

Rules Respecting Key Trains and Key Routes

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Railway Association
of Canada

Rules Respecting Key Trains and Key Routes

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PART A: GENERAL PROVISIONS

1. SHORT TITLE

- 1.1 For ease of reference these Rules Respecting Key Trains and Key Routes may be referred to as “Key Train Rules”.

2. APPLICATION

- 2.1 These Rules apply to all federally regulated railway Companies for which they have been approved by Transport Canada.

3. DEFINITIONS

- 3.1 The following definitions apply in these Rules:

“**Census Metropolitan Areas (CMAs)**” means population centres defined and published by Statistics Canada as core (i.e. at least 50,000 persons) and secondary core (i.e. at least 10,000 persons) of CMAs.

“**Companies**” is as defined under the *Railway Safety Act*.

“**Higher Risk Key Train**” means any Key Train that includes loaded tank cars carrying crude oil or liquefied petroleum gases, as defined in the *Transportation of Dangerous Goods Act, 1992*, in a continuous block of 20 or more tank cars or 35 or more tank cars dispersed through a train.

“**Key Route**” means any track on which, over a period of one year, is carried 10,000 or more loaded tank cars or loaded intermodal portable tanks containing dangerous goods, as defined in the *Transportation of Dangerous Goods Act, 1992* or any combination thereof that includes 10,000 or more loaded tank cars and loaded intermodal portable tanks.

“**Key Train**” means an engine with cars:

- a) that includes one or more loaded tank cars of dangerous goods that are included in Class 2.3, Toxic Gases and of dangerous goods that are toxic by inhalation subject to Special Provision 23 of the *Transportation of Dangerous Goods Regulations*; or
- b) that includes 20 or more loaded tank cars or loaded intermodal portable tanks containing dangerous goods, as defined in the *Transportation of Dangerous Goods Act, 1992* or any combination thereof that includes 20 or more loaded tank cars and loaded intermodal portable tanks.

“Permanent Rail Joint” means any rail joint that meets either of the following two criteria:

- a) The rail joint was installed as part of railway infrastructure design or a design alteration as approved by a professional engineer; or,
- b) The rail joint was installed as part of maintenance procedure and includes, as a minimum, the following:
 - i. Minimum of three (3) bolts per rail end, with two centre bolt holes of the joint bar bolted on either rail end; and
 - ii. Every tie box anchored or elastic fastener installed for a minimum of one hundred and ninety-five (195) feet in both directions from the joint.

“Temporary Rail Joint” means any rail joint in a section of Continuous Welded Rail that is not a Permanent Rail Joint.

“Within Census Metropolitan Areas or Within CMA(s)” means within the core and secondary core of Census Metropolitan Areas.

3.2 For the purpose of this Rule, the following terms are to be applied as described or defined in the *Rules Respecting Track Safety*:

- a) Rail flaw inspection;
- b) Twice annually;
- c) Annually;
- d) Three times annually;
- e) Electronic geometry inspection;
- f) Light geometry inspection vehicle;
- g) Heavy geometry inspection vehicle;
- h) Classes 1 through 5 track; and
- i) Continuous Welded Rail.

PART B: KEY PRINCIPLES

4. KEY TRAINS AND HIGHER RISK KEY TRAINS

4.1 Operating Speed Limits

KEY TRAINS

4.1.1 The following maximum operating speeds (in miles per hour (MPH)) apply to Key Trains:

Table 4.1.1

	Outside CMA	Within CMA
KEY TRAINS	50	<u>35</u>
Key Trains Transporting One Or More DOT-111 Loaded Tank Cars ¹	40	<u>35</u>

Note 1: Applies to Key Trains transporting one or more DOT-111 loaded tank cars containing UN1170 ETHANOL, UN1202 DIESEL FUEL, UN1203 GASOLINE, UN1267 PETROLEUM CRUDE OIL, UN1268 PETROLEUM DISTILLATES, N.O.S., UN1863 FUEL, AVIATION, TURBINE ENGINE, UN1993 FLAMMABLE LIQUID, N.O.S., UN3295 HYDROCARBONS, LIQUID, N.O.S., UN1987 ALCOHOLS N.O.S., UN3494 PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC or UN3475 ETHANOL AND GASOLINE MIXTURE in areas identified as higher risk through the risk assessment process as required under section 6 of these Rules. The DOT-111 tank cars include those that are CPC-1232 specification.

HIGHER RISK KEY TRAINS

Companies without a Winter Operation Risk Mitigation Plan (as further defined in subsection 4.1.4 below)

4.1.2 The following maximum operating speeds (in MPH) apply to Higher Risk Key Trains for Companies that do not develop and adhere to a Winter Operation Risk Mitigation Plan:

Table 4.1.2

	Outside CMA		Within CMA	
	Signaled	Non-Signaled	Signaled	Non-Signaled
April 1 to November 14	50	50	30	30
November 15 to March 31 if > -25°C	40	25	25	25
November 15 to March 31 if ≤ -25°C	30	25	25	25

Companies with a Winter Operation Risk Mitigation Plan (as further defined in subsection 4.1.4 below)

4.1.3 The following maximum operating speeds (in MPH) apply to Higher Risk Key Trains for Companies that develop and adhere to a Winter Operation Risk Mitigation Plan that meet the requirements prescribed in subsection 4.1.4.

Table 4.1.3

	Outside CMA	Within CMA
Signaled Territory		
Ambient Temperature > -25°C	50	30
Ambient Temperature ≤ -25°C	30 ¹	25
Non-Signaled Territory		
Ambient Temperature > -15°C	50	30
Ambient Temperature ≤ -15°C	25 ¹	25

Note 1: For any subdivision or defined portion(s) of a subdivision identified in the Winter Operation Risk Mitigation Plan in accordance with paragraph 4.1.4 vi, the Company may increase the maximum operating speed for Higher Risk Key Trains operating outside of CMA limits to:

- i. 50 MPH in Signaled Territory;
- ii. 30 MPH in Non-signaled Territory without Broken Rail Detection Technology that meets the requirements of subsection 4.1.5; and
- iii. 40 MPH in Non-signaled Territory with Broken Rail Detection Technology that meets the requirements of subsection 4.1.5.

For all other subdivisions, or portions of a subdivision not identified in the Company's Winter Operation Risk Mitigation Plan, the maximum operating speeds as listed in table 4.1.3 above apply.

4.1.4 Winter Operation Risk Mitigation Plan:

(a) A Company, that develops and adheres to a Winter Operation Risk Mitigation Plan under 4.1.3 must address the following elements in the plan:

- i. The implementation timelines which must:
 - Begin no earlier than the date the Winter Operation Risk Mitigation Plan is filed with Transport Canada per 4.1.4 (b); and

- Remain in effect until March 31 23:59:59.
 - ii. Criteria to identify locations more susceptible to rail and rail joint failures due to cold weather conditions and requirements for mitigating measures for these locations;
 - iii. Criteria to define rapid temperature fluctuations and mitigating measures to address their effect on track;
 - iv. Mitigating measures to:
 - Immediately take action by reducing to an appropriate operating speed, if a missed segment of rail flaw inspection is identified; and
 - Ensure an equivalent level of safety, if an element of the Winter Operation Risk Mitigation Plan cannot be adhered to due to unforeseen circumstances.
 - v. Information on how temperature:
 - Will be determined at the location where the train is operating;
 - Will be communicated to train crews; and
 - Records will be retained for a minimum of one year from the date the Winter Operation Risk Mitigation Plan is implemented.
 - vi. Using appropriate location information (subdivision name, mileage range and track identification, if applicable), information on:
 - Planned maximum operating speeds;
 - If Broken Rail Detection Technology is present; and
 - The planned approach or frequency, including the maximum number of days permitted between each activity and criteria to establish the time interval, for:
 - Rail grinding to ensure proper detection of rail defects;
 - Rail flaw inspections during the implementation timelines defined in accordance with 4.1.4 (a) i ; and
 - Visual inspections beyond what is prescribed in the *Rules Respecting Track Safety*.
- (b) A Company must file its Winter Operation Risk Mitigation Plan, approved by a professional engineer, annually with Transport Canada prior to operating at the maximum operating speeds permitted in subsection 4.1.3.
- (c) A Company must retain records, for a minimum of one year, to demonstrate that activities, inspections and mitigating measures required in the Winter Operation Risk Mitigation plan are being implemented.

4.1.5 Requirements for Broken Rail Detection Technology:

- (a) A Company, that develops and adheres to a Winter Operation Risk Mitigation Plan with Broken Rail Detection Technology under 4.1.3, must:
- i. Ensure that broken rail detection technology is able to accurately and consistently detect broken rail on live track and communicate the broken rail immediately to the relevant persons that can halt rail traffic;
 - ii. Make available to Transport Canada, upon request, a description of the Broken Rail Detection Technology, including its operating and maintenance processes;
 - iii. Develop mitigating measures to be taken that ensure an equivalent level of safety if the Broken Rail Detection Technology does not detect broken rails and report the information back to the relevant persons that can halt rail traffic; and
 - iv. Retain records, for a minimum of one year, of all the instances when mitigating measures are implemented as per paragraph 4.1.5 (a) iii above. Such records must include the precise location, time, date, and duration of such instances.

4.1.6 Companies must communicate to operating employees where speed restrictions for Key Trains and Higher Risk Key Trains apply using appropriate location information, including subdivision name mileage ranges and track identification. This is not required when maximum track speed is lower than or equal to the speed of the restriction.

4.2 Other Operating Restrictions

4.2.1 Key Trains must hold the main track at meeting or passing points unless the siding track meets at a minimum Class 2 track requirements. In situations where the siding does not meet at a minimum Class 2 track requirements, a Key Train may operate on the siding at a speed not exceeding 10 MPH in the following situations:

- a) The non-Key Train is a passenger train;
- b) Two Key Trains are meeting or passing;
- c) The siding cannot accommodate the length of the non-Key Train;
- d) There is insufficient clearance in the siding for the non-Key Train;
- e) The main track is impassible;
- f) The Key Train is being staged; or
- g) The crew operating the Key Train is going to be relieved because they have reached their regulated on duty time limit.

4.2.2 A Company must only operate a Key Train with cars that are equipped with roller bearings.

4.2.3 A Company must perform an inspection of any bearing of a Key Train reported defective by a Wayside Defective Bearing Detector (WDBD).

- (a) When a bearing of a Key Train is reported defective by a WDBD, the company must bring the Key Train to a safe and controlled stop immediately after the full Key Train has been inspected by the WDBD site and a visual inspection must be performed.
- (b) If the inspection confirms that a bearing is defective the company must set off that car. The Key Train must be restricted to a safe operating speed not exceeding a maximum of 15 MPH until the car with the defective bearing is set off.
- (c) If the inspection fails to confirm a defect in a bearing, a company must restrict the Key Train to a speed not exceeding 30 MPH until the next operational WDBD location.
- (d) If the same bearing on a car in the Key Train is reported defective by two consecutive WDBDs, a company must set off that car from the Key Train. The Key Train must be restricted to a safe speed not exceeding 15 MPH until the car with the defective bearing is set off.

5. KEY ROUTES

5.1 A company must conduct rail flaw inspections not less than twice annually on main track and subdivision track portions of Key Routes.

5.2 A company must conduct an electronic geometry inspection not less than twice annually on main track and subdivision track portions of Key Routes using a heavy geometry inspection vehicle. A light geometry inspection vehicle may be used in lieu of a heavy geometry inspection vehicle only as permitted in the Rules Respecting Track Safety. If a light geometry inspection vehicle is used in lieu of a heavy geometry inspection vehicle, inspections must be conducted not less than three times annually.

5.3 Requirement for Continuous Welded Rail Joint Management on Main Track and Subdivision Track Portions of Key Routes

- (a) Companies must develop and adhere to a maintenance and inspection plan for Permanent Rail Joints and Temporary Rail Joints which includes the following elements:
 - Requirements for the frequency and methods of inspection;
 - Time limits for the retention of Temporary Rail Joints until permanently repaired; and,
 - Require that records be retained for a minimum of one year regarding the Temporary Rail Joint:

- Location of a track segment where a Temporary Rail Joint has been installed in a Continuous Welded Rail, including subdivision, mileage, and track identification where applicable;
 - Date of installation;
 - Date(s) of inspection;
 - Date(s) and description of any maintenance & repair work done on the temporary rail joint; and
 - Date(s) of removal of temporary rail joints.
- (b) Companies must file a copy of the plan as referred to in paragraph 5.3 (a) above with Transport Canada by the first of September every calendar year.
- (c) Companies must file an annual report containing the number of Temporary Rail Joints in each subdivision as of October 31. The report must be filed with Transport Canada by January 15 of each calendar year.
- (d) The plan referred to in paragraph 5.3 (a) must be approved by a professional engineer.

5.4 Requirements Regarding Installation of Replacement Rail on Main Track and Subdivision Track Portions of Key Routes

- (a) Except as permitted in paragraph 5.4 (b) below, a Company must ultrasonically inspect and confirm that replacement rail is free from rail defects prior to being put in service.
- (b) When ultrasonic inspection of the replacement rail cannot be done prior to installation, a Company must, until the replacement rail has been ultrasonically inspected and verified to be free of defects, either:
- i. Limit the maximum speed to 10 MPH; or
 - ii. Implement a speed restriction reviewed and approved by a professional engineer.
- (c) Companies must keep records for a minimum of one year from the date of installation of a replacement rail indicating:
- i. the date of installation;
 - ii. the date of ultrasonic inspection; and
 - iii. the location.

5.5 Companies must install WDBDs on Key Routes. Companies must ensure that Key Trains do not proceed more than 40 miles on a Key Route without having received a valid inspection by a WDBD, or a passing inspection on both sides of the Key Train as per Rule 110 of the *Canadian Rail Operating Rules*, or a pull-by inspection on both sides of the Key Train by the Key Train crew. The results of the passing inspection must be communicated to the Key Train crew and recorded by the Key Train crew to be considered a valid inspection.

6. KEY ROUTE RISK ASSESSMENTS

- 6.1 Companies shall conduct risk assessments and periodic updates based on significant change to determine the level of risk associated with each Key Route over which Key Trains are operated by the company. These Key Route Risk Assessments must be conducted for all Key Routes, at a minimum, every three (3) years and must, at a minimum:
- (a) Define each Key Route using appropriate location information such as subdivision or spur names and relevant mile ranges;
 - (b) Identify and describe all relevant safety and security related risks associated with each Key Route;
 - (c) Identify, evaluate and compare alternative routes, over which the company has authority to operate;
 - (d) Identify areas of higher risk where the speed restriction referred to in note 1 of subsection 4.1.1 may apply;
 - (e) Factor potential or future significant railway operational changes such as new customers moving goods subject to an Emergency Response Assistance Plan under the *Transportation of Dangerous Goods Act, 1992* and population growth;
 - (f) Identify and define the factors taken into account in assessing the safety and security related risks associated with each Key Route including:
 - 1. Annual volumes and types of dangerous goods being transported by class and division;
 - 2. Rail traffic density;
 - 3. Trip length for route;
 - 4. Presence and characteristics of railway facilities;
 - 5. Track type, class, and maintenance schedule;
 - 6. Track grade and curvature;
 - 7. Presence or absence of signals and train control systems along the route (“dark” versus signaled territory);
 - 8. Presence or absence of wayside hazard detectors;
 - 9. Number and types of grade crossings;
 - 10. Single versus double track territory;
 - 11. Frequency and location of track turnouts;
 - 12. Proximity to iconic targets and natural hazards;
 - 13. Environmentally sensitive or significant areas;
 - 14. Population density along the route;
 - 15. Venues along the route (stations, events, places of congregation);
 - 16. Emergency response capability and capacity along the route including training of local fire services and municipalities with respect to the volumes and types of dangerous goods being transported;
 - 17. Areas of high consequence along the route;
 - 18. Presence of passenger traffic along route (shared track);
 - 19. Speed of train operations;
 - 20. Proximity to en-route storage or repair facilities;

21. Known threats, including any non-public threat scenarios;
22. Measures in place to address apparent safety and security risks including those pertaining to situations and locations where unattended equipment could move uncontrollably should its means of securement fail;
23. Availability of practicable alternative routes;
24. Past incidents;
25. Overall times in transit;
26. Training and skill level of crews;
27. Impact on rail network traffic and congestion; and
28. Geohazards.

PART C:

7. CONSULTATIONS WITH MUNICIPAL AND OTHER LEVELS OF LOCAL GOVERNMENT

7.1 Companies will incorporate input from municipal and other levels of local government on safety and security concerns in Key Route risk assessments using the following process.

- (a) Companies will provide contact information through a publicly-accessible web site, as well as to the Federation of Canadian Municipalities. The Chief Administrative Officer (CAO) or designate of a municipal or other level of local government can use the contact information to submit safety and security concerns for Companies to consider in Key Route risk assessments.
- (b) Companies will respond to municipal or other levels of local government regarding, for example, how the risks they have identified are being mitigated. In all cases, Companies will acknowledge receipt.
- (c) Paragraph 7.1 (b) above does not require Companies to disclose information that is deemed confidential by the Company if the CAO, or the designate, of the municipal or other level of local government has not undertaken in writing to:
 - i. Disclose the information only to those persons who need to know; and
 - ii. Keep the information confidential and ensure any person to whom the CAO, or the designate, has disclosed the information keeps it confidential, to the maximum extent permitted by law.
- (d) Companies will keep records of comments and concerns regarding safety and security from municipal or other levels of local government, as well as any Company responses to the municipal or other levels of local government regarding these comments and concerns for a period of seven year.



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