

THE INDIAN ELECTRICITY RULES, 1956

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3. Authorisation-

(1) A supplier or a consumer, or the owner, agent or manager of a mine, or the agent of any company operating in an oil-field or the owner of a drilled well in an oil-field or a contractor for the time being under contract with a supplier or a consumer to carry out duties incidental to the generation, transformation, transmission, conversion, distribution or use of energy may authorise any person for the purpose of any or all of the following, namely:-

Sub-rule (2) of rule 36, clause (a) sub-rule (1) of rule 51, clause (a) of sub-rule (1) and ¹[clauses (e) ²[and (f)] of sub-rule (2)] of rule 64, sub rule (2) of rule 110, sub-

rules (1) and (4) of rule 121, sub-rule (4) of rule 123, rule 124 and sub-rule (8) of rule 125.

³[(2) No person shall be authorised under sub-rule (1) unless he is competent to perform the duties assigned to him and possesses either an appropriate certificate of competency or permit to work.]

⁴[(2A) (a) No person shall be authorised to operate or undertake maintenance of any part or whole of a generating station of capacity 100 MW and above together with the associated sub-station unless he is adequately qualified and has successfully undergone the type of training specified in Annexure XIV;

Provided that the provisions contained in this sub-rule shall have effect in respect of the persons already authorised to operate or undertake maintenance of any part or whole of a generating station as aforesaid from the date to be specified by the appropriate Government, but such a date shall not be later than a period of ⁵[6 years, 2 months] from the date this rule comes into force.

(b) The appropriate Government may, on the recommendations of the owner of such generating station, relax the conditions stipulated in clause (a) of this sub-rule for any engineer and such other person who have already sufficient experience in the operation and maintenance of a generating station.

(c) The owner of a generating station, in consultation with Central Electricity Authority may alter the duration and manner of training in respect of those persons who have been already engaged in the operation and maintenance of a generating station or a sub-station.]

⁶[(2B) The provisions contained in rule 3(2A) will also be applicable in respect of other sub-stations of 132 KV and above from a date to be specified by the appropriate Government but such a date shall not be later than 3 years from which this rule comes into force.]

(3) No person shall be deemed to be authorised under sub-rule (1) unless his name has been entered in a list maintained at the office or premises of the person authorizing him, and giving the purpose for which such person is authorised and the entry has been attested by the authorised person and the person authorising him.

(4) Every list maintained under sub-rule (3) shall be produced before an Inspector ⁷[or any officer of a specified rank and class appointed to assist the Inspector] when required.

⁸[(5) An Inspector may cancel or amend, in such manner as he considers necessary, any authorisation, made under sub-rule (1).

⁹[(6) In every registered factory, where more than 250 KW of electrical load is connected, there shall be a person authorised by the management of the factory for ensuring the observance of the safety provisions laid under the Act and the rules made thereunder, who shall periodically inspect such installation, get them tested and keep a record thereof and such records shall be made available to the Inspector ²[or any officer of a specified rank and class appointed to assist the Inspector], if and when required.]

1. Ins. by GSR 1640, dt. 26.9.1963, w.e.f. 12.10.1963.
2. Ins. by G.S.R. 256, dt. 26.3.1983, w.e.f. 26.3.1983.
3. Subs. by G.S.R. 358, dt. 30.4.1987, w.e.f. 9.5.1987.
4. Ins. by G.S.R. 461, dt. 24.4.1981, w.e.f. 9.5.1981.
5. Subs. by G.S.R. 481, dt. 10.6.1987, w.e.f. 20.6.1987.
6. Ins. by GSR 730, dt. 7.9.1989, w.e.f. 30.9.1989.
7. Ins. by GSR 466, dt. 18.7.1991, w.e.f. 17.8.1991.
8. Ins. by GSR 523, dt. 28.3.1966, w.e.f. 9.4.1966.
9. Ins. by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.

29. Construction, installation, protection, operation and maintenance of electric supply lines and apparatus-

¹[(1) All electric supply lines and apparatus shall be of sufficient ratings for power, insulation and estimated fault current and of sufficient mechanical strength, for the duty which they may be required to perform under the environmental conditions of installation, and shall be constructed, installed, protected, worked and maintained in such a manner as to ensure safety of ²[human beings, animals and property].]

(2) Save as otherwise provided in these rules, the relevant code of practice of the ³[Bureau of Indian Standards] ⁴[including National Electrical Code] if any may be followed to carry out the purposes of this rule and in the event of any inconsistency, the provision of these rules shall prevail.

(3) The material and apparatus used shall conform to the relevant specifications of the ³[Bureau of Indian Standards] where such specifications have already been laid down.

1. Subs. by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.
2. Subs. by GSR 45, dt. 1.1.1993, w.e.f. 23.1.1993.
3. Subs. by GR. 466, dt. 18.7.1991, w.e.f. 17.8.1991.
4. Ins. by GSR 358, dt. 30.4.1987, w.e.f. 5.9.1987.

30. Service lines and apparatus on consumer's premises-

(1) The supplier shall ensure that all electric supply lines, wires, fittings and apparatus belonging to him or under his control, which are on a consumer's premises, are in a safe condition and in all respects fit for supplying energy and the supplier shall take due precautions to avoid danger arising on such premises from such supply lines, wires, fittings and apparatus.

(2) Service-lines placed by the supplier on the premises of a consumer which are underground or which are accessible shall be so insulated and protected by the supplier as to be secured under all ordinary conditions against electrical, mechanical, chemical or other injury to the insulation.

(3) The consumer shall, as far as circumstances permit, take precautions for the safe custody of the equipment on his premises belonging to the supplier.

(4) The consumer shall also ensure that the installation under his control is maintained in a safe condition.

31. Cut-out on consumer's premises-

(1) The supplier shall provide a suitable cut-out in each conductor of every service-line other than an earthed or earthed neutral conductor or the earthed external conductor of a concentric cable within a consumer's premises, in an accessible position. Such cut-out shall be contained within an adequately enclosed fireproof receptacle.

Where more than one consumer is supplied through a common service-line, each such consumer shall be provided with an independent cut-out at the point of junction to the common service.

(2) Every electric supply line other than the earth or earthed neutral conductor of any system or the earthed external conductor of a concentric cable shall be protected by a suitable cut-out by its owner.

¹[(3) * * * * *]

1. Sub-rule (3) omitted by GSR 358, dt. 30.4.1987, w.e.f. 5.9.1987.

32. Identification of earthed and earthed neutral conductors and position of switches and cut-outs therein- Where the conductors include an earthed conductor of a two-wire system or an earthed neutral conductor of a multi-wire system or a conductor which is to be connected thereto, the following conditions shall be complied with--

(1) An indication of a permanent nature shall be provided by the owner of the earthed or earthed neutral conductor, or the conductor which is to be connected thereto, to enable such conductor to be distinguished from any live conductor. Such indication shall be provided-

(a) Where the earthed or earthed neutral conductor is the property of the supplier, at or near the point of commencement of supply;

(b) Where a conductor forming part of a consumer's system is to be connected to the supplier's earthed or earthed neutral conductor, at the point where such connection is to be made;

(c) In all other cases, at a point corresponding to the point of commencement of supply or at such other points as may be approved by an Inspector or any officer appointed to assist the Inspector and authorised under sub-rule (2) of rule 4A.

(2) No cut-out, link or switch other than a linked switch arranged to operate simultaneously on the earthed or earthed neutral conductor and live conductors shall be inserted or remain inserted in any earthed or earthed neutral conductor of a two wire-system or in any earthed or earthed neutral conductor of a multi-wire system or in any conductor connected thereto with the following exceptions: -

- (a) A link for testing purposes, or
- (b) A switch for use in controlling a generator or transformer.

33. Earthed terminal on consumer's premises-

(1) The supplier shall provide and maintain on the consumer's premises for the consumer's use a suitable earthed terminal in an accessible position at or near the point of commencement of supply as defined under rule 58.

Provided that in the case of medium, high or extra-high voltage installation the consumer shall, in addition to the afore mentioned earthing arrangement, provide his own earthing system with an independent electrode.

Provided further that the supplier may not provide any earthed terminal in the case of installations already connected to his system on or before the date to be specified by the State Government in this behalf if he is satisfied that the consumer's earthing arrangement is efficient.

(2) The consumer shall take all reasonable precautions to prevent mechanical damage to the earthed terminal and its lead belonging to the supplier.

¹[(3) The supplier may recover from the consumer the cost of installation on the basis of schedule of charges notified in advance and where such schedule of charges is not notified, the procedure prescribed, in sub-rule (5) of rule 82 will apply]

1. Subs. by GSR 1074, dt. 5.11.1985, w.e.f. 16.11.1985.

34. Accessibility of bare conductors- Where bare conductors are used in a building, the owner of such conductors shall-

- (a) Ensure that they are inaccessible;
- (b) Provide in readily accessible position switches for rendering them dead whenever necessary; and
- (c) Take such other safety measures as are considered necessary by the Inspector.

35. Danger Notices- The owner of every medium, high and extra-high voltage installation shall affix permanently in a conspicuous position a danger notice in Hindi or English and the local language of the district, with a sign of skull and bones ¹[of a design as per the relevant ISS No. 2551] on-

- (a) Every motor, generator, transformer and other electrical plant and equipment together with apparatus used for controlling or regulating the same;
- (b) All supports of high and extra-high voltage overhead lines which can be easily climb-upon without the aid of ladder or special appliances;

Explanation-- Rails, tubular poles, wooden supports, reinforced cement concrete poles without steps, I-sections and channels, shall be deemed as supports which cannot be easily climbed upon for the purposes of this clause.

- (c) Luminous tube sign requiring high voltage supply, X-ray and similar high-frequency installations;

Provided that where it is not possible to affix such notices on any generator, motor transformer or other apparatus, they shall be affixed as near as possible thereto; or the word 'danger' and the voltage of the apparatus concerned shall be permanently painted on it.

Provided further that where the generator, motor, transformer or other apparatus is within an enclosure one notice affixed to the said enclosure shall be sufficient for the purposes of this rule.

1. Added by GSR 512, dt. 29.6.1983, w.e.f. 16.7.1983.

36. Handling of electric supply lines and apparatus-

(1) Before any conductor or apparatus is handled adequate precautions shall be taken, by earthing or other suitable means, to discharge electrically such conductor or apparatus, and any adjacent conductor or apparatus if there is danger therefrom, and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon.

Every person who is working on an electric supply line or apparatus or both shall be provided with tools and devices such as gloves, rubber shoes, safety belts, ladders, earthing devices, helmets, line testers, hand lines and the like for protecting him from mechanical and electrical injury. Such tools and devices shall always be maintained in sound and efficient working conditions:

(2) No person shall work on any live electric supply line or apparatus and no person shall assist such person on such work, unless he is authorised in that behalf, and takes the safety measures approved by the Inspector.

(3) Every telecommunication line on supports carrying a high or extra-high voltage line shall, for the purpose of working thereon, be deemed to be a high voltage line.

1. Proviso omitted by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.

37. Supply to vehicles, cranes, etc.- Every person owning a vehicle, travelling crane or the like to which energy is supplied from an external source shall ensure that it is efficiently controlled by a suitable switch enabling all voltage to be cut off in one operation and, where such vehicle, travelling crane or the like runs on metal rails, the owner shall ensure that the rails are electrically continuous and earthed.

38. Cables for portable or transportable apparatus-

(1) Flexible cables shall not be used for portable or transportable motors, generators, transformer rectifiers, electric drills, electric sprayers, welding sets or any other portable or transportable apparatus unless they are heavily insulated and adequately protected from mechanical injury.

(2) Where the protection is by means of metallic covering, the covering shall be in metallic connection with the frame of any such apparatus and earth.

(3) The cables shall be three core type and four-core type for portable and transportable apparatus working on single phase and three phases supply respectively and the wire meant to be used for ground connection shall be easily identifiable.

41. Distinction of different circuits- The owner of every generating station, sub-station, junction-box or pillar in which there are any circuits or apparatus, whether intended for operation at different voltages or at the same voltage, shall ensure by means of indication of a permanent nature that the respective circuits are readily distinguishable from one another.

¹[41A. Distinction of the installations having more than one feed- The owner of the every installation including sub-station, double pole structure, four pole structure or any other structure having more than one feed, shall ensure by means of indication of a permanent nature, that the installation is readily distinguishable from other installations.]

1. Ins. by GSR 529, dt. 11.7.1986, w.e.f. 19.7.1986.

42. Accidental charge- The owners of all circuits and apparatus shall so arrange them that there shall be no danger of any part thereof becoming

accidentally charged to any voltage beyond the limits of voltage for which they are intended.

Where A.C. and D.C. circuits are installed on the same support they shall be so arranged and protected that they shall not come into contact with each other when live.

43. Provisions applicable to protective equipment-

(1) Fire buckets filled with clean dry sand and ready for immediate use for extinguishing fires, in addition to fire extinguishers suitable for dealing with electric fires, shall be conspicuously marked and kept in all generating stations, enclosed sub-stations and switch stations in convenient situation.

The fire extinguishes shall be tested for satisfactory operation at least once a year and record of such tests shall be maintained.

(2) First-aid boxes or cupboards, conspicuously marked and equipped with such contents as the State Government may specify, shall be provided and maintained in every generating station, enclosed sub-station and enclosed switch station so as to be readily accessible during all working hours. All such boxes and cupboards shall, except in the case of unattended sub-stations and switch stations, be kept in charge of responsible persons who are trained in first-aid treatment and one of such person shall be available during working hours.

¹[(3) Two or more gas masks shall be provided conspicuously and installed and maintained at accessible places in every generating station with capacity of 5 MW and above and enclosed sub-station with transformation capacity of 5 MVA and above for use in the event of fire or smoke.

Provide that where more than one generator with capacity of 5 MW and above is installed in a power station, each generator would be provided with at least two separate gas masks in accessible and conspicuous position.

Provided further that adequate number of gas masks would be provided by the owner of every generating station and enclosed sub-station with capacity less than 5MW and 5MVA respectively, if so desired by the Inspector.]

1. Ins. by GSR 466, dt. 18.7.1991, w.e.f. 17.8.1991.

44. Instructions for restoration of persons suffering from electric shock-

(1) Instructions, in English or Hindi and the local language of the district and where Hindi is the local language, in English and Hindi for the restoration of persons suffering from electric shock, shall be affixed by the owner in a conspicuous place in every generating station, enclosed sub-station, enclosed

switch-station and in every factory as defined in clause (m) of section 2 of the Factories Act, 1948 (63 of 1948) in which electricity is used and in such other premises where electricity is used as the Inspector or any officer appointed to assist the Inspector may, by notice in writing served on the owner, direct.

(2) Copies of the instructions shall be supplied on demand by an officer or officers appointed by the Central or the State Government in this behalf at a price to be fixed by the Central or the State Government.

(3) The owner of every generating station, enclosed sub-station, enclosed switch-station and every factory or other premises to which this rule applies, shall ensure that all authorised persons employed by him are acquainted with and are competent to apply the instructions referred to in sub-rule (1).

(4) In every manned high voltage or extra-high voltage generating station, sub-station or switch station, an artificial respirator shall be provided and kept in good working condition.

¹[44A. Intimation of Accident- If any accident occurs in connection with the generation, transmission, supply or use of energy in or in connection with, any part of the electric supply lines or other works of any person and the accident results in or is likely to have resulted in loss of human or animal life or in any injury to a human being or an animal, such person or any authorised person of the State Electricity Board/Supplier, not below the rank of a Junior Engineer or equivalent shall send to the Inspector a telegraphic report within 24 hours of the knowledge of the occurrence of the fatal accident and a written report in the form set out in Annexure XIII within 48 hours of the knowledge of occurrence of fatal and all other accidents. Where practicable a telephonic message should also be given to the Inspector immediately the accident comes to the knowledge of the authorised officer of the State Electricity Board/ Supplier or other person concerned.]

1. Subs. by GSR 1049, dt. 17.10.1985, w.e.f. 9.11.1985.

45. Precautions to be adopted by consumers ¹[owners occupiers], electrical contractors, electrical workmen and suppliers-

(1) No electrical installation work, including additions, alterations, repairs and adjustments to existing installations, except such replacement of lamps, fans, fuses, switches, low voltage domestic appliances and fittings as in no way alters its capacity or character, shall be carried out upon the premises of or on behalf of any ²[consumer, supplier, owner or occupier] for the purpose of supply to such ²[consumer, supplier, owner or occupier] except by an electrical contractor licensed in this behalf by the State Government and under the direct supervision of a person holding a certificate of competency and by a person holding a permit issued or recognised by the State Government.

Provided that in the case of works executed for or on behalf of the Central Government and in the case of installations in mines, oil fields and railways, the Central Government and in other cases the State Government may, by notification in the Official Gazette, exempt, on such conditions as it may impose, any such work described therein either generally or in the case of any specified class of ²[consumers, suppliers, owners or occupiers] from so much of this sub-rule as requires such work to be carried out by an electrical contractor licensed by the State Government in this behalf.

³[(2) No electrical installation work which has been carried out in contravention of sub-rule (1) shall either be energised or connected to the works of any supplier.]

⁴[(3) * *]

1. Ins. by GSR 529, dt. 11.7.1986, w.e.f. 19.7.1986.
2. Subs. by GSR 45, dt. 1.1.1993, w.e.f. 23.1.1993.
3. Subs. by GSR 529, dt. 11.7.1986, w.e.f. 19.7.1986.
4. Sub-rule (3) omitted by GSR 844, dt. 31.7.1985, w.e.f. 7.9.1985.
46. Periodical inspection and testing of consumer's installation. -

(1) (a) Where an installation is already connected to the supply system of the supplier, every such installation shall be periodically inspected and tested at intervals not exceeding five years either by the Inspector or any officer appointed to assist the Inspector or by the supplier as may be directed by the State Government in this behalf or in the case of installations belonging to, or under the control of the Central Government, and in the case of installation in mines, oilfields and railways by the Central Government.

(b) Where the supplier is directed by the Central or the State Government as the case may be to inspect and test the installation he shall report on the condition of the installation to the consumer concerned in a form approved by the Inspector and shall submit a copy of such report to the Inspector or to any officer appointed to assist the Inspector and authorised under sub-rule (2) of rule 4A.

(c) Subject to the approval of the Inspector, the forms of inspection report contained in Annexure IX-A may, with such variations as the circumstances of each case require, be used for the purposes of this sub-rule.

(2) (a) The fees for such inspection and test shall be determined by the Central or the State Government, as the case may be, in the case of each class of consumers and shall be payable by the consumer in advance.

(b) In the event of the failure of any consumer to pay the fees on or before the date specified in the fee-notice, supply to the installation of such consumer shall be liable to be disconnected under the direction of the Inspector. Such

disconnection, however, shall not be made by the supplier without giving to the consumer seven clear days' notice in writing of his intention so to do.

(c) In the event of the failure of the owner of any installation to rectify the defects in his installation pointed out by the Inspector or by any officer appointed to assist him and authorised under sub-rule (2) of rule 4A in the form set out in Annexure IX and within the time indicated therein, such installation shall be liable to be disconnected ¹[under the directions of the Inspector] after serving the owner of such installation with a notice.

Provided that the installation shall not be disconnected in case an appeal is made under rule 6 and the appellate authority has stayed the orders of disconnection.

Provided further that the time indicated in the notice shall not be less than 48 hours in any case.

Provided also that nothing contained in this clause shall have any effect on the application of rule 49.

(3) Notwithstanding the provisions of this rule, the consumer shall at all times be solely responsible for the maintenance of his installation in such condition as to be free from danger.

1. Subs. by GSR 29, dr. 24.12.1983, w.e.f. 14.1.1984.

48. Precautions against leakage before connection-

¹[(1) The supplier shall not connect with his works the installation or apparatus on the premises of any applicant for supply unless he is reasonably satisfied that the connection will not at the time of making the connection cause a leakage from that installation or apparatus of a magnitude detrimental to safety. Compliance with this rule shall be checked by measuring the insulation resistance as provided below:

(i) High Voltage Equipments installations-

(a) High Voltage equipments shall have the IR value as stipulated in the relevant Indian Standard.

(b) At a pressure of 1000 V applied between each live conductor and earth for a period of one minute the insulation resistance of HV installations shall be at least 1 Mega ohm or as specified by the ¹[Bureau of Indian Standards] from time to time.

(ii) Medium and Low Voltage Installations- At a pressure of 500 V applied between each live conductor and earth for a period of one minute, the insulation resistance of medium and low voltage installations shall be at least 1 Mega ohm or as specified by the ²[Bureau of Indian Standards] from time to time.]

(2) If the supplier declines to make a connection under the provisions of sub-rule (1), he shall serve upon the applicant a notice in writing stating his reason for so declining.

1. Subs. by GSR 529, dt. 11.7.1986, w.e.f. 19.7.1986.
2. Subs. by GSR 466, dt. 18.7.1991, w.e.f. 17.8.1991.

49. Leakage on consumer's premises-

(1) If the Inspector or any officer appointed to assist the Inspector and authorised under sub-rule (2) of rule 4A or the supplier had reason to believe that there is in the system of a consumer leakage which is likely to affect injuriously the use of energy by the supplier or by other persons, or which is likely to cause

danger, he may give the consumer reasonable notice in writing that he desires to inspect and test the consumer's installation.

(2) If on such notice being given-

(a) The consumer does not give all reasonable facilities for inspection and testing of his installation, or

¹[(b) When an insulation resistance at the consumer's installation is so low as to prevent safe use of energy.]

The supplier may, and if directed so to do by the Inspector shall discontinue the supply of energy to the installation but only after giving to the consumer 48 hours notice in writing of disconnection of supply and shall not recommence the supply until he or the Inspector is satisfied that the cause of the leakage has been removed.]

1. Subs. by GSR 529, dt. 11.7.1986, w.e.f. 19.7.1986.

¹[50. Supply and use of energy-

(1) The energy shall not be supplied, transformed, converted or used or continued to be supplied, transformed, converted or used unless provisions as set out below are observed:-

(a) The following controls of requisite capacity to carry and break the current² [are placed] after the point of commencement of supply as defined in rule 58 so as to be readily accessible and capable of being easily operated to completely isolate the supply to the installation such equipment being in addition to any equipment installed for controlling individual circuits or apparatus: -

(i) A linked switch with fuse(s) or a circuit breaker by low and medium voltage consumers.

(ii) A linked switch with fuse(s) or a circuit breaker by HV consumers having aggregate installed transformer/apparatus capacity up to 1000 KVA to be supplied at voltage upto 11 KV and 2500 KVA at higher -voltages (above 11 KV and not exceeding 33 KV).

(iii) A circuit breaker by HV consumers having an aggregate installed transformer/apparatus capacity above 1000 KVA and supplied at 11 KV and above 2500 KVA supplied at higher voltages (above 11 KV and not exceeding 33 KV).

(iv) A circuit breaker by EHV consumer;

Provided that where the point of commencement of supply and the consumer apparatus are near each other one linked switch with fuse(s) or circuit breaker near the point of commencement of supply as required by this clause shall be considered sufficient for the purpose of this rule;

(b) In case of every transformer the following shall be provided: -

(i) On primary side for transformers a linked switch with fuse(s) or circuit breaker of adequate capacity:

Provided that the linked switch on the primary side of the transformer may be of such capacity as to carry the full load current and to break only the magnetising current of the transformer:

Provided further that for transformers of capacity 5000 KVA and above a circuit breaker shall be provided:

Provided further that the provision of linked switch on the primary side of the transformer shall not apply to the unit auxiliary transformer of the generator.

(ii) On the secondary side of transformers of capacity 100 KVA and above transforming HV to MV or LV, a linked switch with fuse(s) or circuit breaker of adequate capacity capable of carrying and breaking full load current and for transformers transforming HV to EHV as the case may be, a circuit breaker:

Provided that where the transformer capacity exceeds 630 KVA a circuit breaker of adequate capacity shall be installed on the secondary side;

(c) Except in the case of composite control gear designed as a unit distinct circuit is protected against excess energy by means of suitable cut-out or a circuit breaker of adequate breaking capacity suitably located and, so constructed as to prevent danger from overheating, arcing or scattering of hot metal when it comes into operation and to permit for ready renewal of the fusible metal of the cut-out without danger;

(d) The supply of energy of each motor or a group of motors or other apparatus meant for operating one particular machine is controlled by a suitable linked switch or a circuit breaker or an emergency tripping device with manual reset of requisite capacity placed in such a position as to be adjacent to the motor or a group of motors or other apparatus readily accessible to and easily operated by the person incharge and so connected in the circuit that by its means all supply of energy can be cut off from the motor or group of motors or apparatus from any regulating switch, resistance of other device associated therewith;

(e) All insulating materials are chosen with special regard to the circumstances of its proposed use and their mechanical strength is sufficient for its purpose and

so far as is practicable of such a character or so protected as to maintain adequately its insulating property under all working conditions in respect of Temperature and moisture; and

(f) Adequate precautions shall be taken to ensure that no live parts are so exposed as to cause danger.

(2) Where energy is being supplied, transformed, converted or used the³[consumer, supplier or the owner] of the concerned installation shall be responsible for the continuous observance of the provisions of sub-rule (1) in respect of his installations.

(3) Every consumer shall use all reasonable mean to ensure that where energy is supplied by a supplier no person other than the supplier shall interfere with the service lines and apparatus placed by the supplier on the premises of the consumer.]

1. Subs. by GSR 11", dt. 21.1.1986, w.e.f. 8.2.1986.

2. Subs. by GSR 218, dt. 18.4.1995, w.e.f. 29.4.1995.

3. Subs. by GSR 218, dt. 18.4.1995, w.e.f. 29.4.1995.

¹[50A. Additional provisions for supply and use of energy in multi-storeyed building (more than 15 metres in height)-

(1) Before making an application for commencement of supply or recommencement of supply after an installation has been disconnected for a period of six months or more the owner/occupier of a multi-storeyed building shall give not less than 30 days' notice in writing to the Inspector together with particulars. The supply of energy shall not be commenced or recommenced within this period, without the approval or otherwise in writing of the Inspector.

(2) The supplier/owner of the installation shall provide at the point of commencement of supply a suitable isolating device with cut out or breaker to operate on all phases except neutral in the 3 phase 4 wire circuit and fixed in a conspicuous position at not more than 2.75 metres above the ground so as to completely isolate the supply to the building in case of emergency.

(3) The owner/occupier of a multi-storeyed building shall ensure that electrical installations/works inside the building are carried out and maintained in such a manner as to prevent danger due to shock and fire hazards' and the installation is carried out in accordance with the relevant codes of practices.

(4) No other service pipes shall be taken along the ducts provided for laying power cables. All ducts provided for power cables and other services shall be provided with fire-barrier at each floor crossing.]

1. Ins. by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.

54. Declared voltage of supply to consumer. - Except with the written consent of the consumer or with the previous sanction of the State Government a supplier shall not permit the voltage at the point of commencement of supply as defined under rule 58 to vary from the declared voltage-

(i) In the case of low or medium voltage, by more than 6 per cent, or;

(ii) In the case of high voltage, by more than 6 per cent on the higher side or by more than 9 per cent on the lower side, or;

(iii) In the case of extra-high voltage, by more than 10 per cent on the higher side or by more than 12.5 per cent on the lower side.

55. Declared frequency of supply to consumer- Except with the written consent of the consumer or with the previous sanction of the State Government a supplier shall not permit the frequency of an alternating current supply to vary from the declared frequency by more than 3 per cent.

56. Sealing of meters, and cut-outs-

(1) A supplier may affix one or more seals to any cut-out and to any meter, maximum demand indicator, or other apparatus placed upon a consumer's premises in accordance with section 26, and no person other than the supplier shall break any such seal.

(2) The consumer shall use all reasonable means in his power to ensure that no such seal is broken otherwise than by the supplier.

(3) The word 'supplier' shall for the purpose of this rule include a State Government when any meter, maximum demand indicator or other apparatus is placed upon a consumer's premises by such Government.

60. Test for resistance of insulation-

(1) Where any electric supply line for use at low or medium voltage has been disconnected from a system for the purpose of addition, alteration or repair, such electric supply line shall not be reconnected to the system until the supplier or the owner has applied the test prescribed under rule 48.

(2) The provision of sub-rule (1) shall not apply to overhead lines except, overhead insulated cables unless the Inspector otherwise directs in any particular case.

61. Connection with earth-

(1) The following provisions shall apply to the connection with earth of systems at low voltage in cases where the voltage normally exceeds 125 volts and of systems at medium voltage: -

¹[(a) Neutral conductor of a phase, 4 wire system and the middle conductor of a 2 phase, 3-wire system shall be earthed by not less than two separate and distinct connections with a minimum of two different earth electrodes of such large number as may be necessary to bring the earth resistance to a satisfactory value both at the generating station and at the sub-station. The earth electrodes so provided, may be interconnected to reduce earth resistance. It may also be earthed at one or more points along the distribution system or service line in addition to any connection with earth which may be at the consumer's premises.]

(b) In the case of a system comprising electric supply lines having concentric cables, the external conductor of such cables shall be earthed by two separate and distinct connections with earth.

(c) The connection with earth may include a link by means of which the connection may be temporarily interrupted for the purpose of testing or for locating a fault.

(d) (i) In a direct current three wire system the middle conductor shall be earthed at the generating station only, and the current from the middle conductor to earth shall be continuously recorded by means of a recording ammeter, and if any time the current exceeds one-thousandth part of the maximum supply-current immediate steps shall be taken to improve the insulation of the system.

(ii) Where the middle conductor is earthed by means of a circuit breaker with a resistance connected in parallel, the resistance shall not exceed 10 ohms and on the opening of the circuit breaker, immediate steps shall be taken to improve the insulation of the system, and the circuit-breaker shall be reclosed as soon as possible.

(iii) The resistance shall be used only as a protection for the ammeter in case of earths on the system and until such earths are removed. Immediate steps shall be taken to locate and remove the earth.

(e) In the case of an alternating current system, there shall not be inserted in the connection with earth any impedance (other than that required solely for the operation of switch-gear or instruments), cut-out or circuit-breaker, and the result of any test made to ascertain whether the current (if any) passing through the connection with earth is normal shall be duly recorded by the supplier.

(f) No person shall make connection with earth by the aid of, nor shall he keep it in contact with, any water main not belonging to him except with the consent of the owner thereof and of the Inspector.

(g) Alternating current systems which are connected with earth as aforesaid may be electrically interconnected.

Provided that each connection with earth is bonded to the metal sheathing and metallic armouring (if any) of the electric supply lines concerned.

(2) The frame of every generator, stationary motor, portable motor, and the metallic parts (not intended as conductors) of all transformers and any other apparatus used for regulating or controlling energy and all medium voltage energy consuming apparatus shall be earthed by the owner by two separate and distinct connections with earth.

²[(3) All metal castings or metallic coverings containing or protecting any electric supply-line or apparatus shall be connected with earth and shall be so joined and connected across all junction boxes and other openings as to make good mechanical and electrical connection throughout their whole length.

Provided that where the supply is at low voltage, this sub-rule shall not apply to isolated wall tubes or to brackets, electroliers, switches, ceiling fans or other fittings (other than portable hand lamps and portable and transportable apparatus) unless provided with earth terminal and to class-II apparatus/ appliances.

Provided further that where the supply is at low voltage and where the installations are either new or renovated all plug sockets shall be of the three-pin type, and the third pin shall be permanently and efficiently earthed.

Explanation- The words "Class-II apparatus/appliance" will have the same meaning as assigned to these words in the relevant ISS.]

³[(4) All earthing systems shall-

(a) Consist of equipotential bonding conductors capable of carrying the prospective earth fault current and a group of pipe/rod/plate electrodes for dissipating the current to the general mass of earth without exceeding the allowable temperature limits as per relevant Indian Standards in order to maintain all non-current carrying metal works reasonably at earth potential and to avoid dangerous contact potentials being developed on such metal works;

(b) Limit earth resistance sufficiently low to permit adequate fault current for the operation of protective devices in time and to reduce neutral shifting;

(c) Be mechanically strong, withstand corrosion and retain electrical continuity during the life of the installation. All earthing systems shall be tested to ensure efficient earthing, before the electric supply lines or apparatus are energised.]

(5) All earthing systems belonging to the supplier shall in addition, be tested for resistance on dry day during the dry season not less than once every two years.

(6) A record of every earth test made and the result thereof shall be kept by the supplier for a period of not less than two years after the day of testing and shall be available to the Inspector or any officer appointed to assist the Inspector and authorised under sub-rule (2) of rule 4A when required.

1. Subs. by GSR 1051, dt. 25.10.1985, w.e.f. 9.11.1985.
2. Subs. by GSR 256, dt. 28.2.1983, w.e.f. 26.3.1983.
3. Subs. by GSR 358, dt. 30.4.1987, w.e.f. 9.7.1987.

¹[61A. Earth leakage protective device- The supply of Energy to every electrical installation other than low voltage installation below 5 KW and those low voltage installations which do not attract provisions of section 30 of the Indian Electricity Act, 1910, shall be controlled by an earth leakage protective device so as to disconnect the supply instantly on the occurrence of earth fault or leakage of current.

Provided that the above shall not apply to overhead supply lines having protective devices which are effectively bonded to the neutral of supply transformers and conforming to rule 91 of 1, E. Rules, 1956.]

1. Ins. by GSR 844, dt. 31.7.1985, w.e.f. 7.9.1985.

¹[64A. Additional provisions for use of energy at high and extra-high voltage- The following additional provisions shall be observed where energy at high or extra-high voltage is supplied, converted, transferred or used, namely: -

(1) Inter-locks- Suitable inter-locks shall be provided in the following cases: -

(a) Isolators and the controlling circuit breakers shall be interlocked so that the isolators cannot be operated unless the corresponding breaker is in open position;

(b) Isolators and the corresponding earthing switches shall be interlocked so that no earthing switch can be closed unless and until the corresponding isolator is in open position;

(c) Where two or more supplies are not intended to be operated in parallel, the respective circuit breakers or linked switches controlling the supplies shall be interlocked to prevent possibility of any inadvertent paralleling or feedback;

(d) When two or more transformers are operated in parallel, the system shall be so arranged as to trip the secondary breaker of a transformer in case the primary breaker of that transformer trips;

(e) All gates or doors which give access to live parts of an installation shall be inter-locked in such a way that these cannot be opened unless the live parts are made dead. Proper discharging and earthing of these parts should be ensured before any person comes in close proximity of such parts;

(f) Where two or more generators operate in parallel and neutral switching is adopted, inter-lock shall be provided to ensure that generator breaker cannot be closed unless one of the neutrals is connected to the earthing system.

(2) Protection- All systems and circuits shall be so protected as to automatically disconnect the supply under abnormal conditions. The following protection shall be provided, namely: -

- (a) Over current protection to disconnect the supply automatically if the rated current of the equipment, cable or supply line is exceeded for a time which the equipment, cable or supply line is not designed to withstand;
- (b) Earth-fault/earth leakage protection to disconnect the supply automatically if the earth fault current exceeds the limit of current for keeping the contact potential within the reasonable values;
- (c) Gas pressure type protection to give alarm and tripping shall be provided on all transformers of ratings 1000 KVA and above;
- (d) Transformers of capacity 10 MVA and above shall be protected against incipient faults by differential protection; and
- (e) All generators with rating of 100 KVA and above shall be protected against earth fault/leakage. All generators of rating 1000KVA and above shall be protected against faults within the generator winding using restricted earth fault protection or differential protection or by both.]

1. Ins. by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.

67. Connection with earth-

¹[(1) All non-current carrying metal parts associated with HV/EHV installation shall be effectively earthed to a grounding system or mat which will: -

- (a) Limit the touch and step potential to tolerable values;
 - (b) Limit the ground potential rise to tolerable values so as to prevent danger due to transfer of potential through ground, earth wires, cables sheath fences, pipe lines, etc.;
 - (c) Maintain the resistance of the earth connection to such a value as to make operation of the protective device effective.
- (IA) In the case of star-connected system with earthed neutrals or delta connected system with earthed artificial neutral point: -

(a) The neutral point of every generator and transformer shall be earthed by connecting it to the earthing system as defined in rule 61(4) and hereinabove by not less than two separate and distinct connections;

Provided that the neutral point of a generator may be connected to the earthing system through an impedance to limit the fault current to the earth;

Provided further that in the case of multi-machine system neutral switching may be resorted to, for limiting the injurious effect of harmonic current circulation in the system;

(b) In the event of an appreciable harmonic current flowing in the neutral connection so as to cause interference, with communication circuits, the generator or transformer neutral, shall be earthed through a suitable impedance;

(c) In case of the delta connected system the neutral point shall be obtained by the insertion of a grounding transformer and current limiting resistance or impedance wherever considered necessary at the commencement of such a system.]

(2) Single-phase high or extra-high voltage systems shall be earthed in a manner approved by the Inspector.

(3) In the case of a system comprising electric supply lines having concentric cables, the external conductor shall be the one to be connected with earth.

(4) Where a supplier proposes to connected with earth an existing system for use at high or extra-high voltage which has not hitherto been so connected with earth he shall give not less than fourteen days' notice in writing together with particulars to the telegraph-authority of the proposed connection with earth.

(5) (a) Where the earthing lead and earth connection are used only in connection with earthing guards erected under high or extra-high voltage overhead lines where they cross a telecommunication line or a railway line, and where such lines are equipped with earth leakage relays of a type and setting approved by the Inspector, the resistance shall not exceed 25 ohms.

(b) Every earthing system belonging to either the supplier or the consumer shall be tested for its resistance to earth on a dry day during dry season not less than once a year. Records of such tests shall be maintained and shall be produced, if required before the Inspector or any officer appointed to assist him and authorised under sub-rule (2) of rule 4A.

(6) In so far as the provisions of rule 61 are consistent with the provisions of this rule, all connections with earth shall also comply with the provisions of that rule.

1. Subs. by GSR 358, dt. 30.4.1987, w.e.f. 9.5.1987.

70. Condensers- Suitable provision shall be made for immediate and automatic discharge of every static condenser on disconnection of supply.

71. Additional provisions for supply to high voltage luminous tube sign installation-

(1) Any person who proposes to use or who is using energy for the purpose of operating a luminous tube sign installation, or who proposes to transform or who is transforming energy to a high voltage for any such purpose shall comply with the following conditions: -

(a) All live parts of the installation (including all apparatus and live conductors in the secondary circuit, but excluding tubes except in the neighbourhood of their terminals) shall be inaccessible to unauthorised persons and such parts shall be effectively screened.

(b) Irrespective of the method of obtaining the voltage of the circuit which feeds the luminous discharge tube sign, no part of any conductor of such circuit shall be in metallic connection (except in respect of its connection with earth) with any conductor of the supply system or with the primary winding of the transformer.

(c) All live parts of an exterior installation shall be so disposed as to protect them against the effects of the weather and such installation shall be so arranged and separated from the surroundings as to limit, as far as possible, the spreading of fire.

(d) The secondary circuit shall be permanently earthed at the transformer and the core of every transformer shall be earthed.

(e) Where the conductors of the primary circuit are not in metallic connection with the supply conductors, (e.g., where a motor-generator or a double-wound convertor is used), one phase of such primary circuit shall be permanently earthed at the motor generator or convertor, or at the transformer.

¹[(ee) An earth leakage circuit breaker of sufficient rating shall be provided on the low voltage side to detect the leakage in such luminous tube sign installations.]

(f) A final sub-circuit which forms the primary circuit of a fixed luminous discharge tube sign installation shall be reserved solely for such purpose.

(g) A separate primary final sub-circuit shall be provided for each transformer or each group of transformers having an aggregate input not exceeding 1,000 volt amperes, of a fixed luminous-discharge tube sign installation.

(h) An interior installation shall be provided with suitable adjacent means for disconnecting all phases of the supply except the "neutral" in a three-phase four wire circuit.

(i) For installations on the exterior of a building a suitable emergency fire-proof linked switch to operate on all phases except the neutral in a three phase four wire circuit shall be provided and fixed in a conspicuous position at not more than 2.75 metres above the ground.

(j) A special "caution" notice shall be affixed in a conspicuous place on the door of every high voltage enclosure to the effect that the low voltage supply must be cut off before the enclosure is opened.

(k) Where static condensers are used, they shall be installed on the load side of the fuses and the primary (low voltage) side of the transformers.

(1) Where static condensers are used on primary side, means shall be provided for automatically discharging the condensers when the supply is cut off;

Provided that static condensers or any circuit interrupting devices on the high or extra-high voltage side shall not be used without the approval in writing of the Inspector.

(2) The owner or user of any luminous tube sign or similar high voltage installation shall not bring the same into use without giving to the Inspector not less than 14 days notice in writing of his intention so to do.

1. Ins. by GSR 844, dt. 31.7.1985, w.e.f. 7.9.1985.

¹[OVERHEAD LINES, UNDER GROUND CABLES AND GENERATING STATIONS]

1. Subs. by GSR 466, dt. 18.7.1991, w.e.f 17.8.1991.

74. Material and strength-

(1) All conductors of overhead lines other than those specified in sub-rule (1) of rule 86 shall have a breaking strength of not less than 350 kg.

(2) Where the voltage is low and the span is of less than 15 metres and is on the owner's or consumer's premises, a conductor having an actual breaking strength of not less than 150 kg may be used.

75. Joints-Joints between conductors of overhead lines shall be mechanically and electrically secure under the conditions of operation. The ultimate strength of the joint shall not be less than 95 per cent of that of the conductor, and the electrical conductivity not less than that of the conductor.

¹[Provided that no conductor of an overhead line shall have more than two joints in a span.]

1. Ins. by GSR 730, dt. 7.9.1989, w.e.f. 30.9.1989.

76. Maximum stresses: Factors of safety-

(1) (a) The owner of every overhead line shall ensure that it has the following minimum factors of safety:-

(i)	For metal supports	1.5
(ii)	For mechanically processed concrete supports	2.0

(c) For latticed steel or other compound structures the wind pressure on the lee side members shall be taken as one-half of the wind pressure on the windward side members and the factors of safety shall be calculated on the crippling load of struts and upon the elastic limit of tension members;

(d) The maximum and minimum temperatures shall be such as the State Government may specify in each case.

(3) Notwithstanding anything contained in sub-rules (1) and (2), in localities where overhead lines are liable to accumulations of ice or snow the State Government may, by order in writing, specify the loading conditions for the purpose of calculating the factor of safety.

77. Clearance above ground of the lowest conductor-

(1) No conductor of an overhead line, including service lines, erected across a street shall at any part thereof be at a height of less than-

(a) For low and medium voltage lines 5.8 metres

(b) For high voltage lines 6.1 metres

(2) No conductor of an overhead line, including service lines, erected along any street shall at any part thereof be at a height less than-

(a) For low and medium voltage lines 5.5 metres

(b) For high voltage lines 5.8 metres

(3) No conductor of in overhead line including service lines, erected elsewhere than along or across any street shall be at a height less than-

(a)	For low, medium and high voltages lines upto and including 11,000 volts, if bare metres	4.6
(b)	For low, medium and high voltage lines upto and including 11,000 volts, if insulated 4.0 metres	
(c)	For high voltage lines above 11,000 volts 5.2 metres	

(4) For extra-high voltage lines the clearance above ground shall not be less than 5.2 metres plus 0.3 metre for every 33,000 volts or part thereof by which the voltage of the line exceeds 33,000 volts.

Provided that the minimum clearance along or across any street shall not be less than 6.1 metres.

78. Clearance between conductors and trolley wires-

¹[(1)] No conductor of an overhead line crossing a tramway or trolley bus route using trolley wires shall have less than the following clearances above and trolley wire-

- (a) Low and medium voltage lines 1.2 metres.

Provided that where an insulated conductor suspended from a bearer wire crosses over a trolley wire the minimum clearance for such insulated conductor shall be 0.6 metre.

(b)	High voltage lines up to and including 11,000 volts	1.8 metres
(c)	High voltage lines above 11,000 volts	2.5 metres
(d)	Extra-high voltage lines	3.0 metres

²[(2)] In any case of a crossing referred to in sub-rule (1), whoever lays his line later in time, shall provide the clearance between his own line and the line which will be crossed in accordance with the provisions of said sub-rule.

Provided that if the later entrant is the owner of the lower line and is not able to provide adequate clearance, he should bear the cost of modification of the upper line so as to comply with this rule.]

1. Rule 78 renumbered as sub-rule (1) by GSR 528, dt. 11.7.1986, w.e.f. 19.7.1986.
2. Sub-rule (2) ins. by GSR 528, dt. 11.7.1986, w.e.f. 19.7.1986.

79. Clearances from buildings of low and medium voltage lines and service lines-

(1) Where a low or medium voltage, overhead line passes above or adjacent to or terminates on any building, the following minimum clearances from any accessible point, on the basis of maximum sag, shall be observed: -

- (a) For any flat roof, open balcony, verandah roof and lean-to-roof-
- (i) When the line passes above the building a vertical clearance of 2.5 metres from the highest point, and

(ii) When the line passes adjacent to the building a horizontal clearance of 1.2 metres from the nearest point, and

(b) For pitched roof-

(i) When the line passes above the building a vertical clearance of 2.5 metres immediately under the lines, and

(ii) When the line passes adjacent to the building a horizontal clearance of 1.2 metres.

(2) Any conductor so situated as to have a clearance less than that specified in sub-rule (1) shall be adequately insulated and shall be attached at suitable intervals to a bare earthed bearer wire having a breaking strength of not less than 350 kg.

(3) The horizontal clearance shall be measured when the line is at a maximum deflection from the vertical due to wind pressure.

¹[Explanation- For the purpose of this rule, expression "building" shall be deemed to include any structure, whether permanent or temporary]

1. Added by GSR 844, dt. 31.7.1985, w.e.f. 7.9.1985.

80. Clearances from buildings of high and extra-high voltage lines-

(1) Where a high or extra-high voltage overhead line passes above or adjacent to any building or part of a building it shall have on the basis of maximum sag a vertical clearance above the highest part of the building immediately under such line, of not less than-

(a) For high voltage lines upto and including 33,000 volts	3.7 metres
(b) For extra-high voltage lines	3.7 metres plus 0.30 metre for every additional 33,000 volts or part thereof.

(2) The horizontal clearance between the nearest conductor and any part of such building shall, on the basis of maximum deflection due to wind pressure, be not less than-

(a) For high voltage lines upto and including 11,000 volts	1.2 metres
(b) For high voltage lines above 11,000 volts and up to and including 33,000 volts	2.0 metres
(c) For extra-high voltage lines	2.0 metres plus 0.3 metre for every additional 33,000 volts for part thereof.

¹[Explanation- For the purpose of this rule expression “building” shall be deemed to include any structure, whether permanent or temporary]

1. Added by GSR 844, di. 31.7.1985. w.e.f- 7.9.1985.

81. Conductors at different voltages on same supports- Where conductors forming parts of systems at different voltages are erected on the same supports, the owner shall make adequate provision to guard against danger to linesman and others from the lower voltage system being charged above its normal working voltage by leakage from or contact with the higher voltage system and the methods of construction and the clearances between the conductors of the two systems shall be subject to the prior approval of the Inspector.

¹[82A. Transporting and Storing of material near overhead lines-

(1) No rods, pipes or similar materials shall be taken below or in the vicinity of any bare overhead conductors or lines if they are likely to infringe the provisions for clearances under rules 79 and 80, unless such materials are transported under the direct supervision of a competent person authorised in this behalf by the owner of such overhead conductors or lines.

(2) Under no circumstances rods, pipes or other similar materials shall be brought within the flash over distance of bare live conductors or lines; and

(3) No material or earth work or agricultural produce shall be dumped or stored or trees grown below or in the vicinity of bare overhead conductors lines so as to reduce the requisite safety clearances specified under rules 79 and 80.]

88. Guarding-

(1) Where guarding is required under these rules the provisions of sub-rules (2) to (4) shall apply.

(2) Every guard-wire shall be connected with earth at each point at which its electrical continuity is broken.

(3) Every guard-wire shall have an actual breaking strength of not less than 635 kg and if made of iron or steel, shall be galvanised.

(5) Lines crossing trolley-wires- In the case of a crossing over a trolley-wire the guarding shall fulfil the following conditions, namely:-

(a) Where there is only one trolley-wire, two guard-wires shall be erected as in diagram A;

(b) Where there are two trolley-wires and the distance between them does not exceed 40 cms, two guard-wires shall be erected as in diagram B;

(c) Where there are two trolley wires and the distance between them exceeds 40 cms but does not exceed 1.2 metres, three guard-wires shall be erected as in diagram C;

(d) Where there are two trolley--wires and the distance between them exceeds 1.2 metres, each trolley-wire shall be separately guarded as in diagram D;

(e) The rise of the trolley boom shall be so limited that the trolley leaves the trolley-wire, it shall not foul the guard-wires; and

(f) Where a telegraph-line is liable to fall or be blown down upon an arm, stay-wire or span-wire and so slide down upon a trolley-wire, guard hooks shall be provided to prevent such sliding.

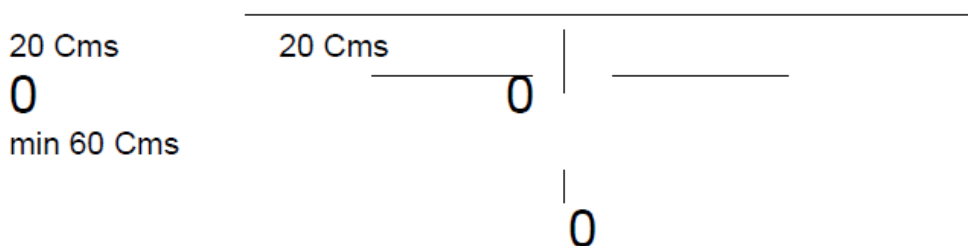


DIAGRAM-A

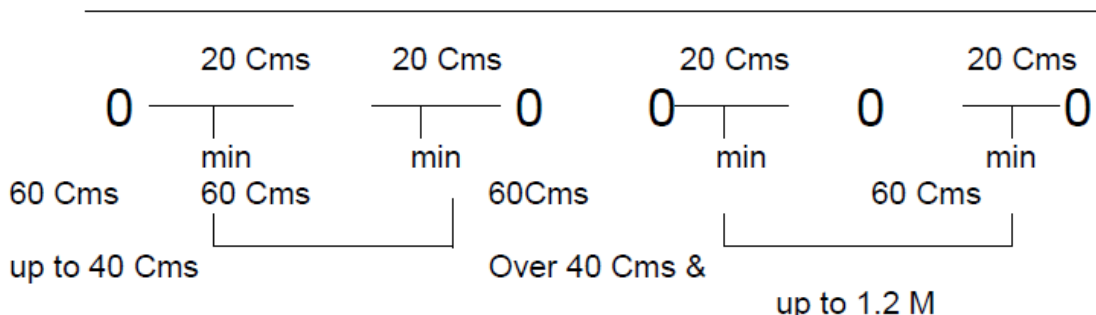


DIAGRAM B

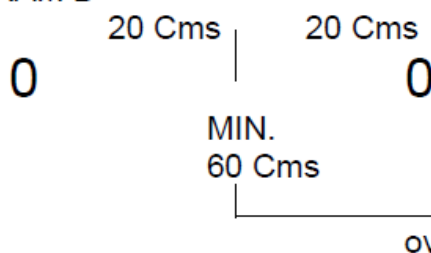


DIAGRAM C

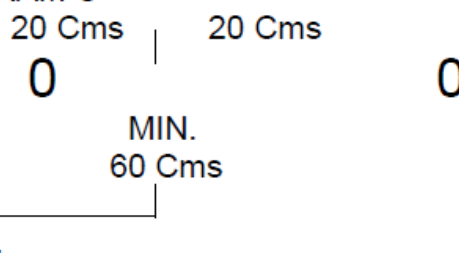


DIAGRAM D

89. Service-lines from Overhead lines- No Service-line or tapping shall be taken off an overhead line except at a point of support.

¹[Provided that the number of tappings per conductor shall not be more than four in case of low and medium voltage connections.]

1. Added by GSR 45, dt. 1.1.1993, w.e.f. 23.1.1993.

90. Earthing-

(1) All metal supports and all reinforced and prestressed cement concrete supports of overhead lines and metallic fittings attached thereto, shall be permanently and efficiently earthed. For this purpose a continuous earth wire

shall be provided and securely fastened to each pole and connected with earth ordinarily at three points in every km., the spacing between the points being as nearly equidistance as possible. Alternatively, each support and the metallic fitting attached thereto shall be efficiently earthed.

¹[(IA) Metallic bearer wire used for supporting insulated wire of low and medium voltage overhead service lines shall be efficiently earthed or insulated.]

(2) Each stay-wire shall be similarly earthed unless insulator has been placed in it at a height not less than 3.0 metres from the ground.

1. Subs. by GSR 732, dt. 18.6.1985, w.e.f. 3.8.1985.

91. Safety and protective devices-

(1) Every overhead line, (not being suspended from a dead bearer wire and not being covered with insulating material and not being a trolley-wire) erected over any part of street or other public place or in any factory or mine or on any consumers' premises shall be protected with a device approved by the Inspector for rendering the line electrically harmless in case it breaks.

(2) An Inspector may by notice in writing require the owner of any such overhead line wherever it may be erected to protect it in the manner specified in sub-rule(I).

¹[(3) The owner of every high and extra-high voltage overhead line shall make adequate arrangements to the satisfaction of the Inspector to prevent unauthorised persons from ascending any of the supports of such overhead lines which can be easily climbed upon without the help of a ladder or special appliances. Rails, reinforced cement concrete poles and pre-stressed cement concrete poles without steps, tubular poles, wooden supports without steps, I-sections and channels shall be deemed as supports which cannot be easily climbed upon for the purpose of this rule.]

1. Ins. by GSR 466, dt. 18.7.1991, w.e.f. 17.8.1991.

92. Protection against lightning-

(1) The owner of every overhead line ¹[sub-station or generating station] which is so exposed as to be liable to injury from lightning shall adopt efficient means for diverting to earth any electrical surges due to lightning.

²[(2) The earthing lead for any lightning arrestor shall not pass through any iron or steel pipe, but shall be taken as directly as possible from the lightning- arrestor to a separate earth electrode and/or junction of the earth mat already provided

for the high and extra-high voltage sub-station subject to the avoidance of bends wherever practicable.

Note- A vertical ground electrode shall be connected to this junction of the earth mat.]

1. Ins. by GSR 466, dt. 18.7.1991, w.e.f. 17.8.1991.
2. Subs. by GSR 1050, dt. 9.11.1985.

93. Unused overhead lines-

(1) Where an overhead line ceases to be used as an electric supply line, the owner shall maintain it in a safe mechanical condition in accordance with rule 76 or shall remove it.

(2) Where any overhead line ceases to be used as an electric supply line, an Inspector may, by a notice in writing served on the owner, require him to maintain it in a safe mechanical condition or to remove it within fifteen days of the receipt of the notice.