

GOVERNMENT NOTICE No. 68

TRINIDAD AND TOBAGO

ELECTRICITY (INSPECTION) ORDINANCE, 1945

OVERHEAD LINE RULES

In exercise of the powers conferred upon the Governor in Council by Section 15 of the Electricity (Inspection) Ordinance, 1945 the following Rules are hereby made :—

1. These Rules may be cited as the Electricity (Inspection) (Overhead Lines) Rules, 1950.

2. In these Rules, the undermentioned expressions shall have the meanings Definitions respectively assigned thereto :—

"Line conductor" means conductors used for conveying a supply of electrical energy, including so much of any service line as may be under the control of the owner or licensee of the installation from which the energy is supplied.

"Road" means any surfaced way used by vehicular traffic.

"Support" shall be deemed to include any stays or struts associated with them.

3. All the materials used shall at the time of erection conform, except Materials, as may be otherwise approved by the Chief Electric Inspector, to the specifications of the British Standards Institution so far as they are applicable and are not inconsistent with these Rules.

4. Line conductors shall be of copper, cadmium-copper, aluminium, Line steel-cored aluminium, or such other material or combination of materials as Conductors may be approved by the Chief Electric Inspector.

5. The minimum permissible size of line conductors shall be such as to Minimum size have an actual breaking load of not less than 1,200 lb. of line conductor.

6. Line conductors, other than those fully insulated for the voltage at which they are to operate and neutral conductors connected with earth, shall Line con- be supported by suitable insulators, and shall be so placed as to prevent duc- to be inaccessible. danger as far as is reasonably practicable.

Regard shall be had to the normal use by the occupier of any land or premises (including maintenance work on the outside of buildings), and where necessary the position of the line conductors shall be selected to provide sufficient clearance for safety in accordance with such use.

7. Where a line conductor crosses over or under or is in proximity to any Line con- telegraph or telephone lines, such precaution shall be taken against accidental ductors cross- contact as may be prescribed by the Chief Electric Inspector. ing other lines.

Where a line conductor crosses over or under or is in proximity to other overhead wires or line conductors other than telegraph or telephone lines, adequate clearances must be maintained under all conditions of service ; and where the line conductor crosses over other line conductors the precautionary measures prescribed in rule 14 for crossings shall be adopted.

Minimum height of conductors.

8. The height from the ground of any line conductor or earth wire or auxiliary conductor at any point on the span at a temperature of 122° F. shall not, except with the consent of the Chief Electric Inspector in consultation with the Director of Works and Hydraulics, be less than the height appropriate to the voltage and situations as indicated below.

System voltage between line conductors	Over Roads	Other than over roads	In positions inaccessible to vehicular traffic
Not exceeding 11,000 volts ... ..	ft. 20	ft. 17	ft. 15
Exceeding 11,000 volts but not exceeding 66,000 volts	20	20	16
Exceeding 66,000 volts but not exceeding 132,000 volts	22	22	18
Exceeding 132,000 volts ... ..	23	23	19

Tensioning of line conductors.

9. The tension in a line or auxiliary conductor, serial earthwire, serial cable, or catenary wire shall not exceed threequarters of its ultimate tensile strength under worst conditions of operation.

10. Unless otherwise approved by the Chief Electric Inspector, supports shall be constructed of wood, steel or reinforced concrete. Special precautions shall be taken to prevent the corrosion of all metalwork at or below the surface of the ground.

Supports and their foundations shall be so designed and constructed, taking into account the reactive forces exerted by the ground in which they are embedded, as to withstand the ultimate horizontal and vertical loads specified in paragraphs (1), (2) and (3) of the Loading Schedule contained in this rule and without exceeding the support strength limits stated in Table 1 thereof.

In no case shall the strength of a support in the direction of the overhead line be less than one-quarter of the required strength in a direction transverse to the line.

Loading Schedule.

The ultimate transverse wind loadings on conductors and supports shall be as stated in Table 2 hereof. The appropriate wind pressure on conductors shall be determined according to their average height above ground throughout the span. The wind pressure on the lee-side members of lattice-steel or other compound structures shall be taken as one-half of the wind pressure on the windward-side members.

TABLE 1

SUPPORT STRENGTH LIMITS

Type of Support	Strength Limit
Steel supports ... ..	...The strength corresponding to failure or permanent distortion in any part, e.g. crippling of compression members, shear or bearing deformation at bolts or rivets.
Reinforced concrete poles ...	...90 per cent. of the strength at failure as defined in British Standard 607 of 1941 or, for stayed poles, 90 per cent. of the crippling strength.
Wood poles ... ..	...50 per cent. of the extreme fibre stress or, for stayed poles, 50 per cent. of the crippling strength.

TABLE 2

## ULTIMATE TRANSVERSE WIND LOADS

Height above ground	WIND PRESSURE ON PROJECTED AREA OF	
	Cylindrical surfaces, including conductors	Flat surfaces
ft.	lb/ft <sup>2</sup>	lb/ft <sup>2</sup>
0-150 ... ..	36	60
150-300 ... ..	48	80
300-450 ... ..	60	100
Above 450 ... ..	72	120

The ultimate horizontal loads on supports due to conductor tension shall be calculated on the assumption that the ultimate horizontal component of the tension in any conductor is 1.5 times the horizontal component of the tension in the conductor as calculated under rule 9.

The ultimate vertical loads on supports shall comprise the weight of the supports themselves and any insulators and fittings attached thereto, together with the vertical loads imposed by the conductors.

11. Where line conductors forming parts of systems at different voltages are erected on the same supports, adequate provision shall be made to guard against danger to persons authorized to carry out work on the lines and from the lower-voltage system being charged above its normal voltage by leakage from or contact with the higher-voltage system. Where any condition renders this impracticable exemption may be claimed on application to the Chief Electric Inspector. Adequate working clearances shall be provided between the lower-voltage line conductors and any higher-voltage line conductors.

12. Every overhead line, including its supports and structural parts and electrical appliances and devices belonging to or connected therewith, shall be regularly inspected and efficiently maintained.

13. Adequate means shall be provided to reduce to a practicable minimum the risk of a conductor remaining alive after it has fallen due to breakage or otherwise. All metal work other than conductors, within 10 feet of the ground wherever situated, shall be connected to earth on systems operating on a declared voltage above 12,000 volts. For this purpose, the metal-work shall be connected with earth at each support or alternatively a continuous earth-wire shall be provided and connected with earth at not less than four points in every mile. The design and construction of the system of earth connections shall be such that, when contact is made between a line conductor and metal connected with earth, the resulting leakage current shall not be less than twice the leakage current required to operate the devices which make the line dead. Where any condition renders this impracticable exemption may be claimed on application to the Chief Electric Inspector.

Erection of  
line conduc-  
tors at  
different vol-  
tages on same  
supports.

Inspection  
and main-  
tenance of  
lines.

Provision to  
prevent  
danger.

It shall be permissible in a high-voltage system for a suitable inductive resistance to be inserted in the connection with earth, provided such inductive resistance shall have suitable characteristics as to ensure the immediate suppression of any arc between earth and the conductor and the immediate reduction of the voltage of the said conductor to or about earth potential in the aforesaid circumstances.

All stay wires shall be connected with earth except where they are connected with unearthed steelwork or non-metallic supports, in which case they shall be insulated by means of an insulator of a type approved for the purpose by the Chief Electric Inspector, placed in each stay wire at a height of not less than 10 feet from the ground.

All earth electrodes shall be so installed as to prevent danger from voltage gradients at ground level.

Crossings.

14. Where line conductors pass over roads, canals, navigable waters or railways, unless otherwise prescribed by the Chief Electric Inspector, insulators shall have the next higher rating to that recommended in Table 2 of British Standard 137 of 1941 for the appropriate line voltage; and conductors shall be attached thereto in a manner approved by the Chief Electric Inspector for this purpose.

Danger notices.

15. Each support on systems operating on a declared voltage of 6,600 volts and above shall have a danger notice of adequate size and of a permanent nature securely fixed to it.

Unauthorized climbing.

16. On systems operating on a declared voltage of 6,600 volts and above anti-climbing guards shall be attached to all poles or stays in situations where climbing by unauthorized persons might be anticipated.

Penalties.

17. If the owner or licensee of an installation makes default in complying with any of the preceding rules he shall, subject to the provisions of any Ordinance, Rule or Regulation relating to the undertaking, be liable to a penalty of \$120.00 for every such default and to a daily penalty of \$10.00 for every day in which the default continues after the first day.

The recovery of a penalty under these Rules shall not affect the liability (if any) of the owner or licensee to make compensation in respect of any damage or injury which may have been caused by reason of the default.

Saving.

18. These Rules shall not apply to any overhead lines in existence at the date hereof and constructed and maintained under and in accordance with the provisions of any prior Regulations for overhead lines made by the Governor in Council.

Made by the Governor in Council this 28th day of March, 1950.

W. FUNG

*Clerk, Executive Council*