Progress of Territory based OBHS to be introduced on NWR and NFR should be advised by these railways.
- Status of on line monitoring by Web/SMS based service.
- Progress on introduction of Biometric attendance system in OBHS be advised by zonal railways.

Annexure C-1

ENROUTE COACH DETACHMENTS 2015-16 (Apr-Aug) Ownership								2014-15 (Apr-Aug)						
Rly	A	B	C	D	E	F	Total	A	B	C	D	E	F	Total
CR	3	0	0	0	0	2	5	3	0	0	0	1	0	4
ER	2	1	0	0	0	0	3	1	4	1	0	0	0	6
ECR	1	1	0	0	0	0	2	2	2	0	0	0	0	4
ECoR	4	0	0	0	0	1	5	4	2	1	0	0	0	7
NR	2	2	1	0	0	0	5	2	1	1	1	0	1	6
NCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NER	0	0	0	0	0	0	0	1	1	0	0	0	0	2
NFR	1	1	0	1	0	1	4	2	4	0	0	2	0	8
NWR	0	0	0	0	1	0	1	0	0	0	0	0	0	0
SR	2	0	2	0	0	2	6	4	3	0	0	0	0	7
SCR	0	0	0	0	1	0	1	0	0	0	0	0	0	0
SER	2	0	0	0	0	1	3	2	0	1	0	1	0	4
SECR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWR	4	0	0	0	0	0	4	1	0	0	0	1	1	3
WR	0	0	0	0	0	0	0	2	0	1	0	0	0	3
CR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IR	21	5	3	1	2	7	39	24	17	5	1	5	2	54

ENROUTE COACH DETACHMENTS 2014-15(Apr-Mar)								Legends - A-Roller Bearing Failure B-Bogie & Suspension Gear Defects C-Wheel Flats/Air Brake System defects D-Draw & Buffing Gear defects E-Failure of Major Structural members of Coach Body (Head Stock, Sole Bar failure) F- Other Misc.Defects
Rly	A	B	C	D	E	F	Total	
	5	2	0	2	1	1	11	
ER	2	5	2	0	0	0	9	
ECR	2	4	1	0	0	0	7	
ECoR	10	5	1	0	0	0	16	
NR	6	10	3	1	0	1	21	
NCR	1	0	0	0	0	0	1	
NER	1	2	0	0	0	0	3	
NFR	9	6	0	0	3	0	18	
NWR	1	0	0	1	0	0	2	
SR	9	6	1	0	2	1	19	
SCR	2	0	0	1	0	0	3	
SER	4	1	1	0	1	0	7	
SECR	0	0	0	0	1	0	1	
SWR	3	0	0	0	1	2	6	
WR	4	0	1	0	1	0	6	
WCR	1	0	1	0	0	0	2	
IR	60	41	11	5	10	5	132	

Status of Tender for On-Board House Keeping Services in Trains (as on 01.09.2015)				
Rly	Total Trains identified	Total trains covered under OBHS	Covered in 2015-16	Balance Target
Summary	709	556	31	153
Rly	Total No of Trains (Pairs) Identified	Total Out source + Departmental	Covered in 2015-16	Balance
SR	51	8	0	43
NR	99	77	0	22
NFR	40	39	13	1
ECOR	58	52	2	6
NER	25	25	1	0
SWR	36	13	-4	23
SER	41	33	0	8
SCR	38	38	1	0
CR	79	71	-2	8
ER	61	60	3	1
WR	62	30	5	32
NWR	35	34	0	1
ECR	31	31	4	0
NCR	14	14	4	0
SECR	20	20	0	0
WCR	19	11	4	8
TOTAL	709	556	31	153

FREIGHT ITEMS

1- Unloadable wagon arising & Repairs

To improve availability of wagons, prevention of damages is a must. A collaborative approach with the concerned sidings should be adopted.

Each Railway should carry out inspection of the sidings where damages are rampant and the siding owners may be advised of the improvement in infrastructure and handling practices required in order to avoid damage to wagons. Deterrent action may be initiated in case of no improvement. Efforts should be made, through FOIS or other means, to trace the siding where the wagon was damaged in the first place. Position of the Action taken should be submitted. A JPO on wagon damages has been issued with the approval of Board (MM & MT). The same may be implemented.

- i. MGS/ECR, NKJ/WCR, GY/SCR, JTJ/SR & VSKP/ECOR also need to create the required facilities and commence the work of unloadable repairs. The Railways shall communicate the target for completion of the sanctioned works and commencement of unloadable repairs at these identified depots.
- ii. Railway Board's approval has been accorded to SER, ER and ECR to carry out body repairs of BOXN, BCN & BOBRN wagons through the nearest Railway PSUs. This should be used to commission the stabled wagons on this account quickly. Zonal Railways to submit the progress regarding decreasing the ineffective and outturn of 'C' category unloadables.

2- Twin pipe freight trains

Twin pipe rakes with right powering would go a long way to generate section capacity. CMEs should give feedback about twin pipe operation and should ensure all twin pipe rake mention in FOIS with Rake ID.

Submit sanctioned RSP and plan for conversion of balance single pipe wagon into twin pipe. A significant percentage of twin pipe wagons are still running in single pipe rakes.

- a. ZRs to submit the current position regarding the segregation of available and operation of twin pipe wagons into twin pipe rakes, total CC rakes holding, number of single pipe rake and number of twin pipe rake in operation.
- b. Traffic Department of Railway Board and Zonal Railways shall be advised to ensure that the twin pipe rakes are not run as single pipe and their integrity is maintained. A JPO regarding the running of freight trains with twin pipe brake system has been issued vide Board's letter No. 2010/M(N)/60/10 Pt. II dt. 25.08.2015. ZRs to submit Action taken regarding the same.
- c. In case of non-availability of brake van, the rake should be run as twin pipe up to the last wagon ahead of the brake van. Action taken in this regard to be submitted.

The work of up-gradation of the infrastructural facilities required for increasing the holding need to be put on a fast track.

Statement of BOXNHL/BCNHL Wagons turned out by Railway Workshops (Twin Pipe & Single Pipe)

S.No.	Month/ Workshop	April 15		May 15		June 15		July 15		Aug 15		Total 15-16	
		Single Pipe	Twin Pipe	Single Pipe	Twin Pipe	Single Pipe	Twin Pipe	Single Pipe	Twin Pipe	Single Pipe	Twin Pipe	Single Pipe	Twin Pipe
1	Jhansi	118	0	89	2	143	19	115	12	60	101	525	134
2	Kota		24		65		59	33	37	56	60	89	245
3	Raipur	25		20			18		103		120	45	241
4	Rayanapadu		45		42		34		29		30		180
5	Kharagpur		4		2		16		31		39		92
6	Perumbur		1		1		8		2		1		13
7	Dahod				2		23		8		9		42
8	Jamalpur	125	12	90	6	36	8	80	9	100	4	431	39
9	Ajmer		1										1
10	Jagadhari	8	12		24		18		37		38	8	129
	Total	268	99	199	144	179	203	228	268	216	402	1090	987

WORKSHOP AND PU ITEMS

S.No.	Agenda Item
1.	<p>Development of Green Workshops: There is a proposal to develop Green Workshops and PUs. This shall include:</p> <ol style="list-style-type: none"> 1. IMS Certification 2. Water Audit and Action thereon 3. Energy Audit and Action thereon 4. Number of live trees per unit area (sq m) in workshop premises. 5. Atleast 20% of the Uncovered to be under green cover 6. Nil Discharge of polluting fluid effluents 7. Solid waste disposal system – Minimum Waste Discharge 8. Implementation of Document Management System 9. At least 20% energy switchover to Alternate Energy <p>Railways and PUs may like to offer their views along with possible nomination of units to be covered in the first phase. All future factories/ workshops should be conforming to Green Building norms with Minimum Waste (Solid and fluid) discharge. This may be ensured at the planning stage itself.</p>
2.	<p>Development of “Centers of Excellence in Skill Development”</p> <p>It is proposed to establish “Centers of Excellence in Skill Development” at the following units in first phase:</p> <ol style="list-style-type: none"> 1. Diesel Loco Modernization Works, Patiala 2. Integral Coach Factory, Chennai 3. Eastern Railway Workshop, Jamalpur 4. North Western Railway Workshop, Ajmer 5. Carriage Repair Workshop, Bhopal 6. South Central Railway Workshop, Lallaguda 7. North East Frontier Railway Workshop, New Bongaigaon <p>Norms of infrastructure and other requirements for these proposed ‘Centres of Excellence in Skill Development’ shall be issued soon.</p>
3.	<p>Reduction in holding of Rolling Stocks during POH and faster turnaround: Wagon workshops must strictly implement Board’s instructions dated 05/02/2015 on holding of wagons inside workshop (60% of monthly target) and in pocket yard (40% of monthly target). A system to record actual causes of detention of rolling stocks undergoing POH (like non-availability of spares, scope of work being far more excess than normal POH work etc.) must be introduced at workshops to facilitate review and system improvement.</p>

S.No.	Agenda Item
4.	Quality of Output from PUs and workshops: There have been cases of roller bearing failures in newly manufactured cases (mainly ICF). Workshop wise Position for Local Passing of Coaches and Wagons for 2014 – 15 and 2015 – 16 (till June 2015) is attached. Railways to present analysis and action plan to eliminate local passing of rolling stock from workshops

LOCAL PASSING OF BG COACHES							
Rly.	Works hop	Cumulative 2014-15			Cumulative 2015-16 (April-June)		
		Offered	Local Passing	%age	Offered	Local Passing	%age
CR	PR	116	0	0.0	26	0	0.0
	MTN	2141	0	0.0	543	0	0.0
	S.TOT	2257	0	0.0	569	0	0.0
ER	LLH	2910	301	10.3	669	116	17.3
	KPA	552	7	1.3	127	0	0.0
	S.TOT	3462	308	8.9	796	116	14.6
ECR	HRT	222	0	0.0	75	0	0.0
ECoR	MCSW	1530	24	1.6	336	0	0.0
NR	JUDW	1588	808	50.9	368	133	36.1
	AMV	1387	80	5.8	366	30	8.2
	S.TOT	2975	888	29.8	734	163	22.2
NER	GKP	1817	231	12.7	536	75	14.0
	IZN	348	0	0.0	92	0	0.0
	S.TOT	2165	231	10.7	628	75	11.9
NFR	NBQ	740	24	3.2	142	1	0.7
	DBWS	653	2	0.3	148	4	2.7
	S.TOT	1393	26	1.9	290	5	1.7
NWR	JU	963	0	0.0	262	0	0.0
	All	1439	0	0.0	370	0	0.0
	S.TOT	2402	0	0.0	632	0	0.0
SR	PWP	2082	13	0.6	524	2	0.4
	PWP(L	528	0	0.0	140	0	0.0
	GOC	913	0	0.0	233	0	0.0
	S.TOT	3523	13	0.4	897	2	0.2
SCR	LLGD	1465	0	0.0	378	0	0.0
	TYPs	1084	0	0.0	275	0	0.0
	S.TOT	2549	0	0.0	653	0	0.0
SER	KGP	1637	142	8.7	406	28	6.9
SWR	MYSS	1381	42	3.0	209	20	9.6
	UBLS	1786	1	0.1	306	0	0.0
	S.TOT	3167	43	1.4	515	20	3.9
WR	PL	1480	67	4.5	332	0	0.0
WCR	BPL	586	0	0.0	154	0	0.0
IR		29348	1742	5.9	7017	409	5.8

Average Corrosion Manhours during MLR of Coaches at CRWS, Bhopal

2014-15			2015-16			Avg. of 2014-15 & 2015-16
Railway	No. of coaches	Avg. Corrosion Manhours	Railway	No. of coaches	Avg. Corrosion Manhours	
CR	32	2502	CR	6	2333	2417
EC	46	2789	EC	24	2558	2674
ECO	89	2850	ECO	42	2774	2812
ER	45	3810	ER	16	3690	3750
NC	6	2873	NC	0	0	2873
NE	54	2478	NE	25	2512	2495
NF	25	3062	NF	4	3103	3082
NR	53	2631	NR	36	2775	2703
NW	28	2718	NW	4	2223	2471
SC	59	2818	SC	39	2850	2834
SE	51	3016	SE	20	3051	3033
SEC	6	2836	SEC	5	2485	2660
SR	60	2922	SR	20	2575	2748
SW	0	0	SW	1	2050	2050
WC	21	1972	WC	8	2240	2106
WR	25	2854	WR	2	2896	2875

DEVELOPMENT ITEMS

1. Bio-toilets in coaches:

1.1 Strategy for achieving the target of fitment of elimination of direct discharge toilet system from entire coaching fleet by 2021-22. The Action plan for fitment of bio-toilets in all the coaches till 2021-22 is attached as "**Annexure D1**".

1.2 Current Year "Target & Progress"-The current year target is fitment of 17,000 bio-toilets. This is to be achieved by fitment of about 8,000 bio-toilets by PUs in new coaches and about 9,000 bio-toilets by Zonal Railways in existing in-service coaches. As per the information available in Board's office, the bio-toilet fitment "Targets v/s Progress" in current fiscal till 31.08.2015 by PUs and ZRs is as below:

Quarterly targets	Q1 (Apr-Jun)	Q2 (Jul-Sept)	Cumulative (Q1 + Q2)	Q3 (Oct-Dec)	Q4 (Jan-Mar)	Total
Target	2550	3400	5950	5150	5950	17000
Actual (till 30/8/15)	2790	1921	4711	-	-	4711
Excess/shortfall	(+) 240	(-) 1479	(-) 1239	-	-	-

The fitment done in new coaches by PUs & retro-fitment done by ZRs in existing in-service coaches is as below:

New		MLR		POH		DMA+AUG		Bolted		Total	
CH	BT	CH	BT	CH	BT	CH	BT	CH	BT	CH	BT
1087	3865	134	524	45	91	74	203	7	28	1347	4711

1.3 Railway wise target vis-a- vis fitment has been annexed as **Annexure-"D2"**. Railways to comment on the progress of fitment of bio-Toilet and their action plan to meet current year's target.

1.4 Bio-Toilet fitment in LHB coaches: PU's to give their action plan for fitment of bio-toilet in LHB coaches. All PUs (RCF/KXH, ICF & RCF/RBL) to expedite fitment of bio-toilets in LHB coaches in addition to fitment in conventional coaches.

1.5 Progress in MLR shops- All MLR workshops (CRWS/WCR, PR/CR & JHSW/NCR) has been advised to turn out all MLR coaches fitted with Bio toilets.

- CRWS/WCR's compliance percentage is about 60% i.e. out of 215 eligible coaches, 126 coaches were turned out fitted with bio-tanks and rest were turned out with brackets only till 31.08.2015. The performance in July and August is satisfactory as CRWS/BPL has turned out all eligible MLR coaches fitted with Bio-Toilets in these two months. In remaining months of the year, CRWS must turn out 100% bio-toilet fitted coach including retro-fitment in DSLR also and must adopt the latest design as being followed by PUs.

- Parel/CR and JHSW/NCR must also turn out 100% bio-toilet fitted coach undergoing MLR in the remaining months of the year.

Workshop-wise details of fitment in coaches undergoing MLR is annexed as Annexure D3.

1.6 Status of Procurement of Bio-Toilet by zonal Railways- Based on the information available in Board's office, the position of procurement of IR-DRDO Retention Tank Systems at all zonal railways, as on 15.09.2015, is as below:

Railways	CR	EC	ECR	ER	NCR	NER	NFR	NR	NWR	SCR	SEC	SER	SR	SWR	WCR	WR	IR
PO placed	48	00	00	00	00	2000	00	00	288	400	00	198	650	00	480	00	4064
Demand raised or estimate under process etc.	1430	554	92	192	296	0	1480	526	560	776	216	360	00	160	2091	864	9597

Till 15.09.2015, POs for about 4,000 bio-toilets have been placed. Railways to discuss about the strategy to be adopted for accelerating the procurement and fitment of bio-toilets in existing in-service coaches. The monthly status of fitment of bio-toilets by Zonal Railways must be furnished on monthly basis for compilation at Board as the over-all fitment progress is being monitored by Hon'ble MR as well as Hon'ble PM through E-Smiksha.

1.7 Common design of bio-tank: The tank design being followed by PUs using C-type mounting bracket need to be universalized **for fitment in new coaches as well as for retro-fitment in existing in-service coaches**. PUs and RDSO to discuss and finalize the design.

1.8 Mounting arrangement (bolted design)- To accelerate retro-fitment in existing coaches: ZRs, PUs and RDSO to discuss on RDSO drawing No.CG-15028 and RDSO drawing No. CG-14004 to accelerate the retro-fitment in view of achieving the target of elimination of direct discharge toilet system from entire coaching fleet by 2021-22. Further adoption of bio-tank to common design (as mentioned in para 1.6 above) may also be discussed for fitment in drawing CG-15028.

1.9 Manufacturing of bio-tanks at MIBW/SECR:

- Till date, no tank is manufactured/turned out by SECR from its Environment Friendly Coach Toilet Unit at MIBW/NGP in current fiscal. SECR to expedite procurement process for manufacturing of bio-tanks against the target of manufacturing 2500 bio-tanks per annum.
- In addition to expedite manufacture of tanks for passenger lavatories, MIBW must expedite the manufacturing of bio-tanks for Guard's lavatory of conventional DSLR

coach. These tanks for guard's lavatory are required for fitment in DSLR coaches for the purpose of Green Train Stations/corridors. MIBW should give their detailed action plan with timelines.

1.10 New developments in bio-toilet design:

- NWR, NR & SR to share their experience with S-bend in place of P-trap & replacing ball valve/operating mechanism.
- NWR to present the performance of **bolted design bio-toilets** fitted in coaches.

2. Electronic-in-Motion Weighbridge (EIMBW):

2.1 Status of development of weighbridge design by RDSO may be discussed by RDSO.

2.2 Steps taken by RDSO and Railways for making software tamper proof.

2.3 Standard **weights in reference wagons to simulate the overloading condition.**

RDSO has been asked to explore the possibility to keep Test wagon in the range of 95-100 MT to check overweight condition of wagons and their speed. RDSO may give the feedback.

2.4 Site condition for installation of EIMWBs:

- **Gradient issue:** Railway Board is pursuing Department of Legal Metrology to amend the relevant clause in GOI Gazette Notification to address the issue of installation of EIMWBs on a minimum of 100 metre track on either side with a gradient of not more than 1:400. the issue is pending as the sixth trial at Chirai due to incomplete trials. Railways have been permitted to install and to operate EIMWBs on above conditions.
- **Points and crossings issue:** It was advised to all Zonal Railways vide letter no. 98/Dev.Cell/IDEI/1, dated 07.04.1999 that there will be no points or crossings upto a distance of 100 meters on either side of weighbridge. However, certain railways have install weighbridge in which points and crossing within 100 meters (both railway and private). RDSO has been advised to conduct the trial on effect of points and Crossings on accuracy of EIMWB in SER at four locations. RDSO to comment on the status of trial.

2.5 AMC issues of EIMWBs:

- ECR is maintaining WBs through AMC with Pragati Instrumentation (P) Limited, Bokaro, Jharkhand. AMC shall be with OEMs.
- As per new specification, Tenderers shall be required to enter into AMC for a duration of 6 years from the date of expiry of warranty period or 8 year from the date of commissioning whichever is later. This covers the codal life of EIMWB.

2.6 Development of load cell based technology for EIMBW: The present technology is based on strain gauge and has certain limitation like joint in the rail, installation of

curvature and gradient and limitation of speed. The load cell technology is available in which there is no joint in rails, accuracy and repeatability of the system is better, concrete sleeper is replaced with galvanized metal structure to give perfect parallelogram and operating speed is higher. RDSO may examine the adoption of new technology in Indian Railways.

3. Implementation of Predictive maintenance System on IR- Action is being taken to switchover from time based maintenance system to Predictive maintenance system. In the Predictive maintenance system the condition of critical components are monitored continuously and trending is done. Based on condition of the components the maintenance decisions are taken. The following projects have been undertaken in this.

3.1 Predictive Maintenance- Trackside diagnostic equipment:

a) Online Monitoring of Rolling Stock (Consisting of Acoustic Bearing Detectors ABD & WILD):

To give early warning of any defects in axle box bearing and defects in the wheels & to eliminate chances of failure enroute OMRS is being installed at 65 location in IR. OMRS consists of ABD & WILD. Acoustic Bearing Detectors give an early warning on possible defects in the bearing box, before reaching the stage of hot box whereas WILD system measures the impact of wheel on tracks to automatically identify the defective wheels in rolling stock. Proof of Concept has already been done at Bakkas in NR and tender for procurement of 25 such systems are under finalization.

b) Vision based Car Structural Component Monitoring System: Under slung defective missing & hanging components of rolling stock are detected by this system using high speed optical imaging with multiple cameras. The system Enhances safety of rolling stock by online inspection of undercarriage equipments. Pilot project at 10 location is sanctioned as Pink book item no 758 of 2015-16. RDSO has been advised for drafting the specification the progress may kindly be discussed by RDSO.

c) Vision Based Computerised wagon inspection system: Approx. 400 Wagons are damaged during loading/unloading every month on IR. The damaged wagons loses its earning capacity and av. Rehabilitation cost is 5Lac/Wagon. Railway is unable to levy any damage charges due to lack of evidence. This system captures the complete image of a wagon before & after placement in siding and compares two image to pinpoint and quantify the extent of damage. The system ensures Recovery of cost of damage. Increased availability of wagons due to cautious loading.

3.2 On-board Condition Monitoring System (OBCMS)- To augment the safety features of passenger coaches, freight cars, locomotives various on-board sensors such

as On-board axle box temperature sensors, Vibration monitoring sensors, Smoke alarm sensors, Fire detection sensors, Coach interior temperature sensors, etc. are under planning for fitment in coaches and other rolling stocks as per requirement to monitor the health and safety of key components of the rolling stock to enable Predictive Maintenance. The continuous trending of parameters result in improved safety, improved reliability, higher utilization, increased up-time and reduced operation cost of the railway assets. EoI has been floated for procurement and installation of this system.

THE ACTION PLAN OF FITMENT OF BIO-TOILETS

Presently, Bio-toilets are being proliferated in passenger coaches over IR in the following ways:

1. Fitment of bio-toilets in new coaches
2. Retro-Fitment of bio-toilets in existing in-service coaches during mid-life rehabilitation (MLR) of coaches
3. Retro-fitment of bio-toilets in existing in-service coaches in which both-side headstocks (H/S) of the coach body are changed during periodic overhaul (PoH) of coaches

With the present pace of fitment in new coaches, IR is envisaging to achieve the target of elimination of direct discharge toilet system from all newly manufactured coaches by 2016-17. However, with present policy of retro-fitment of bio-toilets in only those existing in-service coaches in which both sides of Head Stocks (H/S) will be replaced, it will take about 25 year to achieve the complete elimination of direct discharge toilets from entire coaching fleets. In order to achieve the target by 2021-22, alternate mounting arrangement such as bolted type design, which will not require replacement of Head Stocks for retro-fitment of bio-toilets in existing in-service coaches, is under development and trial.

For 33500 BG coaches (as detailed in Table – A below), year-wise action plan for retro-fitment in 7 years is prepared (as detailed in Table – B below) considering successful trial with the alternate design for retro-fitment along with streamlined supply of the bio-toilet material:

Table - A			
BG Coach holding details			
1. BG coaches available	48000	2. Condemnation by 2021-22	10500
3. Coaches to be retro-fitted	33500	4. Time available by 2021-22	7 years

Figures in “number of coaches”

Table - B								
Year-wise action plan for retro-fitment								
Retro-fitment	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Welded brackets								
MLR	850	850	850	850	850	850	850	5950
PoH (H/S replacement)	500	500	550	550	550	550	550	3750
DMA	1100	500	-	-	-	-	-	1600
Alternate mounting								
Bolted type	50 (trial)	2150	3100	3600	4100	4100	4100	21200
Total	2500	4000	4500	5000	5500	5500	5500	33500

As per the information available in Board’s office, status of retro-fitment of bio-toilets by Zonal Railways in existing in-service old coaches till 31.08.2015 is as below:

	MLR		PoH		DMA		AUG		BOLTED		Total		Target (in coaches)		Funds
Rlys.	CH	BT	CH	BT	CH	BT	CH	BT	CH	BT	CH	BT	PoH/DMA /Aug.	MLR	Rs. in Cr.
WCR	126	504	0	0	0	0	0	0	0	0	126	504	105	692	4.5
CR	6	12	0	0	19	38	0	0	0	0	25	50	151	202	6.0
NWR	0	0	3	6	0	0	0	0	7	28	10	34	140	-	6.0
WR	0	0	2	4	13	31	1	2	0	0	16	37	195	-	8.0
ER	0	0	0	0	7	32	1	2	0	0	8	34	88	-	6.0
NER	0	0	1	4	1	2	0	0	0	0	2	6	103	-	6.0
SECR	0	0	0	0	0	0	0	0	0	0	0	0	61	-	6.6
SCR	0	0	0	0	1	4	13	26	0	0	14	30	194	-	8.0
SR	0	0	7	13	12	24	0	0	0	0	19	37	344	-	9.5
SWR	0	0	26	52	1	2	0	0	0	0	27	54	58	-	3.0
NCR	2	8	0	0	0	0	0	0	0	0	2	8	27	40	2.0
ECOR	0	0	4	8	13	26	0	0	0	0	17	34	155	-	6.0
NFR	0	0	0	0	2	4	0	0	0	0	2	4	99	-	6.0
SER	0	0	0	0	7	14	0	0	0	0	7	14	142	-	6.0
ECR	0	0	0	0	0	0	0	0	0	0	0	0	81	-	4.0
NR	0	0	0	0	0	0	0	0	0	0	0	0	200	-	7.0
IR	134	524	43	87	76	177	15	30	7	28	275	846	2143	934	94.6

CH - Coaches

BT - Bio-toilets

MLR - Bio-toilets fitted in coaches undergoing Mid-life Rehabilitation

PoH - Bio-toilets fitted in coaches undergoing Periodic Overhauling during headstock replacement

DMA - Bio-tanks fitted in Coaches with Dual Mounting Arrgt. i.e. coaches turned out without any bio-tank but with welded brackets for mounting of bio-tanks at later stage,

AUG - Bio-tanks fitted in those coaches which were partly fitted with bio-tanks generally in diagonally opposite lavatories and rest two tanks are fitted at later stage during augmentation

Bolted- Alternate method of mounting (bolting of mounting brackets with H/S in place of brackets welded with H/S)

As per the information available in Board's office, status of retro-fitment of bio-toilets by MLR workshops of Zonal Railways as on 31.08.2015 is as below:

1. Coach Rehabilitation Workshop, Bhopal (CRWS/BPL)/WCR:

- MLR target for the year 2015-16 is 692 coaches.
- 504 bio-tanks are fitted in 126 coaches during 2015-16 till Aug.'15.
- Year-wise details of fitment vis-à-vis MLR outturn is as below:

Year	MLR coaches details			Out-turn of Coaches		
	Total MLR done	Coaches in which retro-fitment cannot be done *	Eligible coaches for retro-fitment	With Bio-toilets Coaches (bio-tanks)	With brackets only (DMA coaches)	With holes drilled on H/S
2012-13	-	-	-	15 (30)	7	0
2013-14	593	146	447	77 (222)	162	0
2014-15	597	109	488	96 (356)	355 (356-1)	36
2015-16 (up to Aug.'15)	249	34	215	126 (504)	71	18
Total				314 (1112)	595	54

Month-wise progress report for the year 2015-16						
April 15	48	6	42	10 (40)	27	5
May 15	50	6	44	2 (8)	37	5
June 15	52	9	43	35 (140)	7	1
July 15	52	6	46	42 (168)	0	4
Aug. 15	47	7	40	37 (148)	0	3
Total	249	34	215	126 (504)	71	18

2. Parel Workshop (PR)/CR:

- MLR target for the year 2015-16 is 202 coaches.
- 12 bio-tanks are fitted in 6 coaches during 2015-16 till Aug.'2015.

3. Jhansi Workshop (JHSW)/NCR:

- MLR target for the year 2015-16 is 40 coaches
- 8 bio-tanks are fitted in 2 coaches during 2015-16 till Aug.'2015.

PROJECT ITEMS

1. Closure report of Projects:

(i) The Zonal Railways/ PUs to give list of pending project completion reports and the targets for their closure. Zonal Railways/ PUs to give information in the given format.

Description	Year of sanction	Date of completion	Target for closure	Remarks
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(ii) In the recent past many capacity enhancement/ expansion projects have been undertaken/ completed on Zonal Railways/ PUs. The Zonal Railways/ PUs should evaluate the results/ benefits achieved from these projects vis-a-vis original plan, in terms of additional capacity/ improved performance etc. Zonal Railways/ PUs to give information in the given format.

Description	Year of sanction	Capacity before commencement of work	Current capacity	Remarks
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2. Unutilized assets: The Zonal Railways/PUs to assess the unutilized infrastructural assets and make out an action plan for gainful utilization of the same.

Description	Year of sanction	Date of commissioning	Capacity	Remarks

M&P

1. Throw forward of M&P

Railways were requested vide this office letter dated 20.07.2015 to update the position of pending M&Ps (sanctioned under M&P program and lump sum powers of GMs) which are still under procurement at various stages in the IRMNP portal. This is required to have a realistic estimate of the throw forward of M&P sanctions.

2. Indents pending with Railways

It is seen that Railways do not sent indent to COFMOW even after 2-3 years of sanction. The indents should be sent to COFMOW within 6 months of the issue of sanction letter. If any M&P is not required, due to any reasons, that may be dropped and not kept pending.

Disaster Management

1. Disaster Management Institute and Safety Village at Bangalore

SWR should expedite the setup of Disaster Management Institute and Safety Village at Bangalore as the project is already delayed too much. Action plan to be given by SWR.

Environment and Housekeeping Management..

1. **Formation of EnHM Wings at ZR HQs and Divisions:**
Policy circular on Scope and Formation of Environment & Housekeeping Management (EnHM) wing in ZRs issued on 28.8.15. Roll out strategy issued on 31.8.15. To start with 3 zones – NR, SCR & SR. Exclusive JAG officer at ZR HQ and SS officer at Division to be placed under CME / Sr DME with supervisors / staff based on workload. One HOD to be nominated at HQ for and steering the formation of EnHM wing and necessary coordination.
2. **IMS accreditation including Environment management:**
Letter/directive was issued to all ZRs and PUs on 11.06.2015 with concurrence of Railway Board Finance and approval of Board for obtaining IMS accreditation including Environment Management for all the loco sheds and major coaching and wagon maintenance depots including EMU/DEMU car sheds, in addition to all workshops already advised.
 - i. 26 out of 44 workshops are accredited, balance to be completed in 2015-16.
 - ii. 5 out of 44 diesel sheds are certified.
 - iii. 12 major wagon depots identified for certification.
 - iv. Major coaching depots to be certified.
3. **Waste Water Recycling Plant (WRP) at Coaching depots:**
A work of setting up of WRPs at 10 Coaching depots on IR has been sanctioned in 2015-16 vide item no. 864 of NR Pink Book. Coaching depot locations were advised vide Board's letter no. 2015/Environ/03/01 dt. 17.03.15. No progress is seen even after lapse of six months. Railway should fix agency early.
Further, ZRs have been asked vide Board's letter no. 2015/EnHM/03/06 dt. 10.09.15 to confirm the locations of WRP (as advised by Board) to process for splitting of the sanctioned work among the concerned Zonal Railways. Confirmation is awaited from the railways except ER & NCR.
4. **Bio diesel:**
5% blending of bio diesel as Traction Fuel all over IR. PO/LOA issued in 10 Railways and supplies started in 5 Zones viz ER, NR, SR, SCR & WCR. Slow progress in remaining Zones.

Compliance of last CMEs' Conference held on 24th & 25th April, 2015

Traction

Item	Item	CR	ER	ECR	ECOR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
1.3	MM mtg.	✓	✓		✓	✓	✓		X	✓	✓	✓	✓	✓	✓	✓	✓
1.7	e-samisha	✓	✓		✓		✓		X	✓	✓	✓	✓	✓	✓	✓	✓
1.8	Push pull	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	
1.25	HHP Spares	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
1.26	SR – HHP	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-
2.7	SER – Haldia	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-
3.1.1	Bio Dsl	X	✓	X	✓	✓	50%	✓	50%	X	✓	✓	✓	✓	X	✓	✓
3.1.2	IMS	✓	50%	X	X	X	X	✓	X	X	X	✓	X	X	X	✓	X
3.2	APU (%)	25	28	44	34	48	4	44	51	57	-	32	26	32	56	40	16
3.3	HHP Spares	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	50%	✓
3.4	DEMU plg.	X	✓		-	✓	✓		✓	X	✓	✓	✓	✓	✓	✓	-
3.5	DLS Augmt.	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
3.6	SPAD	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
3.7	RDSO mod.	✓	X		✓	X	✓		✓	✓	✓	✓	✓	✓	✓	✓	50%
3.7	RDSO mod.	✓	X		✓	X	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
3.7	RDSO mod.	✓	X		✓	X	✓		✓	✓	✓	✓	✓	✓	X	X	50%
3.8	CRS sanct.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓
3.8	CRS sanct.	X	X	✓	X	X	X		X	X	X	X	X	X	X	✓	X

Coaching

Item No.	Item	CR	ER	ECR	ECOR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
1.3	MoM of MM's First Mtg.	#			#	#	#	#			#	#	#	#	#	#	U/P
1.5	60 RB Failure in 2014-15, not acceptable. Ensure proper earthing	√	√		√	√	√	#			√	√	√	√	√	√	√
1.6	Inspection of used RB and other maintenance practices	√	√		√	√	√	#			√	√	√	√	√	√	U/P
1.7	e-samiksha	#			#	X	#	#			X	#	X	#	#	#	#
1.10	Housekeeping department	#	√		#	U/P	#	#			√	#	#	U/P	U/P	√	#
1.12	Mechanized laundries and water recycling plants	√	√		√	U/P	U/P	U/P			√	U/P	X	U/P	U/P	U/P	U/P
1.13	OBHS- implemented on priority and the quality of the performance	√	√		#	√	√	√			U/P	U/P		√	U/P	U/P	U/P
1.14	Mobile app "Clean My Coach".	√	√		#	#	#	U/P			U/P	#		#	U/P	U/P	#
1.15	If adequate maintenance spares for coaches are not available, letters -from GMs to Board should be addressed.	#	U/P		#	√	#	#			√	#		#	U/P	U/P	√
1.16	exceeding bio toilet targets	√	U/P		#	U/P	√	U/P			U/P	U/P	U/P	U/P	U/P	U/P	U/P
1.17	functioning of bio-toilets in open line	#	√		#	U/P	U/P	#			U/P	U/P	#	#	U/P	√	U/P
1.18	Okha, Porbandar, Katra and Rameshwaram have been identified as green stations	#	X		#	U/P	X	#			U/P	#	#	#	u/P	U/P	U/P

Item No.	Item	CR	ER	ECR	ECOR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
2.2	fitted with shims between the coaches to reduce slack.	√	√		#	√	#	#			√	U/P	√	#	√	√	#
4.1	CTS stations should be commissioned	√	√		√	√	√	√			U/P	U/P	√	√	√	√	√
4.2	It was emphasized that adequate halt of trains (15-20 minutes) legislated at CTS station has to be ensured.	#	√		√	U/P	X	√			U/P	U/P	U/P	U/P	U/P	U/P	√
4.3	doing CTS, in 10 minutes by having one team for one coach	X	X		RB	X	RB	#			#	#	X	#	#		RB
4.4	Increase the cost of CTS	#	X		X	X	RB	#			#	#	#	#	#	#	#
4.5	30- Setting up of mechanized laundries	#	X		U/P	U/P	U/P	U/P			U/P	√	√	√	√	#	U/P
4.6	Free to identify the locations for setting up the laundries	#	U/P		√	U/P	U/P	#			#	√	#	#	#	#	√
4.7	Watering	U/P	U/P		√	√	X	√			U/P	U/P	U/P	U/P	U/P	#	√
4.8	Expedite the reply to Board's letter 96/M(C)/141/77 dated 23.01.2015	#	√		√	√	X	#			U/P	U/P	U/P	#	U/P	√	√
4.9	Full watering of trains has to be ensured	√	√		√	√	√	√			√	#	√	√	#	#	√
4.10	Railways raised the issue of the notification of trains without consulting Mechanical Department regarding the facility for maintenance, watering etc.	#	√		#	√	U/P	#			√	#	√	√	#	#	#
4.11	OBHS	√	√		U/P	√	U/P	U/P			U/P	√	√	√	U/P	X	U/P
4.12	Dustbins	U/P	√		U/P	U/P	U/P	U/P			U/P	U/P	U/P	U/P	U/P	U/P	#

Item No.	Item	CR	ER	ECR	ECOR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
4.13	Enroute coach detachment and roller bearing failures	U/P	U/P		#	#	√	√			U/P	#	√	U/P	U/P	#	#
4.15	RSP	U/P			#	#	√	#			U/P	U/P	U/P	#	u/P	U/P	#
4.16	New Coach Designs		X		U/P		X	#				X		X	X	X	U/P
4.18	augmented to 26 coach length	U/P	X		#	U/P	U/P	#			U/P	U/P		X		#	#
4.19	Railways must utilize the RSP sanctions	X			#	U/P	X	#			U/P	X	X	U/P	X	U/P	#
4.20	Review of POH periodicity of coaches	U/P	U/P		X	X	X	U/P			#	U/P	X	#	X	U/P	X
4.21	Not indicating brands of coach cleaning chemicals in their tenders.	√			√	√	√	√			U/P	U/P	#	√	#	√	√
4.22	All efforts to curtail wastage of water	√	√		√	√	√	#			√	U/P	√	√	√	#	√

√ = Implemented X = Not implemented

U/P = Under process

= Noted for implementation

Freight

Item No.	Item	CR	ER	ECR	ECoR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
5.1	Overdue running of rakes	X	√		√	(noted)	√		√	X	√	√	√	X	√	√	√
5.2	Twin Pipe rakes	√	Nil		√	√	√		√	√	√	√	X	√	√	√	X
5.3	Maintenance of BOXNHL & BCNHL	√	√		NA	√ regarding transfer of rakes from WR; No reply regarding infrastructural facilities	(noted)		√	X	√	No info given	√	√	√	√ regarding transfer of rakes from WR; No reply regarding infrastructural facilities	√
5.4	Arising and Repairs of unloadable wagons	√	√		√	√	√		√	√	√	No reply given	X	√	√	√	√
5.5	Increase in POH capacity	√	√		Nil	X	√		No reply given	√	√	√	√	√	NA	√	(noted)
5.6	Sagging of centre sill of BRN wagons	NA	Nil		NA	NA	NA		NA	NA	NA	NA	X	NA	NA	NA	NA
5.7	POH of BOBRN wagons	NA	NA		√	NA	No		NA	NA	NA	√	NA	√	NA	NA	NA

Workshop

Item No.	Item	CR	ER	ECR	ECoR	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SECR	SWR	WR	WCR
6.1	Management of Environment issues	√	√		√	√	√		√	√	√	√	√	√	√	√	√
6.2	Systems for addressing quality concerns	√	√		√	√	√		√	√	√	√	√	√	√	√	√
6.3	POH capacity planning	√	√		√	√	X		√	√	√	√	√	√	√	√	√

Development

#	Item		CR	ER	ECR	EC _o	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SEC	SWR	WR	WCR	RCF	ICF	RBL	RDSO	CRIS	
MM mtg.																								
7.1	Fitment of 17,000 bio-toilets in 2015-16	New	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓✓	✓✓	xx	NA	NA	
		MLR	✓?	NA	NA	NA	NA	✓	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓	NA	NA	NA	NA	NA	
		PoH	xx	xx	xx	✓?	xx	xx	✓?	xx	✓?	✓✓	xx	xx	xx	✓✓	✓?	xx	NA	NA	NA	NA	NA	
		DMA	✓✓	✓✓	xx	✓✓	xx	xx	✓?	✓?	xx	✓✓	✓?	✓✓	xx	✓?	✓✓	xx	NA	NA	NA	NA	NA	
		Aug.	xx	✓✓	xx	xx	xx	xx	x	x	x	xx	✓✓	xx	xx	xx	✓✓	xx	NA	NA	NA	NA	NA	
		Bolted	xx	xx	xx	xx	xx	xx	x	x	✓✓	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	NA	NA
		Repl.	xx	xx	xx	xx	xx	xx	x	x	xx	xx	xx	xx	xx	xx	xx	xx	xx	NA	NA	NA	NA	NA
	MCDO		✓✓	xx	xx	xx	xx	xx	x	x	✓✓	xx	✓✓	xx	xx	✓✓	✓✓	xx	NA	NA	NA	NA	NA	
7.2	Design for retro-fitment		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓✓	NA		
7.3	Bio-tank design for all types of coaches		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓✓	NA		

#	Item		CR	ER	ECR	EC _o	NR	NCR	NER	NFR	NWR	SR	SCR	SER	SEC	SWR	WR	WCR	RCF	ICF	RBL	RDSO	CRIS
7.4	Retro-fitment in MLR		✓?	NA	NA	NA	NA	✓✓	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓✓	NA	NA	NA	NA	NA
7.5	Tanks mfg. at MIBW		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓?	NA	NA	NA	NA	NA	NA	NA	NA
7.6	Vetted DE of LMS		NA	NA	NA	NA	?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	✓
	Vetted DE of FMM		NA	NA	NA	NA	?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	xx

Legends:

- ✓✓ - Action taken
- ✓? - Negligible action taken
- xx - No action taken
- NA - Not applicable

M&P

Item No.	Item	CR	ER	EC R	ECo R	NR	NC R	NE R	NF R	NW R	SR	SC R	SE R	SEC R	SW R	WR	WC R	CL W	DL W	IC F	DM W	RW F	RC F
6.4	PU Painting of Coaches	X	X		UP*	X	X	X	UP*	UP*	√	UP*	X	X	UP*	UP*	√		NA		NA		√
6.5	Reconditioning of M&P	√	X		√	√	√		√	√	√	√	√	X	X	√	√		√		X		
6.6	Utilisation of CNC Machines	X	X		√	UP*	√		√	√	√	√	√	√	√	√	√		√		√		X
8.3	Initiatives taken under "Make in India" programme	NA	NA		NA	NA	√		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		√		√
9.1	Disaster Management	NA	√		NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		
10.6	Transfer of Supervisory posts from Zonal Railways to IRIMEE	X	X		X	X	X		NA	X	X	X	X	X	X	X	X		NA		NA		

* Under Progress