



Railway Freight Car Inspection and Safety Rules

December 9, 2014



Railway Association
of Canada

Railway Freight Car Inspection and Safety Rules

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PART I – GENERAL

1. Short Title

- 1.1 For ease of references, these Rules may be referred to as the “Freight Car Safety Rules”.

2. Scope

- 2.1 These Rules prescribe the minimum safety standards for freight cars operated by railway companies subject to the jurisdiction of Transport Canada pursuant to the *Railway Safety Act*.

3. Definitions

In these Rules,

- 3.1 “**bad order**” means a freight car that has been identified with a defect;
- 3.2 “**bad order card**” or “**home shop card**” means a railway company form that may be affixed to a freight car to indicate maintenance requirements and/or a defect identified during a safety inspection;
- 3.3 “**bad order information system**” means any method a railway company records, controls and protects the movement of a freight car with a defect;
- 3.4 “**block of cars**” means one (1) or more cars that have received a safety inspection or a pre-departure inspection as a solid coupled block for which an inspection record is available;
- 3.5 “**break**” or “**broken**” means a fracture resulting in complete separation into parts;
- 3.6 “**captive service**” means an operation where freight cars are assigned exclusively to transportation between specified points;
- 3.7 “**certified car inspector**” means a person who is trained, qualified and certified to perform safety inspections of freight cars in accordance with subsection 4.1 of these Rules;
- 3.8 “**cracked**” means fractured without complete separation into parts;
- 3.9 “**defect**” means any item that is defective on a freight car as indicated by “safety defect” of these Rules and *Railway Freight and Passenger Train Brake Inspection and Safety Rules*;
- 3.10 “**Department**” means the Department of Transport (commonly referred to as Transport Canada);
- 3.11 “**freight car**” means a car designed to carry freight on rail and includes a caboose and a service equipment car;

- 3.12 **“in service”** means all freight cars except those that are:
- (a) in “bad order” status;
 - (b) in “home shop for repair” status as outlined in subsection 4.8 of these Rules;
 - (c) in a repair shop or on a repair track; or
 - (d) on a storage track and are empty;
- 3.13 **“interchange”** means the transfer of freight cars between railway companies;
- 3.14 **“person in charge”** means a person trained, qualified and certified in accordance with subsection 6.1 of these Rules and appointed by a railway company to ensure the safe conduct of an operation or of the work of employees;
- 3.15 **“qualified person”** means a person who because of his/her knowledge, training and experience is qualified to perform a pre-departure inspection in accordance with subsection 5.1 of these Rules;
- 3.16 **“railway company”** means a railway or railway company subject to the *Railway Safety Act*;
- 3.17 **“railway safety inspector”** means a Department of Transport inspector designated pursuant to section 27 of the *Railway Safety Act*;
- 3.18 **“railway schedule”** means an electronic or paper record that indicates the type of inspection, brake test and operational activity performed by a railway and the location where the activity is performed;
- 3.19 **“safety defect”** means any item that is defective on a freight car as prescribed by Part II of these Rules and General Order No. 0-10, “*Regulations Respecting Railway Safety Appliance Standards*”, or the latest edition of AAR Safety Standard S-2044 “Safety Appliance Requirements for Freight Cars” of the Manual of Standards and Recommended Practices;
- 3.20 **“safety inspection”** means an examination of:
- (a) a stationary freight car by a certified car inspector; or
 - (b) a stationary or moving freight car, by other technology, as adopted under subsection 18.2; or
 - (c) a combination of both
- to verify that it may be moved safely in a train and to identify those safety defects prescribed in Part II of these Rules and General Order No. 0-10, “*Regulations Respecting Railway Safety Appliance Standards*”, or the latest edition of AAR Safety Standard S-2044 “Safety Appliance Requirements for Freight Cars” of the Manual of Standards and Recommended Practices;
- 3.21 **“safety inspection location”** means a location designated by a railway company where safety inspections are performed;
- 3.22 **“safety inspection record”** means a record which attests that a safety inspection was performed;

3.23 “**service equipment car**” means rolling stock used to house employees at work sites, a material car used for transporting railway maintenance-of-way equipment or for railway company purposes other than revenue service.

4. Safety Inspections

4.1 Subject to sections 20 and 21, of these Rules, a railway company shall ensure the freight cars it places or continues in service are free from all safety defects described in Part II of these Rules, and that such cars comply with General Order No. 0-10, “*Regulations Respecting Railway Safety Appliance Standards*”, or the latest edition of AAR Safety Standard S-2044 “Safety Appliance Requirements for Freight Cars” of the Manual of Standards and Recommended Practices.

4.2 Safety inspections shall be performed by certified car inspector(s) at safety inspection locations

- (a) where trains are made up;
- (b) on cars added to trains;
- (c) where cars are interchanged.

Such inspections may occur before or after a car is placed in a train at that location.

4.3 All freight cars that have previously received an inspection under subsection 5.1 of these Rules shall receive a safety inspection by a certified car inspector at the safety inspection location designated for that train by the railway company in the direction of travel.

4.4 A safety inspection is not required on blocks of cars that have previously received a safety inspection, in the direction of travel, for which the inspection status information is available.

4.5 A safety inspection is not required at an interchange point and/or when entering Canada provided there are records that indicate that a Safety Inspection, as per these Rules or an inspection by qualified mechanical personnel in the United States, was performed.

4.6 A freight car identified with a safety defect at other than a safety inspection location may be moved to another location for repair, in accordance with company procedures, including placing a loaded car for unloading when authorized by a person in charge, who shall ensure that:

- (a) the car is safe to move;
- (b) a means to protect the car’s safe movement is implemented, including identifying for the employees involved the nature of the defect(s) and the movement restrictions, if any;
- (c) an empty car shall not be loaded until repaired; and
- (d) the appropriate records will be retained for a period of ninety (90) days.

- 4.7 A car may also be moved from a safety inspection location to another location when authorized by a person in charge provided the conditions of item 4.6 (a), (b), (c), (d) are adhered to.
- 4.8 A freight car with defects shall be controlled and protected by the use of a bad order information system, and/or by the use of a bad order or home shop card.
- 4.9 A railway company shall maintain a safety inspection record for the cars it places in service at each safety inspection location. This information shall be retained for ninety (90) days and will be made available to a Railway Safety Inspector upon request.

5. Pre-Departure Inspection

- 5.1 At locations where a certified car inspector is not on duty for purposes of inspecting freight cars, a pre-departure inspection of the train or the cars added shall be performed by a qualified person, as a minimum, for those conditions listed in Appendix 1 of these Rules.
- 5.2 Pre-departure inspections shall be performed on both sides of equipment by:
 - (a) a standing inspection on both sides; or
 - (b) a standing inspection on one side and a roll by inspection, not exceeding 8.2 km. (5MPH) on the other side.
- 5.3 A pre-departure inspection under 5.1 is not required on blocks of cars:
 - (a) lifted enroute that have previously received a safety inspection in the direction of travel for which the inspection status information is received (maximum two blocks); or
 - (b) that have previously received a pre-departure inspection at that location for which inspection information is received.
- 5.4 The results of the pre-departure inspection performed by other than the lifting train crew shall be retained for a period of thirty (30) days.
- 5.5 All noted hazardous conditions shall be reported for correction in accordance with company procedures.

6. Certification and Qualification Of Employees

- 6.1 A railway company shall ensure that its certified car inspectors are trained, and qualified to perform safety inspections of freight cars in compliance with these Rules. Certified car inspectors must demonstrate to a railway company, by means of oral or written examinations and on-the-job performance, a knowledge and ability to perform safety inspections of railway freight cars.
- 6.2 A railway company shall ensure that its qualified persons are trained and qualified to perform pre-departure inspections of freight cars in compliance with these Rules.

- 6.3 A railway company shall file with the Department a full description of the training program, criteria and all amendments used for:
- (a) certifying those employees performing safety inspections in accordance with subsection 4.1 of these Rules; and
 - (b) qualifying those employees performing inspections in accordance with subsection 5.1 of these Rules.

6.4 A railway company shall maintain a record of all their certified car inspectors. This record shall be made available to a Railway Safety Inspector upon request.

6.5 Certified car inspectors shall be re-certified if they have not been performing the duties prescribed in these Rules within the past three (3) years.

7. Additional Requirements for Dangerous Goods Cars

7.1 Additional inspections of cars carrying goods subject to the *Transportation of Dangerous Goods Act*, latest revision, are required as follows:

- (a) tank cars destined for loading with a dangerous good or other cars destined for loading of explosives shall be given a safety inspection at the nearest safety inspection location in the direction of travel prior to being placed for loading;
- (b) freight cars loaded with a dangerous good shall be given an inspection by employees of the receiving railway, at the point of loading, for those conditions listed in Appendix 1 of these Rules.

8. Corrective Action Reporting

8.1 Every railway company shall respond in writing or by acceptable electronic means, within fourteen (14) days, to the Department's Regional Office concerned, on the corrective action taken to correct non-compliance reported by a Railway Safety Inspector. The railway company's response shall include the corrective action taken, the location and date, and where applicable, the car reporting mark and car number.

PART II – SAFETY DEFECTS

Part II contains those safety defects which, when present, prohibit a railway company from placing or continuing a freight car in service.

9. Wheels

9.1 A railway company shall not place or continue a car in service if:

- (a) a wheel rim, flange, plate or hub area has a crack or break. Heat checks or chips in a wheel rim are not considered to be cracks or breaks;
- (b) a wheel has a chip or gouge in the flange more than 1 ½ inches (38.10 mm) in length and ½ inch (12.70 mm) in width;
- (c) a wheel has a shelled spot that is more than 1 ¼ inch (31.75 mm) in width and 1 ½ inches (38.10 mm) in length;
- (d) a wheel has a slid flat spot that is more than 2 ½ inches (63.50 mm) in length or two adjoining flat spots each of which is more than 2 inches (50.80 mm);
- (e) a wheel shows evidence of being loose;
- (f) a wheel flange is worn to a thickness of 7/8 inches (22.22 mm) or less at a point 3/8 inches (9.52 mm) above the tread of the wheel;
- (g) the height of a wheel flange from the tread to the top of the flange is more than 1 ½ inches (38.10 mm);
- (h) the thickness of a wheel rim is 11/16 inches (17.4 mm) or less;
- (i) a straight plate wheel has:
 - i. a blue or reddish brown discoloration on the front and back face of the plate that extends more than four inches (101.60 mm) into the plate;
 - ii. a combination of heat discoloration on the rim and plate with a rim thickness of 1 ¼ inches (31.75 mm) or less;
 - iii. any visible tread defects with a rim thickness of 1 ¼ inches (31.75 mm) or less; or
 - iv. 1 inch (25.40 mm) or less of rim thickness); or
- (j) a wheel is the wrong size.

10. Axles

10.1 A railway company shall not place or continue a car in service if:

- (a) an axle has a crack or is bent or broken;
- (b) a journal shows evidence of overheating;
- (c) a plain bearing axle has:
 - i. a cracked or broken end collar; or
 - ii. a groove, pitting, rusting or etching on the surface of the journal;
- (d) an axle is the wrong size.

11. Roller Bearings And Adaptors

- 11.1 A railway company shall not place or continue a car in service if:
- (a) a roller bearing shows signs of having been overheated;
 - (b) a roller bearing has damaged external parts that are visibly cracked, broken or bent;
 - (c) a freight car involved in a derailment has not had its bearings inspected according to the procedures outlined in the latest edition of the Field Manual of the AAR Interchange Rules;
 - (d) a roller bearing has:
 - i. missing or loose cap screw;
 - ii. a broken, missing or improperly applied locking plate; or
 - iii. a backing ring that is loose or damaged when car is on a repair track;
 - (e) a roller bearing is the wrong size; or
 - (f) a roller bearing is losing grease to the extent that fresh grease is spread across the truck side frame and the seal is loose, cocked or damaged.
- 11.2 A railway company shall not place or continue a car in service if a roller bearing adapter is missing, cracked, broken, out of place or the wrong size.

12. Plain Bearings

- 12.1 A railway company shall not place or continue a car in service if:
- (a) a journal bearing lubrication system has any of the following conditions:
 - i. a journal bearing box has no visible free oil;
 - ii. a journal bearing box contains foreign matter that can damage the bearing or affect the lubrication of the journal and the bearing;
 - iii. a journal bearing box lid is missing;
 - iv. a lubricating pad is missing, not in contact with the journal or the wrong size;
 - v. a lubricating pad is scorched, burnt or glazed;
 - vi. a lubricating pad contains fabric in such a condition that it impairs proper lubrication of the pad; or
 - vii. A lubricating pad has metal parts contacting the journal;
 - (b) a journal bearing:
 - i. is missing, broken, out of place or wrong size;
 - ii. has a crack in the back or lug portion;
 - iii. on which the lining is loose, has a piece broken off; or
 - iv. is overheated, as evidenced by melted lining; or
 - (c) a journal wedge is missing, broken, out of place, or the wrong size.

13. Trucks

13.1 A railway company shall not place or continue a car in service if:

- (a) a side frame or bolster:
 - i. is broken;
 - ii. has a crack of $\frac{1}{4}$ inch (6.3 mm) or more in the transverse direction of a tension member, except that shrinkage cracks or hot tears that do not significantly reduce the strength of the bolster or side frame shall not be considered cracked;
- (b) a truck is equipped with an ineffective damping mechanism as indicated by:
 - i. a side frame column wear plate missing (except by design), or broken to the extent that it no longer performs its design function;
 - ii. a broken or missing activating side spring;
 - iii. truck springs that show evidence of not maintaining travel or load;
 - iv. hydraulic snubbers with an accumulation of wet fluid and fluid is not visible in the sight glass if so equipped;
 - v. truck springs compressed solid;
 - vi. truck springs on which more than one of the outer springs in any spring cluster are broken, out of place or missing; or
 - vii. a friction wedge is missing, broken to the extent that it becomes non functional or worn beyond the wear indicator.
- (c) the truck side bearings:
 - i. have part of the assembly missing, out of place or broken;
 - ii. are in contact with the body side bearing on both sides at one end of the car, unless intended by design;
 - iii. while on level track, are in contact with the body side bearings at diagonally opposite sides of the car, unless intended by design;
 - iv. at one end of the car have a total clearance from the body side bearing of more than $\frac{3}{4}$ inches (19.05 mm); or
 - v. at diagonally opposite sides of the car, have a total clearance from the body side bearing of more than $\frac{3}{4}$ inches (19.05 mm); or
 - vi. when more than one constant contact side bearing is not making contact.
- (d) there is interference between the truck bolster and the centre plate, or the body bolster and the truck side frame, which prevents proper truck rotation;
- (e) a brake beam support is worn to the extent that it does not support the brake beam; or
- (f) a truck is designed with a spring plank, but the spring plank is missing, broken, bent to the extent that it no longer performs its design function or incorrectly installed.

14. Car Bodies

14.1 A railway company shall not place or continue a car in service if:

- (a) any portion of the freight car body, truck or their appurtenances (except wheels) has less than 2 ½ inches (63.50 mm) clearance from the top of the rail;
- (b) the car centre sill or stub sill is:
 - i. broken;
 - ii. cracked more than 6 inches (152.40 mm); or
 - iii. permanently bent or buckled more than 2 ½ inches (63.50 mm) in any 6 foot (1.83 m) length;
- (c) the car has a stub sill attachment with a crack greater than 6 inches;
- (d) the tank car stub sill:
 - i. is broken
 - ii. has any crack in the parent metal;
 - iii. has a transverse weld that is cracked more than 3 inches (76.2 mm) or is missing;
 - iv. has a longitudinal weld that is cracked more than 6 inches (152.40 mm) or is missing; or
 - v. has a weld that is cracked or missing, where the total length cannot be measured;
 - vi. is bulged; more than 1 1/2 inch in any 3 foot length.
- (e) the car has a side sill cracked more than 6 inches (152.40 mm) when the car is not equipped with a full centre sill;
- (f) the car has a broken cross bearer or body bolster;
- (g) the car has a coupler carrier that is:
 - i. broken;
 - ii. missing; or
 - iii. non-resilient, and the coupler has a type F head;
- (h) the car body has been improperly positioned on the truck;
- (i) it has a centre plate that:
 - i. is improperly secured, with more than 25% of the fasteners missing and/or the centre plate observed to have moved;
 - ii. is broken; or
 - iii. has two or more cracks through its cross section thickness at the edge of the plate extending into the portion of the plate that is obstructed from view while the truck is in place;
- (j) it is a box car which has:
 - i. more than one door stop missing or broken per door;
 - ii. safety hangers missing or inoperative on sliding or plug doors so equipped;
 - iii. a sliding or plug type doors off the rails;
 - iv. a plug type door not closed;
 - v. a plug type door with not less than 60% of the locks fully engaged; or
 - vi. door rail supports cracked or broken to the extent that they do not perform their design function;
- (k) it is a hopper car which has a bottom gate off the track or unsecured such that it could fall off;
- (l) it is a loaded car with lading restraining devices worn or damaged to the extent that those devices will not restrain the load;
- (m) an object extends from the side of a car body except by design;

- (n) a car is not loaded in accordance with the prevailing "AAR General Rules Governing the Loading of Commodities on Open Top Cars", or a circular of the Railway Association of Canada; or
- (o) the car has any object which is not secured and could fall off.

15. Couplers and Drawbars

- 15.1 A railway company shall not place or continue a car in service if:
- (a) the car is equipped with a coupler shank that is bent out of alignment to the extent that the coupler will not couple automatically;
 - (b) the car has a coupler knuckle that is broken or cracked on the inside pulling face of the knuckle, except that shrinkage cracks or hot tears that do not significantly reduce the strength of the knuckle shall not be considered cracked;
 - (c) the car has a knuckle pin that is missing or broken;
 - (d) the car has a thrower that is inoperative;
 - (e) the car has a coupler retaining pin lock that is missing or broken;
 - (f) the car has a coupler with an inoperative lock lift or a coupler assembly that does not have anti-creep protection to prevent unintentional unlocking of the coupler lock;
 - (g) the coupler lock is missing, inoperative, bent, cracked or broken;
 - (h) the car has a coupler that has a crack as identified in the latest edition of the Field Manual of AAR Interchange Rules , except that shrinkage cracks or hot tears that do not significantly reduce the strength of the coupler shall not be considered cracked;
 - (i) the coupler heights between two adjacent freight cars vary in excess of 4 inches (101.6 mm);
 - (j) it is equipped with a solid drawbar:
 - i. that is cracked more than 2 inches or;
 - ii. that has a missing pocket casting support or;
 - iii. that has a missing or broken primary pin.
 - (k) it is equipped with an articulated car connector:
 - i. attachment weld cracked greater than 4";
 - ii. casting crack greater than 2";
 - iii. primary pin tipped, broken or not properly seated;
 - iv. retaining pin broken, missing or not engaging primary pin;
 - v. retaining pin securement missing; or
 - vi. wedge retaining bolts broken or missing.

16. Draft Arrangements

- 16.1 A railway company shall not place or continue a car in service if:
- (a) the car has a draft gear that is inoperative;
 - (b) the car has a broken yoke;
 - (c) a vertical coupler pin retainer plate:
 - i. is missing (unless intended by design); or
 - ii. has more than 25% of the fasteners either loose or missing;
 - (d) the car has a draft key or draft key retainer that is:
 - i. inoperative;
 - ii. missing; or
 - iii. broken;
 - (e) the car has a follower plate missing or broken to the extent that it no longer performs its design function;
 - (f) the draft gear carrier plate is missing or has more than 25% of the fasteners loose or missing;
 - (g) a draft stop is missing or broken to the extent that it no longer performs its design function; or
 - (h) a car cushioning unit is broken, inoperative, or missing a part, except where its sliding parts have been effectively immobilized.

PART III – OTHER REQUIREMENTS

17. Design

- 17.1 Every new freight car shall be designed and constructed in accordance with the “Association of American Railroads Manual of Standards and Recommended Practices”, or to an equivalent standard to provide for safe operation.
- 17.2 Every new freight car built after January 1, 2015 shall be designed and constructed with safety appliances in compliance with the latest edition of AAR Safety Standard S-2044 “Safety Appliance Requirements for Freight Cars” of the Manual of Standards and Recommended Practices. Cars built prior to January 1, 2015 shall be designed and constructed with safety appliances in compliance with General Order No. 0-10, “*Regulations Respecting Railway Safety Appliance Standards*”.

18. Technology

- 18.1 A railway company may operate freight cars with advanced technological improvements provided that the testing and operating procedures have been filed with the Department, sixty (60) days, prior to testing or placing in service and the results of the railways risk assessment is provided with the submission.
- 18.2 If a railway company wishes to use alternate methods in place of specific requirements in this rule, to perform all or part of safety inspection and or a pre-departure inspection, it shall engage in early consultation with Transport Canada to review the new methods being contemplated. The railway company will file an alternative practice with the department. Such filing must demonstrate that it meets or exceeds the equivalent level of safety to the rule and include a risk assessment as well as evidence of consultation with relevant associations or organizations. Filings must be made at least 60 days prior to implementation.

19. Filing Requirements

- 19.1 A railway company shall file with the Department:
- (a) training procedures and amendments as outlined in subsection 6.3 of these Rules;
 - (b) safety inspection locations as outlined in subsection 4.2 of these Rules. The railway company shall file any changes to the list of safety inspection locations to the Department sixty (60) days prior to implementing such changes;
 - (c) railway schedules to comply with the requirements of subsection 4.2 and 5.1, of these Rules. Any changes to the railway schedules shall be filed by the railway company with the Department within thirty (30) days of implementation;
 - (d) advanced technological improvements as outlined in section 18, of these Rules;
 - (e) captive service operations as outlined in subsection 21.2(b) of these Rules.

20. Exclusions

20.1 These Rules do not apply to the following:

- (a) freight cars operated solely on a track inside an industrial or other non-railway installation;
- (b) cars that are destined for:
 - i. export to another country; or
 - ii. use inside an industrial or other non-railway installation; provided that the railway ensures safe movement of the cars.

21. Exceptions

21.1 Except for Part II of these Rules and General Order No. 0-10, "*Regulations Respecting Railway Safety Appliance Standards*", or the latest edition of AAR Safety Standard S-2044 "Safety Appliance Requirements for Freight Cars" of the Manual of Standards and Recommended Practices, these Rules do not apply to railway company service equipment cars, including those that are self-propelled, where not moving as part of a revenue train, provided "RSE" (railway service equipment) is stenciled or otherwise displayed on each side of each car in clearly legible letters.

21.2 Subsection 4.2 of these Rules does not apply to freight cars used exclusively in captive service if a railway company:

- (a) establishes appropriate safety inspection criteria and restrictions for freight cars used exclusively in captive service; and
- (b) files railway schedules with the Department that specify the locations of captive service, the round trip mileage, the type of equipment operated, along with the applicable inspection criteria and any restrictions imposed on operation of such equipment, 60 days prior to operation.

APPENDIX 1

22. Pre-Departure Inspection

Freight cars shall, as a minimum, be inspected for these hazardous conditions:

1. car body related hazards:
 - (a) car body leaning or listing to the side;
 - (b) car body sagging downward;
 - (c) car body positioned improperly on the truck;
 - (d) object dragging below the car body;
 - (e) object extending from the side of the car body;
 - (f) door insecurely attached;
 - (g) broken or missing safety appliance; and
 - (h) lading leaking from a placarded dangerous goods car;
2. overheated wheel;
3. broken or cracked wheel;
4. hand brake that failed to release; and
5. any other apparent safety hazard likely to cause an accident or casualty before the train arrives at its destination.



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