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Contents

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Acts whose titles are printed in light type are those relating to day-to-day management of agricultural matters, and are generally valid for a limited period.

The titles of all other acts are printed in bold type and preceded by an asterisk.

II

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is not obligatory)

ACTS ADOPTED BY BODIES CREATED BY INTERNATIONAL AGREEMENTS

Regulation No 97 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of vehicle alarm systems (VAS) and of motor vehicles with regard to their alarm systems (AS)

Revision 1 — Amendment 1

Incorporating all valid text up to:

Supplement 5 to the 01 series of amendments — Date of entry into force: 18 June 2007

CONTENTS

1. SCOPE

This Regulation applies to:

1.1. Part I: Vehicle alarm systems (VAS) which are intended to be permanently fitted to vehicles of category M_1 and those of category N_1 with a maximum mass of not more than 2 tonnes (*);

1.2. Part II: Vehicles of category M_1, and those of category N_1 with a maximum mass of not more than 2 tonnes, with regard to their alarm system(s) (AS) (*);

1.3. Part III: Immobilizers and vehicles of category M_1 and vehicles of category N_1 with a maximum mass of not more than 2 tonnes with regard to immobilizers (*);

1.4. The fitting of devices specified under Parts II and III to vehicles of categories other than $_1$, or N_1 with a maximum mass exceeding 2 tonnes, is optional, but any such device fitted is required to comply with all relevant provisions of this Regulation. Vehicles approved in accordance with the provisions of Parts III or IV of Regulation No 116 are deemed to comply with Parts II and III respectively of this Regulation.

PART I

APPROVAL OF VEHICLE ALARM SYSTEMS

2. DEFINITIONS

For the purpose of Part I of this Regulation,

2.1. 'Vehicle alarm system' (VAS) means a system intended for installation on (a) type(s) of vehicle(s), designed to indicate intrusion into or interference with the vehicle; these systems may provide additional protection against unauthorized use of the vehicle;

2.2. 'Sensor' means a device which senses a change which could be caused by intrusion into or interference with a vehicle;

2.3. 'Warning device' means a device indicating that intrusion into or interference has occurred;

(*) Only vehicles with 12 volts electrical systems are considered.

2.4. 'Control equipment' means equipment necessary for the setting, unsetting and testing of a VAS and for sending an alarm condition to warning devices;

2.5. 'Set' means the state of a VAS in which an alarm condition can be transmitted to warning devices;

2.6. 'Unset' means the state of a VAS in which an alarm condition cannot be transmitted to warning devices;

2.7. 'Key' means any device designed and constructed to provide a method of operating a locking system which is designed and constructed to be operated only by that device;

2.8. 'Type of vehicle alarm system' means systems which do not differ significantly in such essential aspects as:

(a) the manufacturer's trade name or mark,

(b) the kind of sensor,

(c) the kind of warning device,

(d) the kind of control equipment;

2.9. 'Approval of a vehicle alarm system' means the approval of a type of VAS with respect to the requirements laid down in paragraphs 5, 6 and 7 below;

2.10. 'Immobilizer' means a device which is intended to prevent the vehicle being driven away powered by its own engine;

2.11. 'Panic Alarm' means a device which enables a person to use an alarm, installed on the vehicle, to summon assistance in an emergency.

3. APPLICATION FOR APPROVAL OF VAS

3.1. The application for approval of a VAS shall be submitted by the manufacturer of the VAS or by his duly accredited representative.

3.2. For each type of VAS the application must be accompanied by:

3.2.1. Documentation in triplicate giving a description of the technical characteristics of the VAS and the method of its installation;

3.2.2. Three samples of the type of VAS with all its components. Each of the main components must be clearly and indelibly marked with the applicant's trade name or mark and the type designation of that component;

3.2.3. (A) vehicle(s) fitted with the VAS to be type-approved, chosen by the applicant in agreement with the Technical Service responsible for conducting approval tests;

3.2.4. Instructions in triplicate in accordance with paragraph 8 below.

4. APPROVAL

4.1. If the VAS submitted for approval pursuant to this Regulation meets the requirements of paragraphs 5, 6 and 7 below, approval of that type of VAS shall be granted.

4.2. An approval number shall be assigned to each type approved. Its first two digits (currently 01 for the 01 series of amendments) 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 may not assign the same number to another type of VAS.

4.3. Notice of approval or of extension or of refusal of approval of a type of VAS pursuant to this Regulation shall be communicated to the Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex I to this Regulation.

4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to the main component(s) of the VAS conforming to a type of VAS approved under this Regulation, an international approval mark consisting of:

4.4.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([1]);

4.4.2. The number of this Regulation, followed by the letter 'R', a symbol 'A' or 'I' or 'AI' indicating if the system is a vehicle alarm system or an immobilizer or a combination of both, a dash and the approval number in the vicinity of the circle prescribed in paragraph 4.4.1.

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

4.4.4. Annex V to this Regulation gives examples of arrangements of approval marks.

4.5. As an alternative to the approval mark described in paragraph 4.4 above, a certificate of conformity shall be issued for every VAS offered for sale.

Where a VAS manufacturer supplies an approved unmarked VAS to a vehicle manufacturer, for fitment by that manufacturer as original equipment for a vehicle model or range of vehicle models, the VAS manufacturer shall supply a number of copies of the certificate of conformity to the vehicle manufacturer, sufficient for that manufacturer to obtain the vehicle approval to Part II of this Regulation.

If the VAS is made up of separate components, its main component(s) shall bear a reference mark and the certificate of conformity shall provide a list of such reference marks.

A model of the certificate of conformity is given in Annex VI to this Regulation.

5. GENERAL SPECIFICATIONS

5.1. VAS shall, in the event of intrusion into or interference with a vehicle, provide a warning signal.

The warning signal shall be audible and in addition may include optical warning devices, or be a radio alarm or any combination of the above.

5.2. VASs shall be designed, constructed and installed in such a way that the vehicle when equipped shall continue to comply with the relevant technical requirements, especially with regard to electromagnetic compatibility (EMC).

([1]) 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 Serbia, 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 for Ireland, 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, 48 for New Zealand, 49 for Cyprus, 50 for Malta, 51 for the Republic of Korea, 52 for Malaysia and 53 for Thailand. 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 Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

5.3. If the VAS includes the possibility of a radio transmission, e.g. for setting or unsetting of the alarm or for alarm transmission, it shall comply with the relevant ETSI Standards (1), e.g. EN 300220-1 V1.3.1 (2000-09), EN 300220-2 V1.3.1 (2000-09), EN 300220-3 V1.1.1 (2000-09) and EN 301489-3 V1.2.1 (2000-08) (including any advisory requirements). The frequency and maximum radiated power of radio transmissions for the setting and unsetting of the alarm system must comply with the CEPT/ERC (2) Recommendation 70-03 (17 February 2000) relating to the use of short range devices (3).

5.4. The installation of a VAS in a vehicle shall not be capable of influencing the vehicle's performance (in the unset state), or its safe operation.

5.5. The VAS and components thereof shall not activate inadvertently, particularly whilst the engine is in its running mode.

5.6. Failure of the VAS, or failure of its electrical supply shall not affect the safe operation of the vehicle.

5.7. The VAS, its components and the parts controlled by them shall be designed, built and installed in such a way as to minimize the risk for anyone to make them inoperable or to destroy them rapidly and without calling attention, e.g. using low-cost, easily-concealed tools, equipment or fabrications readily available to the public at large.

5.8. The means of setting and unsetting of the VAS shall be designed in such a way that it does not invalidate the requirements of Regulation No 18. Electrical connections to components covered by this Regulation are allowed.

5.9. The system shall be so arranged that the shorting out of any warning signal circuit shall not render inoperative any aspects of the alarm system, other than the circuit which is shorted out.

5.10. VAS may include an immobilizer which shall comply with the requirements of Part III of this Regulation.

6. PARTICULAR SPECIFICATIONS

6.1. **Protection range**

6.1.1. Specific requirements

The VAS shall at least detect and signal the opening of any vehicle door, engine bonnet and luggage compartment. The failure or switching off of light sources, e.g. passenger compartment light, shall not impair the control operation.

Additional efficient sensors for information/display, e.g.:

(a) of intrusions into the vehicle, e.g. passenger compartment control, window glass control, breakage of any glazed area, or

(b) of attempted vehicle theft, e.g. inclination sensor

are allowed, taking account of measures to prevent any unnecessary sounding of the alarm (= false alarm, see paragraph 6.1.2 below).

(1) ETSI: European Telecommunications Standards Institute.
If these Standards are not available when this Regulation comes into force, then the relevant domestic requirements shall apply.

(2) CEPT: Conference of European Posts and Telecommunications
ERC: European Radio communications Committee

(3) Contracting Parties may prohibit the frequency and/or the power and may permit the use of other frequency and/or power.

Insofar as these additional sensors generate an alarm signal even after an intrusion has occurred (e.g. by breakage of a glazed area) or under external influences (e.g. wind), the alarm signal, activated by one of the above-mentioned sensors, shall be activated not more than 10 times within the same activation period of the VAS.

In this case the activation period shall be limited by the authorized unsetting of the system as a result of the vehicle user's action.

Some kinds of additional sensors, e.g. passenger compartment control (ultrasonic, infrared) or inclination sensor, etc., may be intentionally deactivated. In this case, separate deliberate action must be taken each time before the VAS is set. It must not be possible to deactivate the sensors while the alarm system is in a set state.

6.1.2. Safety against false alarm.

6.1.2.1. By adequate measures, e.g.:

(a) mechanical design and design of the electrical circuit according to conditions specific to motor vehicles,

(b) selection and application of operation and control principles for the alarm system and components thereof,

it shall be ensured that the VAS both in set and unset conditions, cannot cause the alarm signal to sound unnecessarily, in the event of:

(a) an impact on the vehicle: test specified in paragraph 7.2.13;

(b) electromagnetic compatibility: tests specified in paragraph 7.2.12;

(c) reduction of battery voltage by continuous discharge: test specified in paragraph 7.2.14;

(d) false alarm of the passenger compartment control: test specified in paragraph 7.2.15.

6.1.2.2. If the applicant for approval can demonstrate, e.g. by technical data, that safety against false alarm is satisfactorily ensured, the Technical Service responsible for conducting approval tests may not require some of the above tests.

6.2. **Audible alarm**

6.2.1. General

The warning signal shall be clearly audible and recognizable and shall differ significantly from the other audible signals used in road traffic.

In addition to the original equipment audible warning device, a separate audible warning device may be fitted in the area of the vehicle which is controlled by the VAS, where it shall be protected against easy, rapid access by persons.

If a separate audible warning device according to paragraph 6.2.3.1 below is used, the original equipment standard audible warning device may additionally be actuated by the VAS, provided that any tampering with the standard audible warning device (generally more easily accessible) does not affect the operation of the additional audible warning device.

6.2.2. Duration of the audible signal

Minimum: 25 s

Maximum: 30 s.

The audible signal may sound again only after the next interference with the vehicle, i.e. after the above-mentioned time span.

(Restrictions: see paragraphs 6.1.1 and 6.1.2 above).

Unsetting of the alarm system shall immediately cut the signal.

6.2.3. Specifications concerning the audible signal.

6.2.3.1. Constant tone signal device (constant frequency spectrum), e.g. horns: acoustical, etc., data according to Regulation No 28, Part I.

Intermittent signal (on/off):

Trigger frequency ..... (2 ± 1) Hz

On time = off time ± 10 per cent

6.2.3.2. Audible signal device with frequency modulation:

acoustical, etc., data according to Regulation No 28, Part I but equal passage of a significant frequency range within the above-mentioned range (1 800 through 3 550 Hz) in both directions.

Passage frequency ..... (2 ± 1) Hz

6.2.3.3. Sound level

The sound source shall be:

(a) either an audible warning device approved under Regulation No 28, Part I

(b) or a device meeting the requirements of Regulation No 28, Part I, paragraphs 6.1 and 6.2.

However, in the case of a different sound source from the original equipment audible warning device, the minimum sound level may be reduced to 100 dB(A), measured under the conditions of Regulation No 28, Part I.

6.3. **Optical alarm — if fitted**

6.3.1. General

In the event of intrusion into or interference with the vehicle, the device shall activate an optical signal as specified in paragraphs 6.3.2 and 6.3.3 below.

6.3.2. Duration of the optical signal

The optical signal shall have a duration between 25 s and 5 min. after the alarm has been activated.

The unsetting of the alarm system shall immediately stop the signal.

6.3.3. Type of optical signal

Flashing of all direction indicators and/or passenger compartment light of the vehicle, including all lamps in the same electrical circuit.

Trigger frequency ..... (2 ± 1) Hz

In relation to the audible signal, also asynchronous signals are allowed.

On time = off time ± 10 per cent

6.4. **Radio alarm (pager) — if fitted**

The VAS may include a facility generating an alarm signal by radio transmission.

6.5. **Alarm system setting lock**

6.5.1. When the engine is in its running mode, deliberate or inadvertent setting of the alarm system shall be impossible.

6.6. **Setting and unsetting of the VAS**

6.6.1. Setting

Any suitable means of setting of the VAS is allowed, provided that such means does not inadvertently cause false alarms.

6.6.2. Unsetting

Unsetting of the VAS shall be achieved by one or a combination of the following devices. Other devices giving an equivalent performance are permitted.

6.6.2.1. A mechanical key (complying with the requirements of Annex X to this Regulation) which can be coupled with a centralized vehicle locking system comprising at least 1 000 variants, operated from the outside.

6.6.2.2. Electrical/electronic device, e.g. remote control, with at least 50 000 variants and shall incorporate rolling codes and/or have a minimum scan time of ten days, e.g. a maximum of 5 000 variants per 24 hours for 50 000 variants minimum.

6.6.2.3. A mechanical key or an electrical/electronic device within the protected passenger compartment, with timed exit/entry delay.

6.7. **Exit delay**

If the switching device for setting the VAS is fitted within the protected area, an exit delay shall be provided. It shall be possible for the exit delay to be set to between 15 seconds and 45 seconds after the switch has been operated. The delay period may be adjustable to suit individual operators' circumstances.

6.8. **Entry delay**

If the device for unsetting the VAS is fitted within the protected area, a delay of 5 seconds minimum and 15 seconds maximum shall be allowed before the activation of the audible and optical signals. The delay period may be adjustable to suit individual operators' circumstances.

6.9. **Status display**

6.9.1. To provide information on the status of the VAS (set, unset, alarm setting period, alarm has been activated), optical displays inside and outside the passenger compartment are allowed. The light intensity of optical signals installed outside the passenger compartment shall not exceed 0,5 cd.

6.9.2. If an indication of short-term 'dynamic' processes such as changes from 'set' to 'unset' and vice versa is provided, it shall be optical, according to paragraph 6.9.1. Such optical indication may also be produced by the simultaneous operation of the direction indicators and/or passenger compartment lamp(s), provided that the duration of the optical indication by the direction indicators does not exceed 3 seconds.

6.10. **Power supply**

The source of power for the VAS shall either be the vehicle battery or a rechargeable battery. Where provided, an additional rechargeable or non-rechargeable battery may be used. These batteries shall by no means supply energy to other parts of the vehicle electrical system.

6.11. **Specifications for optional functions**

6.11.1. Self check, automatic failure indication

On setting the VAS, irregular situations, e.g. open doors, etc., can be detected by a self-check function (plausibility control), and this situation is indicated.

6.11.2. Panic alarm

An optical and/or audible and/or radio alarm is allowed independent of the state (set or unset) and/or function of the VAS. Such an alarm shall be triggered from within the vehicle and shall not affect the state (set or unset) of the VAS. Also it must be possible for the vehicle user to switch off the panic alarm. In the case of an audible alarm, its sounding duration per activation shall not be restricted. A panic alarm shall not immobilize the engine or stop it if it is running.

7. OPERATION PARAMETERS AND TEST CONDITIONS ([1])

7.1. **Operation parameters**

All components of the VAS shall operate without any failure under the following conditions:

7.1.1. Climatic conditions

Two classes of environmental temperature are defined as follows:

– 40 °C to + 85 °C for parts to be fitted in the passenger or luggage compartment;

– 40 °C to + 125 °C for parts to be fitted in the engine compartment unless otherwise specified.

7.1.2. Degree of protection for installation

The following degrees of protection in accordance with IEC Publication 529-1989 shall be provided:

IP 40 for parts to be fitted in the passenger compartment;

IP 42 for parts to be fitted in the passenger compartment of roadsters/convertibles and cars with moveable roof-panels if the installation location requires a higher degree of protection than IP 40;

IP 54 for all other parts.

The VAS manufacturer shall specify in the installation instructions any restrictions on the positionning of any part of the installation with respect to dust, water and temperature.

7.1.3. Weatherability

7 days according to IEC 68-2-30-1980.

([1]) Lamps which are used as part of the optical warning devices and which are included in the standard car lighting system need not comply with the operation parameters in paragraph 7.1 and shall not be submitted to tests listed under paragraph 7.2.

7.1.4. Electrical conditions

Rated supply voltage: 12 V

Operation supply voltage range: from 9 V to 15 V in the temperature range according to paragraph 7.1.1.

Time allowance for excess voltages at 23 °C: U = 18 V, max. 1 h

U = 24 V, max. 1 min.

7.2. **Test conditions**

7.2.1. Operation tests

7.2.1.1. Compliance of the VAS with the following specifications shall be checked:

(a) Alarm duration according to paragraphs 6.2.2 and 6.3.2;

(b) Frequency and on/off ratio according to paragraphs 6.3.3 and 6.2.3.1 or 6.2.3.2 respectively;

(c) Number of alarm cycles according to paragraph 6.1.1, if applicable;

(d) Alarm system setting lock check according to paragraph 6.5.

7.2.1.2. Normal test conditions

Voltage ..... U = (12 ± 0,2) V

Temperature ..... Θ = (23 ± 5) °C

7.2.2. Resistance to temperature and voltage changes

Compliance with the specifications defined under paragraph 7.2.1.1 shall also be checked under the following conditions:

7.2.2.1. Test temperature Θ = (– 40 ± 2) °C

Test voltage U = (9 ± 0,2) V

Storage duration 4 hours

7.2.2.2. For parts to be fitted in the passenger or luggage compartment:

Test temperature Θ = (+ 85 ± 2) °C

Test voltage U = (15 ± 0,2) V

Storage duration 4 hours

7.2.2.3. For parts to be fitted in the engine compartment unless otherwise specified:

Test temperature Θ = (+ 125 ± 2) °C

Test voltage U = (15 ± 0,2) V

Storage duration 4 hours

7.2.2.4. The VAS, in both set and unset state, shall be submitted to an excess voltage equal to (18 ± 0,2) V for 1 hour.

7.2.2.5. The VAS, in both set and unset state, shall be submitted to an excess voltage equal to (24 ± 0,2) V for 1 minute.

7.2.3. Safe operation after foreign body and water-tightness testing

After the test for tightness to foreign body and water according to IEC 529-1989, for degrees of protection as in paragraph 7.1.2, the operation tests according to paragraph 7.2.1 shall be repeated.

7.2.4. Safe operation after condensed water test

After a resistance-to-humidity test to be carried out according to IEC 68-2-30 (1980), the operation tests according to paragraph 7.2.1 shall be repeated.

7.2.5. Test for safety against reversed polarity

The VAS and components thereof shall not be destroyed by reversed polarity up to 13 V during 2 minutes.

After this test, the operation tests according to paragraph 7.2.1 shall be repeated with fuses changed, if necessary.

7.2.6. Test for safety against short-circuits

All electrical connections of the VAS must be short-circuit proof against earth, maximum 13 V and/or fused.

After this test, the operation tests according to paragraph 7.2.1 shall be repeated, with fuses changed if necessary.

7.2.7. Energy consumption in the set condition

The energy consumption in set condition under the conditions given in paragraph 7.2.1.2 shall not exceed 20 mA in average for the complete alarm system including status display.

7.2.8. Safe operation after vibration test

7.2.8.1. For this test, the components are subdivided into two types:

Type 1: components normally mounted on the vehicle;

Type 2: components intended for attachment to the engine.

7.2.8.2. The components/VAS shall be submitted to a sinusoidal vibration mode whose characteristics are as follows:

7.2.8.2.1. For type 1

The frequency shall be variable from 10 Hz to 500 Hz with a maximum amplitude of ± 5 mm and maximum acceleration of 3 g (0-peak).

7.2.8.2.2. For type 2

The frequency shall be variable from 20 Hz to 300 Hz with a maximum amplitude of ± 2 mm and maximum acceleration of 15 g (0-peak).

7.2.8.2.3. For both type 1 and type 2:

(a) the frequency variation is 1 octave/min;

(b) the number of cycles is 10, the test shall be performed along each of the 3 axes;

(c) the vibrations are applied at low frequencies at a maximum constant amplitude and at a maximum constant acceleration at high frequencies.

7.2.8.3. During the test, the VAS shall be electrically connected and the cable shall be supported after 200 mm.

7.2.8.4. After the vibration test, the operation tests according to paragraph 7.2.1 shall be repeated.

7.2.9. Durability test

Under the test conditions specified in paragraph 7.2.1.2, triggering of 300 complete alarm cycles (audible and/or optical) with a rest time of the audible device of 5 min.

7.2.10. Tests for external key switch (installed on the outside of the vehicle)

The following tests shall only be performed if the locking cylinder of the original equipment door lock is not used.

7.2.10.1. The key switch shall be so designed and constructed that it remains fully effective even after 2 500 set/unset cycles in each direction, followed by 96 hours minimum of exposure to salt spray test according to IEC 68-2-11-1981, corrosion resistance test.

7.2.11. Test of systems for the protection of the passenger compartment

The alarm shall be activated, when a vertical panel of 0,2 × 0,15 m is inserted for 0,3 m (measured from the centre of the vertical panel) through an open front door window into the passenger compartment, towards the front and parallel to the road at a speed of 0,4 m/s and at an angle of 45° with the longitudinal median plane of the vehicle. (See drawings in Annex VIII to this Regulation).

7.2.12. Electromagnetic compatibility

The VAS shall be submitted to the tests described in Annex IX.

7.2.13. Safety against false alarm in the event of an impact on the vehicle

It shall be verified that an impact of up to 4,5 Joules of a hemispherical body with 165 mm in diameter and 70 ± 10 Shore A applied anywhere to the vehicle bodywork or glazing with its curved surface does not cause false alarms.

7.2.14. Safety against false alarm in the event of a voltage reduction

It shall be verified that slow reduction of the main battery voltage by continuous discharge of 0,5 V per hour down to 3 V does not cause false alarms.

Test conditions: see paragraph 7.2.1.2 above.

7.2.15. Test for safety against false alarm of the passenger compartment control

Systems intended for the protection of the passenger compartment according to paragraph 6.1.1 above shall be tested together with a vehicle under normal conditions (para. 7.2.1.2).

The system, installed according to the manufacturer's instructions, shall not be triggered when subjected 5 times to the test described in paragraph 7.2.13 above at intervals of 0,5 s.

The presence of a person touching or moving around the outside of the vehicle (windows closed) shall not cause any false alarm.

8. INSTRUCTIONS

Each VAS shall be accompanied by:

8.1. Instructions for installation:

8.1.1. The list of vehicles and vehicle models for which the device is intended. This list may be specific or generic, e.g. 'all cars with petrol engines and 12 V negative earth batteries'.

8.1.2. The method of installation illustrated by photographs and/or very clear drawings.

8.1.3. In the case of VAS which includes an immobilizer, additional instructions regarding compliance with the requirements of Part III of this Regulation.

8.2. A blank installation certificate, an example of which is given in Annex VII.

8.3. A general statement to the VAS purchaser calling his attention to the following points:

The VAS should be installed in accordance with the manufacturer's instructions;

The selection of a good installer is recommended (the VAS manufacturer may be contacted to indicate appropriate installers);

The installation certificate supplied with the VAS should be completed by the installer.

8.4. Instructions for use

8.5. Instructions for maintenance

8.6. A general warning regarding the danger of making any alterations or additions to the system; such alterations or additions would automatically invalidate the certificate of installation referred to in paragraph 8.2 above.

8.7. Indication of the location(s) of the international approval mark mentioned in paragraph 4.4 of this Regulation and/or the international certificate of conformity mentioned in paragraph 4.5 of this Regulation.

9. MODIFICATION OF THE VAS TYPE AND EXTENSION OF APPROVAL

Every modification of the VAS type shall be notified to the Administrative Department which approved this type of VAS.

The department may then either:

(a) consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the VAS still complies with the requirements; or

(b) require a further test report for some or all the tests described in paragraphs 5, 6 and 7 of this Regulation from the Technical Service responsible for conducting the tests.

Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 4.3 above to the Contracting Parties to the Agreement applying this Regulation.

The Competent Authority issuing the extension of approval shall assign a serial number to each communication form drawn up for such an extension.

10. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

10.1. Every vehicle alarm system approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set out in paragraphs 5, 6 and 7 above.

10.2. For each type of vehicle alarm system, the tests prescribed in paragraphs 7.2.1 to 7.2.10 of this Regulation shall be carried out on a statistically controlled and random basis, in accordance with one of the regular quality assurance procedures.

10.3. The authority which has granted approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be one every two years.

11. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

11.1. The approval granted in respect of a type of VAS pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 10 above are not complied with.

11.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a form conforming to the model in Annex I to this Regulation.

12. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of VAS approved in accordance with this Regulation, he shall so inform the authority which granted the approval.

Upon receiving the relevant communication, that authority shall inform thereof the other Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex I to this Regulation.

13. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Contracting Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Administrative Departments which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries are to be sent.

PART II

APPROVAL OF A VEHICLE WITH REGARD TO ITS ALARM SYSTEM

When a VAS approved to Part I of this Regulation is being used in a vehicle submitted for approval to Part II of this Regulation, tests required to be passed by a VAS in order to obtain approval to Part I of this Regulation shall not be repeated.

14. DEFINITIONS

For the purpose of Part II of this Regulation,

14.1. 'Alarm system(s)' (AS) means an arrangement of components fitted as original equipment in a vehicle type, designed to indicate intrusion into or interference with the vehicle; these systems may provide additional protection against unauthorized use of the vehicle.

14.2. 'Vehicle type with regard to its alarm system' means vehicles which do not differ significantly in such essential aspects as:

(a) the manufacturer's trade name or mark;

(b) vehicle features which significantly influence the performances of the AS;

(c) the type and design of the AS or VAS.

14.3. 'Approval of a vehicle' means the approval of a vehicle type with regard to the requirements laid down in paragraphs 17, 18 and 19 below.

14.4. Other definitions applicable to Part II are contained in paragraph 2 of this Regulation.

15. APPLICATION FOR APPROVAL

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

15.2. It shall be accompanied by the under-mentioned documents in triplicate and by the following particulars:

15.2.1. A detailed description of the vehicle type and of the vehicle parts related to the AS installed.

15.2.2. A list of components necessary to identify ASs which can be installed on the vehicle.

15.2.3. When a VAS approved to Part I of this Regulation is being used, the type-approval communication of the VASs shall also be supplied to the Technical Service.

15.3. A vehicle representative of the type to be approved shall be submitted to the Technical Service.

15.4. A vehicle not comprising all the components proper to the type may be accepted provided that it can be shown by the applicant to the satisfaction of the Competent Authority that the absence of the components omitted has no effect on the results of the verifications, so far as the requirements of this Regulation are concerned.

16. APPROVAL

16.1. If the vehicle submitted for approval pursuant to this Regulation meets the requirements of paragraphs 17, 18 and 19 below, approval of that vehicle type shall be granted.

16.2. An approval number shall be assigned to each type approved. Its first two digits (currently 01 for the 01 series of amendments) 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 may not assign the same number to another vehicle type.

16.3. Notice of approval or of extension or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex II to this Regulation.

16.4. 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:

16.4.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([1]);

16.4.2. The number of this Regulation, followed by the letter 'R', a symbol 'A' or 'I' or 'AI' indicating if the vehicle has been approved with regard to its alarm system or its immobilizers or a combination of both, a dash and the approval number to the right of the circle prescribed in paragraph 16.4.1.

16.5. 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 16.4.1 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 16.4.1.

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

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

16.8. Annex V to this Regulation gives examples of arrangements of approval marks.

17. GENERAL SPECIFICATIONS

17.1. ASs shall be designed and built in such a way that they, in the event of intrusion into or interference with a vehicle, provide a warning signal, and may include an immobilizer.

The warning signal shall be audible and in addition may include optical warning devices, or be a radio alarm, or any combination of the above.

17.2. Vehicles which are equipped with alarm systems shall comply with the relevant technical requirements, especially with regard to electromagnetic compatibility (EMC).

17.3. If the AS includes the possibility of a radio transmission, e.g. for setting or unsetting of the alarm or for alarm transmission, it shall comply with the relevant ETSI Standards (see footnote 1 pertinent to paragraph 5.3), e.g. EN 300220-1 V1.3.1 (2000-09), EN 300220-2 V1.3.1 (2000-09), EN 300220-3 V1.1.1 (2000-09) and EN 301489-3 V1.2.1 (2000-08) (including any advisory requirements). The frequency and maximum radiated power of radio transmissions for the setting and unsetting of the alarm system must comply with the CEPT/ERC (see footnote 2 pertinent to paragraph 5.3) Recommendation 70-03 (17 February 2000) relating to the use of short range devices (see footnote 3 to paragraph 5.3).

17.4. The AS and components thereof shall not activate inadvertently, particularly whilst the engine is in its running mode.

([1]) 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 Serbia, 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 for Ireland, 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, 48 for New Zealand, 49 for Cyprus, 50 for Malta, 51 for the Republic of Korea, 52 for Malaysia and 53 for Thailand. 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 Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

17.5. Failure of the AS, or failure of its electrical supply shall not affect the safe operation of the vehicle.

17.6. The alarm system, its components and the parts controlled by them shall be so installed as to minimize the risk for anyone to make them inoperable or to destroy them rapidly and without calling attention, e.g. using low-cost, easily-concealed tools, equipment or fabrications readily available to the public at large.

17.7. The system shall be so arranged that the shorting out of any warning signal circuit shall not render inoperative any aspects of the alarm system, other than the circuit which is shorted out.

17.8. The AS may include an immobilizer which shall comply with the requirements of Part III of this Regulation.

18. PARTICULAR SPECIFICATIONS

18.1. **Protection range**

18.1.1. Specific requirements

The AS shall at least detect and signal the opening of any vehicle door, engine bonnet and luggage compartment. The failure or switching off of light sources, e.g. passenger compartment light, shall not impair the control operation.

The installation of additional efficient sensors for information/display, e.g.:

(a) of intrusions into the vehicle, e.g. passenger compartment control, window glass control, breakage of any glazed area, or

(b) of attempted vehicle theft, e.g. inclination sensor

are allowed, taking account of measures to prevent any unnecessary sounding of the alarm (= false alarm, see paragraph 18.1.2 below).

Insofar as these additional sensors generate an alarm signal even after an intrusion has occurred (e.g. by breakage of a glazed area) or under external influences (e.g. wind), the alarm signal, activated by one of the above-mentioned sensors, shall be activated not more than 10 times within the same activation period of the AS.

In this case the activation period shall be limited by the authorized unsetting of the system as a result of the vehicle user's action.

Some kinds of additional sensors, e.g. passenger compartment control (ultrasonic, infrared) or inclination sensor, etc., may be intentionally deactivated. In this case, separate deliberate action must be taken each time before the AS is set. It must not be possible to deactivate the sensors while the alarm system is in a set state.

18.1.2. Safety against false alarm.

18.1.2.1. It shall be ensured that the AS both in set and unset conditions, cannot cause the alarm signal to sound unnecessarily, in the event of:

(a) an impact on the vehicle: test specified in paragraph 7.2.13;

(b) electromagnetic compatibility: tests specified in paragraph 7.2.12;

(c) reduction of battery voltage by continuous discharge: test specified in paragraph 7.2.14;

(d) false alarm of the passenger compartment control: test specified in paragraph 7.2.15.

18.1.2.2. If the applicant for approval can demonstrate, e.g. by technical data, that safety against false alarm is satisfactorily ensured, the Technical Service responsible for conducting approval tests may not require some of the above tests.

18.2. **Audible alarm**

18.2.1. General

The warning signal shall be clearly audible and recognizable and shall differ significantly from the other audible signals used in road traffic.

In addition to the original equipment audible warning device, a separate audible warning device may be fitted in the area of the vehicle which is controlled by the AS, where it shall be protected against easy, rapid access by persons.

If a separate audible warning device according to paragraph 18.2.3.1 below is used, the original equipment standard audible warning device may additionally be actuated by the AS, provided that any tampering with the standard audible warning device (generally more accessible) does not affect the operation of the additional audible warning device.

18.2.2. Duration of the audible signal

Minimum: 25 s

Maximum: 30 s.

The audible signal may sound again only after the next interference with the vehicle, i.e. after the above-mentioned time span.

(Restrictions: see paragraphs 18.1.1 and 18.1.2 above).

Unsetting of the alarm system shall immediately cut the signal.

18.2.3. Specifications concerning the audible signal.

18.2.3.1. Constant tone signal device (constant frequency spectrum), e.g. horns: acoustical, etc., data according to Regulation No 28, Part I.

Intermittent signal (on/off):

Trigger frequency ..... (2 ± 1) Hz

On time = off time ± 10 per cent

18.2.3.2. Audible signal device with frequency modulation: acoustical, etc., data according to Regulation No 28, Part I but equal passage of a significant frequency range within the above-mentioned range (1 800 through 3 550 Hz) in both directions.

Passage frequency ..... (2 ± 1) Hz

18.2.3.3. Sound level

The sound source shall be:

(a) either an audible warning device approved under ECE Regulation No 28, Part I;

(b) or a device meeting the requirements of ECE Regulation No 28, Part I, paragraphs 6.1 and 6.2. However, in the case of a different sound source from the original equipment audible warning device, the minimum sound level may be reduced to 100 dB(A), measured under the conditions of ECE Regulation No 28, Part I.

18.3. **Optical alarm — if fitted**

18.3.1. General

In the event of intrusion into or interference with the vehicle, the device shall activate an optical signal as specified in paragraphs 18.3.2 and 18.3.3 below.

18.3.2. Duration of the optical signal

The optical signal shall have a duration between 25 s and 5 min. after the alarm has been activated. The unsetting of the alarm system shall immediately stop the signal.

18.3.3. Type of optical signal

Flashing of all direction indicators and/or passenger compartment light of the vehicle, including all lamps in the same electrical circuit.

Trigger frequency ..... (2 ± 1) Hz

In relation to the audible signal, also asynchronous signals are allowed.

On time = off time ± 10 per cent

18.4. **Radio alarm (pager) — if fitted**

The AS may include a facility generating an alarm signal by radio transmission.

18.5. **Alarm system setting lock**

18.5.1. When the engine is in its running mode, deliberate or inadvertent setting of the alarm system shall be impossible.

18.6. **Setting and unsetting of the AS**

18.6.1. Setting

Any suitable means of setting of the AS is allowed, provided that such means does not inadvertently cause false alarms.

18.6.2 Unsetting

Unsetting of the AS shall be achieved by one or a combination of the following devices. Other devices giving equivalent performance are permitted.

18.6.2.1. A mechanical key (complying with the requirements of Annex X to this Regulation) which can be coupled with a centralized vehicle locking system comprising of at least 1 000 variants, operated from the outside.

18.6.2.2. Electrical/electronic device, e.g. remote control, with at least 50 000 variants and shall incorporate rolling codes and/or have a minimum scan time of ten days, e.g. a maximum of 5 000 variants per 24 hours for 50 000 variants minimum.

18.6.2.3. A mechanical key or an electrical/electronic device within the protected passenger compartment, with timed exit/entry delay.

18.7 **Exit delay**

If the switching device for setting the AS is fitted within the protected area, an exit delay shall be provided. It shall be possible for the exit delay to be set to between 15 seconds and 45 seconds after the switch has been operated. The delay period may be adjustable to suit individual operators' circumstances.

18.8. **Entry delay**

If the device for unsetting the VAS is fitted within the protected area, a delay of 5 seconds minimum and 15 seconds maximum shall be allowed before the activation of the audible and optical signals. The delay period may be adjustable to suit individual operators' circumstances.

18.9. **Status display**

18.9.1. To provide information on the status of the AS (set, unset, alarm setting period, alarm has been activated), the installation of optical displays is allowed inside and outside the passenger compartment. The light intensity of optical signals installed outside the passenger compartment shall not exceed 0,5 cd.

18.9.2. If an indication of short-term 'dynamic' processes such as changes from 'set' to 'unset' and vice versa is provided, it shall be optical, according to paragraph 18.9.1. Such optical indication may also be produced by the simultaneous operation of the direction indicators and/or passenger compartment lamp(s), provided that the duration of the optical indication by the direction indicators does not exceed 3 seconds.

18.10. **Power supply**

The source of power for the AS shall either be the vehicle battery or a rechargeable battery. Where provided, an additional rechargeable or non-rechargeable battery may be used. These batteries shall by no means supply energy to other parts of the vehicle electrical system.

18.11. **Specifications for optional functions**

18.11.1. Self check, automatic failure indication

On setting the AS, irregular situations, e.g. open doors, etc., can be detected by a self-check function (plausibility control), and this situation is indicated.

18.11.2. Panic alarm

An optical and/or audible and/or radio alarm is allowed independent of the state (set or unset) and/or function of the AS. Such an alarm shall be triggered from within the vehicle and shall not affect the state (set or unset) of the AS. Also it must be possible for the vehicle user to switch off the panic alarm. In the case of an audible alarm, its sounding duration per activation shall not be restricted. A panic alarm shall not immobilize the engine or stop it if it is running.

19. TEST CONDITIONS

All components of the VAS or AS shall be tested in accordance with procedures described in paragraph 7.

This requirement does not apply to:

19.1. Those components that are fitted and tested as part of the vehicle, whether or not a VAS/AS is fitted (e.g. lamps); or,

19.2. Those components that have previously been tested as part of the vehicle and documentary evidence has been provided.

20. INSTRUCTIONS

Each vehicle shall be accompanied by:

20.1. Instructions for use;

20.2. Instructions for maintenance;

20.3. A general warning regarding the danger of making any alterations or additions to the system.

21. MODIFICATION OF THE VEHICLE TYPE AND EXTENSION OF APPROVAL

21.1. Every modification of the vehicle type shall be notified to the Administrative Department which approved the vehicle type.

The department may then either:

21.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the AS still complies with the requirements, or

21.1.2. Require a further report from the Technical Service.

21.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 16.3 above to the Contracting Parties to the Agreement applying this Regulation.

21.3. The Competent Authority issuing the extension of approval shall assign a serial number to each communication form drawn up for such an extension.

22. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

22.1. Every vehicle approved pursuant to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set out in paragraphs 17, 18 and 19 above.

22.2. The authority which has granted approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be one every two years.

23. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

23.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 22 above are not complied with.

23.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a form conforming to the model in Annex II to this Regulation.

24. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a vehicle type approved in accordance with this Regulation, he shall so inform the authority which granted the approval.

Upon receiving the relevant communication, that authority shall inform thereof the other Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex II to this Regulation.

25. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Contracting Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Administrative Departments which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries are to be sent.

PART III

APPROVAL OF IMMOBILIZERS AND APPROVAL OF A VEHICLE WITH REGARD TO ITS IMMOBILIZER

26. DEFINITIONS

For the purpose of Part III of this Regulation:

26.1. 'Immobilizer' means a device which is intended to prevent normal driving away of a vehicle under its own power (prevention of unauthorized use).

26.2. 'Control equipment' means equipment necessary for the setting and/or unsetting of an immobilizer.

26.3. 'Status display' means any device intended to indicate the status of the immobilizer (set/unset, change of set to unset and vice versa).

26.4. 'Set state' means the state in which the vehicle cannot be driven normally under its own power.

26.5. 'Unset state' means the state in which the vehicle can be driven normally.

26.6. 'Key' means any device designed and constructed to provide a method of operating a locking system, which is designed and constructed to be operated only by that device.

26.7. 'Override' means a design feature which locks the immobilizer in the unset condition.

26.8. 'Rolling code' means an electronic code consisting of several elements the combination of which changes at random after each operation of the transmitting unit.

26.9. 'Type of immobilizer' means systems which do not differ significantly in such essential aspects as:

(a) the manufacturer's trade name or mark;

(b) the kind of control equipment;

(c) the design of their operation on the relevant vehicle system(s) (as referred to in paragraph 32.1 below).

26.10. 'Vehicle type with regard to its immobilizer' means vehicles which do not differ significantly in such essential aspects as:

(a) the manufacturer's trade name or mark;

(b) vehicle features which significantly influence the performances of the immobilizer;

(c) the type and design of the immobilizer.

27. APPLICATION FOR APPROVAL OF AN IMMOBILIZER

27.1. The application for approval of an immobilizer shall be submitted by the manufacturer of the immobilizer or by his duly accredited representative.

27.2. For each type of immobilizer the application must be accompanied by:

27.2.1. Documentation in triplicate giving a description of the technical characteristics of the immobilizer, the method of its installation, and the measure taken against inadvertent activation;

27.2.2. Three samples of the type of immobilizer with all its components. Each of the main components must be clearly and indelibly marked with the applicant's trade name or mark and the type designation of that component.

27.2.3. (A) vehicle(s) fitted with the immobilizer to be type-approved, chosen by the applicant in agreement with the Technical Service responsible for conducting approval tests.

27.2.4. Instructions in triplicate in accordance with paragraph 34 below.

28. APPLICATION FOR APPROVAL OF A VEHICLE

28.1. When an immobilizer approved to Part III of this Regulation is being used in a vehicle submitted for approval to Part III of this Regulation, tests required to be passed by an immobilizer in order to obtain vehicle approval to Part III of this Regulation shall not be repeated.

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

28.3. It shall be accompanied by the under-mentioned documents in triplicate and by the following particulars:

28.3.1. A detailed description of the vehicle type and of the vehicle parts related to the immobilizer installed.

28.3.2. A list of components necessary to identify immobilizers which can be installed on the vehicle.

28.4. A vehicle representative of the type to be approved shall be submitted to the Technical Service.

28.5. A vehicle not comprising all the components proper to the type may be accepted provided that it can be shown, by the applicant to the satisfaction of the Competent Authority, that the absence of the components omitted has no effect on the results of the verifications, so far as the requirements of this Regulation are concerned.

28.6. When an immobilizer approved to Part III of this Regulation is being used, the type-approval communication of the immobilizers shall also be supplied to the Technical Service.

29. APPROVAL OF AN IMMOBILIZER

29.1. If the immobilizer submitted for approval pursuant to this Regulation meets the requirements of paragraphs 31, 32 and 33 below, approval of that type of immobilizer shall be granted.

29.2. An approval number shall be assigned to each type approved. Its first two digits (currently 01 for the 01 series of amendments) 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 may not assign the same number to another type of immobilizer.

29.3. Notice of approval or of extension or of refusal of approval of a type of immobilizer pursuant to this Regulation shall be communicated to the Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex III to this Regulation.

29.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to the main component(s) of the immobilizer conforming to a type of immobilizer approved under this Regulation, an international approval mark consisting of:

29.4.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([1]);

29.4.2. The number of this Regulation, followed by the letter 'R', a symbol 'A' or 'I' or 'AI' indicating if the system is a vehicle alarm system or an immobilizer or a combination of both, a dash and the approval number in the vicinity of the circle prescribed in paragraph 29.4.1.

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

29.6. Annex V to this Regulation gives examples of arrangements of approval marks.

29.7. As an alternative to the approval mark described in paragraph 29.4 above, a certificate of conformity shall be issued for every immobilizer offered for sale.

Where an immobilizer manufacturer supplies an approved unmarked immobilizer to a vehicle manufacturer, for fitment by that manufacturer as original equipment for a vehicle model or range of vehicle models, the immobilizer manufacturer shall supply a number of copies of the certificate of conformity to the vehicle manufacturer, sufficient for that manufacturer to obtain the vehicle approval to paragraph 30 of this Regulation.

If the immobilizer is made up of separate components, its main component(s) shall bear a reference mark and the certificate of conformity shall provide a list of such reference marks.

A model of the certificate of conformity is given in Annex VI to this Regulation.

30. APPROVAL OF A VEHICLE

30.1. If the vehicle submitted for approval pursuant to this Regulation meets the requirements of paragraphs 31, 32, and 33 below, approval of that vehicle type shall be granted.

30.2. An approval number shall be assigned to each type approved. Its first two digits (currently 01 for the 01 series of amendments) 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 may not assign the same number to another vehicle type.

30.3. Notice of approval or of extension or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex IV to this Regulation.

([1]) 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 Serbia, 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 for Ireland, 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, 48 for New Zealand, 49 for Cyprus, 50 for Malta, 51 for the Republic of Korea, 52 for Malaysia and 53 for Thailand. 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 Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

30.4. 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:

30.4.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval (1);

30.4.2. The number of this Regulation, followed by the letter 'R', a symbol 'A' or 'I' or 'AI' indicating if the vehicle has been approved with regard to its alarm system or its immobilizers or a combination of both, a dash and the approval number to the right of the circle prescribed in paragraph 30.4.1.

30.5. 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 30.4.1 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 30.4.1.

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

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

30.8. Annex V to this Regulation gives examples of arrangements of approval marks.

31. GENERAL SPECIFICATIONS

31.1. It must be possible to set and unset the immobilizer in accordance with these requirements.

31.2. If the immobilizer includes the possibility of a radio transmission, e.g. for setting or unsetting, it shall comply with the relevant ETSI Standards (see footnote 1 pertinent to paragraph 5.3), e.g. EN 300220-1 V1.3.1 (2000-09), EN 300220-2 V1.3.1 (2000-09), EN 300220-3 V1.1.1 (2000-09) and EN 301489-3 V1.2.1 (2000-08) (including any advisory requirements). The frequency and maximum radiated power of radio transmissions for the setting and unsetting of the immobilizer must comply with the CEPT/ERC (see footnote 2 pertinent to paragraph 5.3) Recommendation 70-03 (17 February 2000) relating to the use of short range devices (see footnote 3 to paragraph 5.3).

31.3. An immobilizer and its installation shall be so designed that any equipped vehicle continues to meet the technical requirements.

31.4. It shall not be possible for an immobilizer to enter the set state when the ignition key is in the engine running mode, except when:

(a) the vehicle is equipped or intended to be equipped for ambulance, fire brigade or police purposes; or

(1) 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 Serbia, 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 for Ireland, 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, 48 for New Zealand, 49 for Cyprus, 50 for Malta, 51 for the Republic of Korea, 52 for Malaysia and 53 for Thailand. 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 Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

(b) the engine is required to:

(i) drive machinery forming part of, or mounted on, the vehicle for purposes other than driving the vehicle; or

(ii) maintain the electrical power of the batteries of the vehicle at a level required for driving that machinery or apparatus;

and the vehicle is stationary with the parking brake applied. When this exception is used, this fact shall be stated under item 2 of the addendum to the communication document (Annex II to this Regulation).

31.5. It shall not be possible to permanently override an immobilizer.

31.6. The immobilizer shall be designed and built such that when installed it shall not adversely affect the designed function and the safe operation of the vehicle, even in the case of malfunction.

31.7. An immobilizer shall be designed and built such that, when installed on a vehicle, according to the manufacturer's instructions, it cannot rapidly and without attracting attention be rendered ineffective or destroyed by, e.g. the use of low cost easily concealed tools, equipment or fabrications readily available to the public at large. It shall be difficult and time consuming to replace a major component or assembly in order to bypass the immobilizer.

31.8. An immobilizer shall be so designed and built such that when installed as specified by the manufacturer it is able to withstand the environment within the vehicle for a reasonable lifetime (for testing see paragraph 33). More particularly the electrical properties of the on-board circuitry shall not be adversely affected by the addition of the immobilizer (lead cross-sections, contact safety, etc.).

31.9. An immobilizer may be combined with other vehicle systems or may be integrated into them (e.g. engine management, alarm systems).

31.10. It shall not be possible for an immobilizer to prevent the release of the brakes of the vehicle, except in the case of an immobilizer which prevents the release of pneumatically released spring brakes [1] and functions in such a way that in normal operation, or in failure conditions, the technical requirements of Regulation No 13 in force at the time of application for type approval under this Regulation are satisfied.

Compliance with this paragraph does not exempt an immobilizer which prevents the release of pneumatically released spring brakes from the technical requirements set out in this Regulation.

31.11. It shall not be possible for an immobilizer to operate in such a manner as to apply the brakes of the vehicle.

32. PARTICULAR SPECIFICATIONS

32.1. Extent of disablement

32.1.1. An immobilizer shall be designed so as to prevent the operation of the vehicle under its own power by at least one of the following means:

32.1.1.1. disable, in the case of after-market fitting, or vehicle equipped with diesel engine, at least two separate vehicle circuits that are needed for vehicle operation under its own power (e.g. starter motor, ignition, fuel supply, pneumatically released spring brakes, etc.);

[1] As defined in Annex VIII of Regulation No 13, as amended.

32.1.1.2. interference by code of at least one control unit required for the operation of the vehicle;

32.1.2. An immobilizer for fitment to a vehicle equipped with a catalytic converter shall not cause unburnt fuel to enter the exhaust.

32.2. Operating reliability

Operating reliability shall be achieved by suitable design of the immobilizer, account being taken of specific environmental conditions in the vehicle (see paragraphs 31.8 and 33).

32.3. Operating safety

It shall be ensured that the immobilizer does not change its state (set/unset) as a result of any of the tests in paragraph 33.

32.4. Setting of the immobilizer

32.4.1. The immobilizer must be set without supplementary action from the driver by at least one of the following means:

(a) at rotation of the ignition key into the '0' position in the ignition lock and activation of a door; in addition, immobilizers which unset immediately before or during the normal starting procedure of the vehicle are permitted to set on turning the ignition off.

(b) a maximum of 1 minute after removing the key of the ignition lock.

32.4.2. If the immobilizer can enter the set state when the ignition key is in the engine running mode as provided for in paragraph 31.4, the immobilizer may also be set by the opening of the driver's door and/or the authorised user carrying out a deliberate action.

32.5. Unsetting

32.5.1. Unsetting shall be achieved by using one or a combination of the following devices. Other devices with an equivalent level of security giving equivalent performance are permitted.

32.5.1.1. A key pad for inputting an individually selectable code having at least 10 000 variants.

32.5.1.2. Electrical/electronic device, e.g. remote control, with at least 50 000 variants and shall incorporate rolling codes and/or have a minimum scan time of ten days, e.g. a maximum of 5 000 variants per 24 hours for 50 000 variants minimum.

32.5.1.3. If unsetting can be achieved via a remote control, the immobilizer must return to the set condition within 5 minutes after unsetting if no supplementary action on the starter circuit has been undertaken.

32.6. Status display

32.6.1. To provide information on the status of the immobilizer (set/unset, change of set to unset and vice versa), optical displays inside and outside the passenger compartment are allowed. The light intensity of optical signals installed outside the passenger compartment shall not exceed 0,5 cd.

32.6.2. If an indication of short-term 'dynamic' processes such as changes from 'set' to 'unset' and vice versa is provided, it shall be optical, according to paragraph 32.6.1. Such optical indication may also be produced by the simultaneous operation of the direction indicators and/or passenger compartment lamp(s), provided that the duration of the optical indication by the direction indicators does not exceed 3 seconds.

33. OPERATION PARAMETERS AND TEST CONDITIONS

33.1. Operation parameters

All components of the immobilizer shall comply with prescriptions given in paragraph 7 of this Regulation.

This requirement does not apply to:

those components that are fitted and tested as part of the vehicle, whether or not an immobilizer is fitted (e.g. lamps); or,

those components that have previously been tested as part of the vehicle and documentary evidence has been provided.

33.2. Test conditions

All the tests shall be carried out in sequence on a single immobilizer. However, at the discretion of the test authority, other samples may be used if this is not considered to affect the results of the other tests.

33.3. Operation test

Upon completion of all the tests specified below, the immobilizer shall be tested under the normal test conditions specified in paragraph 7.2.1.2 of this Regulation to check that it continues to function normally. Where necessary, fuses may be replaced prior to the test.

All components of the immobilizer shall comply with prescriptions given in paragraphs 7.2.2 to 7.2.8 and 7.2.12 of this Regulation.

34. INSTRUCTIONS

(Paragraphs 34.1 to 34.3 for the purposes of aftermarket installation only).

Each immobilizer shall be accompanied by:

34.1. Instructions for installation

34.1.1. The list of vehicles and vehicle models for which the device is intended. This list may be specific or generic, e.g. 'all cars with petrol engines and 12 V negative earth batteries'.

34.1.2. The method of installation illustrated by photographs and/or very clear drawings.

34.1.3. Detailed installation instructions provided by the supplier shall be such that when correctly followed by a competent installer, the safety and reliability of the vehicle is not affected.

34.1.4. The supplied installation instructions shall identify the electrical power requirements of the immobilizer and, where relevant, shall advise an increasing of battery size.

34.1.5. The supplier shall provide post installation procedures for checking the vehicle. Particular attention shall be drawn to safety related features.

34.2. A blank installation certificate, an example of which is given in Annex VII.

34.3. A general statement to the immobilizer purchaser calling his attention to the following points:

34.3.1. the immobilizer should be installed in accordance with the manufacturer's instructions;

34.3.2. the selection of a good installer is recommended (the immobilizer manufacturer may be contacted to indicate appropriate installers);

34.3.3. the installation certificate supplied with the immobilizer should be completed by the installer.

34.4. Instructions for use

34.5. Instructions for maintenance

34.6. A general warning regarding the dangers of making any alterations or additions to the immobilizer; such alterations and additions would automatically invalidate the certificate of installation referred to in paragraph 34.2 above.

35. MODIFICATION OF THE IMMOBILIZER TYPE OR VEHICLE TYPE AND EXTENSION OF APPROVAL

Every modification of the immobilizer type or vehicle type shall be notified to the Administrative Department which approved this type of immobilizer.

The department may then either:

(a) consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the immobilizer or vehicle still complies with the requirements; or

(b) require a further test report for some or all of the tests described in paragraphs 31, 32 and 33 of this Regulation from the Technical Service responsible for conducting the tests.

Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 29.3 above to the Contracting Parties to the Agreement applying this Regulation.

The Competent Authority issuing the extension of approval shall assign a serial number to each communication form drawn up for such an extension.

36. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE(324-E/ECE/TRANS/505/Rev.2), with the following requirements:

36.1. Every immobilizer or vehicle approved under this Regulation with regard to its immobilizer shall be so manufactured as to conform to the type approved by meeting the requirements set out in paragraphs 31, 32 and 33 above.

36.2. The authority which has granted approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be one every two years.

37. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

37.1. The approval granted in respect of a type of immobilizer or a type of vehicle pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 36 above are not complied with.

37.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a form conforming to the models in Annex III and Annex IV to this Regulation.

38. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of immobilizer or a type of vehicle approved in accordance with this Regulation, he shall so inform the authority which granted the approval.

Upon receiving the relevant communication, that authority shall inform thereof the other Contracting Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex IV to this Regulation.

39. TRANSITIONAL PROVISIONS

39.1. **Type approval of an immobilizer**

39.1.1. As from 36 months after the date of entry into force of Supplement 4 to the 01 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the type of component or separate technical unit to be approved meets the requirements of this Regulation as amended by Supplement 4 to the 01 series of amendments.

39.1.2. Contracting Parties applying this Regulation shall continue to grant approvals to those type of components or separate technical units which comply with the requirements of the original version of this Regulation, as amended by any previous series of amendments, provided that the component or separate technical unit is intended as a replacement for fitting on vehicles in use and that it would not be technically feasible to fit a component or separate technical unit which satisfies the requirements contained in this Regulation as amended by the Supplement 4 to the 01 series of amendments.

39.2. **Approval of a vehicle type**

39.2.1. As from the date 36 months after the date of entry into force of Supplement 4 to the 01 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by the Supplement 4 to the 01 series of amendments.

40. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Contracting Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Administrative Departments which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries are to be sent.

ANNEX I

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a type of vehicle alarm system (VAS) pursuant to Part I of Regulation No 97

Approval No: ..... Extension No: .....

1. Trade name or mark of the VAS: .....
2. Type of VAS: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description of the VAS and of the immobilizer (if applicable): .....
6. Type of vehicle on which the VAS has been tested: .....
7. System submitted for approval on: .....
8. Technical Service responsible for conducting approval tests: .....
9. Date of report issued by that service: .....
10. Number of report issued by that service: .....
11. Approval has been granted/refused/extended/withdrawn (2)
12. Reason(s) for extension of approval: .....
13. If applicable, position of the approval mark(s) on the main components: .....
14. Place: .....
15. Date: .....
16. Signature: .....
17. The following documents, bearing the approval number shown above, are attached to this communication:

    list of components, duly identified, constituting the VAS;

    list of files deposited with the Administrative Service which has granted type approval, and which can be obtained upon request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX II

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to its alarm system pursuant to Part II of Regulation No 97

Approval No: ..... Extension No: .....

1. Trade name or mark of the vehicle: .....
2. Vehicle type: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description: .....
6. Vehicle submitted for approval on: .....
7. Technical Service responsible for conducting approval tests: .....
8. Date of report issued by that service: .....
9. Number of report issued by that service: .....
10. Approval has been granted/refused/extended/withdrawn (2)
11. Reason(s) for extension of approval: .....
12. Position of the approval mark on the vehicle: .....
13. Place: .....
14. Date: .....
15. Signature: .....
16. The following documents, bearing the approval number shown above, are attached to this communication:

    list of components, identifying alarm systems which can be installed on the vehicle type;

    list of files deposited with the Administrative Service which has granted type approval, and which can be obtained upon request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX III

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a type of immobilizer pursuant to Part III of Regulation No 97

Approval No: ..... Extension No: .....

1. Trade name or mark of the immobilizer: .....
2. Type of immobilizer: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description of the immobilizer: .....
6. Type of vehicle on which the immobilizer has been tested: .....
7. If applicable, type(s) of vehicle(s) to which the immobilizer is intended to be fitted: .....
8. System submitted for approval on: .....
9. Technical Service responsible for conducting approval tests: .....
10. Date of report issued by that service: .....
11. Number of report issued by that service: .....
12. Approval has been granted/extended/refused/withdrawn (2)
13. Reason(s) for extension of approval: .....
14. If applicable, position of the approval mark(s) on the main components: .....
15. Place: .....
16. Date: .....
17. Signature: .....
18. The following documents, bearing the approval number shown above, are attached to this communication:

    list of components, duly identified, constituting the immobilizer;

    list of files deposited with the Administrative Service which has granted type approval, and which can be obtained upon request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX IV

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to its immobilizer pursuant to Part III of Regulation No 97

Approval No: ..... Extension No: .....

1. Trade name or mark of the vehicle: .....
2. Vehicle type: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description: .....
6. Vehicle submitted for approval on: .....
7. Technical Service responsible for conducting approval tests: .....
8. Date of report issued by that service: .....
9. Number of report issued by that service: .....
10. Approval has been granted/extended/refused/withdrawn (2):
11. Reason(s) for extension of approval: .....
12. Position of the approval mark on the vehicle: .....
13. Place: .....
14. Date: .....
15. Signature: .....
16. The following documents, bearing the approval number shown above, are attached to this communication:

    brief description of the immobilizer and the vehicle part(s) on which it (they) act(s);

    list of files deposited with the Administrative Service which has granted type approval, and which can be obtained upon request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX V

ARRANGEMENTS OF APPROVAL MARKS

Model A

Figure 1

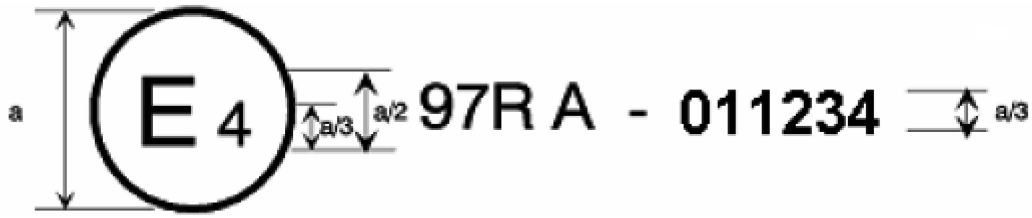


Figure 2

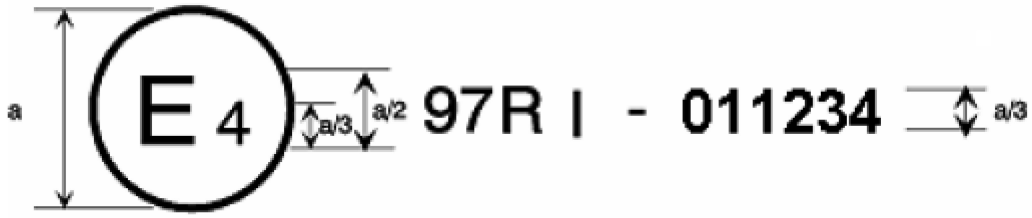


Figure 3

a = 8 mm min.

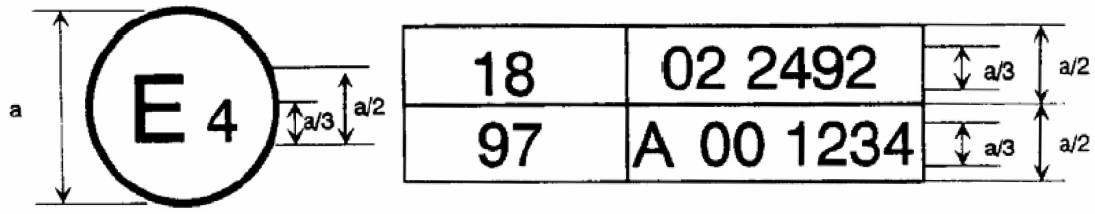
The above approval mark figure 1 affixed to a vehicle or a VAS shows that the type concerned has been approved in the Netherlands (E 4), pursuant to Regulation No 97 as amended by the 01 series of amendments under approval No 011234.

The above approval mark figure 2 affixed to a vehicle or an immobilizer shows that the type concerned has been approved in the Netherlands (E 4), pursuant to Regulation No 97 as amended by the 01 series of amendments under approval No 011234.

The above approval mark figure 3 affixed to a vehicle or a VAS and an immobilizer shows that the type concerned has been approved in the Netherlands (E 4), pursuant to Regulation No 97 as amended by the 01 series of amendments under approval No 011234.

The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No 97 as amended by the 01 series of amendments.

Model B



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the type concerned has been approved with regard to its alarm system in the Netherlands (E 4) pursuant to Regulations Nos 18 (*) and 97.

The first two digits of the approval numbers indicate that, on the dates on which these approvals were granted, Regulation No 18 included the 02 series of amendments and Regulation No 97 included the 01 series of amendments.

(*) The second number is given merely as an example.

ANNEX VI

MODEL OF CERTIFICATE OF CONFORMITY

I the undersigned .....

(surname and name)

Testify that the vehicle alarm system/immobilizer (1) below:

Make: .....

Type: .....

is in total conformity with the type approved

at: ..... on: .....

(place of approval) (date)

as described in the communication form bearing approval No .....

Identification of the main component(s):

Component: ..... Marking: .....

....

....

Done at: ..... on: .....

Manufacturer's full address and stamp: .....

.....

.....

Signature: ..... (please specify position)

(1) Strike out what does not apply.

ANNEX VII

MODEL OF INSTALLATION CERTIFICATE

I the undersigned .....
professional installer, certify that the installation of the vehicle alarm system described below has been carried out by myself pursuant to the mounting instructions supplied by the manufacturer of the system.

Description of the vehicle

Make: .....

Type: .....

Serial number: .....

Registration number: .....

Description of the vehicle alarm system/immobilizer (1)

Make: .....

Type: .....

Approval number: .....

Done at: ..... on: .....

Installer's full address and stamp: .....

.....

.....

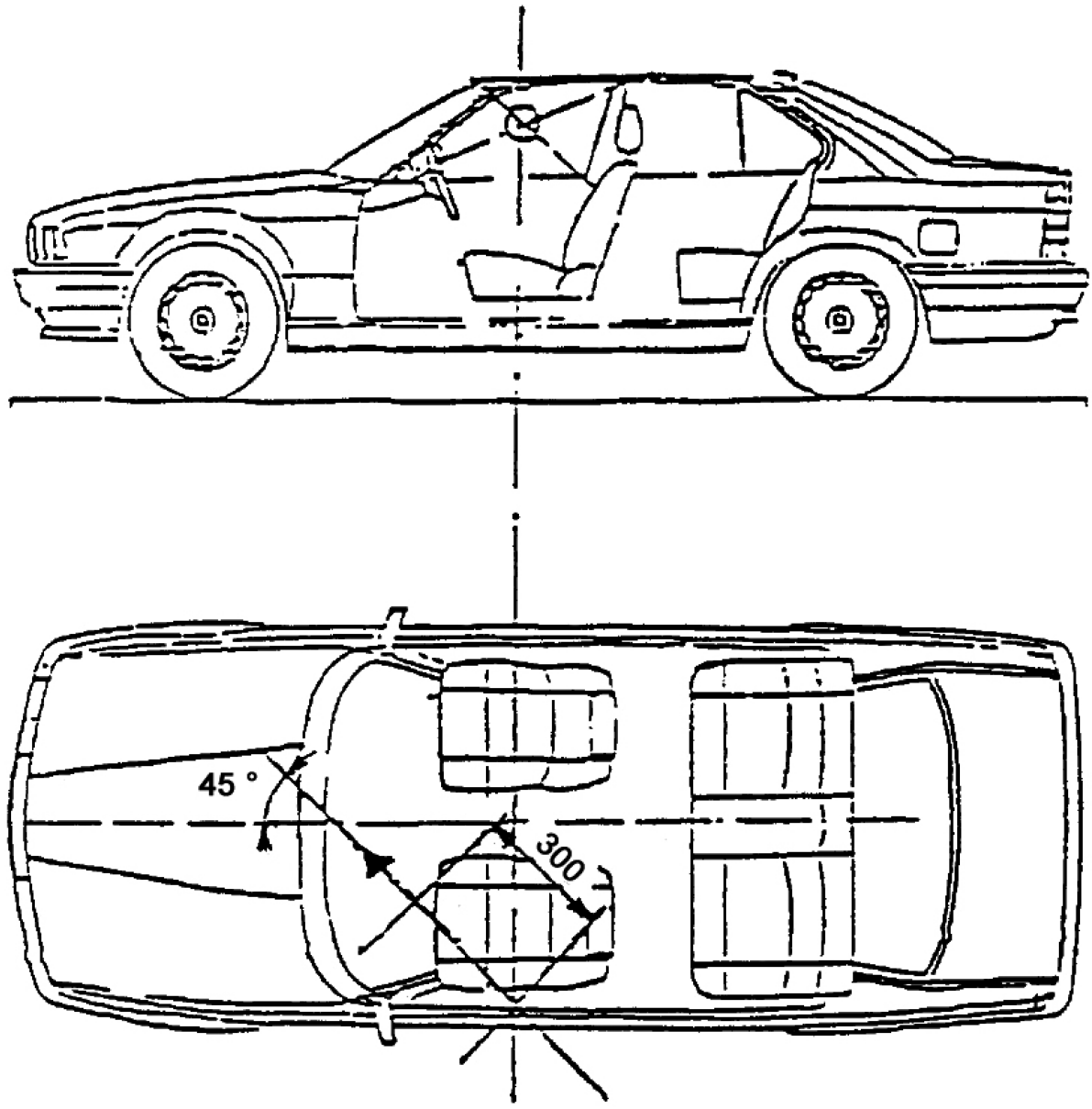
Signature: ..... (please specify position)

(1) Strike out what does not apply.

ANNEX VIII

PARAGRAPHS 7.2.11 AND 19

Test of systems for the protection of the passenger compartment



ANNEX IX

ELECTROMAGNETIC COMPATIBILITY

NB: To test the electromagnetic compatibility, either paragraph 1. or paragraph 2. shall be used, depending on the test facilities.

1. METHOD ISO

Immunity against disturbances conducted along supply lines

Apply the test pulses 1, 2, 3a, 3b, 4 and 5 according to the International Standard ISO 7637-1:1990 to the supply lines as well as to other connections of VAS/AS which may be operationally connected to supply lines.

VAS/AS in unset state

The test pulses 1 through 5 shall be applied with a degree of severity III. The required functional status for all applied test pulses shall be A.

VAS/AS in set state

The test pulses 1 through 5 shall be applied. The required functional status for all applied test pulses are given in table 1.

Table 1

Severity/functional status (for supply lines)

Test pulse number	Test level	Functional status
1	III	C
2	III	A
3a	III	C
3b	III	A
4	III	B
4	I	A
5	III	A

Immunity against disturbance coupled on signal lines

Leads which are not connected to supply lines (e.g. special signal lines) shall be tested in accordance with the International Standard ISO/DIS 7637:1993 part 3. The required functional status for all applied test pulses are given in table 2.

Table 2

Test level/functional status (for signal lines)

Test pulse number	Test level	Functional status
3a	III	C
3b	III	A

Immunity against radiated high frequency disturbances

Testing of the immunity of a VAS/AS in a vehicle may be performed according to the prescriptions in Regulation No 10, 02 series of amendments and test methods described in Annex VI for the vehicles and Annex IX for a separate technical unit.

Electrical disturbance from electrostatic discharges

Immunity against electrical disturbances shall be tested in accordance with Technical Report ISO/TR 10605-1993.

Radiated emission

Tests shall be performed according to Regulation No 10, 02 series of amendments prescriptions and according to the test methods described in Annexes IV and V for vehicles or Annexes VII and VIII, for a separate technical unit.

2. METHOD IEC

Electromagnetic field

The VAS/AS shall undergo the basic test. It shall be subjected to the electromagnetic field test described in IEC Publication 839-1-3-1998 test A-13 with a frequency range from 20 to 1 000 MHz, and for a field strength level of 30 V/m.

In addition, the VAS/AS shall be subjected to the electrical transient conducted and coupled tests described in the International Standard ISO 7637 Parts 1:1990, 2:1990 and 3:1993, as appropriate.

Electrical disturbance from electrostatic discharges

The VAS/AS shall undergo the basic test. It shall be subjected to testing for immunity against electrostatic discharge as described in either EN 61000-4-2, or ISO/TR 10605-1993, at the manufacturer's choice.

Radiated emissions

The VAS/AS shall be subjected to testing for the suppression of radio frequency interference according to tests prescribed in Regulation No 10, 02 series of amendments and according to test methods described in Annexes IV and V for vehicles and Annexes VII and VIII for a separate technical unit.

ANNEX X

SPECIFICATIONS FOR MECHANICAL KEY SWITCHES

1. The cylinder of the key switch shall not protrude by more than 1 mm from the cowling, and the protruding part shall be conical.

2. The joint between the cylinder core and the cylinder casing shall be capable of withstanding a tensile force of 600 N and a torque of 25 Nm.

3. The key switch shall be provided with a cylinder drill obstruction.

4. The key profile shall have at least 1 000 effective permutations.

5. The key switch shall not be operable by a key which differs by only one permutation from the key matching the key switch.

6. The key aperture to an external key switch shall be shuttered or otherwise protected against the penetration of dirt and/or water.

Regulation No 102 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of

I. A close-coupling device (CCD)

II. Vehicles with regard to the fitting of an approved type of CCD

Date of entry into force: 13 December 1996

CONTENTS

1. SCOPE

1.1. This Regulation applies to vehicles of categories N_2, N_3, O_3 and O_4.

2. DEFINITIONS

2.1. For the purposes of this Regulation:

2.1.1. 'Close-coupling device (CCD)' means a device which automatically provides sufficient space between the bodies of towing vehicles and trailers if additional clearance is needed during angular movement between them. Coupling devices having no adjusting effect on lengths and/or angles within the device are not covered by this Regulation;

2.1.2. 'Approval of a device' means the approval of a type of close-coupling device conforming to the requirements set out in Section I below;

2.1.3. 'Approval of a vehicle' means the approval of a vehicle with regard to the fitting of an approved close-coupling device;

2.1.4. 'Vehicle type' means vehicles which do not differ in such essential respects as:

2.1.4.1. The make and type of the close-coupling device;

2.1.4.2. The length and width of the vehicles;

2.1.4.3. The mass of the vehicles;

2.1.4.4. The points of attachment of the close-coupling device;

2.1.4.5. The vehicle description (e.g. truck, tractor, trailer, semi-trailer, centre-axle trailer);

2.1.4.6. Steering equipment (e.g. auxiliary steering equipment, steering equipment of the trailer).

2.1.5. 'Type of close-coupling device' means devices which do not differ in such essential respects as:

2.1.5.1. The make and type of the device;

2.1.5.2. The operating principle;

2.1.5.3. The means of attachment to vehicles;

2.1.5.4. The overall dimensions at minimum and maximum extension;

2.1.5.5. The limits of the operating angles;

2.1.5.6. The kinematic characteristics in relation to the angles of articulation;

2.1.6. 'Automatic coupling procedure': A coupling procedure is automatic if reversing the towing vehicle against the trailer is sufficient to engage the coupling completely and properly and to secure it automatically and to indicate proper engagement of the safety devices without any external intervention.

SECTION I

APPROVAL OF A CLOSE-COUPLING DEVICE (CCD)

3. APPLICATION FOR APPROVAL

3.1. The application for approval of a close-coupling device (CCD) shall be submitted by the manufacturer of the CCD or by his duly accredited representative.

3.2. It shall be accompanied by:

3.2.1. In triplicate, a detailed description and fully dimensioned scale drawings of the CCD and the method of installation. The submitted documents must show to the satisfaction of the competent authority that the CCD will function reliably and safely.

3.2.2. A sample of the CCD type to be approved;

3.2.3. A combination of vehicles representing the worst case condition, fitted with the CCD to be approved, shall be selected in conjunction with the technical service responsible for conducting the approval tests taking into account such aspects as suspension, maximum allowable mass and dimensions, wheelbase, number and position of axles and the extreme positions of the close-coupling device. More than one combination of vehicles shall be provided, if required by the technical service.

3.3. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

4. APPROVAL

4.1. All parts required for the installation and safe operation of a close-coupling device (e.g. parts subject to towing and/or steering forces fixed to the chassis of the towing vehicle or the trailer, and control systems) are subject to type approval.

4.2. If the CCD submitted for approval pursuant to this Regulation meets the requirements of paragraph 5 below, approval of that CCD type shall be granted.

4.3. An approval number shall be assigned to each type approved. Its first two digits (00 for the Regulation in its present form) 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 may not assign the same number to another type of CCD.

4.4. Notice of approval or of extension or refusal of approval of a CCD type pursuant to this Regulation shall be communicated to the Contracting Parties applying this Regulation, by means of a form conforming to the model in Annex I to this Regulation.

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

4.5.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([1]);

4.5.2. 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 4.5.1.

([1]) 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, 30-36 (vacant) and 37 for Turkey. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

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

4.7. Annex III to this Regulation gives examples of arrangements of approval marks.

5. SPECIFICATIONS

5.1. General

5.1.1. The CCD shall be so designed, constructed and assembled such that a vehicle fitted with the CCD conforms to the requirements of this Regulation under normal conditions of road use. The coupling devices themselves must comply with the technical requirements of Regulation No 55. Additional forces which may be caused by the assembled CCD in operation shall be taken into account.

5.1.2. The operation of the CCD shall be automatic. Even the reverse movement of the close-coupled combination must be possible without any manual action at the CCD.

5.1.3. [1] In particular, the CCD shall be so designed, constructed and assembled so as to be resistant to all stresses, corrosion and ageing to which it may be subjected (e.g. vibration, humidity, extreme temperatures).

5.1.4. The CCD shall enable vehicles to travel in a straight line on a level road, without any abnormal effort being applied to the steering control, either forwards or in reverse.

5.1.5. System failures

5.1.5.1. Any power system failure and/or control system failure of the CCD, while the vehicle is running, shall cause the coupling to extend and remain in that position. Separation of the towing vehicle and trailer must be prevented by mechanical means under all conditions of use.

5.1.5.2. Any power system and/or control system failure must be indicated to the driver by an acoustic and an optical signal.

5.1.6. When the vehicles are stationary no uncontrolled movement of the CCD may occur under any circumstances including long term uphill parking.

5.1.7. Non-automatic movement of the CCD may be possible only while the towing vehicle is stationary. An instruction to apply the parking brake of the towing vehicle shall be permanently attached to the control unit.

5.1.7.1. This operation shall be controlled by means of a dual control unit.

5.1.7.2. This control unit must be fitted outside the driver's cabin and shall be situated in such a position that the operator is not endangered by the movement of the trailer and can see the danger area between the vehicles at a glance.

5.1.7.3. It must not be possible to lock the control unit in the operating position or operate it unintentionally.

5.1.7.4. The movement of the trailer shall take place without jolting, at a speed of not more than 50 mm/sec.

5.1.7.5 Release of a control must stop the movement immediately.

[1] Until uniform test procedures have been agreed, the manufacturers shall provide the Technical Services with their test procedures and results.

5.1.8. Forward movement of the towing vehicle shall not result in rearward movement of the trailer in relation to the road surface.

Rearward movement of the trailer of not more than 30 mm is permitted only for switch and react purposes.

5.1.9. The CCD must return to its shortest normal straight ahead operating position following relative angular movement between towing vehicle and trailer, in accordance with Annex IV.

5.1.10. Operation of the CCD shall not interfere with the dynamic stability of the combination. This requirement shall be checked during the tests described in Annex IV.

5.1.11. The CCD shall be designed so as to enable the vehicles to be coupled or uncoupled. All coupling operations shall be automatic, including the mechanical controls and the parts subject to towing and/or steering forces. Correct engagement of the positive locking system must be indicated or be easily visible from the side of the vehicle alongside the coupling device. Otherwise, a remote indication must be installed in the driver's cabin. Manual coupling of control and power supply lines is permitted provided the connections are readily accessible from a standing position and the combination can be safely driven, without these lines being connected.

5.1.12. The CCD when engaged must itself provide at least the following angular movement:

	Full trailer	Centre axle trailer	Semi-trailer
horizontal	± 60 °	± 90 °	± 90 °
vertical	± 20 °	± 15 °	± 12 °
axial	± 15 °	± 15 °	—

5.1.13. For hydraulic or pneumatic CCD's, an optical signal shall indicate that the CCD is about to reach its maximum extension. This signal may be the same as the optical signal mentioned in paragraph 5.1.5.2.

5.1.14. The CCD shall be designed such that when coupling at an angle between the towing vehicle and trailer different from that when uncoupled, unintentional movement of the trailer or incorrect functioning of the CCD does not occur.

5.1.15. A plate specifying the maximum mass of the towing vehicle and the trailer, all lubrication points and the frequency of lubrication shall be affixed such that it is clearly visible even when the trailer is coupled.

5.2. Tests

The tests which the CCD shall undergo for approval are described in Annex IV to this Regulation.

6. MODIFICATION OF CCD TYPE AND EXTENSION OF APPROVAL

6.1. Any modification of the CCD type shall be notified to the administrative department which approved the CCD type. The department may then either;

6.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that the device still complies with the requirements; or

6.1.2. Require a further test report from the technical service responsible for conducting the tests.

6.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 4.3. above to the Contracting Parties applying this Regulation.

6.3. The competent authority issuing an extension of approval shall assign a series number for such an extension and inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex I to this Regulation.

7. CONFORMITY OF PRODUCTION

7.1. Every CCD approved under this Regulation shall be manufactured so as to conform to the type approved by meeting the requirements set out in paragraph 5 above.

7.2. In order to verify that the requirements of paragraph 7.1 are met, suitable controls of the production shall be carried out.

7.3. The holder of the approval shall, in particular:

7.3.1. ensure the existence of procedures for effective control of the quality of products;

7.3.2. have access to the control equipment necessary for checking the conformity to each approved type;

7.3.3. ensure that data of the test results are recorded and that related documents shall remain available for a period to be determined in accordance with the administrative service;

7.3.4. analyze the results of each type of test, in order to verify and ensure the stability of the product characteristics, making allowance for variation in industrial production;

7.3.5. ensure that, for each type of product, a sufficient number of checks and tests are carried out, in conformity with the procedures approved by the competent authority;

7.3.6. ensure that any collecting of samples or parts giving evidence of non-conformity in the type of test in question shall give rise to another sampling and another test. All the necessary steps shall be taken to re-establish the conformity of the corresponding production.

7.4. The competent authority which has granted type approval may at any time verify the conformity control methods applicable to each production unit.

7.4.1. In every inspection, the test books and production survey records shall be presented to the visiting inspector.

7.4.2. The inspector may take samples at random to be tested in the manufacturer's laboratory. The minimum number of samples may be determined in the light of the results of the manufacturer's own checks.

7.4.3. Where the quality level appears unsatisfactory or when it seems necessary to verify the validity of the tests carried out in application of paragraph 7.4.2 above, the inspector shall select samples, to be sent to the technical service which has conducted the type approval tests.

7.4.4. The competent authority may carry out any test prescribed in this Regulation.

7.4.5. The normal frequency of inspections authorized by the competent authority shall be once every two years. In the case where negative results are recorded during one of these visits, the competent authority shall ensure that all necessary steps are taken to re-establish the conformity of production as rapidly as possible.

8. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

8.1. The approval granted in respect of a CCD type, pursuant to this Regulation, may be withdrawn if the requirements laid down in paragraph 5 above are not complied with.

8.2. If a Contracting Party to the 1958 Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Parties to the Agreement applying this Regulation by means of a communication form conforming to the model in Annex I to this Regulation.

9. PRODUCTION DEFINITELY DISCONTINUED

9.1. If the holder of the approval completely ceases to manufacture a type of CCD approved in accordance with this Regulation, he shall so inform the authority which granted the approval, which shall in turn inform the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex I to this Regulation.

10. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

10.1. The Parties to the Agreement applying this Regulation shall communicate to the United Nations secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or extension, or refusal or withdrawal of approval or production definitely discontinued, issued in other countries, are to be sent.

SECTION II

APPROVAL OF VEHICLES WITH REGARD TO THE FITTING OF AN APPROVED TYPE OF CCD

11. APPLICATION FOR APPROVAL

11.1. The application for approval of a vehicle type with regard to the fitting of a CCD of an approved type shall be submitted by the vehicle manufacturer or by his duly accredited representative.

11.2. It shall be accompanied by the undermentioned documents in triplicate and the following particulars:

11.3. A detailed description of the vehicle type and the vehicle parts connected to the CCD, including a dimensioned drawing of the fixing points and the information and documents referred to in Annex II.

11.4. At the request of the competent authority, the approval form (i.e. the form indicated in annex I to this Regulation) for each type of CCD shall also be supplied.

11.5. A vehicle, representative of the vehicle type to be approved, fitted with a CCD, shall be submitted to the technical service conducting the approval test.

11.5.1. A vehicle not having all the components appropriate to the type may be accepted provided that the applicant can show to the satisfaction of the competent authority that the absence of the components omitted has no effect on the results of the inspections as far as the requirements of this Regulation are concerned.

11.6. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

11.7. Special operating instructions shall be provided for coupling operations deviating from usual ones, which must contain in particular, instructions regarding coupling and uncoupling with different modes of operation (e.g. angled positions). Each vehicle must be accompanied by such special operating instructions.

12. APPROVAL

12.1. If the vehicle submitted for approval pursuant to this Regulation is fitted with an approved CCD and meets the requirements of paragraph 13 below, approval of that vehicle type shall be granted.

12.2. An approval number shall be assigned to each type approved. The first two digits (00 for the Regulation in its present form) 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 may not assign the same number to another vehicle type.

12.3. Notice of approval or of extension or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Contracting Parties applying this Regulation by means of a form conforming to the model in annex II to this Regulation.

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

12.4.1. A circle surrounding the letter 'E', followed by the distinguishing number of the country which has granted approval ([1]);

12.4.2. 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 12.4.1.

12.5. If the vehicle conforms to a vehicle type approved, under one or more of the Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 12.4.1 need not be repeated; in this 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 12.4.1.

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

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

12.8. Annex III to this Regulation gives examples of arrangements of approval marks.

13. REQUIREMENTS CONCERNING THE FITTING OF AN APPROVED CCD

13.1. The requirements of Section I, paragraph 5.1, excluding paragraph 5.1.12 have to be fulfilled when the CCD is fitted to the vehicle, despite any influences which may be caused by the operation of the vehicle.

([1]) 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, 30-36 (vacant) and 37 for Turkey. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

13.2. The CCD in use shall not impede the movement of the vehicles to which it is fitted. This condition shall be deemed to have been met if the test requirements described in annex IV are complied with.

13.3. Warning signal as mentioned in Section I, paragraphs 5.1.5.2 and 5.1.13.

13.3.1. The acoustic device must be located in the driver's cabin and must be easily audible by the driver under all circumstances, when the vehicle is in normal use.

13.3.2. The optical signal shall be red in colour and located on the instrument panel in the direct field of vision of the driver and must be easily visible even in daylight.

13.4. Coupling and uncoupling must be possible with coupling angles of up to 50 ° horizontally both to the right and left, up to 10 ° vertically both upward and downward with full trailers, up to 6 ° vertically both upward and downward with centre axle trailers and up to 7 ° when twisted axially in both directions, i.e., it must be possible to couple the trailer up to the above-mentioned angular positions between towing vehicle and trailer drawbars without the necessity of intervention of additional personnel.

During automatic coupling it is permitted for a temporary position to be arranged before final coupling is effected. The temporary position must permit the combination to be safely manoeuvred. If the final action is operated manually the space between the vehicles must be at least 500 mm.

13.5. It must be possible from the standing position for one person to position the coupling devices prior to the coupling procedure without the use of tools. This requirement also applies to the connection and disconnection of the braking and electrical lines.

13.6. General requirements

To allow automatic coupling, the drawbar eye must be adjustable vertically to the centre height of the coupling device under all usual traffic and operational conditions.

14. MODIFICATIONS OF THE VEHICLE TYPE AND EXTENSION OF APPROVAL

14.1. Any modification of the vehicle type as defined in paragraph 2.1.4 shall be notified to the administrative department which approved the vehicle type. The department may then either:

14.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the vehicle still conforms to the requirements, or

14.1.2. Require a further test report from the technical service.

14.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure prescribed in paragraph 12.3 above to the Contracting Parties applying this Regulation.

14.3. The competent authority issuing an extension of approval shall assign a series number for such an extension and inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex II to this Regulation.

15. CONFORMITY OF PRODUCTION

15.1. Every vehicle approved under this Regulation shall be manufactured so as to conform to the type approved by meeting the requirements set out in paragraph 13 above.

15.2. In order to verify that the requirements of paragraph 15.1 are met, suitable controls of the production shall be carried out.

15.3. The holder of the approval shall, in particular:

15.3.1. ensure the existence of procedures for effective control of the quality of vehicles in respect of all aspects relating to conformity with the requirements set out in paragraph 13 above;

15.3.2. have access to the control equipment necessary for checking the conformity to each approved type;

15.3.3. ensure that data of the test results are recorded and that related documents shall remain available for a period to be determined in accordance with the administrative service;

15.3.4. analyze the results of each type of test, in order to verify and ensure the stability of the product characteristics, making allowance for variation of an industrial production;

15.3.5. ensure that, for each type of product, a sufficient number of checks and tests are carried out, in conformity with the procedures approved by the competent authority;

15.3.6. ensure that any collecting of samples or parts giving evidence of non-conformity in the type of test in question shall give rise to another sampling and another test. All the necessary steps shall be taken to re-establish the conformity of the corresponding production.

15.4. The competent authority which has granted type approval may at any time verify the conformity control methods applicable to each production unit.

15.4.1. In every inspection, the test books and production survey records shall be presented to the visiting inspector.

15.4.2. The inspector may take samples at random to be tested in the manufacturer's laboratory. The minimum number of samples may be determined in the light of the results of the manufacturer's own checks.

15.4.3. Where the quality level appears unsatisfactory or when it seems necessary to verify the validity of the tests carried out in application of paragraph 15.4.2 above, the inspector shall select samples, to be sent to the technical service which has conducted the type approval tests.

15.4.4. The competent authority may carry out any test prescribed in this Regulation.

15.4.5. The normal frequency of inspections authorized by the competent authority shall be once every two years. In the case where negative results are recorded during one of these visits, the competent authority shall ensure that all necessary steps are taken to reestablish the conformity of production as rapidly as possible.

16. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

16.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements set out in paragraph 13 above are not complied with.

16.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Parties to the Agreement applying this Regulation, by means of a communication form conforming to the model in Annex II to this Regulation.

17. PRODUCTION DEFINITELY DISCONTINUED

17.1. If the holder of the approval completely ceases to manufacture a type of vehicle approved in accordance with this Regulation, he shall so inform the authority which granted the approval, which shall in turn notify the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex II to this Regulation.

18. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

18.1. The Parties to the Agreement applying this Regulation shall communicate to the United Nations secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or extension, or refusal or withdrawal of approval, or of production definitely discontinued, issued in other countries, are to be sent.

ANNEX I

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a CCD pursuant to Regulation No 102, Section I

Approval No: ..... Extension No: .....

1. Trade name or mark of the CCD: .....
2. CCD type: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description of the CCD: .....
6. Type: .....
6.1. Vehicle on which the CCD was tested: .....
6.2. Brief description including information with regards to paragraph 3.2.3.: .....
7. Minimum space between motor vehicle and towed vehicle: .....
8. Maximum extension of device: .....
9. Restrictions of use on vehicles which may be utilized (2): (e.g. truck, tractor, trailer, semi-trailer, centre axle trailer).

   Maximum permissible mass of the trailer: .....

   Maximum permissible mass of the tractor: .....
10. CCD submitted for approval on: .....
11. Technical service responsible for conducting approval tests: .....
12. Date of test report issued by that service: .....
13. Number of test report issued by that service: .....
14. Approval of the CCD granted/refused/extended/withdrawn (2):
15. Position of approval mark on the CCD: .....
16. Place: .....
17. Date: .....
18. Signature: .....
19. A list of documents in the approval file deposited with the administrative service which has granted approval is annexed to this communication and may be obtained on request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX II

COMMUNICATION

(Maximum format: A4 (210 × 297 mm))

E ... (1)

issued by: Name of administration:
.....
.....
.....

concerning (2): APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to the fitting of a CCD approved under Section II of Regulation No 102

Approval No: ..... Extension No: .....

1. Trade name or mark of vehicle: .....
2. Vehicle type: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Vehicle category N_2, N_3, O_3, O_4 (2): .....
6. Brief description of the vehicle type in respect of the CCD (e.g. truck, tractor, trailer, semi-trailer, centre axle trailer): .....

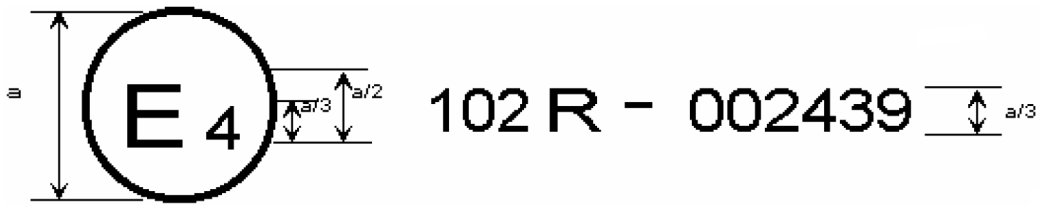
   Maximum permissible mass of the trailer: .....

   Maximum permissible mass of the tractor: .....
7. Trade name or mark of the CCD(s) and its/their approval No(s): .....
8. Minimum space between towing vehicle and towed vehicle: .....
9. Maximum length of vehicles with the CCD(s) in running position: .....
10. Restriction on vehicles to be coupled to the vehicle type: .....
11. Vehicle submitted for approval on: .....
12. Technical service responsible for conducting approval tests: .....
13. Date of test report issued by that service: .....
14. Number of test reports issued by that service: .....
15. Approval granted/refused/extended/withdrawn (2):
16. Position of approval mark on the vehicle: .....
17. Place: .....
18. Date: .....
19. Signature: .....
20. The list of documents in the approval file deposited with the administrative service which has granted approval is annexed to this communication and may be obtained on request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).
(2) Strike out what does not apply.

ANNEX III

EXAMPLE OF THE APPROVAL MARK



a = 8 mm min

The above approval mark, affixed to a CCD, shows that the CCD concerned has been approved in the Netherlands (E4), pursuant to Regulation No 102, with the approval No 002439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No 102 in its original form.

ANNEX IV

REQUIREMENTS CONCERNING TESTS AND PERFORMANCE [1]

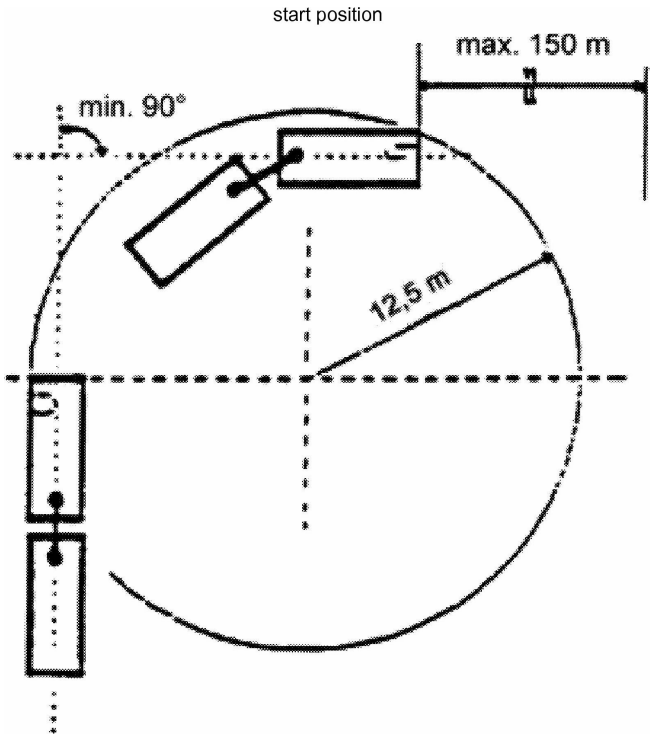
(See paragraph 5.1.10)

1. CCD RECOVERY DISTANCE

1.1. The towing vehicle/trailer combination shall be driven, from a straight ahead position, around a bend having an outside radius of 12.5 metres and stopped when the towing vehicle has turned through an angle of 90° (yaw-angle). The combination shall then be accelerated as quickly as possible up to a speed of 30 ± 2 km/h and be maintained at this ed until completion of the test. Full retraction of the CCD must have taken place within 150 metres from the acceleration start position (see Figure 1 below).

This test shall be conducted in both left and right directions.

Figure 1



Note: Compliance with these requirements does not guarantee that the overall length of the vehicle combination is legal in all driving conditions.

1.2. The technical service shall verify that some retraction of the CCD takes place all the time the towing vehicle is moving forward.

2. STABILITY OF THE COMBINATION

For the approvals under Sections I and II, the stability performance shall be measured during road tests conducted in the following conditions:

[1] For the purposes of approvals under Section II, the technical service may take into account tests conducted for the purposes of Section I.

2.1. TEST CONDITIONS

2.1.1. Loading conditions

2.1.1.1. The vehicles must be laden, the distribution of mass among the axles being that stated by the manufacturers of the vehicles; where provision is made for several arrangements of the load on the axles, the distribution of the maximum mass among the axles must be such that the mass on each axle is proportional to the maximum permissible mass for each axle.

2.1.1.2. The height of the centre of gravity of the vehicles shall be at least 1,7 metres.

The actual loading condition shall be specified in the test report. For vehicles designed for use with a centre of gravity lower than 1,7 metres, the test may, at the discretion of the approval authority, be conducted at the lower figure.

In this case the maximum centre of gravity height shall be stated on the information plate required by paragraph 5.1.1.5.

2.1.2. The test must be carried out at the speeds prescribed for each type of test.

If the maximum design speed of a vehicle is lower than the speed pre-scribed for a test, the test shall be performed at the vehicle's maximum speed.

2.1.3. The road must be level and must have a surface affording good adhesion;

2.1.4. The tests must be performed when there is no wind liable to affect the results;

2.1.5. At the start of the tests, the tyres must be cold and at the pressure prescribed by the manufacturer of the vehicles or tyres for the load actually borne by the wheels when the vehicles are stationary; substantially -new tyres shall be used.

2.1.6. The prescribed performance must be obtained without self amplifying reactions, without deviation of the vehicles from their course, and without unusual vibration in the steering and coupling system.

2.2. STRAIGHT LINE STABILITY TEST

2.2.1. Vehicles shall be tested at a speed of $85^{+5/-0}$ km/h and remain aligned. During the test, it must be possible to travel along a straight section of the road without unusual steering correction by the driver.

2.2.2. ([1]) An emergency straight line braking test from a speed of 60 km/h to rest at a mean fully developed deceleration of at least 4 m/s^2 shall not cause the combination to deviate outside a lane 3,5 metres wide.

2.2.3. Starting from rest, a forward acceleration of at least 2 m/s^2 shall not cause any movement between the vehicles of a degree likely to cause the driver difficulty in controlling the vehicle combination. (If the acceleration prescribed for this test cannot be reached by a vehicle combination, the test shall be performed with the maximum acceleration available).

2.2.4. No permanent deformation shall take place during the above tests.

2.3. CHANGE OF LANE

2.3.1. A simulated overtaking manoeuvre, as defined in the appendix, conducted at a progressively increasing speed up to 80 km/h, shall not cause the driver any difficulty in controlling the combination.

2.3.2. At a speed of 20 km/h steering from one side of the track to the other alternately at least 3 times by turning the steering wheel as fast and as far as possible, no contact between the vehicles or damage to the CCD shall occur (track width is 10 metres).

([1]) The technical service shall take account of the predominance setting of the combination.

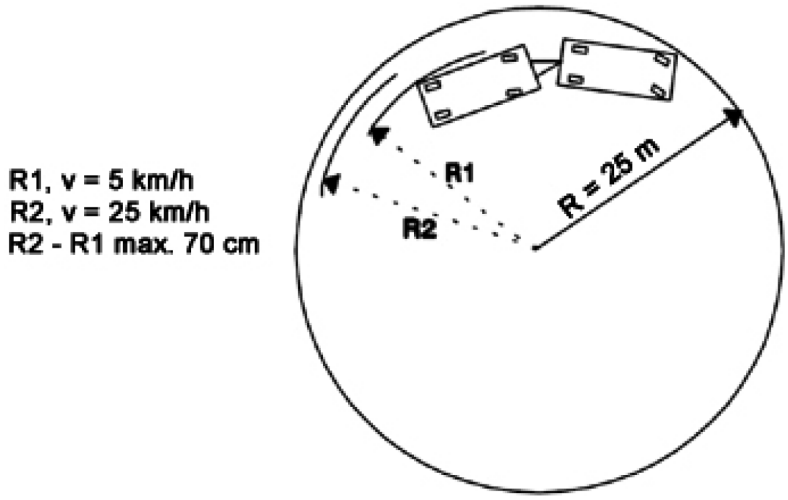
3. CIRCULAR MOVEMENT

3.1. Starting from rest and a straight ahead position, the combination shall be driven around a curve of 25 m radius to a speed of 20 km/h at an acceleration of 2 ± 10 % m/s^2. This shall not cause any movement between the vehicles of a degree likely to cause the driver difficulty in controlling the vehicle combination.

3.2. With the towing vehicle and trailer having adopted a steady state, turn so that the front outside edge of the towing vehicle describes a circle of radius of 25 m, at a constant speed of 5 km/h. The circle described by the rearmost outer edge of the trailer shall be measured. This manoeuvre shall be repeated under the same conditions but at a speed of 25 km/h ± 1 km/h.

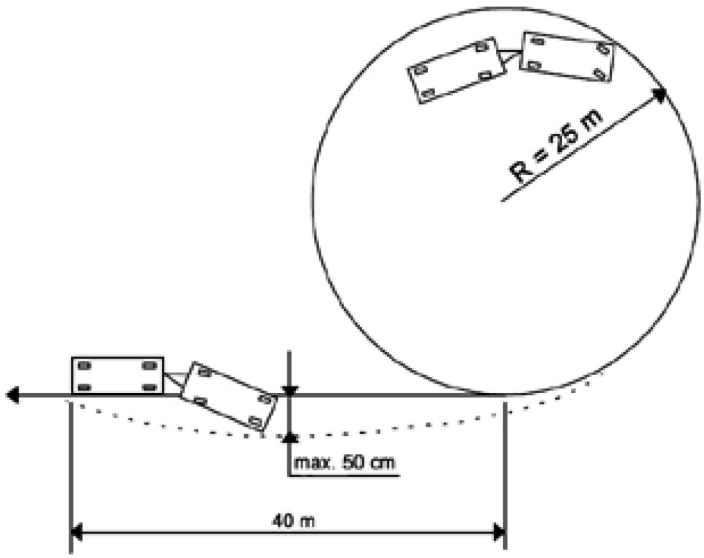
During these manoeuvres, the rearmost outer edge of the trailer, travelling at a speed of 25 km/h ± 1 km/h, shall not move outside the circle described during the manoeuvre at a constant speed of 5 km/h by more than 0,70 m (see Figure 2 below).

Figure 2



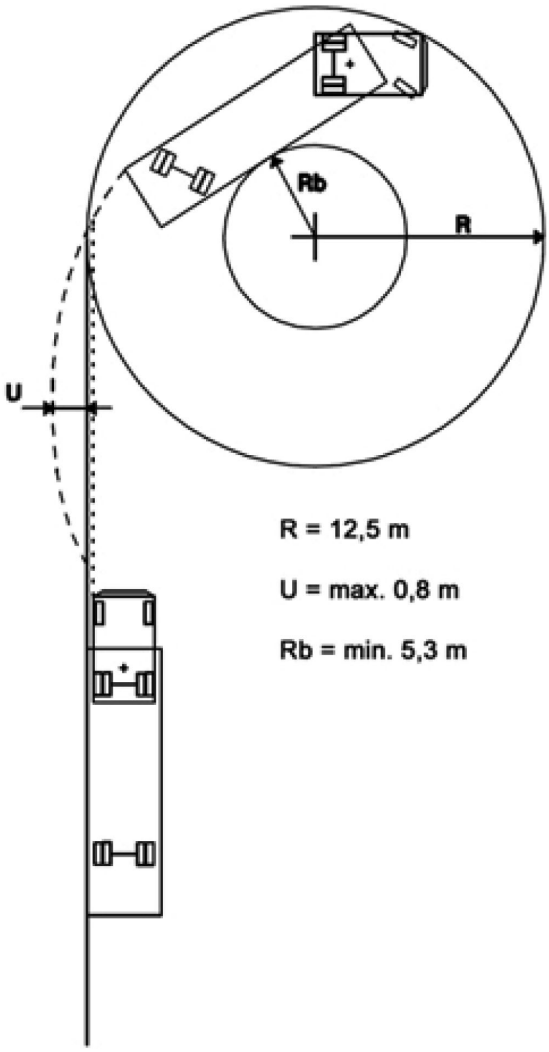
3.3. No part of the trailer must move more than 0,5 m beyond the tangent to a circle with a radius of 25 m when towed by a vehicle leaving the circular path along the tangent while maintaining the speed of 25 km/h. This requirement must be met from the point the tangent meets the circle to a point 40 m along the tangent. After that point the trailer must travel without excessive deviation or unusual vibration in its steering equipment (see Figure 3 below).

Figure 3



3.4. Any motor vehicle or combined vehicle which is in motion must be able to turn within a swept circle having an outer radius of 12,50 m and an inner radius of 5,30 m. The test shall be conducted in both left and right directions. No part of the combination, where it penetrates the circle from a tangent, may overlap that tangent by more than 0,8 m beyond the point of intersection (see Figure 4 below).

Figure 4



4. SLOPES

4.1. When positioned longitudinally in line and in the normal operation position:

4.1.1. There shall be no unintentional contact between any part of the towing device and the towing vehicle or trailer when the vehicles are positioned at a relative vertical angle of 6°.

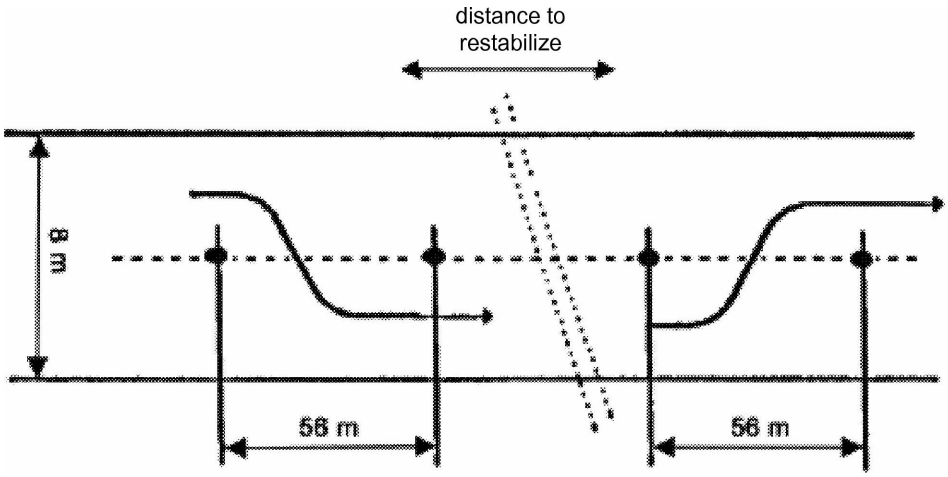
4.1.2. No contact shall occur between the bodies of the towing vehicle and trailer at a relative vertical angle of 5°.

4.2. The requirements of paragraphs 4.1.1 and 4.1.2 may be verified by calculation at the discretion of the technical service.

Appendix

OVERTAKING TRACK

(See paragraph 2.3.1)



Note: This track arrangement may be subject to revision when superseded by an ISO Standard.

NOTE TO THE READER

The institutions have decided to no longer quote in their texts the last amendment to cited acts.

Unless otherwise indicated, references to acts in the texts published here are to the version of those acts currently in force.