

**REPORT**  
**OF**  
**MANUAL REVIEW COMMITTEE**  
**FOR**  
**DIESEL MANUALS**

**Indian Railways**  
**Institute of Mechanical & Electrical Engineering**  
**Jamalpur - 811 214**

**June 2005**

## Report of Manual Review Committee (Diesel Manuals)

Railway Safety Review Committee in its recommendation No. 24 mentioned for studying and correcting the discrepancies between rule books, manuals and codes. Railway Board vide letter E (TRG) 2001(23)/6 DTD 30/10/03 advised all CTIs to review their respective departmental manuals. AM/ME vide letter 2001/M(Safety)/7/6/ Pt.II dtd 3/11/03 and 16/02/04 instructed IRIMEE to review various Mechanical manuals – Coach, Wagon and Diesel Loco by nominating committees of IRIMEE, RDSO, IRCA, DLW & Railways.

The various members of Diesel Manual Review Committee are:

S.No.	Name	Designation
1	Vivek Kumar	Dir(Mot Pow)/RDSO
2	A K Agarwal	DyCME/ Engine/ (ToT)/DLW PTC / DLW
3	Shyamadhar Ram Nand Kumar	DyCME(D)/SR
4	Maduhkar Dayal Tarun Huria	Prof(D)/IRIMEE/JMP

The scope of review was to 'identify discrepancies and contradictions of diesel manuals' especially with regard to safety items. The Committee kept in touch through telephone, fax, and email and discussed various discrepancies. Inputs were provided by all the members.

The various discrepancies have been compiled into following lists:-

- Discrepancies in WDP<sub>1</sub> Maintenance Manual
- Discrepancies in YDM<sub>4</sub> Maintenance Manual
- Discrepancies in WDM<sub>2</sub> & WDS<sub>6</sub> Maintenance Manual
- Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual
- Discrepancies in Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

The GM Loco Maintenance Manual was reviewed and it was found that it required no changes.

Discrepancies (corrections) are normally errors or printing mistakes and also differences which have crept in due to technological up gradations; they can be easily set right by issue of Correction Slip by RB.

**(Vivek Kumar)**

**(A K Agarwal)**

**(Nand Kumar)**

**(Tarun Huria)**

**Dir(Mot Pow)/RDSO**

**PTC / DLW**

**DyCME(D)/SR**

**Prof(D)/IRIMEE/JMP**

Dated: June, 2005

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## Table of Contents

Section	Manual	Pages
A.	Discrepancies in WDP <sub>1</sub> Maintenance Manual	4
B.	Discrepancies in YDM <sub>4</sub> Maintenance Manual	4
C.	Discrepancies in WDM <sub>2</sub> and WDS <sub>6</sub> Maintenance Manual	5
D.	Discrepancies in WDG <sub>2</sub> Maintenance Manual	6
E.	Discrepancies in Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)	24
F.	Discrepancies in Annexure III & IV of Chapter 11, White Manual	6
G.	Data Sheets of WDM <sub>2</sub> added for Chapter 12, White Manual	9
H.	Data Sheets of WDM <sub>2C</sub> added for Chapter 12, White Manual	9
I.	Data Sheets of WDG <sub>2</sub> added for Chapter 12, White Manual	8
J.	Data Sheets of WDP <sub>1</sub> added for Chapter 12, White Manual	7
K.	Data Sheets of WDP <sub>2</sub> added for Chapter 12, White Manual	7
L.	Data Sheets of WDM <sub>7</sub> added for Chapter 12, White Manual	10

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Discrepancies in WDP<sub>1</sub> Maintenance Manual

**DISCREPANCIES IN DLW's MI FOR WDP<sub>1</sub> LOCO.BOGIE**

S.No	WDP <sub>1</sub> MI/DLW Ref.	WDP <sub>1</sub> MI/DLW Description	Other Ref.(RDSO)	Other Ref. Description	Remarks
(A)	(B)	(C)	(D)	(E)	(F)
1.	MI-CHS-009 PAGE 1	Primary Deflection = 121 mm	RDSO Drg.No .SKVL-030	Primary Deflection = 69 mm	To change (C) with (E)
2.	MII-CHS-009 PAGE 1	Secondary Deflection=174mm	RDSO Drg. No SK.VL-032	Secondary Deflection=100mm	To change (C) with (E)
3.	MII-CHS-009 PAGE 1	Secondary Spring per loco = 6 nos.	RDSO Drg. No SK.VL-032	Secondary Spring per loco = 12 nos.	To change (C) with (E)
4.	MII-CHS-009 PAGE 1	Total clearance between side stopper and bogie frame = 40 mm	RDSO Drg. No SK.VL-026A	Total clearance between side stopper and bogie frame = 43 mm	To change (C) with (E)
5.	MII-CHS-009 PAGE 6	<b><u>Lateral clearance</u></b> As new = 2.00 mm <b><u>Longitudinal clearance</u></b> As new = 0.35 mm	RDSO Drg. No SK.VL-005	<b><u>Lateral clearance</u></b> As new = 1.54mm(Min.) 3.502 mm (Max.) <b><u>Longitudinal clearance</u></b> As new = 0.6 mm (Min.) 2.162 mm (Max.)	To change (C) with (E)
6.	MII-CHS-009 PAGE 6	Buffer height 1080 Min.1105 Max.		<b>1090+15/-5</b> i.e.Buffer height 1085 Min. 1105 Max.	To change (C) with (E)
7.	MII-CHS-009 PAGE 12	<b><u>Center Pivot assembly</u></b> Locking wire provided with four bolts	RDSO Drg. No SK.VL-159	<b><u>Center Pivot assembly</u></b> Locking plate provided with three bolts	To change (C) with (E)
8.		Not given	RDSO Drg. No SK.VL-020 & 026A	1) Clearance between under frame and bogie frame vertical = 30mm 2) Clearance between axle box and bogie frame vertical = 55mm	To add

Discrepancies in WDP<sub>1</sub> Maintenance Manual

				3) Clearance between under frame and bogie frame lateral = 43mm	
9.	System Air (MI-AIS-000)			<p>1. <u>Figure 1</u></p> <ul style="list-style-type: none"> <li>i) Nomenclature of MR equalizing pipe should be included.</li> <li>ii) The figure should indicate electro pneumatic compressor governor in place of NS-16 governor as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> <li>iii) Provision for air dryer should be made.</li> <li>iv) The connection for MR equalizing pipe should not be done through feed valve. Feed valve should be located as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> </ul> <p>2. <u>Figure 2</u></p> <ul style="list-style-type: none"> <li>i) Supply to control port of add. C2W relay valve should be indicated as “from MU-2B valve “ instead of “MU-1B valve”.</li> <li>ii) Figure should include C3W distributor valve instead of vacuum air proportionate valve.</li> <li>iii) Item 11 ‘3/4” COC” should be replaced by “1”COC”.</li> <li>iv) Connection from MR should also be indicated in MP.AR gauge (item 12).</li> <li>v) D-1 emergency brake valve connection should be shown as indicated in RDSO drg. No.SK.DP-2918, alt.8.</li> </ul> <p>3. Brake schematic diagram given on page 4 should be as per RDSO drg. No.SK.DP-2918, alt.8.</p>	To add

Discrepancies in WDP<sub>1</sub> Maintenance Manual

10.	<b>Frequency of Maintenance Schedule:</b>			<p>The locomotives shall be stopped for preventive maintenance attention as follows: Nature of Schedule attention.</p> <table border="1" data-bbox="1144 446 1753 792"> <thead> <tr> <th>Sl.No.</th> <th>Schedule</th> <th>Periodicity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>T1</td> <td>10, 15 &amp; 20 days</td> </tr> <tr> <td>2.</td> <td>T2*</td> <td>30,40 days</td> </tr> <tr> <td>3.</td> <td>M-2</td> <td>60 days</td> </tr> <tr> <td>4.</td> <td>M-4</td> <td>120 days</td> </tr> <tr> <td>5.</td> <td>M-12</td> <td>12 Months</td> </tr> <tr> <td>6.</td> <td>M-24</td> <td>24 Months</td> </tr> <tr> <td>7.</td> <td>M-48</td> <td>48 Months</td> </tr> <tr> <td>8.</td> <td>M-96</td> <td>96 Months</td> </tr> </tbody> </table> <p>T2* contains all items of T1 + some additional items like filter change, expresser discharge valve cleaning, main generator cleaning, alternator cleaning, rectifier cleaning, roller suspension bearing examination, and suspension bearing examination.</p>	Sl.No.	Schedule	Periodicity	1.	T1	10, 15 & 20 days	2.	T2*	30,40 days	3.	M-2	60 days	4.	M-4	120 days	5.	M-12	12 Months	6.	M-24	24 Months	7.	M-48	48 Months	8.	M-96	96 Months	To add
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7.	M-48	48 Months																														
8.	M-96	96 Months																														
11.	<b>Maintenance schedule:</b>		RDSO report No. MP Misc.- 139	<p>Maintenance schedule: The schedule of attention to various items in the loco and the frequency of attention shall be as indicated in the maintenance schedule issued by RDSO vide report No. MP Misc.- 139 for non-modified <b>WDM2</b> Diesel Electric locomotives having unmodified engine sump and suspension bearing sump capacity, MP Misc.— <b>140 for modified</b></p>	To add																											

Discrepancies in WDP<sub>1</sub> Maintenance Manual

				<p><b>WDM2/WDM3A/WDP3A/WDG3A (with Plain suspension bearing)</b> Diesel Electric locomotives having modified engine sump and suspension bearing sump capacity and MP Misc.- 141 for modified WDG3A <b>(with taper roller suspension bearing)</b> Diesel Electric locomotives issued vide RDSO letter No. SD WDM 2.9 dated 30.05.2003 and July 1968 for YDM4 locos.</p> <p>Though uniformity is expected in the implementation of major schedules (M-24 and above), variation in operating condition in different regions may make it necessary to carry out lower schedules more frequently or to introduce examination or items not mentioned herein. Such changes are to be authorized by an official not below shed-in—charge i.e. Sr. DME/DME. The same should also be intimated to RDSO.</p>	
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Discrepancies in YDM<sub>4</sub> Maintenance Manual

**DISCREPANCIES IN DLW's MI FOR YDM<sub>4</sub> LOCO.BOGIE**

S.N o.	YDM <sub>4</sub> MI/DLW ref	YDM4MI/DLW'S DESCRIPTION	Other Reference (RDSO)	Other Reference Description	Remarks
(A)	(B)	(C)	(D)	(E)	(F)
1.	MI-GLD-006 PAGE2	Locomotive Weight with supplies =72000 Kg. Locomotive Weight light = 67900 Kg.	Mechanical Engg. Report No.M-202	Locomotive Weight with supplies =71680 Kg. Locomotive Weight light = 67450 Kg.	To change (C) with (E)
2.	MI-CHS-000 PAGE 5	<b><u>Lateral clearances</u></b> End axle(Total per axle) As new = 6.35 mm Service Limits = 12.7mm Middle axle (Total per axle) As new = 19.05 mm Service Limits = 25.4mm	Ref: S.No.58 of SV.YDM4 dated 14.10.2003	<b><u>Lateral clearances</u></b> End axle(Total per axle) As new = 6.0 mm Service Limits = 12.0mm Middle axle (Total per axle) As new = 20.0 mm Service Limits = 25.0mm	To change (C) with (E)
3.	MI-CHS-000 PAGE 5	Over axle box liners 9-1/16" (230.19)	NEI Drg.No.92-4253	Over axle box liners 230+0.6/-0.15mm	To change (C) with (E)
4.	MI-CHS-000 PAGE 5	Between pedestal Liners 9-1/8" (231.78 mm) Original	RDSO Drg. No SK.DL-1504	Between pedestal Liners 9-1/125" (231.78mm) (Max.) 9.094" (230.99mm)(Min.)	To change (C) with (E)
5.	MI-CHS-000 PAGE 6	1544 mm Journal CRS	RDSO Drg. No SK.DL-1504	60-7/8"(1546.225mm)Journal CRS	To change (C) with (E)
6.	Air System(MI-AIS-001)Schematic air system (Page-4)		RDSO drg. No.SK.DP-2918 alt.8	2. <u>Figure 1</u> i) Nomenclature of MR equalizing pipe should be included. ii) The figure should indicate electro pneumatic compressor governor in place of NS-16	To add

Discrepancies in YDM<sub>4</sub> Maintenance Manual

				<p>governor as shown in RDSO drg. No.SK.DP-2918 alt.8.</p> <p>v) Provision for air dryer should be made.</p> <p>vi) The connection for MR equalizing pipe should not be done through feed valve. Feed valve should be located as shown in RDSO drg. No.SK.DP-2918 alt.8.</p> <p><u>2. Figure 2</u></p> <p>vi) Supply to control port of add. C2W relay valve should be indicated as “from MU-2B valve “ instead of “MU-1B valve”.</p> <p>vii) Figure should include C3W distributor valve instead of vacuum air proportionate valve.</p> <p>viii) Item 11 ‘3/4” COC” should be replaced by “1”COC”.</p> <p>ix) Connection from MR should also be indicated in MP.AR gauge (item 12).</p> <p>x) D-1 emergency brake valve connection should be shown as indicated in RDSO drg. No.SK.DP-2918, alt.8.</p> <p>3. Brake schematic diagram given on page 4 should be as per RDSO drg. No.SK.DP-2918, alt.8.</p>	
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Discrepancies in YDM<sub>4</sub> Maintenance Manual

7.	MI-AIS-004,MI-AIS-007 to MII-AIS-009, MI-AIS-014,MI-AIS-017,MI-AIS-018 & MI-AIS-025			'Wiper wind shield', valve horn (push pull type)', 'Sander control valve', magnet valve, 'trap sand, air filter and 'regulator pressure' are not RDSO controlled items, hence, no comments on these items are being offered.	
8.	<b>Maintenance schedule</b>			Maintenance schedule: The schedule of attention to various items in the loco and the frequency of attention shall be as indicated in the maintenance schedule issued by RDSO vide report No. MP Misc.- 139 for non-modified <b>WDM2</b> Diesel Electric locomotives having unmodified engine sump and suspension bearing sump capacity, MP Misc.—140 for <b>modified WDM2/WDM3A/WDP3A/WDG3A (with Plain suspension bearing)</b> Diesel Electric locomotives having modified engine sump and suspension bearing sump capacity and MP Misc.- 141 for modified <b>WDG3A (with taper roller suspension bearing)</b> Diesel Electric locomotives issued vide RDSO letter No. SD WDM 2.9 dated 30.05.2003 and July 1968 for YDM <sub>4</sub> locos.	To add

Discrepancies in YDM<sub>4</sub> Maintenance Manual

				<p>Though uniformity is expected in the implementation of major schedules (M-24 and above), variation in operating condition in different regions may make it necessary to carry out lower schedules more frequently or to introduce examination or items not mentioned herein. Such changes are to be authorized by an official not below shed-in—charge i.e. Sr. DME/DME. The same should also be intimated to RDSO.</p>	
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**DISCREPANCIES IN DLW's MI FOR WDM2/WDS6 LOCO.BOGIE**

S.N o.	WDM2/ WDS6 MI/DLW Ref	WDM2/ WDS6 MI/DLW DESCRIPTION	Other Ref (RDSO)	RDSO DESCRIPTION	Remarks
(A)	(B)	(C)	(D)	(E)	(F)
1.	MI-GLD-004 PAGE1	T.M: BHEL-165	RDSO Drg.No .SKVL-211	T.M: BHEL-4907	To change (C) with (E)
2.	MI-CHS-023 PAGE 7	<p><b><u>Lateral clearance</u></b> End axle(Total /axle) As new = 6.35 mm Service Limits = 12.70mm Middle axle for WDM2(Total /axle) As new = 25.4mm Service Limits = 31.75mm Middle axle for WDS6(total/axle) As new = 25.4mm Service Limits = 31.75mm</p> <p><b><u>Longitudinal clearance</u></b> All axle (total/axle box) As new = 1.59mm Service Limits = 4.76mm</p>	Ref:MP.MI-71/78	<p><b><u>Lateral clearance</u></b> End axle(Total /axle) As new = 6 mm Service Limits = 12mm Middle axle for WDM2(Total /axle) As new = 25mm Service Limits = 31mm Middle axle for WDS6(total/axle) As new = 34mm Service Limit = 40mm</p> <p><b><u>Longitudinal clearance</u></b> All axle (total/axle box) As new = 0.363mm(Min.) 1.9mm (Max) Service limit = 5mm</p>	To change (C) with (E)
3.	MI-CHS-023 PAGE 7	Distance between Pedestal Liners 9-1/8"(231.78mm) Original		Distance between Pedestal Liners 310.377Min., 311.15Max	To change (C) with (E)
4.	MI-CHS-023 PAGE 9	<p><b><u>Brake Rigging</u></b> 2. 1.19mm (3/64") radial clearance 0.4mm (1/64") normal clearance</p>	Ref:MP.MI-71/78	<p><b><u>Brake Rigging</u></b> 1.5 mm radial clearance 0.5 mm normal clearance</p>	To change (C) with (E)

Discrepancies in WDM<sub>2</sub> & WDS<sub>6</sub> Maintenance Manual

5.	MI-CHS-023 PAGE 10`	<b><u>Reapplication of truck to locomotive</u></b> <u>Only 6 points are given</u>	Ref: MI.ALCO	<b><u>11 Points are given</u></b>	To change (C) with (E)
6	System Air (MI-AIS-000)			<p><b><u>1. Figure 1</u></b></p> <ul style="list-style-type: none"> <li>ii) Nomenclature of MR equalizing pipe should be included.</li> <li>ii) The figure should indicate electro pneumatic compressor governor in place of NS-16 governor as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> <li>vii) Provision for air dryer should be made.</li> <li>viii) The connection for MR equalizing pipe should not be done through feed valve. Feed valve should be located as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> </ul> <p><b><u>2. Figure 2</u></b></p> <ul style="list-style-type: none"> <li>xi) Supply to control port of add. C2W relay valve should be indicated as "from MU-2B valve " instead of "MU-1B valve".</li> <li>xii) Figure should include C3W distributor valve instead of vacuum air proportionate valve.</li> <li>xiii) Item 11 '3/4" COC" should be replaced by "1"COC".</li> <li>xiv) Connection from MR should also be indicated in MP.AR gauge (item 12). D-1 emergency brake valve connection should be shown as indicated in RDSO drg.</li> </ul>	Add

Discrepancies in WDM<sub>2</sub> & WDS<sub>6</sub> Maintenance Manual

				No.SK.DP-2918, alt.8.  3. Brake schematic diagram given on para 4 should be as per RDSO drg. No.SKDP—2918, alt.8.																												
7	Governor Air Comp.(MI-AIS-003			The description and Maintenance Instruction of EPG should also be given in addition to NS- 16 governor	Add																											
8.	MI-AIS-007 to MII-AIS-009, MI-AIS-017 to MI-AIS-018:	<b>WDM2 Locomotive</b>		Since wiper wind shield, valve horn (push pull type), sander control valve, trap sand & air air filter are not RDSO controlled items, hence no comments on these items are being offered.																												
9.	<b>Frequency of Maintenance Schedule</b>			The locomotives shall be stopped for preventive maintenance attention as follows: Nature of Schedule attention.  <table border="1"> <thead> <tr> <th>SI.No.</th> <th>Schedule</th> <th>Periodicity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>TI</td> <td>10, 15 &amp; 20 days</td> </tr> <tr> <td>2.</td> <td>T2*</td> <td>30,40 days</td> </tr> <tr> <td>3.</td> <td>M-2</td> <td>60 days</td> </tr> <tr> <td>4.</td> <td>M-4</td> <td>120 days</td> </tr> <tr> <td>5.</td> <td>M-12</td> <td>12 Months</td> </tr> <tr> <td>6.</td> <td>M-24</td> <td>24 Months</td> </tr> <tr> <td>7.</td> <td>M-48</td> <td>48 Months</td> </tr> <tr> <td>8.</td> <td>M-96</td> <td>96 Months</td> </tr> </tbody> </table>	SI.No.	Schedule	Periodicity	1.	TI	10, 15 & 20 days	2.	T2*	30,40 days	3.	M-2	60 days	4.	M-4	120 days	5.	M-12	12 Months	6.	M-24	24 Months	7.	M-48	48 Months	8.	M-96	96 Months	Add
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Discrepancies in WDM<sub>2</sub> & WDS<sub>6</sub> Maintenance Manual

				<p>T2* contains all items of T1 + some additional items like filter change, expresser discharge valve cleaning, main generator cleaning, alternator cleaning, rectifier cleaning, roller suspension bearing examination, and suspension bearing examination.</p>	
10.	<b>Maintenance schedule:</b>			<p>Maintenance schedule: The schedule of attention to various items in the loco and the frequency of attention shall be as indicated in the maintenance schedule issued by RDSO vide report No. MP Misc.- 139 for non-modified <b>WDM2</b> Diesel Electric locomotives having unmodified engine sump and suspension bearing sump capacity, MP Misc.—140 <b>for modified WDM2/WDM3A/WDP3A/WDG3A (with Plain suspension bearing)</b> Diesel Electric locomotives having modified engine sump and suspension bearing sump capacity and MP Misc.- 141 for modified WDG3A (<b>with taper roller suspension bearing</b>) Diesel Electric locomotives issued vide RDSO letter No. SD WDM 2.9 dated 30.05.2003 and July 1968 for YDM4 locos.</p> <p>Though uniformity is expected in the implementation of major schedules (M-24 and above), variation in operating condition in different regions may make it necessary to carry out lower schedules more frequently or</p>	Add

Discrepancies in WDM<sub>2</sub> & WDS<sub>6</sub> Maintenance Manual

				to introduce examination or items not mentioned herein. Such changes are to be authorized by an official not below shed-in—charge i.e. Sr. DME/DME. The same should also be intimated to RDSO.	
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Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

**DISCREPANCIES IN DLW's MI FOR WDG2(WDG3A) LOCO.BOGIE**

S.No	WDG2(WDG3A) REFERENCE MI/DLW	WDG2(WDG3A) MI/DLW DESCRIPTION	Other Ref.	Other Ref .Description	Remarks
(A)	(B)	(C)	(D)	(E)	(F)
1.	MI-GLD-005 PAGE1	T.M: BHEL-4906 Wt.of T.M.(with Pinion): 3680 Kg.	BHEL Drg. No.043900 15001/ 0439013001	T.M: BHEL-4906 AZ/BHEL -4907	To change (C) with (E)
2.	MI-CHS-025 PAGE 1	6. T.M. N0.4906 AZ		T.M.No.4906AZ/4907	To change (C) with (E)
3.	MI-CHS-025 PAGE 1	T.M – 4906 Plain Suspension Bearing		T.M – 4906/ T.M – 4907 Plain Suspension Bearing/Roller Suspension Bearing	To change (C) with (E)
4.	MI-CHS-025 PAGE	Wt. Of loco body =73.00t Wt. Of Complete bogie =25.00t Wt.. of Traction motor = 3.68t	V.L.MI.-02/96	Wt. Of loco body =73.40t Wt. Of Complete bogie =24.80t Wt.. of Traction motor = 3.69t	To change (C) with (E)
5.	MI-CHS-025 PAGE 2	MI	RDSO Drg. No.SK.VL-148, 147,133, 180	CHS	To change (C) with (E)
6.	MI-CHS-025 PAGE 6	Buffer height 1080 Min. 110050 Max.		1090 <sup>+15/-5</sup> i.e. Buffer height 1085 Min. 1105 Max.	To change (C) with (E)
7.	MI-CHS-025 PAGE 6	<b><u>Lateral clearances</u></b> (Total per axle) As New = 2.0 mm Service Limits = 9.5mm <b><u>Longitudinal clearances</u></b> (Total per axle box)	VL. MI – 02/96	<b><u>Lateral clearances</u></b> End axle (Total per axle) As New = 2.0 to 4.0 mm Service Limits = 9.5mm Middle axle (Total per axle) As New = 2.4 to 6.0 mm	To change (C) with (E)

Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

		As New = 2.0mm Min. Service Limits = 6.0 mm		Service Limits = 11.5 mm <b><u>Longitudinal clearances</u></b> All axle (Total per axle box) As New = 2.0 to 4.0 mm Service Limits = 6.0 mm	
8.	MI-CHS-025 PAGE 8	<b><u>Primary Spring (Inner)</u></b> Solid Height of Spring = 325 mm Spring Working Load= 1654 kg. Solid Capacity= 2891 kg. Working Height = 405 mm Variation of Coil Dia =±1.3 Variation in Free Height = ±1.3 Compressed Height Measured At 1654 kg. Load Group A: From 399 to 404.5 mm Group B: From 405 to 409 mm	RDSO Drg. No.SK.VL-147	<b><u>Primary Spring (Inner)</u></b> Solid Height of Spring = 327.5 mm Spring Working Load= 1701 kg. Solid Capacity= 2852 kg. Working Height = 402 mm Variation of Coil Dia =±1.5 Variation in Free Height = ±9 Compressed Height Measured At 1702 kg. Load Group A: From 396 to 401.5 mm Group B: From 402 to 406 mm	To change (C) with (E)
9.	MI-CHS-025 PAGE 8	<b><u>Primary Spring (Outer)</u></b> Solid Height = 360 mm Spring Working Load= 4162 kg. Solid Capacity= 7834 kg. Working Height = 450 mm Variation of Coil Dia =±1.8 Compressed Height Measured At 1654 kg. Load Group A: From 444 to 449.5 mm Group B: From 450 to 454 mm	RDSO Drg. No.SK.VL-148	<b><u>Primary Spring (Outer)</u></b> Solid Height = 364 mm Spring Working Load= 4288 kg. Solid Capacity= 7667 kg. Working Height = 447 mm Variation of Coil Dia =±1.5 Compressed Height Measured At 4288 kg. Load Group A: From 444 to 446.5 mm Group B: From 447 to 451 mm	To change (C) with (E)
10.	MI-CHS-025 PAGE 10	Physical Properties of Rubber Block are: Vertical Stiffness = 644kg/mm Shear Stiffness = 39.37 kg/mm	RDSO Drg. No.SK.VL-133	Physical Properties of Rubber Block are: Vertical Stiffness = 778 kg/mm Shear Stiffness = 455kg/mm	To change (C) with (E)

Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

11	System Air (MI-AIS-000)			<p>1s.Since WDG2 locomotives are being manufactured with 28LAV-1 dual brake system also, as such, description of 28 LAV-1 brake system should also be included.</p> <p>2. Figure – 1</p> <ul style="list-style-type: none"> <li>i) Nomenclature of MR equalizing pipe should be included.</li> <li>ii) The figure should indicate electro pneumatic compressor governor in place of NS-16 governor as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> <li>iii) Provision for air dryer should be made.</li> <li>iv) The connection for MR equalizing pipe should not be done through feed valve. Feed valve should be located as shown in RDSO drg. No.SK.DP-2918 alt.8.</li> </ul> <p>1. Brake schematic diagram shown on page 3 should be in accordance with RDSO drg. No.SK.DP-3100, Alt.9 for IRAB-1 and SK.DP-2918. alt.8 for 28LAV-1 brake system.</p>	<b>Add</b>
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Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

12	MI-AIS-007 to MII-AIS-009, MI-AIS-017,MI-AIS-025			<p>'Wiper wind shield', valve horn (push pull type)', 'Sander control valve', 'Trap sand''Regulator pressure' are not RDSO controlled item. Hence, no comments on these items are being offered.</p>																												
13.	<b>3.2.1 Frequency of Maintenance Schedule:</b>			<p>The locomotives shall be stopped for preventive maintenance attention as follows: Nature of Schedule attention.</p> <table border="1" data-bbox="1226 711 1648 1328"> <thead> <tr> <th>Sl.No.</th> <th>Schedule</th> <th>Periodicity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>TI</td> <td>10, 15 &amp; 20 days</td> </tr> <tr> <td>2.</td> <td>T2*</td> <td>30,40 days</td> </tr> <tr> <td>3.</td> <td>M-2</td> <td>60 days</td> </tr> <tr> <td>4.</td> <td>M-4</td> <td>120 days</td> </tr> <tr> <td>5.</td> <td>M-12</td> <td>12 Months</td> </tr> <tr> <td>6.</td> <td>M-24</td> <td>24 Months</td> </tr> <tr> <td>7.</td> <td>M-48</td> <td>48 Months</td> </tr> <tr> <td>8.</td> <td>M-96</td> <td>96 Months</td> </tr> </tbody> </table>	Sl.No.	Schedule	Periodicity	1.	TI	10, 15 & 20 days	2.	T2*	30,40 days	3.	M-2	60 days	4.	M-4	120 days	5.	M-12	12 Months	6.	M-24	24 Months	7.	M-48	48 Months	8.	M-96	96 Months	<b>Add</b>
Sl.No.	Schedule	Periodicity																														
1.	TI	10, 15 & 20 days																														
2.	T2*	30,40 days																														
3.	M-2	60 days																														
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5.	M-12	12 Months																														
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7.	M-48	48 Months																														
8.	M-96	96 Months																														

Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

				T2* contains all items of T1 + some additional items like filter change, expresser discharge valve cleaning, main generator cleaning, alternator cleaning, rectifier cleaning, roller suspension bearing examination, and suspension bearing examination.	
14.	<b>3.3 Maintenance schedule</b>			Maintenance schedule: The schedule of attention to various items in the loco and the frequency of attention shall be as indicated in the maintenance schedule issued by RDSO vide report No. MP Misc.- 139 for non-modified <b>WDM2</b> Diesel Electric locomotives having unmodified engine sump and suspension bearing sump capacity, MP Misc.—140 <b>for modified WDM2/ WDM3A/ WDP3A/ WDG3A (with Plain suspension bearing)</b> Diesel Electric locomotives having modified engine sump and suspension bearing sump capacity and MP Misc.- 141 for modified WDG3A <b>(with taper roller suspension bearing)</b> Diesel Electric locomotives issued vide RDSO letter No. SD WDM 2.9 dated 30.05.2003 and	<b>To add</b>

Discrepancies in WDG<sub>2</sub> (WDG<sub>3</sub>) Maintenance Manual

				<p>July 1968 for YDM4 locos.</p> <p>Though uniformity is expected in the implementation of major schedules (M-24 and above), variation in operating condition in different regions may make it necessary to carry out lower schedules more frequently or to introduce examination or items not mentioned herein. Such changes are to be authorized by an official not below shed-in—charge i.e. Sr. DME/DME. The same should also be intimated to RDSO.</p>	
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Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

S.No	White Manual Ref. (Page : Para no.)	White Manual Instruction	Other Reference	Other Reference Instructions	Remarks
(A)	(B)	(C)	(D)	(E)	(F)
	Page 1 to 9	<b>CHAPTER 1: ORGANISATION</b>			
1		Name of the Manual: "IRMM for DL"		Indian Railways Maintenance Manual for Diesel Traction	Suggested change
2	1:1.3.2.3	...fire fighting facilities at diesel maintenance depots...		"Security of diesel maintenance depots, workshops and installations"	To change (C) with (E)
3	1.3.2.4	C.O.P.S.		COM	To change (C) with (E)
4	1.3.3	Addl. C.M.E.		CMPE	To change (C) with (E)
5	2:1.4.1	C.O.P.S.		COM	To change (C) with (E)
6	3:1.5	ACME		CMPE	To change (C) with (E)
7	3:1.6	Addl.CME		CMPE	To change (C) with (E)
8	3:1.6.1	Addl.CME		CMPE	To change (C) with (E)
9	3:1.6.2	Addl.CME		CMPE	To change (C) with (E)
10	3:1.6.3	Addl.CME		CMPE	To change (C) with (E)
11	3:1.7	Addl.CME		CMPE	To change (C) with (E)
12	3:1.7	ACME		CMPE	To change (C) with (E)
13	4:1.7.15	ACME		CMPE	To change (C) with (E)
14	4:1.8.1	ACME		CMPE	To change (C) with (E)
15	4:1.8.2	"SS/JA"		SS/JS,	as earlier printing error.
16.	4	Figure: "Headquarters Organisation..."		Replace " ACME with CMPE	To replace
17.	5	Figure: "Zonal Railways Homing..."		Replace " ACME with CMPE	To replace

**Note: The White Manual covers ALCO based locomotives..**

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

18.	5:1.8.2.2.7	... should be suitably equipped with ...		CAD facilities	To add
19.	6	Figure: "Managerial Organisation...1, 2 & 3		Replace " DyCME(Dsl) with SrDME(Dsl); SDE with SME and ADE with ADME	To replace
20.	7:1.9.2			A typical Diesel Shed has a very high level of investment and the high cost of out of service alongwith the complexity of equipment maintenance activities are no simple servicing and break-down repairs. The maintenance organization needs to provide a compreshensive, well-administered and organised engineering service. Various technical studies undertaken by RDSO have established the need for a wider and larger engineering service. Deployment of a larger number of trained engineers with availability of sophisticated cost and time saving diagonostic techniques is a must. Managerial organisation chart may be seen.	para redrafted
21.	8:1.9.2.2.1.10	Typing error		Loco in place of Low	

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

22.	8:1.9.2.4.1 to 1.9.2.4.5	Annual and above schedules Semi annual schedules Monthly and quarterly schedules Trip and fortnightly schedules	Schedule of Standard Examinations of WDM2 (RDSO, MP-MISC-139, May 2003), Schedule of Standard Examinations of WDM3 (RDSO, MP-MISC-140, May 2003), Schedule of Standard Examinations of WDG3 (RDSO, MP-MISC-141, May 2003)	<b>Sl.No.</b>	<b>Schedule</b>	<b>Periodicity</b>	To replace
				1.	TI	10, 15 & 20 days	
				2.	T2*	30,40 days	
				3.	M-2	60 days	
				4.	M-4	120 days	
				5.	M-12	12 Months	
				6.	M-24	24 Months	
				7.	M-48	48 Months	
				8.	M-96	96 Months	

Page 10 to 14	<b>CHAPTER 2: OPERATIONAL MANAGEMENT</b>			
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Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

23.	10:2.1.1			Diesel Locos are costly assets. Therefore it calls for a different operational concept for their management to achieve effective utilisation. The diesel traction is extremely flexible to meet different operating needs. There future locomotives are being designed to maximise the operational requirements of continuous working for 15 days in case of ALCO and over 90 days for GM locos before requiring trip schedules. In the last decade, a lot of progress has been made in this direction. The diesel loco is used with advantage over long distance by only change of crew and refueling. This feature has tremendously cut down detentions to through loads in major yards.	para redrafted
24.	10:2.2.1	Para 2.2.1 (...production of diesel locomotives for replacement of steam locomotives...)		The Railway Board must keep a close scrutiny on the power requirements of each Railway so that allotment is made to achieve the best operational results keeping in view the maintenance facilities available.	To replace
25.	11:2.3	"on the following basis..."		"after deducting allocation for Mail/Express/Passenger services containing their allowances"	To add
26.	11:2.3.2	Ineffective percentage = 0.125 N	RB Letter no 85/M(L)/466/1702 dt 28.112000	Ineffective percentage = 0.100 N (except for WDP <sub>1</sub> & WDP <sub>2</sub> locos whose ineffective shall continue at	To replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

				12.5%)	
27.	11:2.3.3	Locomotives in use = 0.875 N	RB Letter no 85/M(L)/466/1702 dt 28.112000	Locomotives in use = 0.9 N (except for WDP <sub>1</sub> & WDP <sub>2</sub> locos whose ineffective shall continue at 12.5%)	To replace
28.	11:2.3.4	Spare for running maintenance = 10% of ...	RB Letter no 85/M(L)/466/1702 dt 28.112000	... = 10% of 0.900 N = 0.09 N (except for WDP <sub>1</sub> & WDP <sub>2</sub> locos whose ineffective shall continue at 12.5%)	To replace
29.	11:2.3.5	Outage = 0.787	RB Letter no 85/M(L)/466/1702 dt 28.112000	Outage = 0.81 (except for WDP <sub>1</sub> & WDP <sub>2</sub> locos whose ineffective shall continue at 12.5%)	To replace
30.	11:2.3.8	Repair allowance = ...	RB Letter no 85/M(L)/466/1702 dt 28.112000	Repair allowance = (0.1/0.9) of 1.1 X = 0.122 X (except for WDP <sub>1</sub> & WDP <sub>2</sub> locos whose ineffective shall continue at 12.5%)	To replace
31.	11:2.4.1	Percentages 12.5, 6, 2.5, 4	RB Letter no 85/M(L)/466/1702 dt 28.112000	" ineffective of 5% for GM locos, 10% for WDG <sub>2</sub> & WDM <sub>2C</sub> locos and 12.5% for WDP <sub>1</sub> & WDP <sub>2</sub> locos, or, as per the latest instructions of Railway Board"	To replace
32.	11:2.5	Add.CME		CMPE	To replace
33.	11:2.5.1	...by supplementing with steam traction...		to delete these words.	Delete
34.	12:2.7	...P&T Line, Micro Wave Communication...		to add Photocopier, Computer, Scanner, Railnet and Internet	Add
35.	12:2.7	...teleprinter/telex...		to add Fax	Add
36.	12:2.8.2	Dy.CME(Diesel)		Dy.CME(Diesel)/HQ of owning railway	
37.	12:2.8.3	homing		home	To replace
38.	12:2.9.1.1	"Only...WP locomotive."		remove this sentence	Delete
39.	12:2.9.2.1	"Normally, utilisation per day per engine..."		"or more" may be added.	Add
40.	12:2.10.1	"Conversion training...actual		Whole para may be removed.	Delete

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

		utilisation."			
41.	13:2.12.1	"On the division..."		"who is also...their operatoin." may be removed.	Delete
42.	13:2.12.1	"The diesel...is deserved."		may be removed.	Delete
43.	13:2.12.1	"but locally...Fuel Issuer."		may be removed.	Delete
44.	13:2.12.1	"charge of ...Installation Foreman."		may be replaced as "supervision of Fuel Inspector(s)/Senior Fuel Inspector(s)."	Delete
45.	13:2.12.1	DME		may be replaced with SrDME/DME	To replace
46.	13:2.12.1	"...have a separate cell for diesel operatoin which..."		these words may be removed.	Delete
47.	13:2.12.1	"...therefore ..."		delete	Delete
48.	13:2.12.2	DME		SrDME / DME	Delete
49.	13:2.12.2.2	"...every diesel locomotive..."		words "record of" may be added before these.	Add
50.	13:2.12.2.3 1(g)	"(g) Bad Water"		may be removed, as applied to steam locos only.	Delete
51.	14:2.12.2.3 2(b)	"Failure of locomotive...turbo generator etc."		"and new equipment on trial" may be added.	Add
52.	14:2.13	"There should be ... communication facilities"		"including P&T phones, FAX, computer, printer, scanner, Railnet and Internet, and other latest devices" may be added	Add
53.	14:2.14.3	"Educate diesel crews...fuel economy"		"safety instructions" may be added.	Add
54.	14:2.16	"Foreman (Running)"		may be replaced by "Senior Section Engineer (Loco/Running)", appears twice in the para.	Add
55.	14:2.16	"DME"		may be replaced by "SrDME/DME".	To replace
56.	14:2.16.3	"trip, fortnightly and monthly schedules"		"for schedules as prescribed by RDSO." may be replaced.	To replace
57.	14:2.16.5	Para 2.16.5		Appendix 'A' and 'B' is not known.	Add

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

58.	14:2.16.7	Para 2.16.7		words "on computer by visiting nearby sheds" may be added.	Add
59.	14:2.16.16	"FOR's"		may be replaced with "SSE(Running/Loco)'s"	To replace
60.	14:2.16.16	"ALF"		may be replaced with "Section Engineer (Loco/Running)".	To replace
61.					
62.	<b>Page 15 to 26 including Annexures</b>	<b>CHAPTER 3: PREVENTIVE MAINTENANCE IN SHEDS</b>			
63.	15:3.2	Para 3.2		"However, a system of schedules based on KMs earned may be used for locomotives used in long distance Mail/Express trains, where KMs earned are much higher." may be added.	Add
64.	15:3.2	Para 3.2		"Similarly, a system of schedules based on Engine hours worked may be used for locomotives used in shunting or short goods services, where KMs earned are much lower." may be added.	Add
65.	15:3.2.1	"as follows: <complete list to be removed>"		"as prescribed by RDSO from time to time." may be added.	Add
66.	15:3.3	"tentative"		this word may be removed.	Delete
67.	15:3.3	"...vide tentative...YDM4 locos."		These words may be removed.	Delete
68.	15:3.4	"Depot"		may be replaced by "shed" (twice).	Replace
69.	15:3.4	"senior supervisors"		may be replaced with "SSEs and SEs".	Replace
70.	15:3.4	"relevant cards/registers"		may be replaced with "loco history book/register".	Replace
71.	16:3.6.2	"Junior Maintenance Inspector"		may be replaced with "SSE/SE or JE".	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

72.	16:3.6.3	"is indicated in Annexure II."		may be replaced with "as felt necessary by the controlling Officer incharge."	Replace
73.	16:3.6.4	"indicated at 7.2, 7.2.2, 7.2.3"		may be replaced with "recommended by Railway Board from time to time."	Replace
74.	16:3.7.2.2	"as listed at in Annexure III"		may be replaced by "as recommended by RDSO, Railway Board or Headquarters."	Replace
75.	16:3.7.2.2	"The list .. to be provided."		may be removed.	Remove
76.	16:3.7.2.2	"Adequate number...in each shed."		may be replaced by "as recommended by RDSO, Railway Board or Headquarters."	Replace
77.	16:3.7.2.2	"Appendix 4.3 in Chapter IV."		may be replaced with "Main Items of Machinery and Plant Required in Diesel Sheds."	Replace
78.	16:3.7.4.1	"given below:'		add "or, as prescribed by Railway Board from time to time."	Add
79.	16:3.7.4.1	The distribution of diesel maintenance staff ...	Bd's letter no PC III/2003/CRC/6 dt 09.10.03	add "The distribution of diesel maintenance staff shall be as under: Artizan Staff: MCM (5000-8000) 8%, Gr I (4500-7000) 41%, Gr II (4000-6000) 26%, Gr III (3050 - 4590) 25%; Artizan Helpers: H/Kh (2650 - 4000) 87%, Kh (2550 - 3200) 13%; Supervisor: SSE (7450 - 11500) 18%, SE (6500 - 10500) 29%, JE-I (5500 - 9000) 24%, JE-II (5000 - 8000) 29%; Drawing Staff: SSE (7450 - 11500) 15%, SE (6500 - 10500) 30%, JE-I (5500 - 9000) 25%, JE-II (5000 - 8000) 30%	Add

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

80.	17:3.7.4.3(b)	add		For Section Engineer level, the Railway may conduct direct recruitments of engineering degree holders in Mechanical / Electrical / Electronics streams.	Add
81.	17:3.7.4.4 (b)	(i) (ii) (iii) to be removed New line to add... ..		"The duration of training for existing, promoted and newly recruited staff and supervisors shall be as prescribed by Railway Board from time to time."	Add
82.	17:3.7.4.5	New line to be added...		The eligibility, qualifying period of service/criteria in previous grade, test and interview to be conducted, and syllabi shall be as prescribed by Railway Board from time to time."	Add
83.	18:3.8.2	"General Foreman/Shed Superintendent"		may be replaced with "SSE (General)".	Replace
84.	18:3.8.3	"shift superintendent"		may be replaced by "Mechanical, Electrical and Laboratory supervisor on duty."	Replace
85.	21:Ann IV	"Loco foreman (Diesel)"		may be replaced with "SSE(Diesel)"	Replace
86.	21:Ann IV	"Electrical Foreman"		"Electrical supervisors"	Replace
87.	21:Ann IV			"7. Budgeting and control of expenditure in all Demands."	Add
88.	21:Ann IV			"8. Functioning of and co-ordination with Stores Department."	Add
89.	21:Ann IV			"9. Functioning of and co-ordination with Personnel Department."	Add
90.	21:Ann IV	"Maintenance Inspector I"		may be replaced with "SSE(Material Control Cell)."	Replace
91.	21:Ann IV	"chargemen"		may be replaced with "JE I/JE II".	Replace
92.	21:Ann IV	"Loco Foreman"		may be replaced by "mechanical and electrical SSE/SE".	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

93.	21:Ann IV	"9. Essential functions of Personnel, Stores and Accounts Departments."		may be added.	add
94.	21:Ann IV	"Maintenance Inspector II"		may be replaced with "SSE(Statistical Cell)."	Replace
95.	21:Ann IV	"chargeman"		may be replaced with "JE I/JE II".	Replace
96.		"Loco Foreman"		may be replaced by "mechanical and electrical SSE/SE".	Replace
97.	21:Ann IV	"9. Essential functions of Personnel, Stores and Accounts Departments."		may be added.	Add
98.	21:Ann IV	"I. Electrical Foreman (General) incharge"		may be replaced with "I. SSE or SE (Electrical General)"	Replace
99.	21:Ann IV	"7. Assisting shed Officers in Personnel, Stores and Accounts functions/matters."		may be added.	Add
100.	21:Ann IV	"II. Maintenance Inspector"		may be replaced with "I. SSE or SE (Electrical)"	Replace
101.	21:Ann IV	"ELC"		may be replaced with "JE I/JE II".(appears five times here)	Replace
102.	21:Ann IV	"AMF"		may be replaced with "SSE/SE (Mechanical)".	Replace
103.	21:Ann IV	"EF/DSL"		may be replaced with "SSE or SE (Electrical General)".	Replace
104.				"Note: As these have changed rapidly over last few years, and will change further with improved technologies, it is recommended to follow latest instructions approved by Railway Board, after being suggested by DLW and/or RDSO. However, sheds may additionally design pages for standard formats, to suit their own monitoring of selected aspects of loco functioning	Add as footnote

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

				and store the sheets with standard records. These may be shared with other sheds for expanding the benefit obtained. Such additional sheets, after approval of Railway's Headquarter Office, may be bulk printed at Railway facilities or otherwise, and used in the whole Railway. Further sharing with other Railways is also recommended."	
105.	24	<b>ANNEXURE XI</b>		no modification	
106.		<b>ANNEXURE XII</b>			
107.	25			"The shed may similarly develop monitoring records of such systems, assemblies, sub-assemblies etc. which it wishes to monitor, for a certain period or regularly. It may suitably be revised by Officers, and benefits shared with other sheds."	Add as footnote
108.	26	<b>ANNEXURE XIII</b>			
109.				"Note: Sheds may consider addition of other columns for monitoring, as felt necessary by the shed. These may be shared with other sheds with benefits derived, and reviewed from time to time for continuation, alteration or otherwise, in new columns adopted by the shed."	Add
110.					
111.	<b>Page 27 to 42 including Annexures</b>	<b>CHAPTER 4: MAINTENANCE SHEDS - LAYOUT AND FACILITIES</b>			
112.	27: 4.1.3	Para 4.1.3		Railway Board may consider	To revise

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

				suitable revision of number of locomotives for personalized attention.	
113.	27: 4.1.6	"Good P&T communication..."		"FAX, Computer, printer, scanner, video conferencing, Railnet and Internet connection and other communication technology advances" may be added.	Add
114.	27: 4.1.8	Para 4.1.8		may be removed.	Remove
115.	32: 4.6.4	"large"		Most modern mechanical material handling equipments available in the market should be provided in every diesel shed.	Add
116.	32:4.8	"(5) Brake testing room."		may be replaced with "(5) Brake equipment overhauling and testing room."	Replace
117.	32:4.8	"(7) Filter Store"		"(7) Filter and running material and spares store"	Replace
118.	32:4.8	"(9) Lockers and Washing Room."		"with a separate locker and washing room alongwith proper rest room for lady artizan staff" may be added.	Add
119.	32:4.8	"(13) Supervisors' office rooms"		"with separate chambers for SSE (General), SSE(Mechanical Maintenance), SSE(Electrical Maintenance, SSE(Technical Cell), SSE(Material Cell), Loco Inspectors room"	Add
120.	32:4.8	"(14) Shed Officers rooms"		may be replaced with "(14) Shed Officers rooms with attached bathrooms, Confidential cell, Conference Room, computer centre, Fax/Photocopying room"	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

121.	32:4.8			"(18) Canteen facility"	Add
122.	32:4.8			"(19) Staff common room"	Add
123.	32:4.8			"(20) Road vehicles section."	Add
124.	32:4.8			"(21) Parking garage and cycle stand for incoming staff."	Add
125.	32:4.8			"(22) Suitably designed Office for protection staff or force with bathroom etc."	Add
126.	32:4.8			"(23) Stores wards with Officers chambers, office, meeting room, bathrooms etc. with wagon and VPU unloading ramp and platform"	Add
127.	32:4.8			"(24) Millwright Rooms and Stores for Mechanical and Electrical"	Add
128.	32:4.8			"(25) DG set room with attached room for spares and tools and staff."	Add
129.	32:4.8			"(26) Time Office rooms."	Add
130.	32:4.8			"(27) Store room for condemned material (Mechanical, Electrical and Miscellaneous separately)."	Add
131.	32:4.8	"(28) Pollution control cell"		may be added.	Add
132.	32:4.8	"(29) Welding sectoin room and store"		may be added.	Add
133.	32:4.8	"(30) Gasket room with store"		may be added.	Add
134.	32:4.8	"(31) Shift Supervisors rooms and Control Room"		may be added.	Add
135.	32:4.8	"(32) Demineralising Plant" "(34) Effluent Treatment Plant with facility for storage and utilisation of recycled water and storage facility for reclaimed lube oil" "(35) Electronic Data Processing centre having complete Local area"		may be added.	Add

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

		networking facility with server in the control room and providing at all offices, SSE's chamber, time office, SSE establishment office etc., for maintaining the technical records and staff particulars"			
136.	34:4.11.1	"A small <<>> shed should...."		"covered" may be added.	Add
137.	34:4.11.3	"This applies to... .. diesel-electric locomotives."		may be deleted.	Delete
138.	34:4.13.1	"- and others as felt necessary."		may be added.	Add
139.	35:4.15	" 4.15.3 For Woodward and other governors a separate air-conditioned room must be provided."		may be added.	Add
140.	35:4.16.1	"... .. lubricating oil, fuel oil, cooling water."		"etc." may be added.	Add
141.	35:4.18.2	"Degreasing and cleaning... ..in every shed."		"and other modern facilities" may be added.	Add
142.	35:14.19.3	"... .. meeting room."		"with black board, computer and LCD projector, library and other facilities ." may be added.	Add
143.	36:4.22.1	"Each large.. .. categories of staff."		"large" may be removed.	Delete
144.	36:4.22.3	"The training... ..aid for training."		"computer, LCD projector, scanner, printer and other latest equipments" may be added.	Add
145.	36:4.23.1	"Toilet and washing facilities... .."		"Dressing/changing room, dining hall, microwave oven for warming food, refrigerator" may be considered for addition.	Add
146.	36:4.23.1			"All the facilities should be separately made available for lady employees."	Add

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

147.	36:4.23.2			"Hot water hand washing facility must be provided."	Add
148.	36:4.23.3			"Additionally, a well equipped first aid box with carefully selected equipment and medicines, along with mandatory necessary training to all staff and supervisors should be provided for."	Add
149.	36:4.24.2	"The basic... ..charging of batteries."		"etc." may be added.	Add
150.					
151.	<b>Page 43 to 50 including Annexures</b>	<b>CHAPTER 5: OBJECTIVES OF DOCUMENTATION AND RECORDS, SERVICES, ORGANISATION, TYPICAL FORMATS FOR VARIOUS RECORDS.</b>			
152.	43:5.1	"amprehensive"		may be replaced with "comprehensive".	Replace
153.	43:5.2.1	"or"		may be replaced with " or a".	Replace
154.	43:5.2.2	"computer, printer, scanner, P&T telephone, FAX, Internet and Railnet facilities"		may be added.	Add
155.					
156.	<b>Page 51 to 61 including Annexures</b>	<b>CHAPTER 6: TRAINING</b>			
157.	51:6.1	"the"		"as"	Replace
158.	51:6.1	---older forms of traction		by "older form of diesel traction"	Replace
159.	51:6.1	---such as steam –		to be omitted	Delete
160.	51:6.2	Scope		Scope and Aim	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

161.	51:6.2.1	new addition		The scope of the training shall be the Central Training Institutes such as IRIMEE, Railway Staff College and the Zonal Training Centres, System Training Schools, Diesel Traction Training Centres, Basic Training Centres etc. The aim of the training is to build a deep knowledge base, incorporating the latest maintenance practices and technological advancements in the field, in the new and serving Officers, Supervisors and Staff to achieve continuous improvements in reliability, safety, economy and availability of diesel motive power for traffic. The syllabus for the same may be decided by the appropriate authority for the same e.g. the IRIMEE Advisory Committee for IRIMEE, the CME of the Railway Zone concerned for the remaining.	Add
162.	51:6.2.1.1	---1 <sup>st</sup> sentence-“ The foundation course---”		to be replaced by “The Probationers diesel module ---”	Replace
163.	51:6.2.1.1	--- 4 <sup>th</sup> sentence- “—In addition---- trained cadre”		may be dropped	Delete
164.	51:6.2.1.2	---1 <sup>st</sup> sentence-“--for administrative grade engineer/ officer--”		to be replaced by “—for selected working engineer/ Officers upto JA grade--”	Replace
165.	51: 6.2.1.4	"Micro-processor based excitation systems"		may be added	Add
166.	51:6.2.3.1	steam		delete	Delete
167.	51:6.2.3.1	Syllabus at Annexure 6.3		delete	Delete

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

168.	51:6.2.3.2	Syllabus at Annexure 6.4		delete	Delete
169.	51:6.2.3.3	Syllabus at Annexure 6.5		delete	Delete
170.	51:6.2.3.4	Syllabus at Annexure 6.11		delete	Delete
171.	51:6.2.3.5	Syllabus at Annexure 6.6		delete	Delete
172.	51:6.2.3.7	Syllabus at Annexure 6.8		delete	Delete
173.	51:6.2.3.9	steam drivers to diesel		shunters/ diesel assistant drivers to driver goods	Replace
174.	51:6.2.3.9	steam shunters/ diesel shunters		shunters/ diesel assistant drivers	Replace
175.	51:6.2.3.10	steam		delete	Delete
176.	51:6.2.3.11	steam		delete	Delete
177.	52:6.5.1	add " simulators, working models.		may be added	Add
178.	52:6.5.4	add "audio-visual training aids, LCD projectors, Home theatre systems, multimedia. E-Learning should be encouraged"		may be added	Add
179.	52:6.9	Samples are given in Annexure 6.9		delete	Delete
180.	Annexure 6.1	delete		delete	Delete
181.	Annexure 6.2	delete		delete	Delete
182.	Annexure 6.3	delete		delete	Delete
183.	Annexure 6.4	delete		delete	Delete
184.	Annexure 6.5	delete		delete	Delete
185.	Annexure 6.6	delete		delete	Delete
186.	Annexure 6.7	delete		delete	Delete
187.	Annexure 6.8	delete		delete	Delete
188.	Annexure 6.9	delete		delete	Delete
189.					
<b>190.</b>	<b>Page 62 to 65 including Annexures</b>	<b>CHAPTER 7: STORES</b>			
191.	62:7.1.2	"Foreman"		may be replaced with "Senior Section Engineer".	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

192.	62:7.1.3	Para 7.1.3		to be rewritten: after Stores Code is revised, to match with it suitably.	Revise
193.	62:7.1.4			"He shall carry out the functions of identifying and suitable disposal of surplus, in-active, non-moving, obsolete, and dead stock items; stocking of new items; changes in designs/drawings; inspection of incoming material; repairs/reclamation through Departmental work orders or contracts; and condemnation of old/used stores returned.	Add
194.	62:7.2.2	"(not later than once in 6 months)"		these words may be removed.	Replace
195.	63:7.2.5	"Foreman"		may be replaced with "SSE"	Replace
196.	63:7.2.5	"Shop Superintendent" (twice here)		may be replaced with "SSE"	Replace
197.	63:7.2.6.1	"chargeman"		"JE I/JE II"	Replace
198.	63:7.2.6.1	"Shed Engineer stores officer"		these words may be reconsidered.	Replace
199.	63:7.2.6.2	"Chargemen"		"JE I/JE II" may be replaced as.	Replace
200.	63:7.3.1	Para 7.3.1		may be reconsidered, as categorisation in A, B1, B2, C1, C2, C3 in various Railways is different, with tendency to remove items very low in annual consumption value.	Replace
201.	63:7.3.3	"(c) DLW - ..."		"(c) DLW/DMW - ..."	Replace
202.	63:7.3.3	"(d) ...manufactured..."		"manufactured/reclaimed/repared" is suggested.	Replace
203.	63:7.3.3			"(f) Items to be repaired/renovated/reclaimed through contracts"	Add
204.	63:7.3.3(a)	(a) ...DLW...		may be replaced with DLW/DMW	Replace
205.	63:7.3.3 (d)	"(d) Items to be ....."		"Suitable consideration may be given to Economic	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

				Order/Manufacture Quantity principles to aid workshops, for which requirements of all customer sheds should be considered together, along with supplies made to neighbouring or other Railways, if any.	
206.	64:7.4.1	"... ..DLW/CLW."		may be replaced with "DLW/CLW/DMW and/or RDSO."	Replace
207.	64:7.4.2	"... ..DLW/CLW."		may be replaced with "DLW/CLW/DMW and/or RDSO."	Replace
208.	64:7.4.3	"... ..DLW/CLW."		may be replaced with "DLW/CLW/DMW and/or RDSO."	Replace
209.	64:7.4.4	"... ..DLW/CLW."		may be replaced with "DLW/CLW/DMW and/or RDSO."	Replace
210.	64:7.5	"ACOS"		"AMM"	Replace
211.	64:7.5	"Foreman/MIO" (appears twice here)		"SSE/SE (Material Inspection)"	Replace
212.	64:7.6	"DLW/CLW"		"DLW/CLW/DMW and/or RDSO"	Replace
213.	64:7.7.1	Para 7.7.1		, or appropriate monetary value as revised from time to time."	Replace
214.	64:7.7.2	Para 7.7.2		, or appropriate monetary value as revised from time to time."	Replace
215.	64:7.7.3	Para 7.7.3		, or appropriate monetary value as revised from time to time."	Replace
216.	64:7.8.1	Para 7.8.1		, or appropriate monetary value as revised from time to time."	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

217.	64:7.9.1	Para 7.9.1		, or appropriate monetary value as revised from time to time."	Replace
218.	64:7.9.1	"C.M.E./C.W.E."		may be replaced with "CME/CWE/CMPE or DRM".	Replace
219.	65:Ann I	"5. ... Chargeman ..."		"JE I/JE II"	Replace
220.	65:Ann I	"5. ... Foreman..."		"SSE/SE"	Replace
221.	65:Ann I	"Index Number of Chargeman"		"Index Number of JEI/JE II"	Replace
222.	65:Ann I	"7. ... Chargeman ..."		"JE I/JE II"	Replace
223.	65:Ann I	"7. ... Foreman ..."		"SSE/SE"	Replace

	<b>Page 66 to 88 including Annexure and Forms</b>	<b>CHAPTER 8: DIESEL FUEL</b>			
224.	66:8.2.1			"Computerised Information Management Cell with Railnet/ Internet"	Add
225.	66:8.3.3.2	"utilized"		Shall be accounted against split oil	Modify
226.	67:8.4.2.2			"After cleaning and filling of a tank, it should be left unused for 8-10 days. Tank cleaning programme should be followed in such a manner, for example, in three such tanks, cleaning and unused period of the tanks may be planned as 1-10, 11-20 and 21-last date of the month."	Add

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

227.	67: 8.4.3.5	Gravity feed over head tank		Complete Para may be deleted since the gravity feed tank will cause inordinate delay during fuelling	
228.	68:8.4.3			"Advanced and more accurate devices as suggested by oil companies may also be used."	Add
229.	68:8.4.9.1	"...zinc chromate primer."		"or other recommended modern paints." may be added.	Add
230.	68: 8.4.10	"condition of plates once in 3 years. The cleaning of tank should preferably be done at the end of every 6 years"		" condition of plates once in 2 years. The cleaning of tank should be done at the end of every 3 years"	
231.	68:8.4.10	"...every six years."		"every three years"	Replace
232.	68:8.4.11.2	"proop"		"proof"	Replace
233.	68:8.5.1.3	:A hand pump... ..pumps fail."		"A second stand-by DG set should also be provided for emergencies. Both the DG sets should be used at least once in 15 days, and confirmed that are operating satisfactorily."	Add
234.	68:8.5.2(a)	"At least..."		may be added.	Add
235.	68:8.5.2(b)	"At least..."		may be added.	Add
236.	73:8.5.4	"...fuelling installation."		"...with suitable computerised and networked facilities." may be added	Add
237.	73:8.5.5.3.1	"srainers"		"strainers"	Replace
238.	74:8.7.4	"conructed"		"should be constructed".	Replace
239.	75:8.8.4			"To avoid problems faced in fuelling or decanting in rainy season, where chances of mishandling of pipe and resultant fuel loss are high, there	Add new para

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

				should be roof covered track of suitable loco-length or wagons length, for staff to work for fuelling or decanting."	
240.	75:8.11.1	"...by postal dack..." (twice in this para)		upgradation to FAX, email etc. may be considered.	Replace
241.	75:8.11.1	"(6) Temperature at time of loading"		may be added, to avoid measurement discrepancies at unloading points.	Add
242.	75:8.11.2	Para 8.11.2		suggested modification based on consultation with oil companies, to use FAX, Internet etc facilities.	Add
243.	76:8.13	"8.13 Reecipt and accountal in the Shed:"		should be "8.13.1 Receipt....." (mis-spelt)	Replace
244.	76:8.14.1(3)	colour test			Remove"
245.	76: 8.15	"Such drained oil should be collected in tray or drum kept under the bottom valve for issuing for engine cleaning purposes"		"Such drained oil should be collected in tray or drum kept under the bottom valve and Shall be accounted against spilled oil	
246.	77:8.15.3(b)	"Buy"		"By"	Replace
247.	77:8.15.3(b)	"wire"		may be replaced with "wire or FAX".	Replace
248.	78: 8.17	"To be within the stipulated overall 0.2% limit for handling losses etc,it is essential that flowmeters should have an accuracy of + 0.02%".	flowmeters should have an accuracy of 10% of stipulated overall 0.1% limit of handling losses	"To be within the stipulated overall 0.1% limit for handling losses etc,it is essential that flowmeters should have an accuracy of + 0.01%".	
249.	78:8.17	Para 8.17		"or earlier" may be added.	Replace
250.	78:8.21.1	"distribute"		"distributed"	Replace
251.	79: 8.23.1	"supply of pumping stations"		The entire para may be deleted since HSD oil issues to any purpose other than traction purpose is prohibited.	
252.	79: 8.24.1	"issues to other department of the		The entire para may be deleted since	

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

		Railways"		HSD oil issues to any purpose other than traction purpose is prohibited.	
253.	79:8.29	"correct accountal (of) fuel oil..."		word in brackets may be added.	Add
254.	79:8.29.1	"One CMA Gr. 210-425 (AS)..."		Grade may be deleted	Delete1
255.	79:8.29.2	"8.29.2 For supervision...(Table format)"		Grades may be deleted	Delete
256.					
257.	<b>Page 89 to 98</b>	<b>CHAPTER 9: LUBRICANTS</b>		No modification	
258.					
259.	<b>Page 99 to 99</b>	<b>CHAPTER 10: SAFETY - SCOPE, ORGANISATION, PREVENTION OF FIRE, ROAD ACCIDENTS, SALVAGE PROCEDURES</b>			
260.	99:10.4	The fire prevention and fire fighting officer of operating division		The fire-fighting nodal officer	Replace
261.	99:10.4.4	ASO(Fire)		nodal fire officer	Replace
262.	99:10.4.5	ASO(Fire)		nodal fire officer	Replace
263.	99:10.5	ASO(Fires)		nodal fire officer	Replace
264.	99:10.6	ASO(Fires)		nodal fire officer	Replace
265.	99:10.7	"ALF"		may be replaced with "Section Engineer (Loco/Running)".	Replace
266.	99:10.8	"ALF"		may be replaced with "Section Engineer (Loco/Running)".	Replace
267.					
268.	<b>Page 100-111</b>	<b>CHAPTER 11: MISCELLANEOUS - MODIFICATIONS AND TRIALS</b>			
269.	100:11.2.3	"annexure"		"Annexure"	Replace

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

270.	101:11.2.3			"DLW/DMW or RDSO shall provide a format of trial report, along with details of measurements to be recorded with each and every new trial to be carried out, and supply any such tools/meters/gauges etc. which may be required and are not normally available in the sheds. This shall include any consumables required in the process."	Add
271.	101:11.2.6	"components"		"component"	Replace
272.	101:11.2.7	"DLW/CLW"		"DLW/DMW/CLW"	Replace
276.	101:11.3	"DLW" (in title of para)		"DLW/DMW"	Replace
277.	101:11.3	"DLW" (in para)		"DLW/DMW"	Replace
278.	109:AnnIII	Annexure III	Letter issued by DLW	New Annexure	Replace
279.	10:AnnIV	Annexure IV	Letter issued by DLW	New Annexure	
	<b>Page 113-139</b>	<b>CHAPTER 12: LOCOMOTIVE DATA</b>	New data sheets by RDSO	Added new pages for WDP <sub>1</sub> , WDP <sub>2</sub> , WDM <sub>2C</sub> , WDM <sub>7</sub> and WDG <sub>2</sub> locomotives	Add extra pages

**PRE-COMMISSIONING CHECKS TO BE MADE ON LOCOS RECEIVED FROM DLW ( MECHANICAL SIDE)**

***Engine Room***

1. Open valve leaver covers & checks for loose, defective, missing or leaky parts, check for tightness and lubrication of valve levers and adjusting screw. Check tappet clearance (0.034”) & fuel injection pump timing, if necessary adjust.
2. Examine water inlet jumpers with signs of leakage and replace with proper gaskets and set screws (If necessary)
3. Blow by test for each cylinder.
4. Check Crankshaft deflection.
5. Remove sump covers and examine con rod, con rod bolt split pins and sump cover screen.
6. Remove and overhaul test the OST Plunger in ZYGLO before fitment.
7. All M/brg. Check but plit pin provision. Check draw on M/brg.'S' type nipple & tightness. M/brg. Temp to check.
8. Examine the radiators fins and tubes and attend damaged portion if any.
9. Radiator room air sealing.
10. Checking of radiator compartment water equalizing cross over pipe.
11. Check radiator guards for proper fitment & securing.
12. Radiator fan bottom screen c lamping (min 10 nos. provided)
13. Open fuel pump cover & check for loose, defective, missing or leaky parts.
14. Check fuel 'T' Jumper for leakage if necessary replace copper gasket and refit proper gasket (3.25, 3.50 mm, 3.75mm) or flexitaulic gasket.
15. Align all lube oil pipe line (if necessary) and ensure no leakage.
16. Check alignment of RTTM blower, pulley with horizontal shaft assy & hub draw.
17. Check RTTM blower
  - a. V-belt condition & tension
  - b. Sleeve lock at both ends.
18. Lubricate RTTM blower with grease by pressure gun for bearing.
19. Examine the universal shafts in position, grease & check for tightness.
20. Checking of lube oil filter drum 'O' ring groove checking.
21. Clamping of fuel oil secondary filter housing.

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

22. Check tightness of foundation bolts of engine, expresser, rad fan, LO cooler etc.
23. Check dresser coupling & copper pipe joint.
24. Check free movement of fuel pump control shaft.
25. All foundation bolts & expansion joints don.....
26. Muffler & clamp condition checking (H.E.T.S.C) & all water and lube oil flexible pipe condition checking.

### **Under Carriage**

27. Check proper fitment of both ends hose pipe dummy.
28. Check Nylock but in C clamp
29. Gap between wheel & brake block (6.10 mm).
30. Gear case bolts L clamp provided (Top, Bottom & side)
31. All equalizer pins free or not.
  
32. Ensure all cotter pins OK and equally spread out.
  
33. T.C.coupling saddle dia to be checked & ensure that it should not be more than 43mm.

### **Air Brake & Expresser/Compressor**

34. Remove VAIB, 28VB, A9,A9, SA9, C2 relay HB5, H5A overhaul and refit.
35. Additional C2 relay valve overhaul and refit.
36. Check A9 & SA9 valve specially the spring.
37. Check matching of VA IB control valve sleeve and dumble valve.
38. Check NS 1 reducing valve and renew if necessary.
39. Test and match the air brake system gauges.
40. Example the expresser sump, counter weight etc.
41. Check expressor valves and ensure for its proper condition.
42. Regrease fast couplings.
43. Check mechanical speedometer drive and speedometer condition.

Discrepancies in  
Indian Railways Maintenance Manual for Diesel Locomotives (White Manual)

Miscellaneous

44. Torquing of all bolts.
45. Check all flexible hoses & steel pipes for condition and clamping.
46. Mly sch including all additional items
47. All exhaust elbow connection to manifold clamp but bolt to be tightened.
48. Ensure bypass line clamp are secured properly and weld, if necessary

Locomotive Testing

49. Check over speed trip setting if required adjust.
50. Check lube oil pressure on sudden notching down to idle at 90 deg.C.
51. Check :
  - a) F/Oil pressure at 8<sup>th</sup> notch.
  - b) Expresser crank case vac at idle/8<sup>th</sup> notch.
  - C) Expresser lube oil pressure t idle 8<sup>th</sup> notch.
52. Listen any unusual sound & response of cylinder by pressing rack.
53. Check TRD at 66 deg. Water temp.

**PRE-COMMISSIONING CHECKS TO BE MADE ON LOCOS RECEIVED FROM DLW (ELECTRICAL SIDE)**

**Traction Motor**

54. Check TM cables for proper shoe crimping and layout.
55. Check TM brush gear, tie pi tails and blow out.
56. Air duct boor conditions.

**Traction Alternator/Generator**

57. Main Generator holder assly. Gap checking and carbon condition.
58. M/Gen fan, guard and well condition.
59. Check gear box oil level.

**Rectifier**

60. External Connection tightness.

***Major Auxiliaries.***

61. Exciter & Aux. Gen. Flexible conduit supporting clamp.
62. Exciter – Aux connection terminal.
63. Check oil leakage from O-ring & felt seal of AG/Exciter.
64. Check general condition of the rotating machines, including their commutator, V ring, brush holders, having proper uniform gap and abnormal sound smell.
65. Check up DB grids.
66. Check up DB Blower motor.
67. Provision of Rubber rings on BKBL

- 68. .Check up ECC.
- 69. Check ECC coil resistance, condition of slip ring and brush holder assly.

### **Governor**

- 70. Check Gov. hose pipe, Amp. Plug, oil filling up.

### **Minor Auxiliaries**

- 71. FPM supply wire flexible piper clamping.
- 72. Provision of fuel motor safety plate.
- 73. Ensure adequate gap between coupler & seal cap nut of both pumps.
- 74. Check FPM, CCE, ECC current.
- 75. Tacho gen, supply wire flexible pipe clamping.
- 76. Check harness condition of Tacho generator.
- 77. Axle Gen. – check junction box connections and conduit conditions.

### **Batteries**

- 78. Battery knife switch.

### **Control Compartment**

- 79. BKT/REV for smoother operation without any jamming over-travel, matching Contracts & flexible shunts provided in its interlocks.
- 80. See that all but bars are properly, torqued, secured and insulated.
- 81. Necessary wooden separator to provide between bus bar and cable.
- 82. Power contactor gap between fix and movable contact and shunt condition.
- 83. BKER 1, 2 valve and connection to check.
- 84. Check radiator fan C/Breaker with sealing.
- 85. Check general condition of power contractor, F.S. contactors, relays and their operations.

86. Excitation cards locking plate to provide.
87. Check roper gripping and fitment of all cards of EXCP, VRP, TRP panel and condition of female pin.
88. Both control stand BKC operation should be free and check for application of dry lubricate.
89. Check general condition of control stand and smooth operation of driving handles & their mechanical interlocking.
90. In both control stands ensure proper taping of cable harness. Ensure that no wire is fouling against Air Brake System.
91. Ensure that all terminal connections are tension free.
92. Ensure proper connection on back panel with plane with plane and spring washer.
93. Check ACCRLAS BAS for proper connections.

### Testing

94. Take IR valve
95. Sequence checking cranking testing and adjusting to be carried in order.
96. Test in load box before and after pre commissioning check.
97. Operation and condition of **dust exhaustor blower** motor.
98. Both Mu junction box and receptacle coupler wire & pin condition to check.
99. Check ETS setting and provision of check nuts. Also check harness condition.
100. Both headlight focus to check & adjust.
101. Check o/p headlight marker light and other light.
102. LWS harness securing.
103. Check tightness of terminal connections of ECS. LWS as well as the terminal box in expresser compartment.
104. Proper operation of safety devices etc. ETS, LWS, OPS, WSR, GR, SAR, PCS, OST (record rpm).