

Provincial Railway Guides

Section:

OPERATIONS

Subject:

LOCOMOTIVES

It is a railway's responsibility to ensure the safe operation of locomotives in service with their railway and ensure locomotives do not suffer catastrophic failures or undesired events resulting in death, injury, environmental damage, property damage, or any other loss.

As part of a railway's Safety Management Plan, it is expected that the railways utilize the latest version of the following rules as the basis for developing an operation, maintenance and inspection plan for their locomotives:

- *Railway Locomotive Inspection and Safety Rules*
- *Railway Freight and Passenger Train Brake Inspection and Safety Rules.*

The objective of this guideline is to provide provincial common carrier and industrial railways with the expectations with respect to locomotives that are designated as low usage locomotives (LUL). This guideline is intended to establish an alternative timeframe and inspection schedule based on hours of service and used in conjunction with the Railway Locomotive Inspection and Safety Rules.

It is expected that provincially regulated railways adopt and comply with the Railway Freight and Passenger Train Brake Inspection and Safety Rules for all locomotives. This guideline does not modify or alter the testing, inspection and maintenance requirements outlined in the Railway Freight and Passenger Train Brake Inspection and Safety Rules.

PART A – GENERAL

INTRODUCTION:

“Annual Inspections” means the documented inspection conducted by a locomotive inspector utilizing the Ninety-Two and Annual Inspection form.

“Calendar Year” means from January 01 to December 31.

“Forty-Five Day Safety Inspection” means the documented inspection conducted by a locomotive inspector utilizing the Forty Five Day Safety Inspection Form.

“Pre Trip Safety Inspection” means an inspection completed by a locomotive operator or locomotive inspector prior to operation of a locomotive.

“Hour Meter” means an electric meter that records the running time of a locomotive.

“Locomotive” means a railway locomotive intended for the propulsion or control of railway cars or equipment.

“Locomotive Inspector” means a person deemed competent by the railway company to perform inspections of locomotives.

“Log Book” means a document used to record daily running hours of a locomotive.

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“Low Usage Locomotive” means a locomotive with a running time of less than 1100 hours per calendar year.

“High Usage Locomotive” means a locomotive with a running time that exceeds 1100 hours per calendar year.

“Railway” means the railway as defined the Railway Act

“Running Time” means the time the locomotive engine runs.

“Ninety-Two Day Safety Inspection” means the documented inspection conducted by a locomotive inspector utilizing the Ninety Two Day Inspection Form.

SCOPE

The scope outlines the responsibilities of a railway when developing a locomotive inspection safety plan and designating a locomotive to be either a low usage locomotive (LUL) or high usage locomotive (HUL).

RAILWAY REQUIREMENT

A railway is required to:

- I. Establish the type of inspection program to be used for a locomotive. A locomotive must either be designated as a low usage locomotive (LUL) with less than 1100 hours per year or a locomotive with more than 1100 hours per year which must then be designated as high usage locomotive (HUL).
- II. Inspect and repair of all locomotives to ensure safe operation. All components, appurtenances and control apparatuses of all locomotives must be designed and maintained to perform their intended function.
- III. Ensure that locomotive inspectors are trained to perform inspections of locomotives. Locomotive inspectors must demonstrate to a railway company by means of oral or written examination and on-the-job performance, a knowledge and ability concerning the inspection of railway locomotives.

Application

This guideline applies to all railways under the jurisdiction of *The Railway Act* (Saskatchewan). Any railway that chooses to designate a Low Usage Locomotive that designated locomotive must remain on provincially regulated track, and any other railway who utilizes any portion of federally regulated track must comply with the federal rules for locomotive inspection and operation.

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PART B – Locomotive Safety Assurance

Scope

This part outlines the inspection requirements of a low usage locomotive and high usage locomotive to ensure safe railway operations.

Inspection Forms

Appendix C and Appendix D of this document contain recommended inspection forms for 45-day safety inspections and 92-day / Annual safety inspections.

These forms outline the recommended scope and content of the inspections to be completed and documented at the specified intervals. A railway may modify the scope and content of the inspections by adding items they believe are appropriate for the specified time frames. A railway may only reduce the scope of items contained within the attached inspections forms after receiving written approval from a provincial railway inspector approving the alternative inspection plan.

Application for Low Usage Locomotives (LUL)

A railway as part of their ongoing maintenance must:

- a. Conduct pre trip inspection prior to operation of locomotive;
- b. Conduct annual inspections;
- c. Equip each low usage locomotive with an electric hour meter;
- d. Use a log book to record daily running time;
- e. Audit the inspection report as part of the SMP audit requirement;
- f. Must use the approved Locomotive Inspection Form as a minimum;

Application for High Usage Locomotives (HUL)

A railway as part of their ongoing maintenance must:

- a. Conduct pre trip inspection prior to operation of locomotive;
- b. Conduct 45 day inspections;
- c. Conduct 92 day inspections;
- d. Conduct annual inspections;
- e. Audit inspection reports in accordance to the SMP requirement.
- f. Must use the approved Locomotive Inspection Form as a minimum;

Pre Trip Inspections

It is the responsibility of the railway to establish their pre-trip inspection protocols and requirements. This includes designating who is responsible for conducting pre-trip inspections, establishing the scope and

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content of pre-trip inspection and establishing any documentation requirements and policies for pre-trip inspections.

It is recommended that railways utilize the 45-day inspection form as a guide for developing a pre-trip inspection protocol and it is also recommended that at least one pre-trip inspection be documented a minimum of once every 45 days.

Out-of-Service – More Than 30 Days

If a locomotive is to be put out of service for more than 30 days an inspection is required prior to locomotive going back into service.

Exceeding 1100 Hours in Less Than One Calendar Year

If a LUL exceeds 1100 hours in a year, the locomotive will automatically revert to operating under HUL inspection guidelines for the remainder of the calendar year.

Switching Between LUL and HUL Inspections

A locomotive designated as an LUL can only switch to HUL once during any calendar year;

When a locomotive is designated as an HUL unit, the locomotive will continue to operate under the HUL inspection criteria for the remainder of the calendar year.

PART C – Compliance with Federal Rules

This guide does not exempt any railway designated as a “Railway Company” or “Local Railway Company” under federal legislation from following any federal rules as set out by Transport Canada including Rule TC-O-0-184 *Railway Freight and Passenger Train Brake Inspection and Safety Rules* and Rule TC-O-0-187 *Railway Locomotive Inspection and Safety Rules*.

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APPENDIX A – LOGBOOK

The following format is recommended for documentation for the hours of service for LUL units in a log book to be retained in the cab of a locomotive.

COMPANY NAME

UNIT NUMBER - 1234		UNIT TYPE - GP-38-2		YEAR - 2017	
Date	Meter Start Hour Reading	Meter End Hour Reading	Total Daily Time logged	Previous Time Logged	Total Time Logged
July 1	250	251	1	2	3
July 4	251	254	3	3	6
July 10	254	255	1	6	7
July 14	255	257.5	2.5	7	9.5
July 20	257.5	260.5	3.0	9.5	12.5

APPENDIX B – SMP SECTION

The follow information must be added to the SMP section of the railway:

- a) List of the locomotive unit number and designation of either low usage locomotive (LUL) or high usage (HUL) for each locomotive.
- b) Provide the instruction of what happens if a LUL exceeds the 1100 hour annual limit.
- c) State each locomotive must be designated as either a LUL or HUL at the beginning of each calendar year.
- d) List the inspection requirements for LUL.
- e) List the inspection requirements for HUL.
- f) State the inspection requirements for locomotives that have been out of service for more than 30 calendar days.
- g) State the position in the company responsible for monitoring the hours of Locomotive unit.

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APPENDIX C – 45 DAY LOCOMOTIVE INSPECTION FORM

Locomotive Number _____ **Date** _____

	INSPECTION ITEM	CONDITION FOUND	INITIAL
1	Couplers and Draft Gear		
2	Hoses – Glad Hands		
3	Journals - Springs – Spring Hanger		
4	Brake Shoes – Rigging and Adjustment		
5	Wheel Condition		
6	Traction Motor Cable Securement		
7	Emergency Fuel Cut Off - All Positions		
8	Fuel Tanks – Gauges - Sight Glass		
9	Pollution Tanks		
10	Spitter Valve / Blow Down Valve (Test If Applicable)		
11	Hand Rails – Steps – Walkways		
12	Hand Brake		
13	Engine Compartment Condition (Free of Oil Contamination)		
14	Governor Oil Level – Free of Leaks		

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15	Check Compressor 175 POP Valve Seal		
16	Compartment Filters		
17	Exhaust Manifold – Carbon Buildup – Leaks		
18	Inspect Exhaust Stack – Carbon Build Up - Spark Arrestor		
19	Windows – Doors – Wipers – Seats		
20	Fire Extinguisher - 30 Days and annual certification		
21	All Lights – Bell - Horn		
22	Gauge Condition		
23	Up to Date Cab Cards		
24	Control Stand Serviceability		
25	Safety Control device Function Test (Dead Man)		
26	Cab Heater - Blowers		
27	All High / Low Voltage Electrical Covers / Ground Relay Protection seals		

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LOCOMOTIVES**COMMENTS:**

Inspectors Primary Employer: _____

Inspectors Printed Name: _____

Inspectors Signature: _____

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APPENDIX D – 92 DAY (Items 1 – 33) & ANNUAL (Items 1 - 45) LOCOMOTIVE INSPECTION FORM

Locomotive Number _____ **Date** _____

Inspection Type (92 Day or Annual) _____

	INSPECTION ITEM	CONDITION FOUND	INITIAL
1	Check locomotive for fire & hazards		
2	Inspect safety appliances		
3	Check lights for defects		
4	Test bell & horn function		
5	Check power knockdown switch		
6	Test air brake gauges (self-test)		
7	Verify control stand isolation		
8	Test all electrical meters		
9	Test operation of the protective alarm		
10	Test ground relay protection (re-seal)		
11	Perform and record insulation test (LV-HV-AC)		
12	Verify that all seals & cut out switches are sealed		
13	Test operation of engine protective device & governor low oil shutdown if equipped		

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14	Check car body & door for sealing and defective hardware		
15	Ensure all electrical panels are secure		
16	Check compressor safety valve 175 psi seal		
17	Perform a functional brake test		
18	Examine/test – locomotive hand brake and lube if required		
18	Inspect exhaust spark arresting equipment if equipped		
19	Check engine & rotation equipment		
20	Clean & clear main generator aspirator pit if equipped		
21	On turbo charged engines if equipped – inspect educator tube		
22	Clean out exhaust retention traps		
23	Inspect wheels, trucks & associated parts		
24	Inspect exterior of traction motor		
25	Check condition of all traction motor ground cables		
26	Check /add lubrication – traction motor drive gear case		
27	Check traction motor support bearings condition and lubricate		
28	Check journal boxes & lubricate		

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29	Inspect foundation brake gear		
30	Take & record all wheel measurements		
31	Inspect coupler & draft gear assembly		
32	Inspect & ensure fuel tank, pumps, gauges and related parts are free from leaks		
33	Check air dryer operations & service if equipped		
34	Wheel – ensure wheel measurements form is completed and report the defects – all wheel dimensions must be to AAR standards		
35	Traction motor side bearings or support bearings – check for water or ice – ensure TM wick cover bolts are tight & locking tabs in place		
36	Traction motor support bearing lubricate if required		
37	Lubricate traction motor drive gear cases if required		
38	Record Side Bearing Clearance Front Left Rear Left Front Right Rear Right		
39	Journal - Check for Water, Ice or Metal Particles. Lubricate To Prescribed Levels		
40	Coupler – Qualify Coupler and Draft		

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	Gear Assembly (Bushings, Carrier, Wear Plate, Uncoupling Device) Measure Coupling Height. Front Rear		
41	Inspect Cab Seats and Ensure They Are In Good Condition – Repair If Required		
42	Test Electrical Meters		
43	Insulation Test – Perform and Record For LV HV AC Circuit TL High Voltage		
44	Calibrate air flow meter if equipped		
45	Inspect Exhaust Spark Arrestor Device (If Equipped) And Exhaust manifold For Leaks – Ensure Carbon Material Is Not Building Up		

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Inspectors Primary Employer: _____

Inspectors Printed Name: _____

Inspectors Signature: _____

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