testing of air reservoirs regulations
292/69 [Authority Repealed]

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TESTING OF AIR RESERVOIRS REGULATIONS 292/69 [Authority Repealed]
B.C. Reg. 292/69
[deposited 1969]

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[Provisions of the , R.S.B.C. 1996, c. 395, relevant to the enactment of these regulations: section 271]

Whereas the Railway Transport Committee of the Canadian Transport Commission did issue and approve, under General Orders R-6562 and R-6563, dated August 22, 1969, regulations respecting the testing of air reservoirs on railways and on rolling stock, and motive power other than steam;
And whereas, in the interests of uniformity, that the aforementioned regulations be adopted for use on railways operating within the jurisdiction of the Railway Act of the Province of British Columbia;
Approval is given to the adoption of the aforesaid regulations, copy of which is attached hereto, for use on Provincial railways, subject to the following provisions:

(1) That where the word "Commission" is used, it shall be taken to mean the Ministry of Transportation and Highways, and where the title "Director of Operations of the Railway Transport Committee of the Canadian Transport Commission" is used, it shall be taken to mean the chief engineer of the Ministry of Transportation and Highways.

(2) Under section 5 (Identification) of Order No. R-6562, the serial number and authorized working pressure shall be established by the chief engineer of the Ministry of Transportation and Highways and the chief mechanical officer of the railway company shall be notified accordingly in writing.

(3) Notwithstanding the requirements of drilling air reservoirs and hydrostatic testing of air reservoirs by the railway company, an inspecting engineer from the Ministry of Transportation and Highways may, at any time, require a hydrostatic test be applied in his
presence to prove the soundness and strength of any pressure vessel.

(4) Section 129 (4) and section 161 (4) of Part III, Locomotives Regulations (B.C. Reg. 454/59) shall not apply where air reservoirs have been drilled in accordance with the requirements of the Railway Transport Committee of the Canadian Transport Commission's General Orders R-6562 and R-6563, hereby adopted.
Regulations Respecting the Inspection and Testing of Air Reservoirs Other Than on Motive Power Equipment

Application

1. The regulations made herein for the inspection and testing of all air reservoirs, other than on motive power equipment, used for stationary or portable purposes, inclusive of reservoirs in excess of 5 cubic foot capacity for all types of work equipment, are prescribed and apply to all railway companies subject to the jurisdiction of the Commission.

Responsibility for safe design, construction, inspection and repair

2. (1) Railway companies are responsible for the safe design, construction, maintenance, inspection, testing and repair of air reservoirs other than on motive power equipment, and all inspections and tests shall be made and reports filed as prescribed in these regulations.

(2) Maintenance regulations — The chief mechanical officer of the railway company shall prepare and distribute suitable air reservoir maintenance regulations for the guidance of staff and others having regard to Commission orders, rules and instructions respecting air reservoirs.

Filing specifications reports (R.T.C. Form 40)

3. (1) Each railway company, through its chief mechanical officer, shall file with the Commission a completed Specification Report R.T.C. Form 40 for each air reservoir used within one month after the reservoir is placed in service.

(2) Alteration Reports (R.T.C. Form 41)—Changes or repairs which affect data recorded on R.T.C. Form 40 shall be reported to the Commission within 30 days of their completion, and a corrected R.T.C. Form 40 or an Alteration Report R.T.C. Form 41 submitted.

Report of inspections and tests (R.T.C. Form 42)

4. (1) All inspections and tests shall be reported on Annual Test and Inspection Report for Air Reservoirs R.T.C. Form 42, and these forms must be properly completed, displayed and filed in respect of each reservoir.

(2) R.T.C. Form 42 must be handled and distributed as follows:

   (a) one copy to be sent to the Director of Operation of the Railway Transport Committee of the Canadian Transport Commission within 15 days after such tests or inspections are made;

   (b) one copy to be displayed under transparent cover at a prominent location near each reservoir (if possible);

   (c) one copy to be retained by the railway company.

NOTE: R.T.C. Form 42 must be made of good grade pink paper, 6 by 9 inches in size.

Identification

5. A serial number and the authorized working pressure, as assigned by the chief mechanical officer of the railway company, shall be plainly stamped in figures not less than 1/4 inch
high on the reservoir or on a metal plate, and the metal plate fastened to the reservoir in a conspicuous location.

**Pressure gauges**

6. Each air pressure system shall be equipped with a pressure gauge graduated to at least 50% above the safety valve setting.

**Safety valves**

7. (1) Capacity — All air pressure systems shall carry a safety valve or valves of approved design in an approved location and of the capacity specified to suit conditions of the individual service.

   (2) Adjustment — Safety valves shall be set at a pressure not to exceed 6 pounds above the authorized working pressure.

**Inspection**

8. Inspection of each reservoir, except those covered in section 9 (2), shall be made annually by an authorized inspector of the railway company.

**Hydrostatic test**

9. (1) Every air reservoir, except those covered in subsections (2) and (3), before being placed in service, and at least every 12 months thereafter, shall be hydrostatically tested to a pressure at least 25% greater than the authorized working pressure, and the date of the hydrostatic test shall be stencilled in not less than 1 inch figures at a prominent location on each reservoir.

   (2) Reservoirs on air dump cars—Every air reservoir on air dump cars covered by this order, before being placed in service and at least once in each 5 year period thereafter, shall be hydrostatically tested to a pressure at least 25% greater than authorized working pressure, except that reservoirs manufactured of corrosion resistant steel may be tested once in each 10 year period following their initial test.

   (3) Drilling of reservoirs—Each air reservoir originally constructed and maintained to withstand at least 4 times the authorized working pressure fixed by the chief mechanical officer of the operating railway concerned, and hereafter put into service, may be drilled over its entire surface, both shell and heads, with telltale holes, made by a standard 3/16 inch drill, which holes shall be spaced not more than 12 inches apart, measured both longitudinally and circumferentially, and drilled from the outer surface to a minimum depth determined by the formula

\[
D = \frac{0.6PR}{S - 0.6P}
\]

where

\[
D = \text{minimum depth of telltale holes in inches, but in no case less than 1/16 inch,}
\]

\[
P = \text{design pressure in pounds per square inch.}
\]
\[ S = \frac{1}{5} \text{ of the minimum specified tensile strength of the material in pounds per square inch}, \quad \text{and} \]
\[ R = \text{inside radius of the reservoir in inches}. \]

(4) On horizontal reservoirs, one row of holes shall be drilled lengthwise in a line at the bottom of the reservoir.

(5) On vertical reservoirs, one row of holes shall be drilled on a line passing through the lowest point of the reservoir.

(6) The holes drilled in each head shall be radially in line with the longitudinal rows of holes in the shell.

(7) Flange connections, longitudinal seams or other permanent connections to the air reservoir that interfere with telltale hole lines or circles must be cleared by at least one inch.

(8) **Hydrostatic testing of drilled reservoirs** – Each reservoir so drilled shall be hydrostatically tested to a pressure at least 25% greater than the design pressure before being put into service. No further hydrostatic tests need be performed on such reservoirs.

(9) **Telltale hole leakage** – Any reservoir developing leakage through a telltale hole shall be permanently removed from service.

(10) **Revised Specification** – If reservoirs on existing equipment are drilled in order to take advantage of the provisions of this subsection, newly completed R.T.C. Forms 40 or 41, as the case may require, are to be submitted to the Commission.

(11) Hot water shall be used, when practicable, in testing all reservoirs.

**Hammer test**

**10.** The entire surface of an undrilled reservoir shall be hammer tested before each hydrostatic test with reservoir under atmospheric pressure.

**Cleaning and inspecting**

**11.** All air reservoirs shall be thoroughly cleaned by washing out at each hydrostatic test, so as to remove all foreign matter, and then closely examined for corrosion and pitting.

**Drain valve and piping**

**12.** Every air reservoir shall be provided with an adequate drain valve or cock connected to the lowest part of the reservoir.

**Setting**

**13.** Reservoirs shall be set up on supports, so that bottom of reservoir is clear of ground and ample space for drain valve is provided.

**R.T.C. Form 40**

(Att. General Order No. 0-17)

THE CANADIAN TRANSPORT COMMISSION

SPECIFICATION CARD FOR AIR RESERVOIRS

Railway ................................................................. Railway Serial No. ..................................................
Located at or on .............................................................. Service ..............................................................

Manufactured by ...........................................................................................................................................

Manufacturer's No. ................................................... Constructed at .............................................. Date.........................................

Design pressure ........................................... lb. per sq. inch. Factor of safety..................................................

Authorized working pressure ....................... lb. per sq. inch.

Diameter of reservoir .............................................. Radius of heads .......... Top .............. Bottom ...................

Material of shell plates ........................................... Minimum tensile ..............................................lb. per sq. inch.

Material of heads .............................................. Minimum tensile.............................................. lb. per sq. inch.

Thickness of shell plates ...............................................................................................................................

Thickness of heads ........................................................................................................................................

Welded or riveted construction ........................................................................................................................

Diameter of rivets in shell ...............................................................................................................................

Diameter of rivets in circumferential seams ....................................................................................................

Diameter of rivets in heads ............................................................................................................................... 

Number and size of manholes ...........................................................................................................................

Position of reservoir (vertical or horizontal) ....................................................................................................

Number, size, make and model of safety valves ..............................................................................................

Location of safety valves (on reservoir, in supply line, etc.) ............................................................................

Safety valve or valves set at .............................................................................................................................

Telltale drill depth ..........................................................................................................................................

The data upon which calculations were made was obtained from drawings Nos. ...........................................

Dated .............................................................. Furnished by ..............................................................

And from report dated ............... made by ................. on ...................... District.

Approved ................................................

Title .............................................................
R.T.C. Form 41

(Att. General Order No. 0-17)

THE CANADIAN TRANSPORT COMMISSION
ALTERATION REPORT FOR AIR RESERVOIRS

Operating Railway ........................................................................................................................................

The following alterations affect data recorded on R.T.C. Form 40, submitted to the Commission on 
.............................[date]

Certified ................................................

Title ................................................

Date ...............................................

R.T.C. Form 42

(Att. General Order No. 0-17)

THE CANADIAN TRANSPORT COMMISSION
ANNUAL TEST AND INSPECTION REPORT FOR AIR RESERVOIRS

........................................................................................................................... (Name of railway company)

<table>
<thead>
<tr>
<th>For all reservoirs:</th>
<th>Were safety valves tested and left in good condition?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station ...........................................</td>
<td>.................................................................</td>
</tr>
<tr>
<td>Railway Serial No. ............................</td>
<td>Safety valve(s) pressure (lb. per square inch) .....</td>
</tr>
<tr>
<td>Location of service ............................</td>
<td>Was reservoir hydro-tested? ...............................</td>
</tr>
<tr>
<td>Authorized working pressure ..................</td>
<td></td>
</tr>
<tr>
<td>Condition of reservoir ........................</td>
<td></td>
</tr>
<tr>
<td>Were air gauges tested and left in good condition?</td>
<td>.................................................................</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>For undrilled reservoirs only:</td>
<td></td>
</tr>
<tr>
<td>Were staybolts inspected? ........................</td>
<td>Was reservoir hammer tested? ...............................</td>
</tr>
<tr>
<td>Were staybolts hammer tested? ..................</td>
<td>Date of previous hammer-test .............................</td>
</tr>
<tr>
<td>Were manhole plates removed and reservoir entered and inspected? ..................................</td>
<td>Hydrostatic pressure applied .............................</td>
</tr>
<tr>
<td>Was reservoir washed out? ........................</td>
<td>Date of previous hydrostatic test ........................</td>
</tr>
</tbody>
</table>

Remarks .......................................................................................................................................................
(Order No. R-6563)

CANADIAN TRANSPORT COMMISSION
BY ITS RAILWAY TRANSPORT COMMITTEE

IN THE MATTER OF General Order No. 0-21 of the Board of Transport Commissioners for Canada and the Rules and Instructions for Inspection and Maintenance of Motive Power Units other than Steam Made Applicable by the Said General Order.

(File No. 16513.41)

The Commission hereby orders:

1 General Order No. 0-21 of the Board of Transport Commissioners for Canada is amended:

(a) by striking out in the heading and in section 1 the words "Units other than Steam" and substituting therefor the word "Equipment";

(b) by striking out the words "units" and "Board" wherever they occur in section 2 and substituting therefor respectively the words "equipment" and "Commission".

2 The regulations entitled Rules and Instructions for Inspection and Maintenance of Motive Power Units other than Steam and made applicable by said General Order No. 0-21 are rescinded, and the annexed Regulations are made in substitution therefor.

Dated at Ottawa August 22, 1969.
Rules and Instructions for Inspection and Maintenance of Motive Power Equipment

Definition of motive power equipment

1. For the purpose of these rules and instructions, the term "motive power equipment" means locomotives other than steam and such rolling stock as may be used in the control of trains or for the generation of steam or electric power.

Responsibility for safe design, construction, inspection and repair

2. (1) Railway companies are responsible for the safe design, construction, maintenance, inspection and repair of all motive power equipment. All parts, appurtenances, control apparatus, etc., of all motive power equipment must be maintained in accordance with the Commission's orders, rules and instructions and in keeping with good practice. All inspections, tests and repairs must be made and reports filed as prescribed in these regulations.

(2) Maintenance regulations – The chief mechanical officer of the railway shall prepare and distribute suitable motive power equipment maintenance regulations for the guidance of staff and others having regard to Commission orders, rules and instructions respecting motive power equipment.

Filing specification reports and diagrams (R.T.C. Form 20)

3. (1) Each railway company, through its chief mechanical officer, shall file with the Commission a completed Specification Report R.T.C. Form 20 for motive power equipment used on its lines in Canada and, when filed, R.T.C. Form 20 shall be accompanied by a diagram showing the general outline of equipment giving the principal dimensions and the location of major components.

(2) Alteration Reports (R.T.C. Form 21) – Changes or repairs which affect data recorded on R.T.C. Form 20 shall be reported to the Commission within 30 days of their completion and a corrected R.T.C. Form 20 or an Alteration Report R.T.C. Form 21 submitted.

Inspection and repair certificate (cab card) (R.T.C. Form 22)

4. (1) R.T.C. Form 22 – Motive power Equipment Quarterly Inspection and Repair Certificate shall be properly completed, displayed and filed in respect of all motive power equipment.

(2) For motive power equipment in service, R.T.C. Form 22 shall be handled and distributed not less frequently than once each 3 month period, as follows:

(a) a copy to the Director of Operation of the Railway Transport committee of the commission at Ottawa, Ontario;

(b) a copy to be displayed under transparent cover at a prominent location in all motive power equipment;

(c) a copy to be retained by the railway company.

NOTE: R.T.C. Form 22 must be made of good grade yellow paper, 6 by 9 inches in size.

Extension of test or inspection intervals
5. The following paragraph outlines the circumstances in which the intervals between tests and (or) inspections set forth in these rules may be extended:

*Out of service* – When motive power equipment is withheld from service for periods of 30 or more consecutive days, such out of service may be totalled and recorded. The test or inspection interval prescribed for any particular item may then be extended by the number of out of service days recorded since the date of its last previous test or inspection.

**Recording out of service**

6. Out of service periods of 30 or more consecutive days may be recorded on the back of R.T.C. *Form 22.*

**Control equipment**

7. Railway companies are responsible for the selection, installation, maintenance, periodic test and inspection of all electric, pneumatic, hydraulic, mechanical or other control apparatus used on motive power equipment.

**Safety appliances**

8. (1) All motive power equipment must be provided with a sufficient number of suitable handholds, steps, ladders and other safety appliances properly located for the safety of employees and others.

   (2) Safety appliances must be designed and applied, having regard to the requirements of the Commission's safety appliance order.

**Accident and fire prevention**

9. Railway companies shall take the following reasonable precautions to protect employees while they work on motive power equipment:

   (1) Exposed moving parts of machinery shall be provided with suitable guards.

   (2) Cab passageways and compartments shall have adequate illumination. When employees are required to pass from one cab to another, the platform or passageway between them shall be illuminated. Floors shall be constructed to provide safe footing and kept free from obstruction.

   (3) Jumpers, cables and hose connections between and at the ends of motive power equipment shall be so located and guarded as to prevent unnecessary peril, and shall not be allowed to hang with one end free.

   (4) Steam pipes shall be insulated and (or) located to guard against accidental contact.

   (5) Motive power equipment shall be equipped with suitable fire extinguishers of adequate capacity.

   (6) Torpedoes, fusees, when carried on motive power equipment, shall be stored in suitable containers.

   (7) Fuel tanks, brake rigging, truck frames, etc., of motive power equipment shall be kept free from accumulation of oil, grease and other combustible materials.

   (8) Electric conductors and current carrying parts shall be insulated, located, or suitably guard ed to prevent accidental contact by persons.

   (9) Doors and cover plates guarding high voltage equipment shall be securely fastened in place and marked with words "Danger – Volts".
(10) Circuit breakers, switches, contactors and fuses shall be located or guarded so that persons will not be injured by their operation.

(11) Internal combustion engines of motive power equipment disabled in service shall be tagged to protect against accidental restart.

Accident reports

10. Accidents or fires, caused by failure of motive power equipment which result in serious injury or death to persons, shall be reported to the Commission in accordance with the regulations.

Air compressors

11. (1) Self-propelled motive power equipment shall be provided with one or more air compressors having sufficient capacity to provide an adequate supply of air for train operation.

(2) Compressors, associated equipment and piping must be tested frequently and maintained in good condition for service.

(3) The capacity of each compressor must be ascertained by the orifice test method not less frequently than once each 6 month period.

Air reservoirs

12. (1) Motive power equipment shall be provided with sufficient air reservoir capacity to ensure an ample supply of compressed air for the operation of the air brake system, the air signal system and for air operated auxiliary equipment.

(2) Safety valves – The main reservoir system shall be protected by one or more safety valves. Safety valves must be designed and constructed to prevent an accumulation of pressure of more than 10 p.s.i. above the authorized working pressure. Safety valves shall be tested and reset not less frequently than once each 6 month period.

(3) Hydrostatic and hammer tests – subject to subsection (4), each main reservoir and other reservoirs in excess of 5 cubic foot capacity, before being put into service and at least once after every 24 months service, provided such service is performed within 3 consecutive years, shall be subjected to hydrostatic pressure not less than 25% above the authorized working pressure of the main reservoir. The entire surface of the reservoir shall be hammer tested at the time of the hydrostatic test, the reservoir to be empty when hammer tested.

(4) Drilling of reservoirs – The periodic hydrostatic and hammer testing required by subsection (3) will not be necessary if reservoirs are drilled and tested in accordance with the following:

(a) Each air reservoir originally constructed and maintained to withstand at least 4 times the authorized working pressure fixed by the chief mechanical officer of the operating railway concerned, and hereafter put into service, may be drilled over its entire surface, both shell and heads, with telltale holes, made by a standard 3/16 inch drill, which holes shall be spaced not more than 12 inches apart, measured both longitudinally and circumferentially, and drilled from the outer surface to a minimum depth determined by the formula

\[
D = \frac{0.6PR}{S - 0.6P}
\]
where

\[
D = \text{minimum depth of telltale holes in inches, but in no case less than 1/16 inch,}
\]

\[
P = \text{design pressure in pounds per square inch,}
\]

\[
S = \frac{1}{5} \text{of the minimum specified tensile strength of the material in pounds per square inch, and}
\]

\[
R = \text{inside radius of the reservoir in inches.}
\]

(b) On horizontal reservoirs, one row of holes shall be drilled lengthwise in a line at the bottom of the reservoir.

(c) On vertical reservoirs, one row of holes shall be drilled on a line passing through the lowest point of the reservoir.

(d) The holes drilled in each head shall be radially in line with the longitudinal rows of holes in the shell.

(e) Flange connection, longitudinal seams or other permanent connections to the air reservoir that interfere with telltale hole lines or circles must be cleared by at least one inch.

(f) **Hydrostatic testing of drilled reservoirs** – Each reservoir so drilled shall be hydrostatically tested to a pressure at least 25% greater than the design pressure before being put into service. No further hammer or hydrostatic tests need be performed on such reservoirs.

(g) **Telltale hole leakage** – Any reservoir developing leakage through a telltale hole shall be permanently removed from service.

(h) **Reporting of drilled reservoirs** – If reservoirs on existing equipment are drilled in order to take advantage of the provision of this subsection, newly completed Forms R.T.C. 20 are to be submitted to the Commission.

(i) When reservoirs have been telltale drilled, item 2 of R.T.C. Form 22 is to be answered by the application of the single word "drilled" in place of the date.

(j) **Cooling compressed air** – Compressed air should be cooled before it enters main reservoir.

(k) **Drainage of air system** – Valves to effectively drain the entire air system must be inserted at suitable locations.

**Air brake system**

13. (1) All parts of the air brake system must be maintained in good condition.

(2) The entire system must be given frequent functional tests to ensure efficient and effective brakes in service.

**Air gauges**

14. (1) All air gauges must be maintained in good condition and tested not less frequently than once each 3 month period.

(2) Air gauges must be tested by comparing with an accurate gauge or dead weight tester.

**Train communicating signal system**

15.
Train communicating signal system of motive power equipment used in passenger service must be maintained in good condition.

Foundation brake gear

16. The rods, levers, brake beams, hangers, adjusters, shoes, heads, cylinders, pins, fastenings and other foundation gear components must be inspected frequently and maintained in good condition for service.

Hand brakes

17. Hand brakes shall be maintained to ensure their effectiveness in service.

Trucks

18. Trucks and their components, such as bolsters, pedestals, frames, centre plates, centering devices, equalizers, springs and spring rigging, side bearings, traction motor attachments, etc., shall be inspected frequently and maintained in a safe and suitable condition for service.

Wheels and axles

19. Railway companies are held responsible for the safe design, construction, mounting, installation and maintenance of wheels and axles, their bearings, boxes and other associated parts, and for the lubrication of journal bearings. Limits of wear shall be as set down in the current Commission order covering wheels.

Draught gears and (or) draw gears

20. (1) Draught gears and (or) draw gears, their couplers, pins and other associated parts must be of ample strength to withstand severe conditions of service and must be maintained in good condition. Before being installed, all parts must be examined thoroughly, preferably with the use of flaw detecting equipment.

(2) Inspection – Couplers and draught gears must be properly secured and maintained in good condition for service. Motive power equipment must not be continued in service until defects disclosed by inspection have been corrected.

(3) Lost motion limit – The lost motion in draught gears not absorbed by compression or friction devices must not exceed 1/2 inch. When lost motion exceeds 1/2 inch, gears shall be repaired or removed from motive power equipment.

(4) Height above rails – Couplers must be maintained at the prescribed standard height (maximum 35 inches, minimum 31 1/2 inches) above the rails.

Windows

21. (1) Each cab or operating station shall be provided with an adequate number of windows suitably located to afford a good view of signals and track ahead. Window and cab door glass must be shatterproof.

(2) Maintenance, clear view — Windows must be kept clean, free from obstruction and maintained in good operating condition. Front windows must be equipped with efficient wipers, sun visors and defrosting devices where necessary.
Fuel tanks, piping, etc.

22. (1) Fuel tanks, pumps, piping, valves and connections shall be maintained free from leaks and in good condition for service.

(2) Fill and vent lines – Fuel tanks shall be installed so that they can be filled from outside the unit. They must be provided with a vent which leads to the outside, but does not discharge on roof.

(3) Gauges – Fuel tanks shall be provided with suitable liquid level gauges so located that the fuel level in the tanks can be determined when filling. Gauges must be protected against accidental breakage where loss of fuel would be incurred.

Internal combustion engines

23. (1) Internal combustion engines, their components and auxiliaries must be maintained in a safe and suitable condition for service.

(2) Protective devices – Engines shall be protected from overspeeding and overheating by use of suitable warning, indicating or governing devices.

Exhaust gases

24. (1) Exhaust gases shall be released entirely outside cabs or compartments.

(2) Exhaust stacks shall be constructed and installed to effectively restrict the entry of exhaust gases into occupied operating compartments under usual condition of operation.

(3) Pipes or ducts carrying exhaust gases must be maintained in good condition and should be isolated or insulated where practicable.

Speed indicators

25. Motive power equipment with operating cabs normally used in road service shall be equipped with speed indicators suitably located and illuminated. These instruments shall be maintained in good condition.

Sanding apparatus

26. Suitable sanding apparatus shall be located on all self-propelled motive power equipment and on other units of rolling stock capable of both heading and controlling train operation, and shall be securely fastened and arranged to deliver the sand on the rails in front of the wheel contact.

Rail clearance

27. No part or appliance of motive power equipment, except the wheels and flexible non-metallic sand pipe extension tips, shall be less than 2 1/2 inches above the top of the rail.

Safety control equipment

28. (1) The operating cabs of motive power equipment shall be equipped with a device or devices
which, should the engineer become incapacitated, will automatically apply not less than a full service application of the train brakes and reduce the transmission of power to all driving axles in order to bring the train to a stop as expeditiously as possible.

(2) This safety control must be maintained in good condition and shall be given frequent functional tests to ensure its effective operation in service.
Electrical Equipment

Current collectors

29. (1) Where used, all types of current collectors shall be effectively insulated from the unit structure, having regard to the maximum voltage carried by the conductor.
(2) Provision must be made whereby pantographs, trolleys and shoes can be raised, lowered or held in place without risk to persons working on or about units.
(3) Current collectors, their components and associated parts shall be inspected frequently and maintained in good condition for service.

Motors and generators

30. (1) Generators and motors shall be securely fastened in place, all parts, including shafts, bearings, collars, caps, rotors, armatures, brushes, brush holders, commutators, coils, windings, leads and connections, shall be inspected frequently and maintained in good condition for service.
(2) Overload protection – Generators shall be protected against overloading and overspeeding by means of suitable warning, indicating or governing devices, and precautions taken to guard against flashovers.
(3) Fire hazards – Generator housings and surrounding area shall be kept clean to minimize fire hazards.
(4) Connections – Mechanical and electrical connections to engines and (or) other electrical machinery shall be inspected frequently and maintained in good order.
(5) Traction motors – Traction motors, their associated electrical and mechanical equipment, including suspensions, bearings, gears, pinions, cables, etc., must be maintained in good condition for service.

Insulation tests

31. (1) Electric circuits shall be resistance tested to ground not less frequently than once each 3 month period.
(2) Test voltage for power circuit must exceed normal maximum operating voltage of the circuit.
(3) Circuit resistance to ground must be recorded on R.T.C. Form 22.

Electrical meters

32. All electrical meters shall be maintained in serviceable condition and tested not less frequently than once every 12 months.

R.T.C. Form 20

(Att. General Order No. 0-21)
SPECIFICATIONS FOR MOTIVE POWER EQUIPMENT

Unit number .................................................................

Unit initial .................................................................

Unit type .................................................................

Unit propulsion ............................................................

Operating railway .................................................................................................................................

Built by ................................................................. Date .................. Builder's No. .........................

Gauge of wheels ....................................................... Wheel arrangement ...................................................

Kind and number of current collectors ...............................................................

Trolley wire or third rail voltage ............................................................

Type of lightning arrester ............................................................

Number and type of traction motors ............................................................

Number and type of traction generators ........................................ Voltage ....................................

Maximum voltage, power circuit ............................................................

Control voltage ....................................................... Auxiliary Voltages .............................................

Engines, type and horsepower ............................................................

Air brake equipment ....................................................... (Give type and schedule number)

Has unit dynamic braking equipment? ............................................................

Has unit safety control? ............................................................

Type and capacity of hand brake ............................................................

Number and type of air compressors ............................................................

Rated capacity ................................. c.f.m. at ................. r.p.m.

Main reservoir authorized working pressure ............................................................

Telltale drill depth ....................................................... Design pressure .............................................

Number of steam generators ............................................................


B.C. Reg. 292/69

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Quickscribe Services Ltd.
Number, type and capacity of fire extinguishers ............................................................
Total weight in working order ...................................... lb. Weight on driving wheels ...................... lb.
Starting tractive effort at 2.5% adhesion ....................... lb.
Attach diagram showing the outline and principal dimensions of the unit.

Date .................................
Certified ..............................
Title .................................

R.T.C. Form 21
(Att. General Order No. 0-21)
ALTERATION REPORT FOR MOTIVE POWER EQUIPMENT
Operating railway ........................................................................................................................................

Below is a description of alterations which affect data recorded on R.T.C. Form 20 submitted to the Commission on ..................[date]

.....................................................................................................................................................................

.....................................................................................................................................................................

.....................................................................................................................................................................

Certified ..............................
Title .................................
Date .................................

R.T.C. Form 22
(Att. General Order No. 0-21)
THE CANADIAN TRANSPORT COMMISSION
MOTIVE POWER EQUIPMENT QUARTERLY INSPECTION
AND REPAIR CERTIFICATE

..................................................................................................................................................................... [Name of railway company]
The inspections, tests and maintenance of Motive Power Unit are in accordance with the orders and regulations of the Canadian Transport Commission. All defects have been repaired and, to the best of my knowledge, the unit is in good condition for service and safe to operate.

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>1. Exhaust spark arresting device inspected</td>
<td>Date</td>
</tr>
<tr>
<td>2. Main reservoirs hammer-tested and hydrostatic test of p.s.i. applied,</td>
<td>Place</td>
</tr>
<tr>
<td>3. Main reservoir safety valves tested and set at p.s.i.,</td>
<td></td>
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<tr>
<td>4. Air compressors orifice tested</td>
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<tr>
<td>5. Is (a) brake system, (b) safety-control system, (c) communication signal system in good condition for service?</td>
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<td>6. Air gauges tested</td>
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<td>7. Is control system in good condition for service?</td>
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<td>8. Condition of protective alarm system</td>
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<td>9. Are fuel tanks, piping, pumps and related parts free from leaks and in good condition?</td>
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<tr>
<td>10. Condition of draught and (or) draw gear</td>
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<tr>
<td>11. Are wheels, trucks and associated parts in good condition for service?</td>
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<tr>
<td>12. (a) Was hand brake tested? (b) Was foundation brake gear inspected and left in good condition?</td>
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<tr>
<td>13. Insulation tests applied to all circuits,</td>
<td>Resistance</td>
</tr>
<tr>
<td>14. Condition of current collectors</td>
<td>control circuit</td>
</tr>
<tr>
<td>15. Condition of electrical meters Tested</td>
<td>to ground</td>
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<tr>
<td>16. Was fire fighting equipment examined and left in good condition?</td>
<td>power circuit</td>
</tr>
<tr>
<td>17. Is unit in clean condition to</td>
<td>ohms</td>
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</tbody>
</table>
OUT OF SERVICE REPORT

Unit No. ............ was out of service at ........................................ from ...........................................[date] to ...........................................[date] Number of days ............... account of ..........................................................

Certified ............................................ [signature] ......................................................... [Title]

OUT OF SERVICE RECORD AS REQUIRED BY R.T.C. RULE 5

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Days</th>
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</table>

Total: Total: Total: Total:

(Note: Out of service periods of less than 30 consecutive days are not to be recorded)

1. Regulation originally made by authority of minister, by certificate, subject to approval of the Lieutenant Governor in Council (see R.S.B.C. 1948-285-7), since July 8, 1976, regulation made by authority of minister only.
Railway Serial No. ................................................. Located at or on ..............................................................
Service ........................................................................ Manufactured by
................................................................. Manufacturer's No.
Construct at ................................................. Date............................. Design pressure
........................................... lb. per sq. inch. Factor of safety.................................................. Authorized
tensile .......... lb. per sq. inch. Material of heads .......... Minimum
tensile .......... lb. per sq. inch. Thickness of shell plates
Welded or riveted construction ............................................................................................................ Diameter of rivets in
shell .............................................................................................................................. Diameter of rivets in
circumferential seams ............................................................................................................ Diameter of rivets in
heads .............................................................................................................................. Number and size of
manholes ............................................................................................................................. Position of reservoir
(vertical or horizontal) ............................................................................................................ Safety valve or valves set at
model of safety valves ............................................................................................................ Telltale drill depth
The data upon which calculations were made was obtained from drawings Nos. ........................................... Dated
............................................................ Furnished by ........................................................................ And from
report dated .................. made by ........................................ on ....................... District. Approved
............................................... Title ................................................

R.T.C. Form 40

(Att. General Order No. 0-17)

THE CANADIAN TRANSPORT COMMISSION
SPECIFICATION CARD FOR AIR RESERVOIRS

Railway ................................................................. Railway Serial No. .................................................

Located at or on .............................................................. Service ..............................................................

Manufactured by ........................................................................................................................................

Manufacturer's No. ........................................... Constructed at ................................................. Date.............................

Design pressure .......... lb. per sq. inch. Factor of safety.................................................. Authorized
working pressure .......... lb. per sq. inch.

Diameter of reservoir .......... Radii of heads .......... Top .... Bottom ..............
Material of shell plates ........................................ Minimum tensile .................................................... lb. per sq. inch.

Material of heads ................................................ Minimum tensile .................................................... lb. per sq. inch.

Thickness of shell plates ............................................................................................................................

Thickness of heads ....................................................................................................................................

Welded or riveted construction ......................................................................................................................

Diameter of rivets in shell ..............................................................................................................................

Diameter of rivets in circumferential seams ...................................................................................................

Diameter of rivets in heads ............................................................................................................................

Number and size of manholes .......................................................................................................................

Position of reservoir (vertical or horizontal) ..................................................................................................

Number, size, make and model of safety valves ..........................................................................................

Location of safety valves (on reservoir, in supply line, etc.) ..........................................................................

Safety valve or valves set at ..........................................................................................................................

Telltale drill depth ..........................................................................................................................................

The data upon which calculations were made was obtained from drawings Nos. ........................................

Dated ............................................................. Furnished by .................................................................

And from report dated ............... made by ............................... on ......................... District.

Approved ................................................

Title ................................................

R.T.C. Form 41

(Att. General Order No. 0-17)

THE CANADIAN TRANSPORT COMMISSION
ALTERATION REPORT FOR AIR RESERVOIRS
The following alterations affect data recorded on R.T.C. Form 40, submitted to the Commission on [date]

Certified ................................................
Title ................................................
Date ...............................................
(Signature of Inspector) ...............................................

(To be submitted to the Commission within 15 days of inspection or test.)

[Provisions of the, R.S.B.C. 1996, c. 395, relevant to the enactment of these regulations: section 271]