

34-13. (1) All overload devices shall be set to operate within three seconds at a current not exceeding twice the full-load of the feeder or distributor, except that in the case of fuse-links the time stated may be one minute. Where twice the normal full-load is not in excess of 2 amperes a fuse-link to blow at 2 amperes may be used.

(2) In the case of feeders or distributors which supply further sub-feeders or sub-distributors through automatic circuit-breakers, and where selective operation of circuit-breakers is desired, the time-setting of the main feeder circuit-breakers may be increased to fifteen seconds.

(3) Where an automatic reclosing circuit-breaker is used it shall be so constructed that in the event of three successive openings during a total period not exceeding sixty seconds the lockout device shall prevent any further automatic reclosing until reset by hand, and this shall not be done until the fault has been cleared.

The interval between the automatic opening and reclosing shall not exceed thirty seconds.

34-14. (1) No fuse-link or circuit-breaker shall be inserted on any distribution-line fed from the medium pressure (or any lower pressure) side of any transformer where lines are erected in accordance with Regulation 42-51 hereof unless such fuse-link or circuit-breaker (as the case may be) is set to open such medium pressure (or lower pressure) circuit at a current not less than 25 per cent. greater than that required to operate (by overload, earth-leakage, or otherwise) the fuse-link or circuit-breaker (as the case may be) at the source of supply of any higher pressure electric line carried on the same poles or supports.

(2) Every fuse-link inserted on such medium pressure (or lower pressure) circuit shall be renewed at intervals of not more than six months unless it is of a type approved for such purpose, in which case it shall be renewed at such longer intervals as the Chief Electrical Engineer may prescribe from time to time.

34-15. Z connections between current transformers and two trip-coils shall not be used on a star-connected system with earthed neutral.

34-16. Every series street-lighting circuit shall be provided with protective apparatus of an approved type set to operate in the event of a break occurring in the secondary circuit.

#### GLOVES, SAFETY-BELTS, AND OTHER SAFEGUARDS.

34-21. Insulating-gloves, boots, goloshes, and stands, rubber protective-covers, and mats, safety-belts, and hand-lines of non-conducting material, and such other safeguards as the Chief Electrical Engineer may deem necessary in the circumstances as a reasonable protection against electrical hazard, shall be provided by the licensee for use, when necessary, by persons employed by him.

34-22. It shall be the duty of every person working on the lines or apparatus:—

- (a) To use in a proper manner the safeguards provided; and
- (b) To satisfy himself that such safeguards are in good physical and mechanical order and condition.

34-23. Such instructions as the Minister may from time to time approve as to the treatment of persons receiving electric shocks shall be affixed by the licensee in a conspicuous place on the wall of every power-house, substation, store, and workshop used by the licensee and in every construction and maintenance truck used by the licensee.

#### WORKING ON CONDUCTORS, APPARATUS, AND SWITCHBOARDS.

34-31. No person except an authorized and competent person shall undertake any work on any live electric line or apparatus where practical knowledge or experience is required in order adequately to avoid danger.

34-32. Except in case of emergency due to breakdown or other accident, no person shall work on any live high pressure or extra-high pressure conductor or apparatus unless accompanied by a person competent to assist him.

34-33. No person shall work on any live electric line or apparatus, and no person shall assist such person on such work, unless he is competent to apply the treatment prescribed by Regulation 34-23 hereof. Every such person shall give a practical demonstration of such treatment at any time when so requested by an Inspecting Engineer.

34-34. While any high pressure or bare medium pressure or bare low pressure conductor (other than an earthed neutral or middle conductor) is alive no person shall carry out any work on such conductor unless insulating-gloves, a safety-belt, an insulating-stand, rubber protective covers, or other means approved by the Chief Electrical Engineer, are used as required to render work on such conductor safe, or unless the conductor to be worked on and all other electric conductors within 3 ft. 6 in. thereof are disconnected from the source of supply and earthed.

34-35. Where any conductor is disconnected from the source of supply and is in proximity to any live high pressure or extra-high pressure conductor, every person working on such first-named conductor shall cause the same to be earthed after disconnection and before work commences in order to discharge electrostatic induction and to remain earthed until all work thereon has been completed.

34-36. (1) Every person before working on any high pressure or extra-high pressure conductor and/or apparatus disconnected from the source of supply (and liable to become alive) shall cause such conductor and/or apparatus to be earthed and to remain earthed until all work thereon has been completed.

(2) Such conductor shall be so earthed on each side of the point where the work is being carried out and which, in the case of an aerial conductor, shall be at a distance of not more than two normal spans from such point.

(3) When such conductor is controlled by a circuit-breaker it shall be placed in the "off" position and be isolated by the means prescribed by clause (3) of Regulation 32-21 hereof before the conductor is earthed.

34-37. Where any new line is being erected on poles or other supports carrying any bare live conductor, then:—

- (a) Every person engaged in such erection shall either cause the live conductors to be made dead and to be earthed or shall not handle the new line unless insulating-gloves and boots or goloshes are used; and
- (b) No person shall be on any crossarm on which the new line is to be erected while such line is being pulled up; and
- (c) Every person engaged in such erection shall cause the new line to be earthed before erection and to remain earthed until all work on it has been completed.

34-38. (1) All switches and circuit-breakers controlling conductors or equipment made dead for working on shall have a suitable tag affixed to the operating handle. Such tag shall have marked thereon "Men at Work" or wording of a similar nature, and the tag shall not be removed until the switch or circuit-breaker (as the case may be) is again closed by or at the instructions of the person carrying out such work:

Provided that where the switch or circuit-breaker is under the sole control of and in sight of the person working on the conductors or apparatus such tag may be omitted.

(2) Such switches or circuit-breakers when located out of doors shall always be locked when in the open position.

34-39. Properly designed clips attached to insulated sticks shall be used for the temporary earthing of conductors. Chains shall not be used for earthing purposes.

34-40. Every communication-wire supported on poles carrying high pressure or extra-high pressure electric lines shall for the purpose of working thereon be deemed to be a high pressure electric line, and every person working on such communication-wire shall take similar precautions to those provided in Regulations 34-34 or 34-35 hereof.

34-41. When work has to be carried out on any high pressure or extra-high pressure switchboard, then, unless the switchboard is otherwise so arranged as to secure that the work may be carried out without undue risk either,—

- (a) The switchboard shall be made dead; or
- (b) If the switchboard is so arranged that the conductors thereof can be made dead in sections, and such sections are separated by permanent or removable divisions or screens from all adjoining sections of which the conductors are alive so that work on any section may be carried out without undue risk, the section on which work has to be done shall be made dead.

#### DIVISION IV.—ERECTION, CONSTRUCTION, AND USE OF CONDUCTORS AND INSTALLATIONS.

##### PART 41.—OVERHEAD CONDUCTORS I.

###### MATERIAL, STRANDING, AND MINIMUM SIZE.

41-01. All aerial lines shall be of copper, galvanized-steel, galvanized-iron, copper-covered steel, steel-core aluminium, steel-reinforced aluminium, or such other types of material as may, from time to time, be approved for that purpose.

41-02. In all aerial lines—

- (a) Copper conductors used for medium pressure or any lower pressure may be either solid or stranded; and
- (b) Copper conductors used for high pressure or extra-high pressure shall be stranded, except when used for trolley wires for electric traction purposes; and
- (c) Galvanized-iron, galvanized-steel, or copper-covered steel conductors for all pressures may be either solid or stranded: