

LEVEL 5 MAINTENANCE RECORD SHEET (360 DAYS)

LVR F 047 - 047



Locomotive Number		Date		last service klms		this service klms		klms travelled	
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A=UNFIT FOR SERVICE	B= FOR FUTURE ATTENTION	C= FIT FOR SERVICE	D= NOT APPLICABLE
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Checklist		A	B	C	D	Comments/Remarks
1	Scope					see procedure
2	General					see procedure
3	Safety first					see procedure
4	Cleaning					
it is the responsibility of maintenance personnel to ensure cleaning of locomotive is to an acceptable standard						
1.	4.1 Cab					
2.	4.2 Toilet					
clean ensure floor drains are not blocked fill service water						
3.	4.3 Engine and fan room					
4.	4.4 Battery boxes					
5.	4.5 Equipment blow out					
remove covers and examine operation gen field switch off with engine running at idle blow out the following equipment with compressed air						
control stands						
compressor intercooler						
electrical cabinet						
vigilance control equipment						
motors (fuel oil pump crankcase exhaustor and starter)						
motors (auxiliary equipment)						
auxiliary alternators/generators						
alternator slip rings examine for sparking						
traction generator						
traction motors						
6.	4.6 Radiators					
blow out air passages in reverse air flow direction with compressed air						
7.	4.7 Underneath locomotive					
before commencing cleaning of underbody and bogies						
all traction motor covers in place						
gen field switch off						
with engine running at throttle notch 3						
clean and remove ballast excessive dirt dust grease and oil from underframe equipment brake equipment bogies and traction motors						
8.	4.8 Main reservoir drain cocks					
drain condensate from all dirt collectors intercoolers and reservoirs						

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Checklist		A	B	C	D	Comments/Remarks
5 Pre-inspection						
5.1 Defects examination						
this is a general examination of locomotive cab/s generator room control compartment engine and fan room underframe equipment bogies and brake equipment to locate any broken loose or defective equipment						
	5.2 Samples and testing					
9.	5.3 Crankcase lube oil sample					
10.	5.4 Compressor lube oil sample					
11.	5.5 Cooling fan hydraulic oil sample (where required)					
12.	5.6 Engine coolant sample coolant concentration and conductivity test					
13.	5.7 Engine lube oil sample					
14.	5.8 Engine lube oil sample fuel oil dilution test					
15.	5.9 Governor lube oil sample					
16.	5.10 Traction motor suspension bearing lube oil sample					
	5.11 Engine and fan room					
17.	5.12 Assessment					
all clamps for defects and security						
engine main generator compressor mounting areas						
engine room internally for fractures or other damage						
radiator access ceiling panels for cracks dents and alignment						
18.	5.13 Cover hatches and seals					
19.	5.14 Cooling fan (where required)					
20.	5.15 Engine cylinder head mechanism					
21.	5.16 Engine inspection					
22.	5.17 Engine noise inspection					
23.	5.18 Fuel oil water and exhaust leak inspection					
24.	5.19 Fuel injectors					
25.	5.20 Fuel injection lines					
26.	5.21 Fuel oil pressure					
27.	5.22 Low tension earths					
28.	5.23 Manifold connections					
29.	5.24 Muffler box and spark arrestor					
30.	5.25 Turbo/supercharger-blower					

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Checklist		A	B	C	D	Comments/Remarks
5 Pre-inspection						
5.1 Defects examination						
this is a general examination of locomotive cab/s generator room control compartment engine and fan room underframe equipment bogies and brake equipment to locate any broken loose or defective equipment						
	5.26 Generator room/control compartment					
31.	5.27 Assessment					
all ht connections for signs of overheating and general condition						
all lt connections for signs of overheating and general condition						
all resistors for signs of overheating and general condition						
condition and security of hasler current apparatus						
condition of compartment door seals and locks						
	5.28 Systems operation inspection					
32.	5.28.1 Air system					
33.	5.28.2 Cooling system					
34.	5.28.3 Engine fuel oil system					
35.	5.28.4 Engine lube oil system/s					
36.	5.28.5 Governor and speed control					
37.	5.29 Support systems leakage inspection					

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Checklist		A	B	C	D	Comments/Remarks
6 Drivers cab/generator room/control compartment						
6.1 Log book report						
record any defects reported by the driver and entered in the locomotive log book for further attention						
	defects should be repaired prior to locomotive being released to service					
6.2 Cab						
38.	6.3 Automatic and independent brake valve					
39.	6.4 Brake pedestal isolating cock					
40.	6.5 Cab accessories					
41.	6.6 Controller and control stand (both sides)					
42.	6.7 Doors and windows					
43.	6.8 Emergency shutdown					
44.	6.9 Fire extinguisher					
	fire extinguishers inspection/date					
45.	6.10 Floors					
46.	6.11 Hand brake operation					
47.	6.12 Hasler speed recorder					
48.	6.13 Hasler speed recorder					
49.	6.14 Horns					
50.	6.15 Lights					
51.	6.16 Miscellaneous controls					
	battery charging ammeter					
	engine control switch					
	start and stop buttons					
52.	6.17 Pressure gauges					
53.	6.18 Safety labels					
54.	6.19 Sanders/de-sanders operation and sandpipe heights					Form
55.	6.20 Train radio					
56.	6.21 Vigilance control equipment					
57.	6.22 Windscreen wipers					

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Checklist		A	B	C	D	Comments/Remarks
	6.23 Generator room/control compartment					
58.	6.24 Assessment					
	all ht connections for signs of overheating and general condition					
	all lt connections for signs of overheating and general condition					
	all resistors for signs of overheating and general condition					
	condition and security of hasler current apparatus					
	condition of compartment door seals and locks					
59.	6.25 Auxiliary contactors and relays					
60.	6.26 Body side air filters					
61.	6.27 Charging rate					
62.	6.28 Control air reservoir					
63.	6.29 Electrical cabinet doors and seals					
64.	6.30 Electro-magnetic contactors					
65.	6.31 Electro-pneumatic contactors					
66.	6.32 Exciter and auxiliary generator drive shaft (main alternator and auxiliary alternator where required)					
67.	6.33 Exciter and auxiliary generator coupling (main alternator and auxiliary alternator where required)					
68.	6.34 Exciter and auxiliary generator (main alternator and auxiliary alternator where required)					
69.	6.35 Motors (auxiliary equipment where required)					
70.	6.36 Miscellaneous					
	all magnet valves					
	all pressure switches					
71.	6.37 Reverser switch					
72.	6.38 Traction generator					
	6.39 Systems operation inspection motors (and auxiliary equipment)					
73.	6.39.1 Visual inspection					
74.	6.39.2 Brush and commutator inspection					
75.	6.39.3 Bearings inspection					
76.	6.39.4 Vibration test					
77.	6.39.5 Infrared thermography camera					
	6.40 Systems operation inspection motors (and auxiliary equipment)					
78.	6.40.1 Cleaning					
79.	6.40.2 Integrity					
80.	6.40.3 Lubrication					
81.	6.40.4 Noise and vibration					
82.	6.40.5 Supply voltage					
83.	6.40.6 Identification					

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Checklist		A	B	C	D	Comments/Remarks
7 Engine and fan room						
84.	7.1 Assessment					
all clamps for defects and security						
engine main generator compressor mounting areas						
engine room internally for fractures or other damage						
radiator access ceiling panels for cracks dents and alignment						
85.	7.2 Air vane					
86.	7.3 Air strainers					
87.	7.4 Batteries					
88.	7.5 Body side air filters					
89.	7.6 Compressor					
90.	7.7 Compressor					
gauge reading						
specification kpa (psi)						
91.	7.8 Compressor air intake filters					
92.	7.9 Compressor breather					
93.	7.10 Compressor crankcase					
94.	7.11 Compressor drive					
95.	7.12 Compressor governor					
96.	7.13 Compressor intercooler/intercooler safety valve					
97.	7.14 Compressor lube oil					
98.	7.15 Compressor lube oil pressure indicator					
gauge reading						
specification kpa (psi)						
99.	7.16 Compressor orifice test					
100.	7.17 Compressor unloaders valves and safety valves					
specification kpa (psi)						
101.	7.18 Cooling fan (where required)					
	7.19 Cooling fan drive shaft (where required)					
	7.20 Cooling fan fast coupling (where required)					
	7.21 Cooling fan holset coupling (where required)					
	7.22 Cooling fan gear box lube oil (where required)					
	7.23 Cooling fan gear box lube oil (where required)					

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Checklist		A	B	C	D	Comments/Remarks
7 Engine and fan room						
102.	7.24 Cooling fan hydraulic oil (where required)					
103.	7.25 Cooling fan hydraulic oil by-pass filter (where required)					
104.	7.26 Cooling fan hydraulic oil full-flow filter (where required)					
105.	7.27 Crankcase crankshaft and lube oil level inspection					
crankshaft end float clearance specification mm						
106.	7.28 Crankcase breather					
107.	7.29 Crankcase explosion covers					
108.	7.30 Crankcase lube oil					
109.	7.31 Crankcase lube oil drain					
110.	7.32 Cylinder head bolts tension (with fuel injectors)					
111.	7.33 Cylinder test valves					
112.	7.34 Engine air intake filters					
113.	7.35 Engine air filters and filter minder					
114.	7.36 Engine air filters and filter minder filter indicator					
115.	7.37 Engine top ring side clearance					
116.	7.38 Engine valve rotators					
117.	7.39 Engine valve settings					
118.	7.40 Exhaust manifold clamps					
119.	7.41 Exhaust stack					
120.	7.42 Exhaust stack/spark arrestor					
121.	7.43 Fuel oil filters primary and secondary					
gauge reading green band specification kpa (psi)						
122.	7.44 Fuel oil filters primary and secondary					
gauge reading green band specification kpa (psi)						
123.	7.45 Fuel oil injectors					
124.	7.46 Fuel oil pump drive coupling (where required)					

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Checklist		A	B	C	D	Comments/Remarks
7 Engine and fan room						
125.	7.47 Fuel oil pump crankcase exhausters and starter motors					
126.	7.48 Fuel oil pump and racks					
127.	7.49 Fuel oil pump timing and rack setting					
128.	7.50 Governor					
129.	7.51 Governor					
130.	7.52 Governor lube oil					
131.	7.53 Holding down bolts					
132.	7.54 Hoses					
133.	7.55 Hydraulic system (where required)					
134.	7.56 Linkages over-speed control shaft and thrust collars					
135.	7.57 Linkages over-speed control shaft and thrust collars					
136.	7.58 Lube oil filters					
137.	7.59 Lube oil filter separator screen					
138.	7.60 Lube oil pressure					
gauge reading idle						
specification kpa (psi)						
gauge reading throttle notch 8						
specification kpa (psi)						
139.	7.61 Lube oil strainer					
140.	7.62 Miscellaneous					
all magnet valves in engine room and fan room including de-sanding magnet valves						
all temperature thermometer and thermostatic switches in engine room						
low water cut out switch and float switch						
pressure switch in engine room						
141.	7.63 Muffler box and spark arrestor					
142.	7.64 Muffler box drains					
143.	7.65 Piston connecting rod and cylinder liner inspection					
144.	7.66 Piston cooling pipes					
145.	7.67 Traction motor blower rotor/impeller					
146.	7.68 Traction motor blower rotor/impeller bearings belt condition and tension					
147.	7.69 Traction motor blower spicer shaft					
148.	7.70 Traction motor cooling duct air flow					

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Checklist		A	B	C	D	Comments/Remarks
7 Engine and fan room						
149.	7.71 Turbo/supercharger-blower					
150.	7.72 Turbo/supercharger-blower primary air intake filters					
151.	7.73 Waste removal and waste sumps					

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Checklist		A	B	C	D	Comments/Remarks
8 Underneath locomotive						
152.	8.1 AEI tags					
153.	8.2 Air coupling hoses					
154.	8.3 Air cocks at head stock					
155.	8.4 Air reservoir drain cocks					
156.	8.5 Automatic couplers and draft gear					
157.	8.6 Axle box pedestal liner clearance					
158.	8.7 Axle box roller bearing					
	axle box bearing lubricate date bearing package unit installation date					
159.	8.8 Bogie assembly					
	bogie code number and lift due date clearly painted on side frames					
160.	8.9 Bogie centre bearing plates and loading pads					
161.	8.10 Bogie mounted shock absorbers/vibration dampers					
162.	8.11 Brake block condition					
163.	8.12 Brake cylinders/slack adjusters-hand slack adjusters					
164.	8.13 Brake cylinder piston travel					
165.	8.14 Brake rigging					
166.	8.15 Dummy couplings					
167.	8.16 Distributing valve					
	distributor valve/triple valve 'tv' due date					
168.	8.17 Fuel tank examination					
169.	8.18 Hasler speed recorder transmitter					
170.	8.19 Holding down bolts					
171.	8.20 Jumpers and jumper receptacles					
172.	8.21 Main reservoir safety valves					
gauge reading						
specification kpa (psi)						

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Checklist		A	B	C	D	Comments/Remarks
8 Underneath locomotive						
173.	8.22 Reflective delineators					
174.	8.23 Sand box examination					
175.	8.24 Traction motors					
176.	8.25 Traction motor axle journal dust shields					
177.	8.26 Traction motor cooling air bellows					
178.	8.27 Traction motor gear case and seal					
179.	8.28 Traction motor gear case lubricant drain					
180.	8.29 Traction motor gear case lubricant levels					
181.	8.30 Traction motor nose suspension					
182.	8.31 Traction motor suspension bearing cap bolts					
183.	8.32 Traction motor suspension bearing oil level					
184.	8.33 Traction motor suspension bearing oil level and wick					
185.	8.34 Traction motor suspension bearing oil level and wick					
186.	8.35 Traction motor suspension bearing radial clearance					
187.	8.36 Under frame					
188.	8.37 Wheel examination					Form

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Checklist		A	B	C	D	Comments/Remarks
9 General with engine shutdown						
	9.1 Engine and fan room					
189.	9.2 Governor low lube alarm					
190.	9.3 Low tension earth					
191.	9.4 Megger test					
192.	9.5 Propulsion control test					
193.	9.6 Manual transition test					

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Checklist		A	B	C	D	Comments/Remarks
10 General with engine running						
194.	10.1 Assessment					
	all fuel line assemblies for fuel leaks					
	any obvious fuel oil or water leaks					
	lubrication oil is being supplied to camshaft bearings valve assemblies and rocker gear					
	mechanical components are receiving lubrication					
	obvious unusual knocks odours sounds or vibration from compressor engine or generator					
	10.2 Assessment					
195.	10.3 Cover hatches and seals					
	10.4 Assessment					
196.	10.5 Engine inspection					
197.	10.6 Engine noise inspection					
198.	10.7 Fuel oil water and exhaust leak inspection					
199.	10.8 Brake cylinder pressure switch					
200.	10.9 Compressor operation					
201.	10.10 Engine coolant					
	gauge reading green band					
	specification kpa (psi)					
202.	10.11 Engine coolant					
	gauge reading green band					
	specification kpa (psi)					
203.	10.12 Engine coolant sight glass					
204.	10.13 Engine coolant temperature regulators					
205.	10.14 Engine lube oil level					
206.	10.15 Engine lube oil pressure					
207.	10.16 Engine speeds					
208.	10.17 Engine over-speed trip					
209.	10.18 Fuel oil pressure					
210.	10.19 Governor					
211.	10.20 Ground relay					
212.	10.21 Hot engine alarm and fan controls					
213.	10.22 Low lube oil shutdown					
214.	10.23 Low water alarm					
215.	10.24 Low tension voltage					
216.	10.25 Wheel slip					

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Checklist		A	B	C	D	Comments/Remarks
11 Operation check						
observing all safety requirements examine operation of locomotive controls						
	11.1 Cab					
217.	11.2 Engine speed control					
218.	11.3 Load check					
219.	11.4 Vigilance control equipment					
	11.5 Engine and fan room					
220.	11.6 Ground relay test					
221.	11.7 Seals					
222.	11.8 Transition test					
223.	11.9 Wheel slip test					
	11.10 Underneath locomotive					
224.	11.11 Air brake operation					Form
225.	11.12 Emergency kit					

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Checklist		A	B	C	D	Comments/Remarks
12 Final running check						
226.	examine operation of locomotive					
227.	ensure all replaced brushes are bedded in (noted on maintenance record sheets)					
228.	all foreign materials to be removed from locomotive (e.g. paper rags tools)					
229.	all covers correctly positioned					
230.	all locomotive doors closed					
231.	emergency kit complete					
232.	relevant documentation completed					
233.	12.1 Inspections/maintenance due date/s					
	axle box bearing lubricate date bearing package unit installation date					Record date
	bogie code number and lift due date clearly painted on side frames					Record date
	brake cylinder lubricate date 'bc' due date					Record date
	distributor valve/triple valve 'tv' due date					Record date
	fire extinguishers inspection/date					Record date



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Details of other repairs carried out

Details of outstanding work

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Materials used

Material	Unit	Quantity
Compressor Oil	Litres	
Engine Oil	Litres	
Governor Oil	Millilitres	
Cooling Water	Litres	
Hydraulic Oil	Litres	
Journaltex	Litres	
Globes	74V 10W	
	74V 40W	
	Headlights	
	Hasler Globes	
Hasler Tapes		
Brake Shoes	Cast/Composite	
Sand Bags	15kg	
Crater Grease		

Other materials used

[illegible]

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LOCOMOTIVE FIT FOR SERVICE		
NAME	SIGNATURE	DATE

REMARKS

REMARKS CONTINUOUS IMPROVEMENT (suggested changes to form/s)