

SWITCHBOARD INSTRUMENTS.

22-31. Every generator switchboard shall be provided with the necessary instruments to indicate with reasonable accuracy the voltage and current generated.

SWITCHES AND CIRCUIT-BREAKERS.

22-41. All switches and circuit-breakers shall be so designed that their performance shall not be of a lower standard than that prescribed by the appropriate British Standard Specification.

22-42. Each fuse-switch when operating as a switch and each switch when used for breaking a circuit under load shall be quick-break and positive in action.

22-43. Switches and circuit-breakers operating at a pressure in excess of 30 volts and readily accessible to unskilled persons shall be so constructed and installed that no person can accidentally make contact with live metal or be injured through an arc from the switch.

22-44. Switches of the all-insulated type shall have covers made of strong material which is not readily combustible.

22-45. The covers of metal-clad switches shall be so interlocked that the cover cannot be opened when the switch is in the "On" position or the switch placed in the "On" position when the cover is open.

22-46. Every circuit-breaker shall be arranged to open at a predetermined current and shall, unless approved by the electrical supply authority, be of the free-handle type.

22-47. Every fuse-switch when opening the circuit as a fuse-link and every circuit-breaker shall comply with Regulations 22-51 and 22-52 hereof.

CUT-OUTS.

22-51. For extra-low pressure every cut-out shall comply with the following requirements:—

- (a) The cover (if any) shall be made of material which is not readily combustible and if of metal it shall be kept well clear of all live parts.
- (b) The base shall be of insulating material which is durable, not readily combustible, and non-absorbent.
- (c) The circuit contacts and their terminals shall be so spaced or shielded that an arc cannot be maintained when the fuse-link blows.
- (d) The fuse-link shall be of such construction, or be so guarded or placed as to prevent danger from overheating, arcing, and the scattering of hot metal or other substances when it blows.

22-52. For low pressure and medium pressure every cut-out shall comply with the following requirements in addition to the requirements of the last preceding regulation:—

- (a) It shall be provided with a suitable carrier made of insulating material which is not readily combustible for the fuse-link of such shape as to protect a person handling it from shock and burns, and contacts shall be provided on the carrier to which the ends of the fuse-link can be readily attached.
- (b) The base shall be provided with fixed circuit contacts of such shape as to retain the carrier in position in the presence of vibration.
- (c) The bus-bars, fixed contacts, removable contacts, and fuse-links shall be so shielded as to protect a person against contact with live metal when the fuse-carrier is being inserted or removed.

22-53. When metal-clad cut-outs are used they shall be so erected that the covers cannot accidentally open or come apart at the hinges and so that each cover can be opened sufficiently for the easy withdrawal of the fuse-link carrier.

22-54. No fuse-link shall be placed in any ceiling-rose.

PART 23.—CONDUCTORS.

MATERIAL OF CONDUCTORS.

23-01. All conductors of cables for internal wiring, other than the outer conductors of earthed concentric systems, shall be of annealed copper and shall conform to British Standard Specification No. 7 or its equivalent.

23-02. (1) When the insulating material of any conductor contains free sulphur each wire shall either be adequately and uniformly coated with tin free from all impurities or be otherwise protected in an approved manner.

(2) The quality of the tinning shall be such that there will be no corrosion of the tinning in any finished cable or flexible cord and that the tinned conductor will withstand the tinning test prescribed by Regulation 62-35 hereof.

INSULATION OF CONDUCTORS.

23-11. The types of insulation prescribed by Regulations 23-12 to 23-32 (both inclusive) hereof are hereby declared to be approved types for the purposes of these Regulations and these types, or such other types as may from time to time be approved, shall alone be employed.

RUBBER-INSULATED CABLES.

23-12. (1) Rubber-insulated cables shall be insulated with a layer of pure rubber next to the conductor, an intermediate layer of vulcanized-rubber compound, and an outer jacket of vulcanized-rubber compound. These three layers shall together constitute the insulating material. Alternatively the cables may be insulated with a homogeneous insulating material consisting of vulcanized-rubber compound applied in one or more layers.

(2) The radial thickness of the insulating material shall be not less than that specified in British Standard Specification No. 7.

(3) The maker's name, or registered trade-mark, or registered trade-name, and the grade of insulation and/or working voltage shall be legibly and continuously marked on every rubber-insulated cable in some one of the following ways:—

- (a) Printed on a layer of tape vulcanized upon the insulating material; or
- (b) Printed on a longitudinal or spiral tape inserted under the protective covering; or
- (c) Printed on the surface of the insulating material under the protective covering; or
- (d) In the case of cables having an outer protective covering of tough rubber compound in accordance with Regulation 23-71 hereof, alternatively may be embossed or indented on the outside of such covering at intervals not exceeding three feet.

PAPER-INSULATED CABLES.

23-21. (1) The conductors of paper-insulated cables shall be lapped with paper impregnated with a suitable insulating compound.

(2) The radial thickness of the insulating material shall be not less than that specified in British Standard Specification No. 480.

FLEXIBLE CORDS.

23-31. (1) The conductors (other than earthing-leads) of flexible cords shall be insulated in some one of the following ways:—

- (a) A lapping of cotton next to the conductor, then two layers of pure rubber and an overlapping of cotton; or
- (b) One layer of pure rubber next to the conductor, an intermediate layer of vulcanized-rubber compound, and an outer jacket of vulcanized-rubber compound; or
- (c) A homogeneous insulating material consisting of vulcanized-rubber compound applied in one or more layers; or
- (d) A lapping of cotton next to the conductor, then one or more layers of rubber and a close overlapping of asbestos; or
- (e) A homogeneous insulating material as in paragraph (c) of this regulation with a close overlapping of asbestos; or
- (f) A lapping of cotton or silk next to the conductor, then a homogeneous insulating material as in paragraph (c) of this regulation.

(2) The radial thickness of the insulating material shall be not less than that specified in Table VIII in Division VII hereof.

23-32. (1) Except as provided in clauses (2) and (3) of this regulation, the maker's name, or registered trade-mark, or registered trade-name, and the grade of insulation and/or working voltage shall be legibly and continuously marked on every flexible cord in some one of the following ways:—

- (a) Printed on a layer of tape vulcanized upon the insulating material; or
- (b) Printed on a longitudinal or spiral tape inserted under the protective covering; or
- (c) Printed on the surface of the insulating material under the protective covering; or
- (d) In the case of flexible cords having an outer protective covering of tough rubber compound in accordance with Regulation 23-71 hereof, alternatively may be embossed or indented on the outside of such covering at intervals not exceeding three feet.

(2) In those cases where a standard method of identification other than that prescribed by the last preceding clause is adopted flexible cords having such method shall not be used unless approved.