

PROPOSALS FOR RULES OF DRAFTING AND PRESENTATION DEDICATED TO IMPROVE THE LEGIBILITY OF REGULATIONS

Transmitted by the Expert from the International Organization for Standardization (ISO)

The following proposals are extracted from the recommendations comprised in the ISO directives part 2 published in 2001 and applicable to the drafting of standards. These ISO directives are available on the ISO web site: www.iso.ch.

This document proposes three main lines of improvement:

- Adopting a common structure for all the regulations;
- Using as far as possible the same vocabulary;
- Improving the presentation:
 - as regards the size of characters and font;
 - as regards drawings and diagrams.

1. STRUCTURE OF REGULATIONS

1.1 The title

The title should indicate the essential elements in three parts as a maximum, as concise as possible, going from the most general to the particular.

Examples:

Regulation 52:

"Uniform prescriptions for power-driven vehicles – Small capacity public service – Characteristics of construction".

Regulation 95:

"Uniform prescriptions for power-driven vehicles – Protection of occupants against collateral collision".

Regulation 90:

"Uniform prescriptions for equipment for power-driven vehicles and their trailers – Brake lining assemblies and drum-brake linings – Replacement equipment".

Regulation 44:

"Uniform prescriptions for equipment for power-driven vehicles – Restraining devices for child occupants".

1.2 The scope

The scope should not be a repetition of the title but shall define what the Regulation aims at.

The Regulation 101 mentions in its scope the title except the vehicles designated as passenger cars in the title and the vehicles of category M1 in the scope.

1.3 Normative and Regulation references – Symbols and units

It would be beneficial to have two additional clauses after the scope:

- "Regulation and normative references" in which numbers and titles of regulations and standards which are quoted in the text would be indicated;
- "Symbols and units" in which a three-column table comprising the symbol, its meaning and its unit would appear.

1.4 Definitions

The clause "Definitions" should contain the whole definitions used in the Regulation and should not appear in other clauses or annexes of the text. By the way it is the case of the Regulation R113 in which the definitions appear in part A. In the wording of definitions, it would be beneficial not to mention specifications.

1.5 Specifications

It would be clearer to include the descriptions of the test methods in the clauses of the text body rather than in an annex.

It would be better to keep an annex only for particular cases like the measurement of point H that is found in several Regulations.

1.6 Annexes

The common annexes to the whole Regulations should appear at the same place and should not be melt with technical annexes.

Example: Regulation 113

The annexes 1 and 3 are administrative, the annexes 3 and 4 are technical, the annexes 5 and 7 are related to the conformity control and the annex 6 concerns lamps incorporating lenses of plastic material. Otherwise, technical definitions are found in part "A" "Administrative Provisions".

2. USE OF A SAME VOCABULARY

This recommendation not only concerns technical vocabulary but also common vocabulary. In the case of an obligation, use, in the English version, the verb "shall" and, in the French version, the verb "devoir" avoiding sentences like, in Regulation 39, "la vitesse sera de 40 et 80 km/h". Replace with: "la vitesse doit être de 40 km/h". In the case of a recommendation, use in the English version the verb "should".

Use the designations of M and N categories of vehicles precisely defined, and not alternatively M1 vehicles and passenger vehicles as in Regulation 101.

Use the same vocabulary in all Regulations.

The use of verbs in present could facilitate the understanding of requirements and recommendations.

3. PRESENTATION

The presentation could evolve in several fields.

3.1 The titles

The titles of clauses and sub-clauses could be better identified if they comprised a title, if possible in bold types with heights of characters different from the text's ones.

3.2 The texts of clauses

Spaces between the lines would make the text contents clearer as well as indented lines regard to titles.

The use of a unique and constant size font from a Regulation to another would reinforce their [legibility/readability].

The use an equation editor would enable a writing of mathematical formulae avoiding risks of wrong reading (position of operation signs, power, or indices).

3.3 The units of physical quantities

The units of the International System should be generalised with the authorised multiples and sub-multiples.

3.4 The graphics and drawings

The respect of some simple rules of technical drawing would facilitate their understanding:

- a cotation, specifying the unit used in the key, whereas, for the time being, indications are found in the drawing itself, and the position of dimensions without ambiguity,
- a thickness of line differentiated for the dimension lines and for the drawing itself.

The positioning of graphics in the text body would enable a better understanding compared to the cross-referring to graphics in the annex or appendix.

4. EXAMPLE

The 10 first pages of Regulation 52 have been reformulated taking into account the recommendations mentioned above (refer to the enclosed document).

Uniform prescriptions relating to motor vehicles — Small capacity public service vehicles — Characteristics of construction

Prescriptions uniformes relatives aux véhicules à moteur — Transport en commun de faible capacité — Caractéristiques de construction

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Contents		Page
1	Scope.....	1
2	Normative and/or regulatory references.....	1
3	Terms and definitions.....	1
4	Symbols and abbreviated terms.....	3
5	Application for approval.....	3
6	Approval.....	4
7	Specifications.....	5
7.1	Load distribution between axles and loading conditions.....	5
7.2	Area available for passengers.....	6
7.3	Number of passengers accommodated.....	6
7.4	Strength of the superstructure.....	7
7.5	Protection against fire risks.....	7
7.5.1	Engine compartment.....	7
7.5.2	Fuel filler-holes.....	7
7.5.3	Fuel tanks.....	8
7.5.4	Fuel-feed systems.....	8
7.5.5	Emergency switch (if fitted).....	8
7.5.6	Electrical equipment and wiring.....	9
7.5.7	Batteries.....	9
7.5.8	Fire extinguishers and first-aid equipment.....	9
7.5.9	Materials.....	9
7.6	Exits.....	10
7.6.1	Number.....	10
7.6.2	Siting of exits.....	10

Uniform prescriptions relating to motor vehicles — Small capacity public service vehicles — Characteristics of construction

1. Scope

This Regulation applies to single-deck rigid vehicles of categories M₂ and M₃ ^{1/} designed and constructed for the carriage of seated or standing persons and having a capacity not exceeding 22 passengers in addition to the driver.

2. Normative and/or regulatory references

The following normative and/or regulatory documents contain provisions which, through reference in this text, constitute provisions of this regulation. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this Regulation are encouraged to investigate the possibility of applying the most recent editions of the normative and/or regulatory documents indicated below. For undated references, the latest edition of the normative and/or regulatory document referred to applies.

ECE-UN Regulation n° 33, *Uniform provisions relating to approval*

ECE-UN Regulation n° 34, *Uniform provisions relating to approval*

ECE 70/156 Directive of 6 February 1970,

EN 3-1:1996,

3. Terms and definitions

For the purposes of this Regulation, the following terms and definitions

3.1 vehicle

vehicle of categories M₂ and M₃ designed and equipped for the carriage of seated or standing persons and having a capacity not exceeding 22 passengers in addition to the driver;

3.1.1 class A vehicles

vehicles designed to carry standing passengers; a vehicle of this class has seats and may have provision for standing passengers.

3.1.2 class B vehicles

vehicles not designed to carry standing passengers; a vehicle of this class has no provision for standing passengers.

3.2 vehicle type

vehicles which do not differ essentially with regard to the constructional features specified in this Regulation

3.3 approval of a vehicle

approval of a vehicle type with regard to the constructional features specified in this Regulation

3.4 service door

exit

door used by passengers in normal circumstances with the driver seated

3.5 double door

door affording two, or the equivalent of two, access passages

^{1/} As defined in annex 7 of the Consolidated Resolution on the Construction of Vehicles (R.E.3) (document TRANS/WP.29/78/Rev.1/Amend.2).

3.6**emergency door**

emergency exit

exit

door additional to the service doors intended for use by passengers as an exit only exceptionally and, in particular, in an emergency

3.7**emergency window**

emergency exit

exit

window, not necessarily glazed, intended for use as an exit by passengers in an emergency only

3.8**double window**

emergency window which, when divided into two by an imaginary vertical line (or plane), exhibits two parts each of which complies as to dimensions and access with the requirements applicable to a normal emergency window

3.9**escape hatch****emergency exit**

exit

roof-opening intended for use as an exit by passengers in an emergency only

3.10**sliding door**

door, which can be opened or closed only by sliding it along one or more rectilinear or approximately rectilinear rails

3.11**floor or deck**

part of the bodywork whose upper surface supports standing passengers, the feet of seated passengers and of the driver, and seat mountings

3.12**gangway**

space providing access by passengers from any seat or row of seats to any other seat or row of seats or to any access passage from or to any service door

NOTE It does not include nor the space required to accommodate the feet of seated passengers, nor the space above the surface of any step or staircase; or any space which affords access solely to one seat or to one row of seats

3.13**access passage**

passage through a doorway to a gangway

3.14**driver's compartment**

space intended for the driver's exclusive use, except in emergency, and containing the steering wheel, controls, instruments and other devices necessary for driving the vehicle

3.15**unladen kerb mass**

mass of the vehicle in running order, unoccupied and unladen but complete with fuel, coolant, lubricant, tools and spare wheel

3.16**maximum authorized total mass**

technically permissible maximum mass declared by the manufacturer of the vehicle and recognized by the administration granting approval

3.17**passenger**

person other than the driver or a member of the crew

3.18**passenger compartment**

space intended for passengers use excluding any space occupied by fixed appliances such as bars, kitchenettes or toilets or luggage compartment

3.19**automatically operated service door**

power-operated service door which can be opened, other than by means of emergency controls, only after a control is operated by a passenger, and after activation of the controls by the driver, and which closes again automatically

3.20**starting prevention device**

device which prevents the vehicle being driven away from rest when a door is not fully closed

3.21**driver operated service door**

service door which normally is opened and closed by the driver

4. Symbols and abbreviated terms

The symbols and abbreviated terms used in this Regulation are given in Table 1.

Table 1 — Symbols and abbreviated terms

Symbol	Description	Unit
MT	Technical maximum mass	kg
MA	Fitting intended for use of luggage or goods transport	-
V	Total volume of luggage compartments	m ³
B	Total mass of baggage the luggage compartments may contain	kg
[S ₂]	Total surface area available for baggage that can be carry on the roof	m ²
BX	Total mass of baggage that can be carry on the roof	kg
S ₀	Horizontal projection of the total surface area intended for seated and standing passengers and crew seats (if any)	m ²
S ₁	Horizontal projection of the total surface area intended for standing passengers	m ²
A	Number of seats for passengers and crew seats (if any)	-
N	Total number of passenger	-
MV	[Unladen kerb mass increased by 75 kg for the mass of the driver]	kg
-	technical maximum load for each axle	kg
-	Unladen kerb mass	kg
Q	Mass of a passenger on his seat	kg
B	Mass uniformly distributed in the baggage compartments	kg
S _{sp}	Space needed for one standing passenger	m ² /passenger

5. Application for approval

5.1 The application for approval of a vehicle type with regard to its constructional features shall be submitted by the vehicle manufacturer or by his duly accredited representative.

5.2 The application for approval shall be accompanied by the undermentioned documents in triplicate and by the following particulars:

- a) a detailed description of the vehicle type with respect to its structure, dimensions, configuration and constituent materials;
- b) drawings of the vehicle and its interior arrangements;

- c) provision made(MA) for the carriage of baggage or goods;
- d) where one (or more) baggage compartment(s) has (have) been provided (for baggage other than hand baggage) : total volume of such compartments (V) and total mass of the baggage that they can obtain (B);
- e) where the vehicle is equipped to carry baggage on the roof : total surface area available for such baggage (S₂) and total mass of baggage that can be placed on it BX;
- f) horizontal projection of the total surface area intended for seated and standing passengers and crew seats (if any) S₀;
- g) horizontal projection of the total surface area intended for standing passengers S₁ in accordance with paragraph 6.2.;
- h) number of passenger and crew seats, if any, A;
- i) intended total number of passengers N;
- j) class (A or B) for which the approval is requested.

5.3 The application for approval shall be accompanied by the undermentioned information:

- technical maximum mass MT;
- technical maximum load for each axle;
- [unladen kerb mass increased by 75 kg for the mass of the driver MV]

5.4 A vehicle representative of the type to be approved shall be submitted to the technical service responsible for conducting the approval tests.

6. Approval

6.1 If the vehicle submitted for approval pursuant to this Regulation meets the requirements of paragraph 7, approval of that vehicle type shall be granted.

6.2 An approval number shall be assigned to each type approved. Its first two digits (at present 01 corresponding to the 01 series of amendments which entered into force on 12 September 1995) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another vehicle type.

6.3 Notice of approval or of extension or refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in annex 1 to this Regulation.

6.4 There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:

- a) a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 2/
- b) the number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 6.4.a);
- c) an additional symbol consisting of the letter A or B indicating the Class in which the vehicle has been approved.

6.5 If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 6.4 need not be repeated.

In such a case, the regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 6.4.

6.6 The approval mark shall be clearly legible and be indelible.

6.7 The approval mark shall be placed close to or on the vehicle data plate affixed by the manufacturer.

6.8 Annex 2 to this Regulation gives examples of arrangements of approval marks.

7. Specifications

7.1. Load distribution between axles and loading conditions

7.1.1 The load distribution of a stationary vehicle on level ground shall be determined in two conditions:

- unladen, as specified in paragraph 7.1.3.,
- laden, as specified in paragraph 7.1.4.

7.1.2 The front axle(s) shall carry not less than the percentage of mass shown in the Table 2.

Table 2 — Minimum percentage of vehicle mass the front axle(s) shall support

Loading conditions	Minimum percentage of vehicle mass the front axle(s) shall support	
	Class A	Class B
Unladen	20 %	25 %
Laden	25 %	25 %

7.1.3 [For the purpose of this paragraph, "unladen" MV, means the vehicle in the condition described in paragraph 3.15. with the addition of 75 kg for the mass of the driver and 75 kg for the mass of each member of the crew for which a crew seat is provided as described in paragraph 7.7.1.8.)

2/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 (vacant), 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35 (vacant), 36 for Lithuania, 37 for Turkey, 38 (vacant), 39 for Azerbaijan, 40 for the former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Community (Approvals are granted by its Member States using their respective ECE symbol), 43 for Japan, 44 (vacant), 45 for Australia, 46 for Ukraine, 47 for South Africa and 48 for New Zealand. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, or in which they accede to that Agreement, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

7.1.4 [For the purpose of this paragraph, “laden” MT, means the vehicle unladen as described in paragraph 7.1.3. with the addition of a mass Q on each passenger seat, a number, corresponding to the authorized number of standing passengers, of mass Q uniformly distributed over the area S_1 , a mass equal to B uniformly distributed in the baggage compartments and, where appropriate, a mass equal to BX uniformly distributed over the surface area of the roof equipped for the carriage of baggage.)

7.1.5 The values of Q for the different classes of vehicles are specified in 7.3.2.

7.1.6 B shall have a numerical value not less than 100 V.

7.1.7 BX shall exert a pressure of not less than 75 kg/m² over the whole surface area of the roof equipped for the carriage of baggage.

7.2 Area available for passengers

7.2.1 The total surface area S_0 available for passengers is calculated by deducting from the total area of the vehicle:

- the area of the driver's compartment;
- the area of steps at doors and the area of any step with a depth of less than 300 mm;
- the area of any part over which the vertical clearance is less than 1 350 mm measured from the floor, according to paragraph 7.7.8. and disregarding intrusions permitted. In the case of vehicles to which paragraph 7.7.1.9. applies, this dimension may be reduced to 1 200 mm.

7.2.2 The surface area S_1 available for standing passengers (only in the case of class A vehicles) is calculated by deducting from S_0 intended for seated standing and passenger and crew seats (if any):

- the area of all parts of the floor in which the slope exceeds 8 per cent;
- the area of all parts which are not accessible to a standing passenger when all the seats are occupied;
- the area of all parts where the clear height above the floor is less than 1 900 mm or in the case of the section of the gangway situated above and behind the rear axle, and the attaching parts thereof - less than 1 800 mm (handholds shall not be taken into account in this connection);
- the area forward of a vertical plane passing through the centre of the seating surface of the driver's seat (in its rearmost position) and through the centre of the exterior rear-view mirror mounted on the opposite side of the vehicle; and
- the area 300 mm in front of any seat;
- any part of the surface of the floor (e.g. corner or edge) on which it is not possible to place part of a rectangle of 400 mm x 300 mm;
- any surface which is not capable of circumscribing a rectangle of 400 mm x 300 mm.

7.3 Number of passengers accommodated

7.3.1 There shall be in the vehicle a number A of seating places which conform to the requirements of paragraph 7.7.8. For vehicle of class A the number A shall be at least equal to the number of square metres of floor available for passengers and crew, if any, rounded down to the nearest whole number.

7.3.2 The total number N of passenger accommodation shall be the following:

$$N \leq A + \frac{S_1}{S_{sp}}$$

and

$$N \leq \frac{MT - MV - B - BX}{Q}$$

In vehicles of class B, $S_1 = 0$

The values of Q and S_{sp} for each class of vehicles are given in Table 3.

Table 3 — Mass and space needed for one standing passenger

Class	Mass of one passenger Q (kg)	Space needed for one standing passenger S_{sp} (m ² /passenger)
A	68	0,125
B	71 ^a	Without standing passengers
^a Including 3 kg of hand baggage.		

7.3.3 When the vehicle is loaded with a number N of passengers and a mass B + BX of baggage, the load on each axle and the mass of the vehicle shall not exceed the value of their respective maximum technical permissible values.

7.4 Strength of the superstructure

In the case of class B vehicles only, it must be shown by calculation or by any other suitable method that the structure of the vehicle is strong enough to withstand an evenly-distributed static load on the roof equal to the technical maximum mass (MT) of the vehicle. 3/

7.5 Protection against fire risks

7.5.1 Engine compartment

7.5.1.1 No inflammable sound-proofing material or material liable to become impregnated with fuel or lubricant shall be used in the engine compartment unless the material is covered by an impermeable sheet.

7.5.1.2 Precautions shall be taken, either by a suitable layout of the engine compartment or by the provision of drainage orifices, to avoid so far as possible the accumulation of fuel or lubricating oil in any part of the engine compartment.

7.5.1.3 A barrier of heat-resisting material shall be fitted between the engine compartment or any other source of heat (such as a device designed to absorb the energy liberated when a vehicle is descending a long gradient, e.g. a retarder or a device for heating the interior of the body other, however, than a device functioning by warm water circulation) and the rest of the vehicle. A heating device operating other than by hot water may be provided in the passenger compartment if it is encased in material designed to resist the temperatures generated by the device, emits no toxic fumes and is positioned such that no passenger is likely to come into contact with any hot surface.

7.5.2 Fuel filler-holes

7.5.2.1 Fuel filler-holes shall be accessible only from outside the vehicle.

7.5.2.2 Fuel filler-holes shall not be underneath a door aperture; they shall moreover, not be in the passenger compartment or the driver's compartment. Fuel filler-holes shall not be located such that there is a risk of fuel falling onto the engine or exhaust system during fillings.

7.5.2.3 The fuel shall not be able to run out through the filler-hole cap or through the devices provided to stabilize the pressure in the tank, even if the tank is completely overturned; slight drip shall however be tolerated if it does not exceed 30 g/min. If the vehicle is fitted with several interconnected fuel tanks, the pressure during the test shall correspond to the most unfavourable position for the fuel tanks.

3/ This paragraph will be reconsidered when Regulation No. 66 is next amended.

7.5.2.4 If the filler-hole is situated on a side of the vehicle, the cap shall, when closed, not project beyond the adjacent surfaces of the bodywork.

7.5.2.5 Fuel filler-hole caps shall be so designed and constructed that they cannot be opened accidentally.

7.5.3 Fuel tanks

7.5.3.1 All of the vehicle's fuel tanks shall be securely fixed and so situated as to be protected by the structure of the vehicle in the event of a frontal or rear collision. No part of a fuel tank shall be less than 60 cm from the front and less than 30 cm from the rear of the vehicle unless the vehicle has successfully complied with the frontal-impact and the rear-end impact requirement of Regulation No. 34; there shall be no protruding parts, sharp edges, etc., near the tanks.

7.5.3.2 No part of a fuel tank shall project beyond the overall width of the bodywork.

7.5.3.3 Fuel tanks must be made so as to be corrosion resistant.

7.5.3.4 Any excess pressure or any pressure exceeding the working pressure shall be automatically compensated by suitable devices (vents, safety valves, etc.). The vents shall be designed in such a way as to prevent any fire risks.

7.5.3.5 All tanks shall be subjected to a hydraulic internal-pressure test, which shall be carried out on an isolated unit complete with standard filler-pipe, filler-neck and cap. The tank shall be completely filled with water. After all communication with the outside has been cut off, the pressure shall be gradually increased, through the pipe connection through which fuel is fed to the engine, to a relative pressure which is double the service pressure, but not less than 0.3 bar, which shall be maintained for one minute. During this time the tank shell shall not crack or leak; it may, however, be permanently distorted.

7.5.4 Fuel-feed systems

7.5.4.1 No apparatus used for the fuel feed shall be placed in the driver's compartment or the passenger compartment.

7.5.4.2 Fuel lines and all other parts of the fuel-feed system shall be accommodated in positions on the vehicle where they have the fullest reasonable protection.

7.5.4.3 Twisting or bending movements and vibration of the vehicle structure or the power unit shall not subject the fuel lines to abnormal stress.

7.5.4.4 The unions of pliable or flexible pipes with rigid parts of the fuel-feed system shall be so designed and constructed as to remain leakproof in the various conditions of use of the vehicle, despite aging, twisting or bending movements, or vibration of the vehicle structure or the power unit.

7.5.4.5 Fuel leaking from any part of the system shall be able to flow away freely to the road surface, but never onto the exhaust system.

7.5.5 Emergency switch (if fitted)

If an emergency switch is fitted to reduce the risk of fire after the vehicle has come to a standstill, this emergency switch shall have the following characteristics:

- a) It shall be located within immediate reach of the driver seated in the driver's seat;
- b) It shall be clearly marked and be provided with a protective cover or other suitable means to prevent inadvertent operation. Clear instructions concerning the method of operation shall be displayed in the immediate vicinity of the emergency switch, e.g. "Remove cover and move lever downwards! Actuate only when the vehicle has been brought to a stop";
- c) Its actuation shall cause simultaneous performance of the following functions:
 - 1) quick stoppage of the engine;

- 2) operation of a battery isolating switch, fitted as close to the batteries as possible, and which isolates at least one battery terminal from the electrical circuit, with the exception of the circuit permitting the function required by paragraph 5.5.5.3.3. below, the circuits which ensure the uninterrupted function of the tachograph as well as those devices whose sudden removal from service could provoke a greater risk than the one avoided, for example:
 - i) emergency interior lighting;
 - ii) cooling scavenger of auxiliary heaters;
 - iii) centralized electronic door locking.
- 3) Switching-on of the vehicle's hazard warning signal.
- d) Performance of the functions mentioned in paragraph 7.5.5.c) above may be initiated not only by the emergency switch, but also by separate controls, provided that these do not in an emergency interfere with the functioning of the emergency switch.

7.5.6 Electrical equipment and wiring

7.5.6.1 All cables shall be well insulated and all cables and electrical equipment shall be able to withstand the temperature and humidity conditions to which they are exposed. In the engine compartment, particular attention shall be paid to their suitability to withstand the environmental temperature, oil and vapour.

7.5.6.2 No cable used in an electrical circuit shall carry a current in excess of that acceptable for such a cable in the light of its mode of installation and the maximum ambient temperature.

7.5.6.3 Every electrical circuit feeding an item of equipment other than the starter, the ignition circuit (positive ignition), the glow-plugs, the engine-stopping device, the charging circuit and the battery earth connection shall include a fuse or a circuit breaker. Circuits feeding low consumption equipment may, however, be protected by a common fuse or a common circuit-breaker, provided that its rated capacity does not exceed 16 A.

7.5.6.4 All cables shall be suitably protected and shall be held securely in position in such a way that they cannot be damaged by cutting, abrasion or chafing.

7.5.7 Batteries

7.5.7.1 All batteries shall be well secured and easily accessible.

7.5.7.2 The battery compartment shall be separated from the passenger compartment and the driver's compartment and ventilated to outside air.

7.5.8 Fire extinguishers and first-aid equipment

7.5.8.1 The vehicle shall be fitted with one or more fire extinguishers, one being near the driver's seat. Each extinguisher shall have a minimum test rating of 8A or 21B to CEN Standard EN3 Part 1 or an equivalent national standard.

7.5.8.2 Space shall be provided for the fitting of one or more first-aid kits. The space provided shall not be less than 7 dm³, the minimum dimension shall not be less than 80 mm.

7.5.8.3 Fire extinguishers and first aid kits may be secured against theft or vandalism (e.g. in an internal locker or behind breakable glass), provided that the locations of these items are clearly marked and means are provided for persons to easily extract them in an emergency.

7.5.9 Materials

No flammable material shall be permitted within 10 cm of the exhaust pipe unless the material is effectively shielded.

7.6 Exits

7.6.1 Number

7.6.1.1 Every vehicle shall have at least two doors, i.e. either one service door and one emergency door or two service doors.

7.6.1.2 For the purpose of this requirement, service doors equipped with a power-operated control system shall not be deemed to be exits unless they can be readily opened by hand once the control prescribed in paragraph 5.6.5.1. has been actuated, if necessary.

7.6.1.3 The minimum number of emergency exits shall be such that the total number of exits and of escape hatches is as follows:

Table 4 — Minimum number of emergency exits

Number of passengers	Minimum number of exits	Number of escape hatches counted as emergency exits	
		permitted	required
≤ 16	3	1	-
> 16	4	-	1

7.6.1.4 Where the driver's compartment does not communicate with the inside of the vehicle it shall have two exits, which shall not both be in the same lateral walls; where one of the exits is a window it shall comply with the requirements set out in paragraphs 5.6.3.1., 5.6.8.1. and 5.6.8.2. for emergency windows.

7.6.1.5 A double service door shall count as two doors and a double window as two emergency windows.

7.6.2 Siting of exits

7.6.2.1 The service door(s) shall be situated on the side of the vehicle that is nearer to the side of the road corresponding to the direction of traffic, 4/ or in the rear face of the vehicle.

7.6.2.2 The exits shall be placed in such a way that there is at least one exit on each side of the vehicle.

7.6.2.3 The forward half and the rearward half of the passenger space shall each contain at least one exit.

7.6.2.4 At least one exit shall be situated either in the rear face or in the front face of the vehicle unless an escape hatch is fitted in the roof.

7.6.2.5 If the space reserved for the driver's seat and the passenger's seats beside the driver's seat does not communicate with the main passengers' compartment by means of a suitable passageway

- a) the main compartment reserved for passengers shall contain exits satisfying the requirement of paragraph 5.6.1 with respect to number and those of paragraphs 7.6.2.1., 7.6.2.2. and 7.6.2.3. above with respect to siting;
- b) the driver's door shall be accepted as the emergency door for the occupants of the seats situated beside the driver's seat provided that the driver's seat, the steering wheel, the engine housing, the gear lever and handbrake control, etc., do not constitute too great an obstruction. 5/ The service door provided for the passengers shall be in the side of the vehicle opposite to that containing the driver's door and shall be accepted as the emergency door for the driver;
- c) doors specified in paragraph 7.6.2.5.b) are not subject to prescriptions of paragraphs 7.6.3, 7.7.1, 7.7.2, 7.7.7 and 7.10.

4/ In the country in which the vehicle is licensed for operation.

5/ An objective method of verifying that this requirement is satisfied may be established for the use of testing laboratories.