Railway Passenger Car Inspection and Safety Rules

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PART I - GENERAL

1. **Short Title**

1.1 For ease of reference, these rules may be referred to as the "Passenger Car Safety Rules".

2. **Scope**

2.1 These rules prescribe the minimum safety standards for passenger cars operated by railway companies in trains at speeds not exceeding 125 mph (200 km/h) subject to the jurisdiction of the Railway Safety Act as administered by the Department of Transport.

3. **Definitions**

In these Rules:

3.1 "bad order information system" means any method, computerized or otherwise, by which a railway company can control and protect the movement of a car with defects;

3.2 "bent" means a component, item or part of a passenger car which is altered to the extent that it no longer performs its design function, and creates a hazard because of its condition;

3.3 "break" means a fracture resulting in complete separation into parts. The term "break" and "broken" are used interchangeably in these rules;

3.4 "certificate" means a wallet size card which identifies the employee and the task(s) for which such employee is qualified;

3.5 "certified car inspector" means a person who is trained and qualified to perform safety inspections of passenger cars pursuant to subsection 6.1;

3.6 "cracked" means fractured without complete separation into parts;

3.7 “Department” means the Department of Transport;

3.8 "g" means a unit of force equal to the force exerted by gravity on a body at rest and used to indicate the force to which a body is subjected when accelerated;

3.9 "in service" means all passenger cars except those which are:

a) "bad order" or "home shop for repairs";
b) in a repair shop or on a repair track; or
c) on a storage track.

3.10 “new equipment” means equipment ordered after April 1, 2001;

3.11 "layover" means a situation where a train is temporarily positioned for eight (8) hours or more;
3.12 "passenger car" means a railway vehicle intended to provide transportation of passengers and baggage in either commuter or intercity service, which includes cab cars and a DMU (Diesel Multiple Unit);

3.13 "person in charge" means a person certified in accordance with subsection 6.1, appointed by a railway company to ensure the safe conduct of an operation or of the work of employees;

3.14 “personal wheelchair” means a passenger-owned wheelchair that requires a minimum clear floor area of 29.5 inches (750 mm) by 47.2 inches (1200 mm) to accommodate the wheelchair and its occupant and a minimum clear turning space of 59 inches (1500 mm) in diameter;

3.15 "qualified person" means, in respect of a specified duty, a person who, because of his/her knowledge, training and experience is qualified to perform that duty safely and properly;

3.16 "railway company" means a railway company subject to these rules;

3.17 "railway safety inspector" means an inspector appointed by the Department pursuant to Section 27 of the Railway Safety Act;

3.18 "remanufactured" means a car or system that has undergone rebuilding or modification sufficient to enable the provision of an additional life cycle expected to be similar to that attainable by a new passenger car or system;

3.19 "safety defect" means any item or component that is defective on a passenger car, as prescribed by Part II of these Rules and General Order No. O-10, "Regulations Respecting Railway Safety Appliance Standards";

3.20 "safety inspection" means an examination of a passenger car for safety defects while stationary by a certified car inspector or a person in charge as defined herein, to verify that it may be moved safely in a train, and to identify those defects listed in Part II of these Rules and that such passenger cars comply with General Order No. O-10, "Regulations Respecting Railway Safety Appliance Standards" which may inhibit such movement and require correction. Safety inspections are intended to be visual in nature;

3.21 "safety inspection location" means a location designated by a railway company where certified car inspectors perform safety inspections;

3.22 "safety inspection record" means a record in hard copy form or otherwise including a computer record which attests that a safety inspection as defined herein was performed;

3.23 “wheelchair tie-down” means a space with restraints to accommodate an occupied personal wheelchair.
4. Safety Inspections

4.1 A railway company shall ensure the passenger cars it places or continues in service are free from all safety defects described in Part II of these Rules and in General Order No.O-10 “Regulations Respecting Railway Safety Appliance Standards”.

4.2 Safety inspections shall be performed on passenger cars where trains are made up, where trains lay-over, and on passenger cars before or after they are added to trains or interchanged, as per Section 7.

4.3 Where a safety inspection performed in accordance with subsection 4.2 reveals a safety defect on a car:

   a) the car may be moved to another location for repair provided:
      i. a person in charge determines that it is safe to move the car and identifies to employees involved the nature of the defects and the movement restrictions, if any; and
      ii. the movement is controlled by the use of a bad order information system; and
   b) the appropriate records shall be retained for 60 days.

4.4 A railway company shall maintain a safety inspection record for the passenger cars it places in service at each safety inspection location. This information shall be retained for 60 days and made available to the Department upon request.

5. Pre-Departure Inspection

5.1 As per subsection 7.2, where there are no certified car inspectors on duty to perform the inspection required by subsection 4.2, a pre-departure inspection of the train or the cars shall be performed by a qualified person to detect hazardous conditions indicated by the following:

   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) side door does not open or close, a double door that does not have at least one section that opens and closes, and end door does not open;
   g) broken or missing safety appliance;
   h) insecure coupling;
   i) overheated wheel or journal;
   j) broken or cracked wheel;
   k) brake that fails to release; or
   l) any other apparent condition likely to cause accident or casualty before the train arrives at its destination.
5.2 When a pre-departure inspection reveals a hazardous condition that may affect safe operation, the qualified person in charge of the train shall take the appropriate action to eliminate potential danger by:

a) correcting the condition;
b) reducing the speed of the train;
c) removing the defective car from the train; or
d) taking such other action as is necessary to ensure the continued safe operation.

6. Qualification of Car Inspectors

6.1 A railway company shall ensure that car inspectors are trained and qualified to perform safety inspections of passenger cars in compliance with these Rules. Car inspectors must demonstrate to a railway company by means of oral or written examinations and on-the-job performance, a knowledge and ability concerning safety inspection of railway passenger cars. Car inspectors shall be issued a certificate attesting to the employee's qualifications.

6.2 A railway company shall file with the Department a full description of the training program and criteria used for:

a) certifying car inspectors; and
b) qualifying those employees performing inspections in accordance with subsection 7.2.

6.3 A railway company shall maintain a record of all employees who have qualified as certified car inspectors. This record shall be made available to a railway safety inspector upon request.

6.4 The certificate attesting to the employee's qualifications shall be made available to a railway safety inspector upon request.

7. Safety Inspection Locations

7.1 Safety inspections shall be performed at locations where trains are made up, where trains lay-over, or where cars are added to trains, or when interchanged. Such inspections may occur before or after a car is placed in a train at that location.

7.2 At locations where a certified car inspector is not on duty for purposes of inspecting passenger 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 subsection 5.1. Thereafter, a safety inspection will be performed by a certified car inspector at the first safety inspection location designated for that train by the railway company in the direction of travel.
8. Railway Reporting Responsibility

8.1 Every railway company shall reply in writing or by acceptable electronic means, within 14 days, to the Department's regional office concerned, on the corrective action taken to correct a violation/defect reported by a railway safety inspector. The reply, from an appropriate railway officer, shall also include the passenger car initials and number and the date and location of the corrective action taken.
PART II - SAFETY DEFECTS

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

9. Wheels

9.1 A railway company may 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 more than 1-1/2 inches (38.1 mm) in length and 1/2 inch (12.7 mm) in width;
c) a wheel has a shelled spot that is more than 1-1/4 inches (31.8 mm) in width and 1-1/4 inches (31.8 mm) in length;
d) a wheel has a slid flat that is more than 2 inches (50.8 mm) in length;
e) a wheel shows evidence of being loose;
f) a wheel flange is worn to a thickness of 7/8 inches (22.2 mm) or less at a point 3/8 inches (9.5 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 1-1/2 inches (38.1 mm);
h) the thickness of a wheel rim is 7/8 inches (22.2 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 4 inches (101.6 mm) into the plate;
   ii. a combination of heat discoloration on the rim and plate with a rim thickness of 1-1/4 inches (31.8 mm) or less;
   iii. any visible tread defects with a rim thickness of 1-1/4 inches (31.8 mm) or less; or
   iv. 1 inch (25.4 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 or axle shows evidence of overheating or welding; or
c) an axle is the wrong size.

11. Roller Bearings
11.1 A railway company may not place or continue a car in service if:

a) an axle shows signs of having been overheated;

b) a roller bearing has damaged external parts that are visibly cracked, broken or bent;

c) a passenger car involved in a derailment has not had its bearings inspected according to the procedures outlined in the “Association of American Railroads Field Manual” (AAR) Rule 36;

d) a roller bearing has:
   i. a missing, broken, or loose cap screw, or improperly applied end cap;
   ii. a broken, missing or improperly applied locking plate;
   iii. a backing ring that is loose or damaged;

e) a roller bearing is the wrong size or has been submerged; or

f) a roller bearing is losing grease to the extent that fresh grease is spread across the truck side frame.

12. Trucks

12.1 A railway company may not place or continue a car in service if:

a) a side frame or bolster:
   i. is broken;
   ii. has a crack of 1/4 inch (6.4 mm) or more in the transverse direction on a tension member. Shrinkage cracks or hot tears that do not significantly reduce the strength of the bolster or side frame shall not be considered cracked;
   iv. has a broken or cracked pedestal; or
   v. has a missing or broken pedestal tie strap or retainer key.

b) the car has a truck with:
   i. a truck equalizer broken or missing;
   ii. more than one coil spring broken or missing in any spring cluster;
   iii. interference between the truck bolster and the centre plate that prevents free truck rotation;
   iv. a brake beam hanger cracked, broken or missing;
   v. any crack in an equalizer bar;
   vi. any crack in a swing hanger, and/or a missing locking pin;
   vii. any missing suspension and/or attachment pins for brake rigging; or
   viii. a primary, vertical, lateral and rotational damper missing and/or not secured properly.

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 diametric opposite sides of the car, unless intended by design;
   iv. at one end of the car have a total clearance from the body bolster of more than 3/4 inches (19 mm); or
   v. at diametrically opposite sides of the car, have a total clearance from the body bolsters of more than 3/4 inches (19 mm).
13. **Car Bodies**

13.1 A railway company may not place or continue in service a passenger car where:

- a) the car structure or shell is all wood or a combination of wood and steel (this does not apply to ply metal interior finishing or plywood sub-flooring);
- b) any portion of the car body, under-car equipment, trucks, excepting wheels or their appurtenances has less than a 2 1/2 inch (63.5 mm) clearance from the top of rail when fully loaded including passengers and baggage;
- c) any attachments for under-car equipment are loose, broken or missing;
- d) propane cylinders are not properly secured in their cabinet;
- e) the car centre sill is:
  - i. broken;
  - ii. cracked more that 6 inches (152.4 mm); or
  - iii. permanently bent or buckled more than 2-1/2 inches (63.5 mm) in any 6 foot (1.8 m) length;
- f) a side sill is cracked more than 6 inches (152.4 mm) when the car is not equipped with a full centre sill;
- g) the car has a broken, cross bearer or body bolster;
- h) the car body has been improperly positioned on the truck;
- i) the car 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; or
- j) a car side door does not open or close, a double door does not have at least one section that opens and closes, and end door that does not open;
- k) cable and jumper connections between cars have:
  - i. broken or badly chafed insulation;
  - ii. broken plugs, receptacles, receptacle covers or terminals; or
  - iii. broken or protruding strands of wire.

14. **COUPLERS**
14.1 A railway company may not place or continue in service a passenger car where:

   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. 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 or thrower that is missing or inoperative;
   d) the car has a coupler retaining pin lock that is missing or broken;
   e) the car has a coupler with an inoperative lock lift or a coupler assembly that does not have a safety pin and anti-creep protection to prevent unintentional unlocking of the coupler lock;
   f) the coupler lock is missing, inoperative, bent, cracked or broken; or
   g) the car has a coupler that has a crack in the area of the shank and head. Shrinkage cracks or hot tears that do not significantly reduce the strength of the coupler shall not be considered cracked.

15. **Draft Arrangements**

15.1 A railway company may 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; 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; or
      ii. missing.
   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) an end of car cushioning unit is broken, inoperative, or missing a part.
PART III - SAFETY DESIGN

16. General

16.1 Every passenger car that operates over public highway crossings and utilizes the same trackage as freight trains 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 and for the protection of passengers, operating crews, and property from accidents caused by failure of car equipment.

Unless otherwise specified in these rules, new equipment ordered after April 1, 2001 shall be designed and constructed in accordance with the Safety Standards of the latest revision in effect at the time of order of the “American Public Transit Association (APTA) Manual of Standards And Recommended Practices For Passenger Rail Equipment”, or equivalent standard.

16.2 The design of the passenger car shall incorporate appropriate safety features such as protective cages for rotating equipment, safety securement for food carts, for ceiling and other hinged panels, anti-skid decking and fail safe interlocks for all electrical equipment.

16.3 The design of the passenger car shall provide safe and operationally functional inter-car connections, including diaphragms, side curtains, walkway plates, tail-end safety bar or gate, lighting and handholds.

17. Application

17.1 Strength and loading design criteria shall apply to all new or remanufactured passenger car systems, and be filed with the Department in accordance with subsection 32.2.

18. Jumpers and Cable Connections

18.1 Jumpers and cable connections between cars shall be located to provide sufficient vertical clearance and shall not hang with end free.

19. Fail Safe Design of Circuits and Systems

19.1 Any component of electrical or mechanical systems shall not, in the case of operating or function failure, cause or create unsafe conditions for the car occupants.

19.2 Control failure of powered side access doors and steps shall not result in a door or step opening, or remaining open, while the car is in motion.

19.3 Powered doors and steps shall have provision for manual operation in the event of a system failure.

19.4 The design of the car banking system shall ensure that, in the event of a system failure, the car body remains within the railway operating clearance limits.
19.5 In the case of failure, the control circuit of the defective bearing sensing system, where provided, shall operate on emergency power.

20. Side and End Windows and Door Glazing

20.1 Every passenger car side and end window installation shall be capable of effectively resisting external and internal air pressure differentials caused by passing trains, tunnels, or other track side structures.

20.2 Every passenger car shall have at least two accessible emergency exit windows installed on each side of the car, located near each end of the car, for a total of four emergency exit windows. This shall apply to each level of a bi-level car. Bi-level cars that incorporate a three levels design shall have a minimum of one window per side in each of the intermediate levels. Each window shall have a minimum unobstructed clear opening of 18 inches by 24 inches, in any direction. On new equipment each window shall have a minimum unobstructed opening of 26 inches horizontally by 24 inches vertically.

Cars with partial dome levels (not fully bi-level) shall have at least one emergency window, in the dome level. New Equipment with partial dome levels shall have at least two emergency windows on each end of the dome level.

20.3 Emergency windows shall be fabricated of:

a) double glazed toughened or tempered safety glass;
b) safety glass supported within a push-out frame; or
c) double glazed composite window with emergency exit provision.

20.4 Every passenger car side window not intended as an emergency exit window shall be a double glazed window with the inner pane of laminated safety glass or of equal quality.

20.5 Every passenger car where a breakable emergency exit window is located, a readily accessible tool appropriate to break the glass shall be provided and a pictograph to indicate the intended use of the tool.

20.6 Every passenger car emergency exit window shall have clear, visible instructions permanently affixed to the closest, suitable location which will illustrate the emergency exit features of the window.

20.7 Every passenger car intended to transport passengers shall have a pictograph type decal prominently displayed at each end of the car in close proximity to the entrance doorways, illustrating:

a) the location of every emergency exit, inside and outside of the car; and
b) the location of all emergency tools and equipment inside of the car.

20.8 Every new or remanufactured passenger car and/or replacement decals on existing equipment shall be equipped with pictograph type decals that glow in the dark.
21. Emergency Tools and Equipment

21.1 Emergency tools and equipment cabinets, readily visible and accessible, shall be provided in each car.

21.2 Tool cabinets shall be suitably enclosed, entirely recessed and shall be readily accessible by either passengers or crew without the use of tools.

21.3 Procedures for removal of the glazing in case of emergency shall be indicated by pictographs mounted in conspicuous and clearly visible locations.

21.4 The emergency tools and equipment will include:

   a) fire extinguishers that meet the requirement of Part XIII, of the “On-Board Trains Occupational Safety and Health Regulations”, one of which shall be located in the galley area;
   b) wrecking tools suitable to the car’s fabrication.

21.5 First aid supplies and equipment will consist of the following:

   a) every passenger train consisting of five passenger cars or less shall be equipped with a stretcher and a trauma kit. A train consisting of more than five passenger cars shall be equipped with two stretchers and two trauma kits, one at each end of the passenger car consist. The trauma kits shall contain twice the first aid supplies prescribed in Part XII of the “On-Board Trains Occupational Safety and Health Regulations” and shall include four flashlights, one armband, five pairs of latex gloves, and five pocket masks, one way valve resuscitation mouth to mouth protectors, and one megaphone;
   b) every passenger car shall be equipped with first aid supplies that meet the requirements of Part XII of the “On-Board Trains Occupational Safety and Health Regulations”; and
   c) the first aid supplies and equipment shall be available and accessible to train and emergency crews.

22. Emergency Brake Valve

22.1 Every passenger car shall be provided with a device at each end of the car or other accessible location on the car, which when activated shall cause an emergency application of the brakes throughout the train from any time or stage of brake application and release.

23. Defective Wheel Bearing Sensing

23.1 An overheated bearing detector and alarm system, or other appropriate method of heat detection, shall be provided for each inboard mounted bearing.

24. Interior Finish

24.1 The structures, furnishings and other components located in the interior of a passenger car shall be free of any sharp projections, corners or rough finishes detrimental to the safety of persons within the interior of the car.
25. **Equipment Attachment**

25.1 Fasteners used to secure interior structures, components, or equipment to the car body shall be vibration-resistant.

25.2 Under car equipment components weighing more than 100 pounds (45.4 kg) shall be mounted on supports integrated with the car structure and in such a manner that its weight shall rest on the car supports before being secured by vibration resistant fasteners.

25.3 Where car design restricts compliance to subsection 25.2, a suitable safety device shall be installed to protect against failure of fasteners.

25.4 Securement of fixed passenger seating shall be designed to withstand a 5-g longitudinal, a 3-g lateral and vertical forces, with one 185 pounds (83.8 kg) passenger in each seat, without failure of seat attachments.

26. **Emergency Lighting**

26.1 Every passenger car shall be equipped with automatic battery supplied emergency lighting of sufficient capacity to enable quick evacuation, by providing a minimum of lighting in vestibule areas, at end doors, in the galley, washrooms and isle ways as provided for in Part III of the “On Board Trains Occupational Safety and Health Regulations”.

27. **Parcel And Luggage Racks**

27.1 Overhead parcel and luggage racks on new or remanufactured cars shall be of the enclosed type or equipped with restraints.

27.2 Heavy luggage storage shall be provided with adequate restraints, and attachments of racks to the floor shall conform to the requirements defined in subsection 25.4 when fully loaded with luggage.

28. **Toilets**

28.1 Toilets where provided on new or remanufactured cars shall be the full retention type.

29. **Passenger Car Accessibility for Persons with Disabilities**

29.1 Every passenger car that can accommodate a wheelchair shall be identified by the international symbol of access placed on the outside of both sides of the car by the entrance.

29.2 A passenger train with only one wheelchair tie-down should have priority storage space on the train for the personal wheelchair of a person who transfers to a passenger seat.

29.3 A passenger car with a wheelchair tie-down should have doorways that are wide enough to permit a person in a personal wheelchair to access the tie-down.
29.4 The location of the wheelchair tie-down should permit easy access to the wheelchair-accessible doorways and washroom.
PART IV - EXCLUSIONS AND EXCEPTIONS TO THE APPLICATION OF THESE RULES

30. Exclusions

30.1 These rules do not apply to cars, which are destined for:
   a) export to another country; or
   b) use inside an industrial or other non railway installation, provided that the railway ensures safe movement of the cars.

31. Exceptions

31.1 These Rules do not apply to passenger cars used exclusively in tourist excursion train service that travels no further than a round trip of 150 miles (240 km) at a speed not exceeding a maximum of 25 mph (40 km/h) if the company uses these rules as a guide and consults with the Department to:

   a) establish appropriate inspection, safety criteria and speed restrictions for passenger cars used exclusively in tourist excursion trains; and
   b) files railway schedules with the Department that specify the locations of the service, the round trip mileage, the type of equipment operated, along with the applicable inspection, safety criteria, and any other restrictions imposed on the operation of such equipment, 90 days prior to operation.
PART V - FILING REQUIREMENTS WITH THE DEPARTMENT

32. Filing Requirements

32.1 A railway company shall file with the Department a list of its safety inspection locations and railway schedules, to comply with the requirements of subsections 7.1 and 7.2. Any changes to the list of safety inspection locations shall be filed by the railway company with the Department 60 days prior to implementing such changes.

32.2 A railway company shall file with the Department safety guidelines and procedures, as amended from time to time, that it plans to use concerning existing equipment or the planned introduction of new equipment such as:

a) automatic side doors with retractable steps;
b) vestibule and car end doors;
c) special requirements concerning the handling of a person with disabilities dependent upon a wheelchair;
d) strength and loading requirements for un-powered and powered cars;
e) finishing materials used in the interior construction or furnishings of a passenger car;
f) method of testing smoke emission for combustible material;
g) method of testing for toxic gas emission levels;
h) flammability - wire and cable rating;
i) the minimum level of light for the interior of each car;
j) method of testing window and door safety glazing; and
k) identification and maintenance of oxygen kits.

32.3 A railway company shall file with the Department an annual report, or as otherwise requested from a railway safety inspector, information concerning passenger cars set off from a train en route because of equipment failures identified by equipment fault detection devices located along a railway system.

32.4 A railway company may operate passenger trains with advanced technology/operational improvements provided that the testing and operating procedures have been filed with the Department 30 days prior to testing and placing in service.