

POWER LIFT RULES 1980

Amendment No. 2

Published August 1984

Replace the following existing pages with the replacement pages provided:

- 1/2, 3/4, 5/6, 7/8,
  - 3 - 11/12, 13,
  - 4 - 3/4,
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  - 13 - 1/2,
  - 15 - 1/2,
  - 20 - 3/4,
  - 24 - 5/6, 7/8, 9/10,
  - 25 - 1/2, 3/4, 5/6, 7/8,
1. Pages which have changed in any way with respect to contents, layout, or form, and now differ from the original pages are marked at the bottom with "August 1984" on the left and "Amendment No. 2" on the right.
  2. Vertical lines alongside the text indicate where the changes have been made.
  3. Pages which are reproduced in original form are unmarked at the bottom (i.e. not marked as in 1).

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#### 24.17 EARTHING OF BELL AND INDICATOR TRANSFORMERS

One side of the secondary circuit of bell and indicator transformers, and their cases if of metal, shall be earthed.

#### 24.18 ELECTRICAL SUPPLY

The electrical supply shall comply with the following requirements:

- (i) The wiring of lift mains shall be armoured cable, or enclosed in steel conduit or piping, or be of mineral insulated metal sheathed cable.
- (ii) The electrical supply to every lift shall be controlled independently of the master switch of the building (see rule 24.19).
- (iii) The main switch for the lift or lifts in the building shall be clearly identified by the legend "THIS SWITCH SUPPLIES A LIFT".
- (iv) Where an installation comprises more than one lift, all switches, circuit-breakers and fuses used in connection with each lift shall be identified by appropriate word or words and/or identification number as required by rule 28.4.

#### 24.19 CIRCUIT-BREAKERS

Each individual lift shall be provided with an overcurrent circuit-breaker which simultaneously opens or closes all phase conductors controlled by it. The circuit-breaker shall have a time-lag device, but shall not be provided with an under-voltage release (see rule 7.12).

The electrical connection of the lift circuit-breaker in the electrical installation of the building shall be such, that operation of the main building circuit-breakers shall not interrupt electrical supply to the lifts (see rule 24.18).

#### 24.20 POSITION OF CIRCUIT-BREAKERS

Circuit breakers shall be installed in the machine room in an accessible position, convenient and adjacent to the entrance.

Where the machine, generator and controller are not in clear view of a person operating the circuit-breaker, isolation arrangements shall be provided as required by Electrical Wiring Regulations 1976. (see also rule 7.12).

#### 24.21 WIRING

All wiring, unless specifically exempted in these Rules shall comply with the requirements of the Electrical Wiring Regulations 1976.

The following general requirements shall be observed in the installation of electrical wiring:

- (i) All cables (other than trailing cables) installed for any purpose in a lift shall be armoured, or be enclosed in steel conduit, duct, or trunking, or be of the mineral insulated metal-sheathed type or the aluminium sheathed type. Super high impact P.V.C. conduit is acceptable (refer circular survey No. 1974/10). Multicore control cables sheathed with non-flammable thermo-plastic material may be installed on the side of a suitable wood batten if they are mechanically protected by a metallic casing to the satisfaction of the inspecting engineer surveyor.

NOTE: The provisions of this Section apply also to wiring for auxiliary or additional equipment, such as telephones or alarm systems, reticulated music, etc. Reticulated music systems shall be provided with a shut-off switch in or on the car, to close down the system whilst the lift is being maintained.

- (ii) Metal trunking may be used with clip, screw or rivet-on lids or inspection covers; provided however that where fixed to the liftwell the lids and inspection covers shall be of the screw-on type. In addition, a minimum of two rivets to every 2000 mm length of trough cover used in the liftwell shall be provided. Such rivets shall be located at the highest point of the cover.

- (c) The governor switch, when set as specified in either paragraph (a) or (b) above, shall open in the up direction at a speed not greater than the speed at which the governor is set to trip in the down direction.

#### 30.4 SEALING AND PAINTING OF SPEED GOVERNORS

Speed governors shall have their means of speed adjustment sealed after calibration. If speed governors are painted after sealing, all bearing or rubbing surfaces shall be freed of paint and a hand test shall be made to determine that all parts operate freely as intended. Sealing shall be effected so as to prevent readjustment of the governor tripping speed, without disturbing the seal.

#### 30.5 GOVERNOR ROPES

- 30.5.1 Material and Factor of Safety. Governor ropes shall fully comply with the requirements of BS 329. Governor ropes shall be of not less than 9.5 mm diameter and shall have a minimum factor of safety of not less than 5.
- 30.5.2 Governor Rope Clearance. During normal operation of the lift, the governor rope shall run free and clear of the governor jaws, rope guards and other stationary parts.

#### 30.6 ROPE GRIP JAWS OF SPEED GOVERNORS

Speed governors shall be provided with a rope grip jaw or jaws which shall effectively arrest the governor rope when the governor trips. The jaw or jaws shall develop a maximum grip such as will permit the governor rope ultimately to pull through when its tension is not more than one-fifth of the guaranteed breaking strength of the rope. (see also rule 29.14).

Governor jaws shall be of such shape and length that no appreciable damage to or deformation of the rope shall result from the stopping action of the jaws in operating the car or counterweight safety gear.

The jaws of governors controlling the car safety gear of Type B shall be incapable of spontaneously resetting clear of the governor rope in the event of the car jumping upwards after operation of its safety gear. Corresponding provision shall be made in respect to governors controlling the counterweight safety gear of Type B.

### 30.7 DESIGN OF SPEED GOVERNOR SHEAVES AND TRACTION BETWEEN ROPE AND SHEAVE

The arc of contact between the governor rope and governor sheave shall, in conjunction with a governor rope tension device, provide sufficient traction to cause proper functioning of the governor.

Governor and tension sheave grooves shall comply with the relevant parts of Section 18.

The ratio of the pitch diameter of governor sheave to governor rope diameter when using 6-strand ropes, shall be based on the rope speed shown in Table 30.7.

When using 8-strand ropes, the sheave ratio for rope speeds exceeding 3.5 m/s need not be more than 32:1.

TABLE 30.7

MINIMUM RATIO OF GOVERNOR SHEAVE  
TO ROPE DIAMETER

Speed of rope m/s	Minimum ratio of sheave to rope diameter
Up to and including 1.25	25
Over 1.25 up to and including 3.5	30
Over 3.5 up to and including 5.0	33
Over 5.0 up to and including 6.0	35
Over 6.0	37

### 30.8 SPEED GOVERNOR MARKING PLATE

A metal plate shall be securely attached to each speed governor and shall be marked in a legible and permanent manner with letters and figures not less than 3 mm high indicating the following:

- (i) The maker's name or trademark.
- (ii) The rated speed and tripping speed in metres per second at which the governor is set and sealed to trip.
- (iii) The size, material, construction and breaking load of the governor rope on which the governor jaws were designed to operate.

### 30.9 GUARDING OF NIP-POINTS

The rope nip-points of governor tension sheaves shall be adequately guarded. (see also rule 18.2).

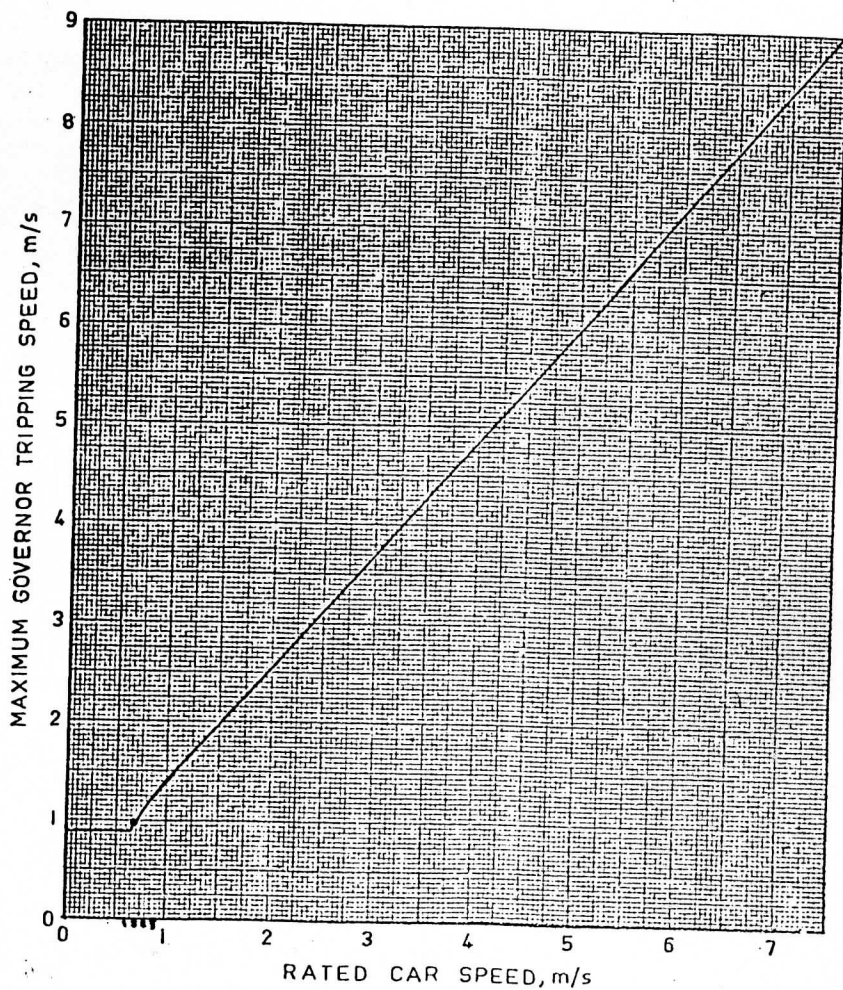


Fig. 30.2 MAXIMUM GOVERNOR TRIPPING SPEEDS