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

No. 2015/M (L)/466/1(4A)

New Delhi, dt. 27.03.2017

Chief Administrative Officer,
DMW/ Patiala,

General Manager,
DLW/ Varanasi,

CEEs & COSs
All Indian Railways,

EDS (MP)
RDSO/Lucknow,

Sub: Minutes of 5th Bulk Indent Meeting held at DMW on 3rd March, 2017.

ALCO Bulk Indent Meeting was held at DMW/PTA on 3rd March, 2017 addressed by Addressed by Addl. Member (Elect.)/Railway Board & CAO(R) /DMW.

Minutes of the above meeting has been approved and uploaded on Indian Railways' website.

www.indianrailways.gov.in

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Railway Board Directorate

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Mechanical Engineering

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Circulars

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Mechanical (Traction)

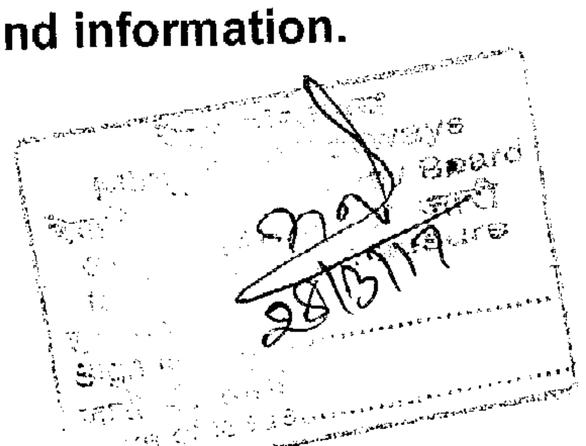
The same may be downloaded for information and necessary action please.

O/C Please Issue
28/3/17

27.3.17

(Vivek Kumar)
Exec.Dir. Mech. Engg.(Tr.)
Railway Board

Copy to: CMPE/CMPE,(D)/ All Indian Railways for kind information.



FINAL Draft Minutes of 5th Bulk Indent Meeting held at DMW on 3rd March, 2017

Address by CME/DMW

CME welcomed AM/Elect. and other officers from Board, RDSO, DLW and Zonal Railways. He further expressed that BIM is useful for Zonal Railways and is a platform for getting feedback on issues of Diesel Locos. This helps DMW to look further to assess ZR demand.

He further stated that DMW has supplied sufficient Cam Gears to ZR. Long pending issue of WDP1 has been resolved by DMW and DMW has turned out 4 WDP1 locos in current year. He further stated that DMW is committed to meet ZR demand of AC motors and will further increase its production in 2017-18.

Address by COS/DMW

COS mentioned that timely submission of indents will help DMW to supply adequate spares to ZR.

Regarding rate contracts he asked that Zonal Railways to send their requirements for optimum utilization of funds and Zonal Railways should avoid separate Purchase Orders at their end for those items for which rate contract has been placed by DMW.

Address by FA&CAO/DMW

FA&CAO mentioned that ZR should ensure availability of funds. In addition, the demand should be critically examined at shed level. Further, cases of non-acceptance of debits by ZR should not happen as it causes disruption in material distribution and planning.

Address by CAO(R)/DMW

CAO(R)/DMW welcomed all participants in 5th BIM. He opined that this is first BIM under unified Traction Wing and also being chaired by AM (Electrical) for the first time. This is a major and radical change, throwing up an opportunity for learning from each other.

Although DMW is rebuilding locos for last 25 years, a lot of technological change is expected to be incorporated in these diesel locos in the coming years.

In this year, DMW has manufactured locos for non railway customers and rebuilt WDP_1 for the first time.

DMW shall be rebuilding WDP3 locos in next year.

First CReDI loco has also been turned out. DMW is also taking-up rebuilding of HHP locos. There has been 100% increase in out-turn of AC Traction Motors and AC Traction

Alternators for HHP locos in this year. There has been drastic improvement in the quality of diesel locos rebuilt/manufactured by DMW, as evidenced in the improved figure of failure within 180 days reported by Board. For further improvement, feed-back from Zonal Railways regarding vendor, material etc. is required.

There has been huge supply of camshafts, crankshafts, different type of gears and engine blocks to Zonal Railways in this year. For the last nine months, no single failure of power pack has been reported from Zonal Railways. Close inspection of material is required to improve loco quality further.

DMW is committed to work towards enhanced customers' satisfaction.

Support from RDSO and Railway Board for getting early clarifications has been a big support to us; regular feedback from Zonal Railways will further help.

Address by EDME (Traction)

EDME (Traction) stated that SPAD is biggest safety issue and need to be addressed constantly. Interaction with LPs, training and discussion with their families need to be regularly ensured. Meeting, seminars in lobby and awareness should be a regular agenda of CMPEs.

EDME/Traction said that fuel consumption is increasing; however, corresponding GTKMs are not increasing. This needs to be examined by CMPEs and reasons for increase in fuel to be identified and controlled. Correct accountal and action for saving fuel needs to be taken by ZR.

RDSO has developed a portal for logging and analysing diesel Loco failures. ABR shed is badly lagging in updating failures. Other sheds lagging are NGC, MLY, BKSC, KGP, ED, NKJ, VTA. ZRs to update failures without fail.

DMW should work on taking over ALCO vendor approval work from DLW in a time bound manner. DMW should also gear-up for overhauling of HHP power pack and power assembly. Instruction of Board on this issue has already been given to DMW.

ZRs should prepare action plan for switching over completely to SUCS and 3 RVpiston.

APU utilisation needs to be monitored and improved.

Drivers' training is to be improved.

EDME/Traction expressed his appreciation to DMW's positive response for compliance of RSP, Ann 'N" and BIM items, and enhanced AC Traction Motor overhauling/ rehabilitation in 2016-17. He made specific mention of engine blocks, AMC of PTLOC, MBCS , DMU traction motors and alternators, Bosch FIP test stands, conversion of old bogies to WDM 3D bogies, upgraded cabs, Loco Guard, Loco camera cum voice recorder.

EDME/Traction also expressed appreciation of Board on finalisation of Fog Pass tender by DMW within two days of opening.

Address by AM(L)

AM/ML mentioned that diesel failures are more than electric locos even after taking TRD failures into account, as such need to be looked into more critically so as to reduce them. Other areas for improvement on diesel locos are Headlight, improving cab condition, cab heaters, cab AC need to be taken up on priority.

Loco Cab and Video Recorder is very important and need was again felt in recent accident of Kalindi Express at Tundla. DMW has already placed PO for LCVR, the same should be fitted within 2 months. RDSO should expedite prototype inspection of LCVR as per specification.

Use of Diesel Loco MUs is necessity for heavier and longer trains and as it helps in faster section clearance.

CMPEs should discuss diesel loco bad cases with AM/ML on daily basis. One page report with photographs be sent on daily basis.

There have been cases of loco failures where driver has failed the loco on VCD account. Training of drivers for VCD isolation should be arranged and loco should not be failed on VCD account.

CMPEs should inspect diesel sheds once a month and report be sent to AM/Electrical.

Board has already issued a comprehensive policy of Diesel/Electric Loco and MEMU/EMU homing in each other's sheds and their maintenance. In addition, a exhaustive plan for diesel sheds expansion has already been given by EDME/Traction. CMPEs should take immediate action as existing sheds are to be utilized optimally for both Diesel/Electrical Locos as per approved policy.

Fuel consumption needs to be monitored on daily basis. ER has projected a significant saving in diesel fuel. A complete report be sent to Board by CMPE/ER for better appreciation and for information of other ZRs.

Lobbies should be integrated so that monitoring of LPs is improved. One LI be deputed in lobby for training of crew alongwith the display of critical loco items that cause failures on line. HHP loco trouble shooting booklet be given to LPs as well as ALPs.

CMPEs should put up reliability improvement action plan.

Old items of locos need to be kept in lobbies so that LPs are adequately trained on items prone for failures on account of poor knowledge.

AML advised that inspite of planned rapid electrification, IR will continue using large number of Diesel Locos in perpetuity. As such, all officers involved in Diesel Loco maintenance should continue their full efforts and also motivate their staff to do so without any fear or apprehension.

Minutes of General Agenda items

Item No.1	Rebuilding of WDP1 Locomotive
Deliberation	DMW has turned out 4 WDP1 Locos in 2016-17 till Feb,2017 and has a plan to turn-out total of 6 WDP1 locos in 2016-17. With rebuilding of WDP_1 Locos,long pending issue of NR and CR has been addressed.
Decision	***DMW to rebuild 13 nos. of WDP1 locomotive during 2017-18.***

Item No.2	Rebuilding of WDP3A Locomotive
Deliberation	DMW presented that TKD shed wanted that existing WDP3A is a full width loco and is required to be changed to dumbbell shape due to maintenance issue associated with full width WDP3A loco.
Decision	***a) DMW has planned to rebuild 2 WDP3A locos during 2017-18.*** ***b) RDSO to resolve issue of conversion of full width to dumbbell shape within 2 weeks.***

Item No.3	Retrofitment of APU on ZR
Deliberation	DMW has placed POs for fitment of 500 APUs on ZR in May, 2016. Till date 25 APUs have been fitted.The current rate of fitment rate is less as initially only Ver#3 MEP locos were taken for fitment by M/s Medha. With fitment of APU on Ver#2 locos also, now fitment has improved. Now Medha has agreed to step up APU fitment to @ 20 nos. per month from April,2017. It was also presented that in some of the locos APU fitment cannot be done as Panel Brakes is not available in all locos undergoing POH. ZRs should give their immediate demand and DMW to quickly initiate procurement.
Decision	***1. DMW to coordinate with firms for faster fitment of APUs on ZR. Regular review of APU fitment be done with firms.*** ***2. Issue of compatibility of different make APU with MEP need to resolved by RDSO in consultation with Medha as fitment of APU of Cooper and Prag is pending.*** ***3. ZRs to send immediately requirement of air brake panels required for APU fitment to DMW.***

Item No.4	Fitment of new items
Deliberation	**CReDI :** DMW had placed PO for 15 nos. of CReDI kit on M/ Medha and 1 no. on M/S RITES. M/S Medha has tie-up with M/s Ganser of Switzerland and M/S RITES has tie-up with M/s DUAP of Switzerland. 1 nos. of CReDI from M/S Medha has been received and has been fitted on Loco no. 14635 WDG3A (MLY). This loco was inaugurated on 03-03-2017. Now there will be two CReDI locos at MLY, these need to be closely monitored by RDSO, DMW and respective sheds. **Loco Cab Voice Recorder (LCVR)** DMW has placed PO for 25 nos. of LCVR (Medha – 15 Nos., LAXVAN-10 and KAYSON-3 Nos.). DMW to fit LCVR within next 2 month.

	Loco Cab AC Crew comfort is very important for safe operation of trains. Cab heaters and Cab AC are important items to be provided on priority. Due to IRSOD (height) issues in fitment of roof-mounted AC, DC Power AC Units are under fitment at DMW for trial. DMW has placed PO for 25 nos. (20 Nos. on M/s CoolAir, 2 each on nos. on Subros, Daulatram and Favieley). One no. Cab AC from Cool Air has arrived at India and currently under testing at ICAT, New Delhi. Fitment of AC needs to be expedited. **Variable Turbine Geometry (VTG) Turbo** DMW has placed PO for 10 nos. of VTG on M/s ABB. One no. of VTG turbo, duly inspected by RDSO hasbeen received at DMW. The same is to be sent to RDSO for testing. **Miller Cycle Turbo** One no. Miller Cycle turbo is already running on loco for last 9 months. As now RDSO test bed has been repaired, testing of Miller Cycle turbo need to be completed early.
Decision	***1. CReDI project be closely monitored by RDSO. Fitment of remaining CReDIs need to expedited.*** ***2. Development of VTG and Miller Cycle turbo need to be expedited by DMW/RDSO.*** ***3. Loco Cab AC and fitment of LCVR need to be expedited by DMW.***

Item No.5	**Overhauling and Rehabilitation of AC Traction Motor for HHP Loco**
Deliberation	DMW has stepped up overhauling of ACTMs for HHP locos. ZRs have expressed satisfaction on the quality of repair of ACTMs by DMW. DMW has now fully developed components required for ACTMs and in current year till Feb.2017, 342 ACTM (*includes 86 rehabilitated ACTM where rotor/stator have also been replaced*) were overhauled/rehabilitated as against 167 nos. in complete financial year 15-16.
Decision	***1. ZR to give regular feedback of quality of repair of ACTMs to DMW.*** ***2. DMW to ensure sustained improvement in ACTM quality.*** ***3. Repairing/rehabilitation of ACTM be further stepped up by DMW.*** ***4. As ACTM test facility is fully operational at DMW, RDSO should audit overhauling quality at DMW time to time.***

Minutes of Supply Agenda items

1. **Submission of Indents:**

Zonal Railways were requested to submit vetted indents **for 2018-19 by 30.09.16**.NFR and SER vetted demand is pending. The same need to be expedited by NFR and SER.

Zonal Railways are requested to send vetted indents within time schedule.

2. Outstanding Dues:

Outstanding dues would be carried forward to the next year regularly as a policy. DMW has already uploaded the latest status of net indents and supplies for 2016-17(uptoFeb,2016) on DMW website. Zonal Rlys may check status of indents & supply. Railways are advised to provide additional demand, if any, for 2017-18 latest by 15th Apr'17. Railways should make adequate fund provision for catering to carried forward quantities.

3. Compliance of Ann'N', BIM and Carbon Brush items:

DMW has despatched Ann'N' items worth Rs.72.20 Cr. and BIM items worth Rs.149.02 Cr. and Carbon Brushes worth Rs.10.18 Cr. till Feb,2017. DMW has met the compliance more than 100% in most of the items. In current year supply of Extension shaft gear, Cam gear, Stiffer Camshaft is better than last year.DMW has also supplied 29 nos. of FIP test stand to different shed.

During 16-17, DMW has supplied RSP items worth Rs. 78.62 Cr. to ZR.

DMW should make action plan for less complied items of Annexure-N and BIM items.

4. Review of demand of High Value items:

The demand of high value items was analysed taking into account last three years i.e.2014-15, 2015-16 & 2016-17 average demand per 100 locomotives (or cylinders) holdings of Zonal Railways. ZR to review variation and changes, if any, be advised to DMW.

a. Five types of Critical Gears

In order to deal with variation in demand of five types of gears (Gear CrankShaft, Cam Gear, Driver Gears LOP (Modified), Gear Ext. Shaft (Modified), Gear Water Pump (Modified), DMW decided to process for fixed qty demand . In addition DMW has procured some quantities of finished gears from trade (Cam Gear, Driver Gears LOP (Modified), Gear Ext. Shaft (Modified). This has improved availability of these gears in 2016-17.

DMW has also taken action for Case Carburised Cam Gear and Crankshaft Gears (100 Sets) which will be proved out during 2017-18.

b. Cylinder Liner -

Year wise demand

Year	3RV	5RV
2015-16 (R3)	4360	21555
2016-17 (R3)	5791	18582
2017-18 (R1)	5387	19334
2018-19 (R0)	3730	19006 GOC has advised to reduce demand from 8000 to 6000

5RV Cylinder Liners from GOC to ZRs

YEAR		ZONAL RAILWAYS										
		CR	ER	SC	ECO	EC	SE	SEC	SW	NR	WC	TOTAL
14-15	**Distribution**	1200	1200	1400	700	1400	1800	300	0	0	0	**8000**
	Issue	1420	1120	960	1000	250	2000	400	320	0	320	**7790**
15-16	**Distribution**	500	1500	1000	700	1000	1800	200	300	600	400	**8000**
	Issue	570	1240	450	800	350	1400	170	0	0	350	**5330**
16-17	**Distribution**	910	600	1500	1300	1000	1800	300	190	0	400	**8000**
(Up to	**Issue**	600	340	1600	400	1200	900	0	200	0	0	**5240**

Note: Zonal Rlys.ECoR, SER, SECR & WCR not/partially collected against their respective allotment

Decision:

i. *As ZRs are not collecting 5RV liners from GOC as such the demand be reduced from 8000 to 6000. SR has advised DMW to reduce 5RV demand to 6000. Demand of 5RV for railways collecting from GOC be capped to quantities taken by them in 2016-17.*

ii. *Zonal Railways to review their demand from 5 RV to 3 RV Cylinder Liners upto 15th April'17 and advise DMW accordingly.*

5. Deletion of BIM and Annexure 'N' ITEMS:

Following items were proposed for deletion :-

S N.	PL No.	Description	Status of indents	Remarks
1	10140827	Rotor Shaft (MG)720A Turbo (WDP1&WDM 2) (Annex N)	2016-17= Nil 2017-18= [ECR-02]	This is a demand of DSL Shed MGS, AME/DSL told that there are only 8 WDM32 Loco. at MGS Shed and these locos. are also going to be condemned during next two years. **This may be reviewed**
2	12992630	Bull Gear WDS6 (Annex N) case hardened	2016-17=[SER-01, carried forward] 2017-18= Nil	It was one time demand of SER for the year 2013-14 and out of which 29 has been supplied. One no. is balance. There is no. further demand from any Railway. **Hence it may be deleted**
3	12851401	Rotor Assembly (10990173). (BIM)	2016-17= [NR=4, NFR-2,WR-4,ECR-1,NCR-1] total =12 indents 2017-18=8 indents	Offered unit rate in tender is Rs. 17, 65,000/- and the population of this item is drastically reducing due to condemnation of WDM2 Locomotives. **This may be reviewed.**

ZR to review their requirement being of MG & WDM2 loco and advise DMW accordingly. DMW to initiate procurement only after reconfirmation by respective ZR.

6. Addition of BIM items:

The dampers for WDG3A/WDM3D are procured from RDSO approved sources for which some of them are of foreign origin and ZRs were approaching DMW for assistance due to issue of import and inspection arising out of less qtys. for individual ZR. As such, based on discussion in 4th BIM, following items were included in BIM list and details of indents received from ZR for the 2017-18 and 2018-19 are given below:

SN	Item	Per Bogie	Indents received
1	Lateral Hydraulic Damper 11665671 for WDM3D	2	2017-18, [WR-18] 2018-19, [CR-84, ER-20, NER-4, SWR-16] = 124
2	Vertical Hydraulic Damper 11665660 for WDM3D	6	2017-18, [WR-33] 2018-19, [CR-252, ER-48, NER-12, SR-28, SWR-48]=388
3	Lateral Hydraulic Damper 11666857 for WDG3A	2	2017-18, NIL 2018-19, [CR-40, NR-2, NER-12, SEC-24] =78

SN	Item	Per Bogie	Indents received
4	Vertical Hydraulic Damper 11459037 for WDG3A	4	2017-18, NIL
			2018-19, [ER-269, NER-48, NWR-52, SEC-36, WCR-48] = 453
5	Vertical Hydraulic Damper for ATHS Bogie for WDS6 and WDM3A	4	2017-18, NIL
			2018-19,[SR-47, SEC-4, WCR-48]=99

Decision: ZRs, who have not submitted their demand, should send the same by 15th April,17.

7. Standardization of indents:

As decided in 4th BIM, DMW will be supplying Kit for Water Pump and Lube Oil Pump as against complete water pump/lube oil.

8.0 Feed back on modifications:

09 important Modifications were implemented in manufacturing/rebuilding of locomotives suggested by RDSO& Railway Board from time to time. Details of modifications given below .

SN	Description	Fitted in Rebuilt Locos since	No. of locos fitted as on 31.01.17
1	ATHS Bogie Frames	Jan'14	132
2	FRP Interior in Driver Cab	Feb'13	41
3	Auxiliary Power unit	April'12	296
4	REMMLOT(Remote monitoring management of Locomotive & Trains)	July'11	294
5	Roof mounted DBR (RMDBR)	May'10	734
6	3 RV Piston Kit	April'10	1019
7	18 mm Fuel Injection Pump	April'10	709
8	Microprocessor Control System	April'07	1146

Following decisions were taken during meeting.

FRP Interior in Driver's Cab: 100% ***FRP Interior in Driver's Cab be started during rebuilding at DMW.***

9.0 Feed back on developmental items

Items fitted against Developmental Purchase Orders are being advised to Railways from time to time. System of monitoring and reporting to be streamlined at shed level to ensure timely feedback. DMW has uploaded list of developmental items on its website for ready reference.

10.0 Rate contract of spares:

Rate contract of 14 items have been undertaken by DMW. Latest status has been placed at **Annexure-I.**

Decision :

i) ***RC for overhauling of PTLOC for 2 years be finalised early.***
ii) ***AMC for MCBG be further extended by two years.***

10.1 Proposal for New Rate Contracts for Spares:

Rate contracts for additional items have been proposed by ZonalRailways as under:-

SN	Description of item	Proposed by Railway	Comments
1	Overhauling of VTC 214	NR	PO for 52 nos. is under vetting
2	Overhauling of VTC 304	ZR	DMW is already procuring spares for VTC 304 against RC
2	CCB	ZR	CCB issues be referred to DLW as DMW does not fit CCB anymore.
3	GE Single Discharge Turbo	ZR	LOA for 134 nos issued.
4	Overhauling for Air Dryers	ZR	DMW is already procuring spares for air dryers against RC
5	PTLOC	SR	DMW has already placed PO for 143 nos. and case is under process for balance 441 Nos.
			DMW has already placed PO for 208 nos. and case is under process for balance 625 Nos.

11.0 REHABILITATION & RC for spares OF TURBO SUPER CHARGERS:

DMW is rehabilitating Turbo Super Charger of ABB and GE make received from Zonal Railways.

DESC	Loco	Prod. Plan 2015-16	Supply Status Till 14.03.2017	Under repair with firm	Lying with DMW for repair	Dispatched to Rlys/Remarks	PO Status
ABB-TPR-61	3100 HP	200	123 (dispatched) 8 (awaiting dispatch)	34	2	ECR-14, NR-15, WCR-7, CR-8, ER-3, NCR-5, NWR-13, SER-18, SCR-18, NFR-10, WR-04,NER-8	Ordered Qty – 393 Balance Qty - 269
ABB-VTC-304	3100 HP	67	17 (dispatched) 3 (awaiting dispatch)	16	NIL	CR-1,ER-1,NR-10,NFR-2,SCR-1,WR-2.	Ordered Qty – 67 Balance - 51
ABB-VTC-304	2300 HP	10	10(dispatched)	NIL	16	NR-10	NIL
GE-Single Discharge	3100 HP	45	Nil	Nil	130	NIL	LOA for 134 nos. has been issued
GE-Double Discharge	3100 HP	NIL	NIL	NIL	49	Rehabilitation is financially not viable.	Not Required by ZR and will be processed for condemnation.

RC FOR TURBO SPARES

DESC	HP	Price Agreement No.	Valid upto	Order Qty	Remarks
ABB-TPR-61 Turbocharger overhauling	3100 HP	20/15/5001/1/314637	03.11.17	PO Qty – 519	
ABB-VTC-304 Spares	3100 HP	20/15/5005/1/314764	23.12.17		
GE-Single Discharge	3100 HP	--	--	Kit-A Ordered Qty – 95 Balance Qty – 95 Stock –Nil (Kit-D Ordered Qty-18 Balance Qty-18, Stock available: 05Nos.)	205 nos. of spare Kit-A and 38 nos. of Kit-D supplied to in 2016-17
Overhauling of ABB/TSC,VTC-214		RC No. 316068 dated 27.2.17 ZR to operate RC		52 Nos.	

Decision :

a. DMW should examine possibility of conversion of twin discharge GE TSC to single discharge RSC, in case it is financially viable.

b. **ZRs should give demand of VTC-304.**

TECHNICAL AGENDA ITEMS:

Item No.	Detail	Item No.	Detail
1	3RV/5RV Cylinder Liner	19	Breakages of Equalizer less type bogie frames
2	Engine Block Failure	20	Corrective and Preventive action plan against repeated failures of MCBG
3	Power Pack Failures	21	Crack& Vibration in Underframe
4	Piston Failures	22	NU 330 Bearing
5	Reclamation of Crankshaft	23	NH 320 Failures
6	Indigenous Crankshaft – Make in India Effort	24	LWS failure
7	Stiffer Cam Shaft Performance	25	Excessive buffer gap in H-Type Coupler
8	Cam Gear and Split Gear Breakages	26	Failure of AEC make radiator fan bearing
9	Failure of Connecting Rod Bush	27	Failure of Piston Pin
10	Water Pump Failure	28	TSC failures and maintenance issues
11	Performance of Cylinder Head	29	ALCo Traction Motor failures
12	Performance of Fuel Injection	30	Failure of Kaysons make master controller
13	Overhauling of PTLOC	31	Carbon Brush CB-21RF
14	Exhaust Manifold	32	Implementation status of relocation of horns
15	Failure of NADI make RTTM Blower	33	Interchangeability of Air Dryers
16	Auxiliary Power Unit (APU)	34	Repair & Overhauling of DEMU TM & TA
17	REMMLOT Issues	35	Rate Contract for maintenance spares & AMC of Cummins Engine for Multi Gen Set Locomotive
18	MEP Issues	36	Tooling Items supplied by DMW

Item No.	Detail	Item No.	Detail
37	Provision of Extra Happy Pads in APU fitted Locos	46	Performance monitoring of rebuilt WDP1M locomotives
38	Standardisation of Driver Cabin for WDM3A Locos	47	WDP3A Loco Rebuilt
39	Standardizing provision and location of speedometer	48	Disabling of VCD through VCD reset push button from the non-working control stand/ desk of single cab diesel Electric locomotives (ALCo and HHP)
40	Cracks in MSU	49	a) Preventing motoring/ dynamic brake operation in loco when MU2B is set to trail,
41	Implementation status of relocation of Tapping of BP gauge	50	18 MM FIP Issues
42	Laser hardened liners	51	Wheel Gauge Widening Cases
43	Cast Engine Block	52	MB Radiator Leakages
44	Performance of common oil in HHP	53	Fabricated bogie frame x-beam 1&4 touching with traction motor 1&6 back inspection cover
45	New list of Must change item during POH of ALCo locomotives	54	Failure of Fuel Pump Meter
55	Spares for Upgarded Compressor		

Item No.1	3RV/5RV Cylinder Liner
Deliberation	There has been drastic reduction in 3RV/5RV liner breakages during 16-17. Out of total cylinder liners failures, 5RV is main contributor. Action taken by RDSO by auditing cylinder liner firms and upgrading their process has given positive result in last 2 years. In addition, RDSO has also issued large no. of MIs for addressing liner failures, and these need to followed by ZR without fail. In the presentation it was brought out that liners are breaking even after 22 months. Failures of liners after in-use of such a longer time indicates that more investigation is required to be done to know exact cause of failures and methodology to predict such failures. Further as 3RV liners failures are less as compared to 5RV and its LOC is less, it is therefore important that ZRs should switch over to 3RV in a time bound manner. ZRs should examine the same and give their demand of 3RV/5RV after carefully examining this issue involved in conversion. ZRs should quickly bring out issues, if any, in switching over to 3RV liners so that DMW can plan for material for 3RV conversion. Extended trial of laser hardened liner is pending. It was told that DMW is in process of floating the tender. The same need to expedite. To reduce 5RV breakages, DMW has also put one loco with 5RV liner which has outer-dimensions akin to 3RV in loco no. 14708 and this loco is working satisfactory. DMW should extend this trial on 10 more locos quickly.
Decision	1. ***Diesel Sheds to implement cylinder liner and engine block related instruction including latest IBs issued by RDSO.*** 2. ***Additional quality parameters like flatness on various surfaces of Engine Block issued by RDSO need to be regularly checked at inspection stage of Engine Block.*** 3. ***Breakages of Cylinder Liner which are taking place after running for quite a some time need more examination for finding root-cause. DMW and RDSO to jointly take this work.*** 4. ***Extended trial of Laser Hardened Liner for which DMW has floated tender for 1760 nos.*** 5. ***ZRs should plan and generate higher demand of 3RV kits and its associated items (piston,ring,liner) so that procurement can be done by DMW, and switchover expedited.*** 6. ***Trial of 5RV liners with 3RV outer-dimension on 10 locos should be undertaken quickly by DMW. Enough spare liners should also be procured for replacement against failures, if any, during service. These be tried out in 2 sheds.***

Item No.2	Engine Block Failures
Deliberation	Failure data of new engine block shows that there has been NIL cases of failures of trade supplied engine blocks during 16-17. DMW has incorporated in-process inspection in current supply of engine blocks which is done by RITES. DMW has coordinated for training RITES inspectors for Engine Block inspection. Based on feedback, quality checks need to be constantly reviewed so that process is in control. The quality of DMW rebuilt engine blocks has not improved as % of failures of DMW built engine block are at the same level as compared to 15-16. This need to be reviewed. DMW brought out following action plan to improve rebuilt engine block quality :- a) Consultancy of Engine Block repair from renowned Engine Block rebuilt agency b) Weeding out Engine Block which can not be brought to acceptable level of quality c) Strict quality check during rebuilt d) R9/L9 cam bearing has been strengthened in all engine block rebuilt after July,2016. DMW has stopped fourth Salvage and this is possible now as supply of new engine blocks has started now.

	Field trial of first Cast Block have shown positive result. Cast blocks are suitable for 4000 HP and as such are expected to perform better on existing 3300 HP requirement. There is need to expedite proliferation of cast blocks.
Decision	1. ***DMW to go for auditing of its engine block reclamation process from agencies engaged in ALCO block rebuilt.*** 2. ***ZR to monitor R9/L9 cam bearing strengthening of ALCO blocks as presented during BIM meeting.*** 3. ***Cast Block proliferation needs to expedited.***

3	**Power Pack Failures**
	ZRs have reported cases of Power Pack failures on various accounts like cylinder line, piston, crankshaft failures etc. There has been drastic reduction in PP failures in 16-17 and till Feb,17, only 6 PPs have failed as against 26 and 41 in 15-16 and 14-15 respectively. Improvement in cylinder liners failures, piston pin failures, connecting rod bush failures, piston pin failures, restricting reclamation of crankshaft to journal areas have given good results.

Year	**2014-15**	**2015-16**	**2016-17**
Nos.	41	26	6

Decision	***ZR/DMW should investigate each power pack failure in detail and closely monitor individual major contributor for Power Pack Failures.***

Item No. 4	**Piston Failures**
Deliberation	RDSO has taken action for addressing quality issues and there has been reduction of piston failures.

FIRM || YEAR	**09-10**	**10-11**	**11-12**	**12-13**	**13-14**	**14-15**	**15-16**	**16-17**
FMGIL	**06**	**10**	**10**	**02**	**-**	**10**	**06**	**0**
PIONEER	**-**	**01**	**-**	**-**	**-**	**01**	**-**	**3**
INDIA PISTON	**-**			**01**	**-**	**01**	**-**	
HALLON	**-**	**-**	**-**	**-**	**02**	**-**	**01**	**0**

	Piston failures, Liner Failures are complex and it is difficult to pin point the exact cause. As such failures need to be thoroughly investigated. RDSO should prepare a check sheet which may be used as guidelines to such investigation. Random checking of pistons for any abnormality be taken up by sheds e.g. piston bolt loose cases, be takenup by sheds to find out the health of piston.
Decision	***RDSO to audit both vendors for addressing quality issues and incorporate important check points in QAP.***

Item No.5	**Reclaimed Crankshaft**
Deliberation	Use of reclaimed crankshaft was discussed in 4th BIM and it was decided that due to large scale failures of reclaimed crankshaft, crankshafts with crankpin defects were not to be re-

	claimed. This decision has given good results.
Decision	1. ***Crankshaft with crank pin defect are not be taken for reclamation.*** 2. ***Power packs fitted with reclaimed crankshaft be monitored closely. DMW to give details to ZRs.***

Item No.6	**Development of Indigenous New Crankshaft**
Deliberation	As a part of indigenous effort developmental order for 16 Cylinder Block Crankshaft was placed by DMW on Bharat Forge Ltd. Till Feb,17, M/S Bharat Forge has supplied 65 nos. of crankshaft and out of these 56 nos. have been fitted. Out of these 56 crankshafts fitted so far, 25 crankshafts are in less than one year, 5 completed one year and 36 completed more than 2 years. RDSO to monitor.
Decision	***RDSO/ DLW to closely monitor development of 16 Cylinder Crankshaft and take necessary action for vendor status.***

Item No.7	**Performance of Stiffer Unit Cam Shaft**
Deliberation	There are following issues related to SUCS :-

SN	Issue	Action Taken by DMW
1	**Breakage of SUCS Flange**	DMW has started using higher radius SUCS for R8/L8 segment, as failures at these location are high. DMW has also procured spare R8/L8 segments with higher radius SUCS and the supplies are under dispatch.
2	**Life of Cam Shaft**	Close monitoring on Cam Lobe Hardness by DMW. DMW is also examining factors for higher run-out of SUCS during fitment. Actions like making tolerance closer on Fuel Pump Support, Lifter Cross Head, Lifter Air & Exhaust has also been examined. In addition good maintenance practices like use of Molykote for first time fitment, matching of camroller and camshaft lobe hardness need to looked into.
3	**Less Lift of FIP**	DMW has issued design bulletin for addressing this issue. The design bulletin dwells procedure of timing by advancing cam gear teeth so that correct lift is obtained.

Decision	1. ***ZR to change larger radius R8/L8 location as and when supplies are received from DMW.*** 2. ***ZR to follow practice of Fuel Cam timing procedure as per design bulletin.*** 3. ***Hardness of SUCS be maintained as per drawing.*** 4. ***Molykote should be used while fitting camroller so that pitting can be avoided.*** 5. ***Closer tolerance on SUCS components need to be finalized quickly by RDSO/DMW so that issue of high run-out can be addressed.*** 6. ***DMW should circulate a list of FE camshafts demanded by ZRs and ZRs should substitute 50% of the demand by SUCS***
Item No.8	**Cam Gear and Split Gear failure**
Deliberation	DMW has taken following action for improving through hardened quality of cam gear / split gear :- a) Improving gear grinding process

	b) Hardness range has been made narrower c) Audit by DLW has been done and minor changes like use of single start hob for hobbing , revising split gear process have been done by DMW. DMW mentioned that prove out of case carburized cam gear and splitgear is in advanced stage as one no each of crank shaft gear and cam gear has been machined. The further quantities are under prototype testing by RDSO, these are expected to be completed in March.2017. DMW has planned to machine 96 sets of case carburized cam/split gear in 2017-18 for which coverage for forging exists on trade. DMW mentioned that there is need to go for Cam Gear with lower PD for addressing the issue of lower back lash clearance. Diesel Sheds should closely check locos which have less backlash and should advise DMW to supply such gears. Camgears with less PD will be suitably punched for easily identification.
Decision	1. ***Some quantities of Step Size Cam gear(Less PD) be supplied by DMW to ZR as per specific need of ZR.*** 2. ***DMW should machine 96 sets of Case carburized cam/split gear in 17-18 so that large scale change-over to case carburized Camgear and Crankgear can be taken next year. The use of Case Carburized Gears will help in arresting in breakages of premature Cam gear/Split Gear.***

Item No.9	**Connecting Rod Bush Small End**
Deliberation	Premature peeling off white metal of the bushes has led to failures of power packs in the past. DMW has stopped procuring Benara make bushes and now failures have been eliminated.
Decision	1. ***Quality of Connecting Rod Bush Small be closely monitored as the failure have heavy consequential impact.*** 2. ***Quality control on Connecting Rod Bush small end be constantly checked and feedback communicated by ZR to DMW and RDSO.***

Item No.10	**Water Pump Failures**
Deliberation	Following actions were taken by DMW :- 1. Lubrication of Water Pump Gear as per RDSO IB MP. IB. ES.09.81.09, November 2009 has been ensured by DMW in all locos turned out since Aug,2015. **2.** DLW has revised drawing of impeller which has incorporated casting by CO2/NO bake shell moulding process, in addition static and dynamic balancing has also been incorporated in drawing. Supplies has started coming. **3.** 100 % checking of hardness of water pump gear. Hardness range of gear has reduced. **4.** Maintaining proper backlash as per MI-11026 E. **5.** Control vendor quality on water pump gear Following good practices of GD diesel shed need to be emulated by other sheds :- a) Lubrication of Water Pump Gear as per RDSO IB MP. IB. ES.09.81.09 b) Backlash checkat four points and proper dowelling of guide ring is ensured. Change water pump gear in M24 schedule

Decision	1. *All Diesel Sheds to reinstate* ***lubrication of water pump gear as per RDSO IB*** MP. IB. ***ES.09.81.09 dated Nov,2009.*** 2. ***Backlash to be checked as per MI-11026 E at four points alongwith proper dowelling of guide ring.*** 3. ***Stricter manufacturing control to be ensured at DMW and by Water Pump Forging vendors.*** 4. ***ZR to review life of water pump gear and if required, should be replaced in M24 schedule.***

11	**Performance of Cylinder Head**
Deliberation	Details of failures as reported to DMW cylinder head failed during warranty are as under **FY** / **No. of failures** / **Make** 2014-15 / 21 / cooper 2015-16 / 15 / Cooper 2016-17 (Upto Feb,17) / 06 / Cooper There has been reduction of cylinder head failure cases. Before fitment, cylinder head be subjected to hydraulic test. This will help in addressing quality issue of cylinder head before fitment.
Decision	***a) DMW should inspect 1% of cylinder head for keeping check on quality at DMW.*** ***b) DMW/DLW to review rejection of cylinder heads at firm premises at various stage to assess process soundness.*** ***c) Quality plan for inspection to be made by DLW so that RITES can use the same for inspection.***

Item No. 12	**Performance of Fuel Injection Nozzle**
Deliberation	Problem of injector nozzle failures was reported by many sheds. To sort out the problem RDSO conducted many rounds of meeting with M/S BOSCH. To avoid these failures, M/s Bosch improved the manufacturing process of drilling holes by migrating to gun drilling process from spiral drilling. RDSO vide letter no. SD.WDM 2.3.6 dated 16.03.2016 sheds to share performance of injector nozzles supplied beyond October-2015 (MFD 558) and onward. NR has confirmed that there is no failures in improved lot.
Decision	***ZR to give feedback to RDSO for further action.***

Item No.13	**PTLOC maintenance**
Deliberation	The issue of PTLOC maintenance was pending for very long time and the same has now been resolved by DMW. POs for 248 nos. of ALFA LAVAL and 148 nos. of TRANTER make PTLOCs have been placed. . Supplies have also started. Railway Board vide letter no. 2015/M(L)/466/1(4A) dated 8.2.2017 has clarified the over-hauling of PTLOC Further, case for 2 year demand has also been processed by DMW.

Decision	*DMW to expedite overhauling contract of PTLOC for next 2 years on priority as clarified by Board vide letter no.* **2015/M(L)/466/1(4A) dated 8.2.2017.**

Item No.14	**Exhaust Manifold Failures**
Deliberation	Audit of various firms has already been done by DMW & RDSO. Action need to taken on findings. Large nos. of failures at location no. 6 & 7 need to be further investigated by RDSO and DMW.
Decision	*1. Audit finding of vendors need to be taken to logical conclusion.* *2. RDSO and DMW to investigate exhaust manifold at location no. 6 &7.*

Item No. 15	**Failure of NADI make RTTM Blower**
Deliberation	Based on ZR report, M/s Nandi make RTTM blower was downgraded to Part-II. DMW procured M/s VAPCON make RTTM blower in 15-16. There has drastic reduction in failure of RTTM blower.
Decision	*Railways to send feed-back of RTTM Blower to DLW and DMW.*

Item no. 16	**Auxiliary Power Unit (APU)**
Deliberation	More than 100 ALCO locos fitted with APU are working in the field. In general, it is observed that around 55% of APU favourable hours (hours which are favourable for APU to cut in) are wasted due to various reasons. ZRs have been reporting issue of APU reliability. ECoR has been regularly advising DMW and RDSO.
Decision	***RDSO to examine the issues raised by ZRs.***

Item no. 17	**REMMLOT issues**
Deliberation	Railways have reported issues of REMMLOT. SECR has advised following issues:- a) No communication cases in REMMLOT- b) Non- availability of many MIS reports in version 2.0 of MEP locos: c) Long time delay in short term memory upload d) No REMMLOT fault data in shed in & shed periphery: DMW also raised the issue of payment of REMMLOT. All ZR to take action for payment of REMMLOT charges as per Purchase Orders placed by DMW. DMW has already advised PO details of REMMLOT to ZR.
Decision	***a) RDSO to examine REMMLOT issues. A meeting with shed need to be organized by RDSO, so as to resolve various issues. The issues and corrective action be published by RDSO and posted on website for information of all sheds.*** ***b) ZRs must ensure certification of payment of data charges for REMMLOT, so that continuity of service can be maintained.***

Item no. 18	**MEP Issues**
Deliberation	ZRs have raised MEP issues. NCR has reported the card failures in 4th BIM. During this BIM, SECR has reported the following :- a) Uncontrolled wheel slip b) Problems related TE Limit – c) BAP By-pass feedback- d) Non-tallying of speeds shown by MBCS and Speed recorder e) Codal life of Cards- The life of the electronic components of various control equipments, like MEP 660 and MCBG items are not specified. This needs to

	be specified.
Decision	***RDSO to examine MEP issues. A meeting with shed need to be organized by RDSO, so as to resolve various issues. The issues and corrective action be published by RDSO and posted on website for information of all sheds.***

Item no. 19	Breakage of Equalizer less type bogie frames
Deliberation	This item was discussed in 4th BIM and following actions have been taken :- a) DMW has switched over to use of equalizer type bogies on rebuilt locos. b) DMW supplied 125 and 106 kits for strengthening for equalizer less bogies and equalizer type bogies respectively to ZR c) Procurement of freshly allotted Equalizer Less type bogie (duly strengthened) – DMW has placed PO for 29 nos. and 44 nos. are expected in March, 2017. d) Conversion of Equalizer Type to Equalizer Less Type bogie as a immediate assistance to ZR- DMW processed for 30 nos. of bogie frame. 15 bogies (RTM-4, VTA-2, HWH-2, JHS-2, AMV-4, GTL-1, and NGC-2) have so far dispatched to ZR. e) RDSO is processing for consultancy for validation of Bogie. f) VTA diesel shed has advised that breakage is also taking place in strengthened bogie frames, as such these need to be investigate further.
Decision	***1. RDSO to expedite bogie validation.*** ***2. Breakages of strengthened bogie frames need to be further investigated by RDSO.***

Item no. 20	Corrective and preventive action plan against repeated failure of MCBG
Deliberation	Problem of poor reliability of MCBG was reported many Zonal Railways. RDSO conducted many meetings with M/s Medha and studied the issue. Based on study, RDSO advised ZRs the corrective and preventive action to be carried by M/s Medha vide this office letter no. SD.DEV.MCBG.ALCo (Medha) dated 08.01.2015.
Decision	***ZR to regularly advise RDSO on issues related with MCBG. RDSO to consolidate issues and their corresponding corrective action plan. The same to be regularly updated and advised to ZR.***

Item no. 21	Crack & Vibration in Underframe
Deliberation	The issue was discussed during 4th BIM. It was decided that ZR should take decision for repair / condemnation on locos with cracked underframe. Regarding vibration on WDM3D locos were reported and this resulted in compressor chair and pipe broken. DLW has advised modification to be done by ZR way back in 2011. DMW has incorporated this modification in almost all WDM3D (*except initial 8 to 10 WDM3D*).
Decision	***Sheds to undertake modification of under frame as suggested by RDSO.***

Item no. 22	NU 330 Bearing
Deliberation	During 4th BIM, NWR has reported failures of 17 cases of NU 330 TM bearing Pinion End from April 2014 to November 2015, out of which 16 cases were of NBC make bearings and one case was of FAG India. This year i.e. in 5th BIM, SR has also raised the issue as under :- a) GOC Workshops is overhauling 900 traction motors approximately every year. Around 500 nos. of new NU 330 bearings are used and out of which 50% to 60% bearings are of NBC make. The bearings are supplied by DMW/PTA. b) Frequent failures are reported in Traction motors of POH turned out locos by the customer diesel sheds. The trend is alarming and the situation requires attention and suitable redress.

	c) Most of the Traction motor failures are due to seizure of Pinion end bearing NU 330 of NBC make. The failed NBC bearings have served less than 2 years. From the above it can be seen that performance of NBC make bearing is far from satis-factory. Failure of these bearings on line is causing detention to trains in block sections. It also has serious safety implication due to axle lock. \ RDSO has advised that firm has taken corrective action at their end.
Decision	***RDSO to examine.***

23	**NH 320 Failures**
Deliberation	GOC shop is receiving bearings NH 320 (Pl.No. 12491305) through DMW/PTA. Recent-ly, shop received 62 Nos. of NH 320 bearings of NBC/India make on 10-12-2016 vide DMW PO. No.13150003835077 Dt. 06-01-16. When these bearings are provided in the traction motors type 4907/4906 the CE Bearing temperature is raising upto 75°C within in one hour during Light Run test at 1100 rpm. Ideally temperature should go up to 65^0C (As per OEM's manual, steady state temperature should be between 20 to 30°C above ambient temperature). Although the radial clearances measured before and after mount-ing are within the limit. Details are as under

Sl. No	**Bearing No. with Mfg. Date**	**Provided on Mo-tor**	**Temperature during light run test**
1	16 H 0216 - 08-16	46892/4615952	74^0C
2	16 J 0437 - 09-16	35124/4619883	70^0C
3	16 H 0234 - 08-16	23372	77^0C
4	16 H 0330 - 08-16	42100	75^0C
5	16 H 0371 - 08-16	4545369	73^0C

DMW has also cross checked the temperature rise and found that temperature rise in NBC bearing is high.

Decision	***RDSO to examine the same.***

Item No. 24	**LWS failure**
Deliberation	NWR and ECoR have reported failure of LWS switch of HEMCO and Meno-Tech. DMW has also observed quality issue in LWS at DMW.
Decision	***DMW should develop new vendors.***

Item No. 25	**Excessive buffer gap in H-Type Coupler**
Deliberation	a) H type tight lock coupler (transition type) along with low pre load draft gear have been provided in Alco locomotive used in passenger services. b) Problem of excessive buffer gap during operation were reported by railways and was discussed in different forum. A meeting was held on 29.02.2016 at Railway board to discuss the problem of excessive buffer gap and it had been decided to withdraw further proliferation of tight lock coupler on both Alco and HHP locomotive till design is not frozen and same was followed by RDSO.

	c) As this problem was mostly in HHP locomotive, where distance between pivot centers and length of locomotive is more in comparison to Alco loco, resulting more throw over, main possibility of buffer entanglement. RDSO studied the problem and worked with manufacturers, concluded long term measures, reviewed the design and tried to find out optimized solution which is operational friendly and safe worthy in IR. d) A modified coupler has been put under trial on HHP loco no. 40304(WDP4D) on 28.10.2016 at AMV shed ,since coupler is performing satisfactory.
Decision	***a) Railway Board vide letter no 97/M(C) /137/1 Vol IX dated 09.12.16 has advised ZR, to convert screw coupling coach in tight lock coupler, as such H type tight lock coupler with low pre load draft gear be fitted on ALCo passenger locomotive on ZR. RDSO to give revised/improved drawings of H-type coupler and its associated accessories to DMW/ZR.*** ***b) DMW to advise ZR for submission of demand for H type coupler as per revised drawings.***

Item no. 26	**Failure of AEC make radiator fan bearing**
Deliberation	SR has reported failure of AEC make radiator fan bearing. Radiator Fan bearings to DMW Part No. 11400055 is a Bulk Indent Item. The service life obtained by these bearing is very short and in no case is beyond 2 years. When compared to other makes, previously received from DLW/ DMW, i.e., NTN/SKF, the performance of AEC make bearings is poor and service life is only half of the life of other makes. Because of which the EAR for this item need to be doubled. The details of performance of AEC make bearings are shown below:

Sl. No.	Loco No./Shed	Date of fitment	Date of failure	Life in months	Remarks
1	WDM_{3D}11288/ED	30.09.14	11.06.15	8	Fitted during POH
2	WDM_{3D}11240/ED	01.02.14	18.01.15	11	Fitted during POH
3	WDG_{3A}14741/ED	19.07.14	03.07.15	12	Fitted during POH
4	WDM_{3D}11178/ED	28.08.14	15.12.14	4	Fitted during POH
5	WDG_{3A}13536/ED	16.11.13	29.08.14	10	Fitted during POH
6	WDG_{3A} 13564/ GOC	05.01.16	11.02.16	1	Fitted during POH
7	WDG_{3A}14667/ED	09.05.16	11.08.16	3	Fitted during M24
8	WDG_{3A}14640/ED	16.02.16	24.01.17	10	Fitted during M24

Decision	***DLW should undertake vendor review of AEC make radiator fan bearing.***

Item No. 27	**Failure of Piston Pin**
Deliberation	ZR reported cracks in Piston Pin in 4th BIM on following reasons :- ▪ Piston Pin Worked out. ▪ Waviness/lobbing effect on outer surface of piston pin. ▪ Cracks on outer surface of piston pins. ▪ Piston pin sleeve loose and hydraulic leakage. ▪ Poor surface finish(surface roughness more than 20rms) ▪ Low or High Hardness (Required Hardness 56-62 HRC). DMW has taken actions to address above issues and now there has been drastic reduction in piston pin failures.
Decision	***DMW to regularly check quality of piston pin for sustained improvement.***

28	**TSC failures and maintenance issues**
Deliberation	SR has reported the issue of rotor jamming of ABB TPR-61 TSC. SR has observed that carbon soot is causing jamming of rotor and this phenomenon is observed after 24 month of TSC running. Similar is being observed by GD shed of NER.
Decision	***RDSO to undertake study of cases brought by ZR.***

Item No. 29	**ALCO Traction Motor failures**
Deliberation (a	**Failure of CGL make Traction Motor** **ZRs have raised failure of CGL make motors and following issues were raised :-** a) brazing failures resulting stresses in Brazing joint b) Another reason of failure was on account of reduced clearance between MP and IP coils after mounting, resulting in interpole failures. c) Interpole loose on account of improper tapping depth of pole bricks. d) Grease oozing out due to uneven clearance between Bearing Cover and retaining collar and following corrective action has been taken by CGL :- **M/s CGL has taken action for taking on these issues.**
Decision	***a) RDSO to review the actions taken by CGL.*** ***b) ZR to regularly give feed back of traction motors of all make..***
Deliberation (b	**Quality of DMW supplied TM**
	NWR has advised failure of TM gear case holding bracket cracks. Other ZRs has raised the issue of less mica cutting and ovality. DMW has presented that they have taken corrective action in various areas. RDSO to audit process.
Decision	***RDSO to audit the process of rebuilding of Traction Motor at DMW.***

Item no. 30	**Failure of Kayson make master controller**
Deliberation	Kaysons electrical make master controllers are getting failed repeatedly in ALCO locomotives. RDSO has already under taken review of vendor. In view of failures, RDSO to further review performance of M/s KAYSON. Failures are of following nature :- a) Excessive play in throttle b) Throttle free /Jam
Decision	***RDSO to examine ZR complaints and take corrective action.*** ***ZRs to ensure prescribed maintenance schedules are done.***

Item no. 31	Carbon Brush CB-21RF
Deliberation	RDSO has audited DMW for carbon brush shop. RDSO's suggestions viz. All Cu wires in flexible 7X58X40SWG, provision of individual sleeve on all four pigtails, sharp corners and edges of existing spring assembly to be rounded off is ensured at DMW. RDSO team audited the DMW's process and manufacturing process and workmanship, Dimensions, Milli volt drop test, Pullout strength test, Endurance test, Microscopic test for crack, Sleeve on pigtail, Visual test, Construction, Dia measurement, Weight measurement checked and the same were found OK. Chemical composition of flexible shunt tested at C&M Lab DMW and found OK. Millivolt drop was found to be 3.0-4.0 as against 4.1-5.4. For Conductivity, Electrical resistance & Resistivity, RDSO has suggested to get these parameters tested by NABL certified lab, case for which is under process.
Decision	***DMW should regularly check conductivity, electrical resistance & resistivity of carbon brush. DMW should procure M&P needed for these test so that the testing can be done regularly in-house.***

Item no. 32	Implementation status of relocation of Horns
Deliberation	Problem of high noise in cab was reported from some ZRs. RDSO studied the problem and carried out practical trails at AMV shed. Based on study, RDSO issued Modification sheet no. MP.MOD.BK.01.10.14 for relocation of horn from roof mounted to near the head light in ALCo class of diesel electric locomotives to all Zonal Railways and PU's vide this office letter no. SD.DFM.A.4.7 dated 27.07.2015 and advised to implement the modification during manufacturing, rebuilding, POH of locomotives and major schedule of locomotives.
Decision	***ZR and DMW to ensure modification as advised by RDSO.***

Item no. 33	Interchangeability of Air Dryers
Deliberation	ER has brought out the issue of Interchangeability of Air Dryers of different makes.DMW and RDSO have jointly worked on this issue. Joint meetings with representatives of firms were conducted at RDSO on dated 28/04/16 & 13/12/2016. RDSO specification now specifies A,B,C,D,H. Suppliers have agreed to supply air dryers as per the details given by RDSO. DMW will verify the same as and when supplies are received at their end. Further, piping has been modified at DMW so that air dryers are interchangeable.
Decision	***DMW should issue a drawing so that piping can be modified in workshop/sheds. This will resolve interchangeable issue in all locos.***

Item No.34	Repair and Overhauling of DEMU TM/TA
Deliberation	As decided in 4th BIM DMW has already placed purchase orders for CGL and BHEL make TAs/TMs for DEMU. The supply needs to be expedited. As overhauling is to be done by ZR as such ZR to submit demand of items required for overhauling of TAs/TMs . DMW apprised that demand fromZRs is awaited.
Decision	1. ***DMW should expedite supplies of rehabilitated TAs/TMs to ZR.*** 2. ***ZR to give demand of items required for overhauling of TAs/TMs and DMW will procure these items from OEM as already decided in 4th BIM.***

Item No. 35	Rate Contract for maintenance spares & AMC of Cummins Engine for Multi Gen Set Locomotive
Deliberation	WCR has advised DMW to enter Rate Contract for maintenance spares**&**AMC for Cummins Engine. DMW has already processed the same.
Decision	***DMW should quickly finalize AMC for Multi Gen Set Locomotive.***

Item No. 36	Tooling Items supplied by DMW
Deliberation	DMW has supplied good quality of pinion pullers and FIP test bench. The issue of pressure gauge need to be resolved as ZRs have been reporting quality issue in pressure gauge required which is used for engine testing.
Decision	***DMW should address quality issues of pressure gauge and other items as advised by ZRs time to time and take the issues to logical conclusion.***

Item no. 37	Provision of Extra Happy Pads in APU fitted Locos
Deliberation	The issue was discussed in last BIM. DLW has revised drawing wherein height of side bearer pad was adjusted by providing plate in underframe. As this will be applicable to New locos only, ZR to use happy pads to adjust the height.
Decision	***ZRs to use happy pads to adjust the height so that buffer height is maintained within drawing limits.***

Item no. 38	Standardisation of Driver Cabin for WDM3A Locos
Deliberation	S.Rly mentioned that WDM2 16974 design (DC-DC transmission with 2400HP) and converted into WDM3A (AC-DC transmission with 3100HP) however the control stand facing direction was not modified during rebuilding. DMW mentioned that currently only 20 such locos are on ZR.
Decision	***DMW should examine feasibility of conversion of WDM3A to LH drive. As few items (Cab, Control Desk) will be rendered surplus on this account, the same be disposed as per procedure.***

Item no. 39	Standardizing provision and location of speedometer
Deliberation	In the rebuilt locos recently received from DMW (WDM_{3A} locos 16850, 16874 & 14051), speedometer is provided on the right side extreme end of control stand i.e., far away from lookout glass. The loco pilots are experiencing inconvenience while negotiating points / crossings, curves and working in speed restricted caution spots. DMW mentioned that it will require redesigning of control desk and will involve re-arrangement of gauges.
Decision	***DMW should redesign control desk at the earliest.***

Item no. 40	Cracks in MSU
Deliberation	ZRs have reported high rejections of MSU. RDSO mentioned that the issue has been examined and currently MSUs are not being changed by ZR during POH. RDSO is considering to fix life of MSU tube.
Decision	***a) Board has already approved including MSU as a must change item during POH. RDSO to quickly issue necessary instructions regarding inspection of MSU so that only qualified MSU be used by ZR during wheel assembly.*** ***b) ZRs to gear up for increased wheel set requirement of MSU.***

Item no. 41	Implementation status of relocation of Tapping of BP gauge
Deliberation	To provide indication to the loco pilot in case of wrong operation of BP additional cut out cock (To make it failsafe against inadvertent or unauthorized operation) Modification sheet no. MP.MOD.BK.01.07.15 for relocation of tapping of BP gauge in diesel locomotives has been issued to all Zonal Railways and PU's vide this office letter no. SD.DFM.A.4.7 dated 24/26.08.2015. DMW has already implemented it from March,2016.
Decision	***ZR and DMW to ensure implementation of relocation of Tapping of BP gauge.***

Item no. 42	Laser hardened liners
Deliberation	Currently HHP locomotives are using laser hardened liners, which do not have any environmental issues due to no chrome plating. As per CME/DLW report, LOC of laser hardened liner is inferior to 3RV liner but better from conventional 5RV liners. Procurement & fitment of 1760 (5RV) laser hardened cylinder liners for ALCo locomotive is under way at DMW/PTA.
Decision	***DMW to expedite extended trial of 1760 nos. (29 locos) of Laser Hardened Liners. These be sent two sheds and sufficient spare liners should be set aside for spare requirement of laser hardened liners.***

43	**Cast Engine Block**
Deliberation	CSR Ziyang Locomotive Co./China etc. are using Cast Engine Blocks since it is a single entity and having higher strength, superior vibration damping characteristics and capability to withstand higher peak firing pressure. It is understood that M/s GE shall use cast engine blocks on its locomotives of 4500 hp and 6000 hp, which shall be manufactured in Marhorah. To explore the use of cast engine block in 16 CylALCo Engine, a Specification was framed by RDSO in June, 2010. Thereafter, in 2011, in a global tender, contract was awarded to M/s Sichuan Yibin Push Group Co Ltd China for supply of 50 Nos of ALCo Cast Engine Blocks. Total 06 nos. of 16 Cyl. Cast ALCo Engine Blocks are in service in Indian Railways. The fitment details are as below:-

Sl No.	Engine Block No.	Power Pack No.	Loco No.	Shed/Rly	Date of Dispatch
01	PF – 14 - 000	2597	14726	LDH/NR	17-06-2015
02	PF – 14 – 007	2697	16742	BKSC/SER	11-01-2016
03	PF – 14 – 005	2703	14829	LDH/NR	22–01-2016
04	PF – 14 – 006	2709	14756	NGC/NFR	08-02-2016
05	PF – 14 – 004	2711	14718	SPJ/ECR	15-02-2016
06	PF – 14 – 003	2739	14809	LDH/NR	30-04-2016

Performance of cast engine block is very good. DMW has processed for 151 nos. of cast blocks.

Decision	***DMW to fit remaining 34 nos. of cast blocks by Aug,2017.*** ***Fresh tender for 151 nos. be monitored.***

Item no. 44	**Performance of common oil in HHP**
Deliberation	To overcome the problem of fuel storage of crankcase oil, RDSO conducted trials of oils approved in ALCO locos(RR606, MG Plus II of IOC, MAK RR 513 M of M/s BPC and HPRR 813 M of M/s HPC) in HHP locos. Based on trial report, RDSO vide letter no. SD.Eng.Oil dated 03.03.2016 and SD.Eng.Oil.GM 4000 dated 21.03.2016 has approved use of crankcase oil RR606, MG Plus II of IOC, MAK RR 513 M of M/s BPC and HPRR 813 M of M/s HPC in HHP locomotives.
Decision	**Sheds having both ALCo and HHP locomotives to share the performance of common oil (RR606, MG Plus II of IOC, MAK RR 513 M of M/s BPC and HPRR 813 M of M/s HPC) used in HHP locos to RDSO.**

Item no. 45	**New list of Must change item during POH of ALCo locomotives**
Deliberation	Requirement of revision in list of must change item during POH of ALCo locomotives was raised during CMPE conference held on 11/12 Aug, 2015 at New Delhi. RDSO conducted many rounds of meeting at RDSO, workshops and collected feedback from various sheds and workshops Based on above exercise, RDSO vide letter no. SD.Must change item Alco (POH) dated 13.06.2016 has issued a new list of "Must change items during POH of Alco locos."
Decision	**ZR should plan for material for 100% change of must change items during POH.**

Item no. 46	**Performance monitoring of rebuilt WDP1M locomotives**
Deliberation	DMW is undertaking rebuilding of WDP1M locos. In this regard, RDSO team visited DMW/PTA to observe issues related to bogie i.e. fitment of TBU, spring pad at middle axle, orientation of secondary damper etc. and the same have been reviewed by RDSO and accordingly revised drawings advised to DMW/PTA vide letter no. SV.WDP1 dt.25.11.2016 for implementation.
Decision	*a) As initial rebuilt WDP1 locomotives are homed at TKD shed, Northern Railway to closely monitor the field performance and furnish the same on quarterly basis to RDSO & DMW.* *b) As availability of TBU is an issue, RDSO to examine alternate for TBU or standardise with TBU already in use on other locos e.g. electric.*

Item no. 47	**WDP3A Loco Rebuilt**
Deliberation	RDSO to examine dumbbell shape loco during rebuilt at DMW. SR has suggested details of items which need to be considered during rebuilt at DMW.
Decision	**RDSO to design dumbbell shape for WDP3A locos on priority, as 2 locos are to be rebuilt by DMW during 17-18.**

Item no. 48	**Disabling of VCD through VCD reset push button from the non-working control stand/ desk of single cab diesel Electric locomotives (ALCo and HHP)**
Deliberation	As per advice of Rly Board(Rly Board Letter no : 98/M (L)/466/29 dated 26.11.14), RDSO studied the issue and issued the mod sheet MP.MP.MOD.EC.02.12.14 Rev 2 dt. 27.08.15 for disabling VCD through VCD reset push button from the non-working control stand/ desk of single cab diesel Electric locomotives (ALCo and HHP). DMW is turning out locos as per RDSO mod sheet.
Decision	*ZR/DMW to ensure modification as per RDSO modsheet.*

Item No. 49	**a) Preventing motoring/ dynamic brake operation in loco when MU2B is set to trail, b) Suppressing VCD in rear loco if MCB1 and 2 are kept ON during MU operation with ALCo locomotives.**
Deliberation	As per advice of Rly Board (Rly Board Letter no.: 2014/M(L)/466/6(29) dated 06.07.16), RDSO studied the issue and issued mod sheet MP.MOD.EC.01.02.12 Rev. 1 dt. 30.12.16
Decision	*ZRs/DMW to ensure modification as per RDSO modsheet.* *ZRs to give feed back to RDSO.*

Item No. 50	**18 MM FIP Issues**
Deliberation	Total 85 FIPs fitted by DMW /PTA during RB in MLDT and NGC Shed based locos since April 2014. Failure during 2014-15,2015-16 and 2016-17 are 8, 69 & 17 respectively. Failures of BOSCH make is 66 followed by MICO -8 and WW-11.Out of 85 failures ,55 FIP failed within six months of service. The defects mainly are Lower collar for guide cup cracked, Housing collar broken,Safety groove broken,Barrel plunger seized, fuel rack jam. The mechanical damage of lower collar for guide cup, housing collar,groove are on account of incorrect fuel cam lift. The fuel cam setting is done after ensuring camgear teeth advancement. DMW has already issue design bulletin. For barrel plunger seizure and fuel rack jam cases, case to case investigation be done by ZR.
Decision	***a) Correct setting of fuel cam lift be ensured by sheds, this will immediately address issue of lower collar breakages, guide cup crack. Housing collar broken etc.*** ***b) Proper Investigation of barrel plunger seizure cases need to done by BOSCH/ZR.***

Item No. 51	**Wheel Gauge Widening Cases**
Deliberation	Wheel Gauge Widening cases are causing concern and need to be addressed. KJM shed has 22 axles of HHP on 10 HHP Locos and 13 axles of 6 ALCO locos during 16-17 only. Similarly in GD Shed Loco no. 16692 & 16725 had wheel gauge widening within 6-8 Months.
Decision	***The issue of gauge widening need to be examined by RDSO on priority.***

Ìtem no. 52	**MB Radiator Leakages**
Deliberation	**CR has advised that there are cases of MB radiator leakages. Details are as under:-**

SN	Nature of failure	2015-16		2016-17		Total
		PA	KYN	PA	KYN	
1	Tube leakage	7	-		4	11
2	Tube cracked	-	-	2	1	3
3	Core damage	-	-		2	2
	Total	7	-	2	7	16

Decision	***As per RDSO vendor directory Dec,2016, MB Radiator is RDSO controlled item. Quality audit of MB Radiator be done by RDSO/DLW.***

Item No. 53	**Fabricated bogie frame x-beam 1&4 touching with traction motor 1&6 back inspection cover**
Deliberation	NR reported that locomotives fitted with fabricated bogie frames (of M/s Anup malleable, Dhanbad make) received from DMW/PTA after rebuilding having problem of bogie frame x-beam rubbing with traction motor back inspection cover. This causes damage to traction motors back inspection cover during assembling and locomotive working. In this situation traction motors cannot be checked as and when required by opening covers. RDSO has examined and found that bogie frame profile is not correct.
Decision	***RDSO to review quality inspection plan to avoid recurrence of such cases in future. DMW should advise firm to rectify bogies.***

Sl. No.	Loco No.	Date of received from DMW/PTA
1	14008	12.07.2013
2	14002	28.07.2014
3	14018	27.08.2014
4	14027	16.01.2015
5	14015	18.10.2016

Item no. 54	**Failures of Fuel Pump Motor of ALCO Locos**
Deliberation	ZRs discussed failure of ALCO fuel pump motor ofsignitron make. In view of large failures of these motors ,as per earlier BIM decision, DMW has switched over to HHP design FPM. All rebuilt locos ex-DMW are fitted with HHP design FPM. Further, Railway Board has allotted 200 nos. of such motors which need to be procured by DMW.
Decision	***a) DMW to continue using HHP design fuel pump motor in ALCO Loco rebuilding.*** **b)** ***DMW to procure 200 nos. of HHP design fuel pump motor as directed by Board letter no. 2017/M(L)/459/2 pt. dated 06.02.107.***

Item no. 55	**Spares for Upgarded Compressor**
Deliberation	ZRs have raised the issue of RC of upgraded compressor finalised by DMW for placement of POs at their end. DMW has issued RC (*No. 20/15/5011/1/315067 dated 28/03/2016 on M/s KPC& No.20/15/5011/1/314942 dated 28/03/2016 on M/s ELGI*) on ELGI/KPC in March,16 (i.e. much before Jan,2017) when ordering based on Part-I/Part-II status was prevalent. Therefore, COS/DMW clarified that ZRs should place orders for upgraded compressor components as per Part-I/Part-II status (*as prevalent before Jan,2017)* till validity of RC issued by DMW. ZRs have also raised the issue of quality problem associated with KPC upgraded compressors. EDME(Tr.) advised RDSO to look into the issue of interchangeability of parts between Elgi and KPC upgraded compressor, particularly when KPC compressor as a whole is not cleared for unrestricted use. This should be examined by RDSO and suitable directions issued to ZRs.
Decision	***a) ZRs to use DMW RC (No. 20/15/5011/1/315067 dated 28/03/2016 on M/s KPC& No.20/15/5011/1/314942 dated 28/03/2016 on M/s ELIGI) with quantity distribution as per Part-I/Part-II status as prevalent before Jan,2017, till validity of these RCs.*** ***b) RDSO to examine quality issue of KPC upgraded compressor , interchangeability of parts between Elgi and KPC compressor and suitably advise ZR.***

Annexure-I

Details of RC for Spares

SN	Item	Firm M/s	Price Agreement No.	Valid up to	Present Status
1	Spares for ABB VTC-304 TSC	ABB	20/15/5005/1/314764 dt. 24.12.2015	23.12.2017	No action to be taken at present.
2	Wood-ward Governor	Woodward	20/15/5008/1/315187 dt 04.05.16	03.05.18	No action to be taken at present.
3	Air dryer	Knorr Bremse	20/15/5007/314830 dt. 14.01.2016	13.01.2018	No action to be taken at present.
4	Air dryer	Faiveley	20/14/5015/1/314148 dt 07.07.15	06.07.2017	Case put up for extension by store
5	Air dryer	Stone India	20/14/5001/1/313874 dt. 30.04.15	30.04.2017	Case put up for extension by store
6	Upgraded Compressor	ELGI	20/15/5011/1/314942 dt 24.02.16	23.02.2018	No action to be taken at present.
7	Upgraded Compressor	KPC	20/15/5011/1/315067 dt 28.03.16	27.03.2018	No action to be taken at present.
8	Paper less speed recorder & Indicator	Autometer	21/15/5003/314884 dt. 02.02.2016	31.03.2018	No action to be taken at present.
9	Paper less speed recorder & Indicator	Medha	21/15/5001/314881 dt. 01.02.2016	31.01.2018	No action to be taken at present.
10	Paper less speed recorder & Indicator	LAXVEN	21/15/5002/314876 dt. 29.01.2016	28.01.2018	No action to be taken at present.
11	TPR-61 TSC(overhauling)	ABB	20/15/5001/1/314637 dt. 04.11.2015	03.11.2017	No action to be taken at present.
12	Microprocessor	Medha	21/16/5000/1/315654 dt.26.09.16	25.09.18	No action to be taken at present.
13	Overhauling of Control & Actuator unit of MCBG	Medha	21/13/5000/1/312809 dt.09.07.14	08.07.17	Case under process for two years extension (up to 08.07.19)
14	Overhauling of PTLOC	Tranter	20/15/5012/1/768974 dt 28.09.16	31.03.17	PO placed for 143 nos and case is under process for 441 Nos .
		Alfa Laval	20/14/5000/1/768983 dt 28.09.16	31.03.17	PO placed for 208 nos, and case is under process for 625 Nos.